President’s Message

It is with great pride that I welcome you to College of the North Atlantic (CNA)! We look forward to you becoming part of our CNA family. Within these pages you will discover what CNA can do for you and you will learn more about our quality education and training programs that have helped launch the successful careers of many of our graduates.

College of the North Atlantic’s focus is and always has been the success of our learners. CNA’s team of dedicated instructors and staff are here to support and provide you with an excellent learning experience and to ensure that your time with us is the very best it can be. We consider and support the whole learner and are proud to provide a nurturing environment both inside and outside the classroom. The CNA experience is rich and rewarding and we hope that you will grow both personally and professionally from this experience.

College of the North Atlantic works closely with its communities to ensure that programming is suited to the needs of industry and the province. In response to labour market trends, our connections and partnerships with community and business assist us in refining our curricula so that you, our learners, acquire the skills demanded by industry to ensure that you are one of the most highly employable graduates in Canada.

Let us know how we can assist you as you explore your options. Our community is waiting to welcome you!

So many possibilities! So much potential! So much more!

Jean Madill
President & CEO
College of the North Atlantic

About the College

College of the North Atlantic is Newfoundland and Labrador’s public college. It is one of the largest post-secondary educational and skills training centres in Atlantic Canada, offering over 100 full-time diploma and certificate programs in:

• Academics and Applied Arts
• Business and Information Technology
• Engineering Technology
• Health Sciences
• Industrial Education/Trades
• Tourism and Natural Resources

The college also offers a full range of more than 300 part-time courses.

Enacted by the House of Assembly, through the College Act, 1996, and headquartered in Stephenville on the Province’s west coast, the college operates 17 campuses across the Province. The public college has brought together and built upon the best programs, traditions, values and vision from the predecessor regional colleges: Cabot College, Labrador College, Eastern College, Central Regional Community College and Westviking College. The focus of the college goes beyond the more traditional approaches to education and training, serving students of all ages and interests. The college offers continuous student intake, self-paced learning, and individualized specially designed contract training programs and distributed learning opportunities.

Every year approximately 3000 graduates complete career-oriented certificate and diploma programs ranging from one to three years, preparing them for employment in today’s competitive work environment.

IMPORTANT NOTICE

This calendar is intended to assist readers to understand the academic and administrative structure, policies and procedures and to provide information about current course offerings at College of the North Atlantic (“the college”).

Various academic and administrative departments have submitted the material contained in this publication. All general information and course references have been checked for accuracy, but there may be inconsistencies or errors. If you become aware of any, please bring these to the attention of the college Registrar. The college reserves the right to make changes in the information contained in this publication without prior notice.

Students are responsible for familiarizing themselves with the specific information, rules and regulations of the college, as well as the specific requirements of each diploma, certificate or other recognition sought. While advice and counseling are available, it is the responsibility of each student to ensure that the courses selected at registration are appropriate to the requirements of the student’s chosen program.

If there is an inconsistency between the general academic regulations and policies published in this Calendar, and such regulations and policies as are established by resolution of the Board of Governors or the college’s administration, the version of such material as established by the Board of Governors or the college’s administration will prevail.

By the act of registration each student becomes bound by the policies and regulations of College of the North Atlantic.
Programs by Campus

**BAIE VERTE CAMPUS**
Adult Basic Education
Industrial Mechanic (Millwright)
Machinist
Office Administration
• Executive
Welder
Special Services (Programs)

**BAY ST. GEORGE CAMPUS**
Adult Basic Education
Automotive Service Technician
Baker
Business Administration
• General
• Human Resource Management
• Marketing
Commercial Transport
Community Studies
Comprehensive Arts & Science (CAS)
• College Transition
Conservation Law Enforcement
Construction/Industrial Electrician
Cook
Digital Animation
Film and Video Production
Hair stylist
Heavy Duty Equipment Technician
Heavy Equipment Operator
Hospitality Tourism Management
Journalism
Journalism (Post Diploma)
Mobile Crane Operator
Music Industry and Performance
Office Administration
• Executive
• Records & Information Management
Primary Care Paramedicine
Recording Arts
Small Equipment Service Technician
Truck and Transport Mechanic
Video Game Design
Visual Arts
Welder

**BONAVISTA CAMPUS**
Adult Basic Education
Construction/Industrial Electrician
Natural Resources Technician
Office Administration
• Executive
Plumber

**BURIN CAMPUS**
Adult Basic Education
Business Administration
• Accounting
• General
• Human Resources Management
Comprehensive Arts & Science (CAS)
• College Transition
Comprehensive Arts & Science (CAS)
• Transfer: College-University
Construction/Industrial Electrician
Cook
Electrical Engineering Technology
• Industrial Controls
Engineering Technology (First Year)
Instrumentation and Control Technician
Metallurgical Engineer (Fitter)
Office Administration
• Executive
Sheet Metal Worker
Welder
Welder/Metal Fabricator (Fitter)
Welding Engineering Technician

**CARBONEAR CAMPUS**
Adult Basic Education
Bricklayer
Business Administration
• Accounting
• Marketing
Business Management
• Accounting
Carpentry
Community Studies
Comprehensive Arts & Science (CAS)
• College Transition
Comprehensive Arts & Science (CAS)
• Transfer: College-University
Engineering Technology (First Year)
Heritage Carpentry

**CLARENVILLE CAMPUS**
Adult Basic Education
Business Administration
• Accounting
• General
• Human Resources Management
• Marketing
Carpenter
Engineering Technology (First Year)
Office Administration
• Executive
Steamfitter/Pipelayer
Website Administrator through @College Distributed Learning Service

**CORNER BROOK CAMPUS**
Adult Basic Education
Adventure Tourism-Outdoor Recreation
Business Administration
• Accounting
• General
• Marketing
Civil Engineering Technology
Comprehensive Arts & Science (CAS)
• College Transition
Computer Systems and Networking
Construction/Industrial Electrician
Early Childhood Education
Electronics Engineering Technology
Engineering Technology (First Year)
Environmental Technology Co-op
Fish and Wildlife Technician
Forest Resources Technician
GIS Applications Specialist (Post Diploma)
Industrial Mechanic (Millwright)
Internet Application Developer
Office Administration
• Executive
Process Operations Engineering Technology
Welder

**GANDER CAMPUS**
Adult Basic Education
Aircraft Maintenance Engineering Technician
Aircraft Structural Repair Technician
Automotive Service Technician
Comprehensive Arts & Science (CAS)
• College Transition
Engineering Technology (First Year)
Hair stylist
Instrumentation and Control Technician

**GRAND FALLS-WINDSOR CAMPUS**
Adult Basic Education
Business Administration
• Accounting
• General
• Human Resource Management
• Marketing
Business Management
• Accounting
• General
• Human Resource Management
• Marketing
Community Studies
Comprehensive Arts & Science (CAS)
• College Transition
Comprehensive Arts & Science (CAS)
• Transfer: College-University
Information Management (Post Diploma)
Medical (through @College Distributed Learning Service)
Office Administration
• Executive

**HAPPY VALLEY-GOOSE BAY CAMPUS**
Aboriginal Bridging
Adult Basic Education
Automotive Service Technician
Carpenter
Community Studies
Comprehensive Arts & Science (CAS)
• College Transition
Comprehensive Arts & Science (CAS)
• Transfer: College-University
Construction/Industrial Electrician
Engineering Technology (First Year)
Heavy Duty Equipment Technician
Industrial Mechanic (Millwright)
Northern Natural Resources Technician
Office Administration
• Executive
Welder

**LABRADOR WEST CAMPUS**
Adult Basic Education
Comprehensive Arts and Science (CAS)
• Transfer: College-University
Construction/Industrial Electrician
Engineering Technology (First Year)
Industial Mechanic (Millwright)
Minning Technician
Office Administration
• Executive
Welder

**PLACENTIA CAMPUS**
Adult Basic Education
Comprehensive Arts and Science (CAS)
• College Transition
Heavy Duty Equipment Technician
Heavy Equipment Operator
Industrial Mechanic (Millwright)
Ironworker (Generalist)
Machinist
Welder

**PORT AUX BASQUES CAMPUS**
Adult Basic Education
Business Administration
Cabinetmaker
Non-Destructive Testing Technician
Office Administration
• Executive
Welder/Metal Fabricator (Fitter)

**PRINCE PHILIP DRIVE CAMPUS**
Adult Basic Education
Automotive Service Technician
Business Administration
• Accounting
• General
• Human Resource Management
• Marketing
Business Management
• Accounting
• General
• Human Resource Management
• Marketing
Comprehensive Arts and Science (CAS)
• College Transition
Community Recreation Leadership
Computer Systems and Networking
Cook
Diagnostic Ultrasonography (Post Diploma)
Early Childhood Education
Early Childhood Education by Distance Education
English as a Second Language (ESL)
Graphic Design
Graphic Production & Printing
Hospitality Tourism Management
Medical Laboratory Sciences
Medical Sciences I (General)
Medical Radiography
Motor Vehicle Body Repairer (Metal and Paint)
Nutrition and Foodservice Management
Occupational Therapist Assistant through @College Distributed Learning Service
Office Administration
• Executive
• Legal
• Medical
• Records & Information Management
Physical Therapy Assistant through @College Distributed Learning Service
Primary Care Paramedicine
Programmer Analyst (Business) Co-op
Respiratory Therapy
Textiles: Craft & Apparel Design
Welder
Calendar of Events 2010-2011

Note: The schedule contains the dates as they affect the college as a whole. Within these dates, individual campuses will set their registration schedules, graduation dates and other significant time frames. Please check with the campus concerned for the detailed Calendar.

**August 30** (Monday)  
Registration begins – Fall Semester

**September 6** (Monday)  
College CLOSED - Labour Day

**September 13** (Monday)  
Last day for adding courses – Fall Semester

**October 11** (Monday)  
College CLOSED – Thanksgiving Day

**October 22** (Friday)  
Last day for dropping courses without academic prejudice – Fall Semester

**November 10** (Wednesday) & **November 12** (Friday)  
Fall Semester Break

**November 11** (Thursday)  
College CLOSED – Remembrance Day

**December 17** (Friday)  
Last day of classes/examinations – Fall Semester

**December 20** (Monday) – **January 3** (Friday)  
CHRISTMAS BREAK

**January 4** (Tuesday)  
Registration begins – Winter Semester

**January 18** (Tuesday)  
Last day for adding courses – Winter Semester

**February 25** (Friday)  
Last day for dropping courses without academic prejudice – Winter Semester

**March 7** (Monday) to **March 11** (Friday)  
Winter Semester Reading Break

**April 21** (Thursday)  
Last day of classes/examinations - Winter Semester

**April 22** (Friday)  
College CLOSED – Good Friday

**April 25** (Monday)  
EASTER BREAK

**April 26** (Tuesday)  
Registration begins – Intersession, Continuing Programs
Registration begins – Spring Semester

**May 2** (Monday)  
Registration begins – Technical Intersession, DLS Classes Begin
Registration begins – Technical Spring Semester

**May 3** (Tuesday)  
Last day for adding courses – Intersession, Continuing Programs

**May 6** (Tuesday)  
Last day for dropping courses – Intersession, Continuing Programs

**May 10** (Tuesday)  
Last day for adding courses – Spring Semester

**May 13** (Friday)  
Last day for adding courses – Technical Spring Semester
Last day for dropping courses without academic prejudice – DLS and Technical Intersession

**May 23** (Monday)  
College CLOSED – Commonwealth Day

**June 10** (Friday)  
Last day for classes/examinations – Intersession – Continuing Programs

**June 16** (Thursday)  
Last day for classes/examinations – DLS, Technical Intersession

**June 17** (Friday)  
Last day for dropping courses without academic prejudice – Spring Semester

**June 20** (Monday)  
College CLOSED – Discovery Day

**July 1** (Friday)  
College CLOSED – Canada Day

**August 12** (Friday)  
Last day of classes/examinations – Spring Semester

**August 17** (Wednesday)  
Last day of classes/examinations - Technical Spring Semester

*The Examination Timetable for the CAS Transfer Program may vary as it is aligned to the MUN Examination Schedule.
Administration List

BOARD OF GOVERNORS
Terry Styles, Board Chair
Donna Stone, Vice Chair
Andrea Marshall
Gilbert Bennett
Roy Bennett
Jerry Byrne
Barbara Cribb
Vanda Dove
Al Lewis
Selma Pike
Daphne McDonnell
Ellen Turpin
Reginald Bowers
Ronald Richard
Donna Stone
David Wells
Wade Pinhorn, Faculty Representative
Robert Miller, Student Representative
Nichole Hayter-Hunter, Student Representative
Edith Hunt-Pinsent, Executive Assistant

HEADQUARTERS
President’s Office
Madill, Jean, President
Borden, Giselle, Executive Assistant
Geoff Peters, General Counsel
Edith Pinsent-Hunt, Executive Assistant

Academic and Learner Services
Cyril Organ, Vice President – Academic and Learner Services
Tammy Gale, Executive Assistant
Elizabeth Chaulk, Associate Vice President – Learner Services
Brian Tobin, Director – Academic Programs & Institutional Research
Linda Dunne, Registrar

Deans and Chairs
Mohammad Iqbal, Chair – Applied Research
Theresa Pittman, Chair – Distributed Learning Services and Learning Technologies
Brenda Tobin, Dean – Academics and Applied Arts
Mary Vaughan, Dean – Business and Information Technology
Arthur Leung, Dean – Engineering Technology
Norris Eaton, Dean – Industrial Trades
Jane Gamberg, Dean – Health Sciences
Brent Howell, Dean – Tourism and Natural Resources

Development and College Advancement
Connie Dunne, Vice President – Development/College Advancement
T.B.A., Executive Assistant
Daniel Wong, Director – China Project
T.B.A., Chair – Continuing Education and Contract Training

Financial and Administrative Services
John Hutchings, Vice President – Finance and Administration
Debbie White, Executive Assistant
Richard Vivian, Director – Administration (Finance)
Keith White, Director – Information Technology

Qatar Project Office
Greg Chaytor, Vice President – Qatar Project
Vivienne White, Executive Assistant

CAMPUSES

CAMPAUS ADMINISTRATORS
Baie Verte Campus
Emily Foster

Bay St. George Campus
Kevin Baker
Chris Dohaney
Brian Foley

Bonavista Campus
Marilyn Coles-Hayley

Burin Campus
Michael Graham

Carbonear Campus
Gary Myrden

Clarenville Campus
Maisie Caines

Corner Brook Campus
Chad Simms
Bernard Stratton

Gander Campus
Robert Dwyer

Grand Falls-Windsor Campus
Paul Chafe
Joan Pynn

Happy Valley-Goose Bay Campus
Winnie Montague
Paul Motty

Labrador West Campus
Richard Swyer

Placentia Campus
Darrell Clarke

Port aux Basques Campus
Jan Peddle

Prince Philip Drive Campus
Paul Forward
Trudy Barnes
Gerard Morris
Cathy Favre, Associate Campus Administrator

Ridge Road Campus
John Gates
Stephanie Dalton

Seal Cove Campus
Chris Patey

St. Anthony Campus
Fred Russell

Campus Administrators
Baie Verte Campus
Emily Foster

Bay St. George Campus
Kevin Baker
Chris Dohaney
Brian Foley

Bonavista Campus
Marilyn Coles-Hayley

Burin Campus
Michael Graham

Carbonear Campus
Gary Myrden

Clarenville Campus
Maisie Caines

Corner Brook Campus
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Cathy Favre, Associate Campus Administrator

Ridge Road Campus
John Gates
Stephanie Dalton

Seal Cove Campus
Chris Patey

St. Anthony Campus
Fred Russell
**Admissions Regulations**

It is the policy of the college to maintain an "open admission policy". Students will be admitted into a program on a first-come first-served basis as assessed by the date of receipt of their application and on the proviso that the candidate students meet the minimum qualifications prescribed.

**ENTRY INTO FULL-TIME PROGRAMS**

Candidates applying for full-time status must satisfy the following requirements:
1. Meet the educational and other requirements for entry into the particular program or meet the mature student requirements.
2. Have reached the legal school-leaving age on the date of commencement of the course/program.
3. Apply on-line or in writing on the approved application form and submit the non-refundable application processing fee.
4. Show evidence of physical qualification in accordance with the requirements of the program selected, where applicable.
5. In the case of high school students, provide a copy of marks obtained. In the case of ABE students, provide a Record of Achievement or other equivalent official transcript.
6. Provide further documentation or report for an interview or for testing when required.

**HIGH SCHOOL DEFINITION**

Senior high school graduation means the successful completion of required credit courses as specified by the Department of Education.

High School students who complete modified programs and courses with the third digit “6” or alternate courses with the third digit “7” may require further assessment before eligibility is determined. The completion of a modified (or alternate) program or course may prevent the applicant from being accepted into regular college programs. Applications will be referred to the Coordinator of Disability Services.

**HIGH SCHOOL EQUIVALENCY**

The following High School Equivalency Certificates will be considered for acceptance into college programs:

Persons holding certificates as listed in 1, 2, or 3:
- will be accepted into certificate programs without further evaluation;
- may be required to report for further evaluation before acceptance into diploma programs is established; and upon being accepted, those applicants may be required to complete additional courses before entering the diploma program of their choice.

**MATURE STUDENT REQUIREMENTS**

Applicants who do not meet the educational prerequisites for the program they wish to enter may be considered for admission on an individual basis provided the following conditions are met:
1. Applicants are at least 19 years of age at the time of application.
2. Applicants have been out of high school for at least one year.
3. Applicants present a certified copy of grades for the highest educational level attained.
4. Applicants complete the standardized assessment instrument at a level approved by the college.

**SPECIAL ADMISSIONS**

Special circumstances may exist whereby applicants who fail to meet all of the criteria for admission may be recommended for acceptance. In such cases, the application will be referred to the Committee on Special Admissions.

Applicants who are high school students who do not meet the academic requirements (including having reached the legal school leaving age on the date of commencement of the program) must provide a letter of recommendation from the High School Principal or Guidance Counsellor.

Applicants with disabilities, who do not meet program entrance requirements, will undergo further review to determine eligibility for admission. The may include:
1. Reviewing the applicant’s supporting documentation
2. Reviewing the recommendation of the sponsoring or supporting group (if applicable),
3. Summarizing the applicant’s strengths and abilities,
4. Determining the need for supports required to facilitate the integration of the applicant.
5. Identifying necessary resources/equipment required to facilitate the training.

**HOME SCHOOLING ADMISSION GUIDELINES**

Home schooled applicants will be reviewed for general admission by the college’s Special Admissions Committee. The applicant will be asked to provide proof of standardized assessment results and/or complete the standardized assessment instrument used by the college.

**ADMISSIONS PORTFOLIO GUIDELINES**

**Definition:**
A portfolio is a compilation of materials such as drawings, photographs, paintings, film or videos, writings, prints, collages, ceramics, crafts, textile patterns, audio tapes, musical scores, computer imaging, design or other areas of creativity that reflect the prospective student’s interests, abilities and experience.

**Purpose:**
The purpose of the portfolio is to establish applicant suitability for the program of study.

**General Guidelines:**
1. All work in the portfolio should be clearly labeled with the prospective applicant’s name, title of the work, number of pieces, date completed and materials used;
2. The college will only accept portfolios in a proper portfolio folder or case;
3. Portfolios should include a printed listing of the contents of the portfolio;
4. All works should fit into a standard size portfolio case and may be presented in their original form;
5. Large scale, fragile or 3-dimensional work should be submitted in 35 mm. colour slide form, as digital images at a resolution of 150 ppi or as colour photographic or digital prints;
6. All visual-related work should be original. An affidavit...
is required stating that the work is original. All music-related work should be performed by the applicant and reference should be made as to whether or not the work is:

a. a “cover” of another’s work
b. public domain

7. Applicants are advised that they are responsible for the return of submitted materials after they have been reviewed by the Assessment Committee. Applications must include pre-stamped and self-addressed mailing envelopes, prepaid courier invoices, or cheques or money orders to cover postage costs if they wish their work to be returned after review. Portfolios will be destroyed if they are not claimed within one month of the date of notice of the decision of the Assessment Committee. The college assumes no responsibility for loss of or damage to portfolios submitted.

Portfolio Screening:
All portfolios will be reviewed by an Assessment Committee that includes faculty representatives. The Assessment Committee will be looking for the following in a portfolio:
1. originality of ideas or concepts;
2. technical skills;
3. observation and interpretive skills;
4. a variety of media;
5. presentation and organization of material.

Submission Deadline:
Applicants are strongly urged to apply early as programs are filled on a first-come, first-served basis. Portfolios should be submitted with the application.

RE-ADMISSION OF STUDENTS
Academically Dismissed Students
1. Applications from academically dismissed students will be received at any time but students will not be accepted to return on a full-time basis until a six-month period from the date of dismissal has elapsed. Students who have been academically dismissed will be permitted to register for one course for credit in a certificate or diploma program or for any number of courses in the Adult Basic Education Program.
2. Students who have been academically dismissed from a program on two or more occasions will not be eligible for readmission to that program for a period of two years from the date of dismissal.
3. Students who are required to withdraw from the college under numbers 1 and 2 (above) must apply for readmission and their names will be placed at the end of the existing eligibility list.

Voluntary Withdrawal
Students who are in good standing and who voluntarily withdraw due to extenuating circumstances (confirmed by the counsellor or campus administrator) will be required to reapply to return to the program; these students will be admitted into the first available seat.

Eligibility Lists
Eligibility lists will be maintained for each program on a first-come, first-served basis. Candidates will be placed on the eligibility list by the original date of application, provided all entrance requirements are satisfied and all necessary documentation is received.

Selection Process
Original Application:
1. Applications will be processed on a “first-come, first-served” basis. Each application will be dated on the date of receipt provided that:
   a. the application is correctly completed with all documentation, and
   b. All educational and other requirements are met, and
   c. All required fees are paid.
2. Applicants will be notified immediately upon receipt of their application.
3. Applicants enrolled in their final year of high school will be accepted conditionally pending receipt of final exam results.
4. When accepted, applicants will be asked to confirm in writing their intent to register and will be required to pay a registration fee in advance. If applicants fail to confirm within the time specified their places will go to the applicant next on the eligibility list.
5. Applicants for First Year Engineering Technology: The college offers a common first year in the Engineering Technology programs. This allows students to attend the first two semesters of an engineering technology program at the campus nearest their hometown. After completing the first two semesters, students then enter the campus which offers the program of their choice, to complete the Spring Technical Intersession and the subsequent years of their program.

Individuals must submit their application to the campus where they intend to complete the first two semesters of their program. This begins a first-come, first-served provincial process which reserves a seat at the designated campus for the appropriate Technical Intersession, and subsequent years of program study. After successful completion of the first two semesters, students progress to the Technical Intersession in the program for which a seat has already been reserved. Students who, after registration, wish to change their program choice MUST apply using the Program Transfer process.

Student Numbers
1. A student number will be assigned to every student who enters a regular college program either on a full-time or part-time basis.
2. Students will use the number assigned to them regardless of the number of times they register at the college or the campus at which they register.
3. Student numbers must appear on all documents to be added to the student’s academic or financial files.

Entry – Non Program Specific
The only entrance requirement for applicants wishing to apply for a credit course through General Studies is the course prerequisite, if applicable.

Acceptance to any of the courses under General Studies does not constitute a commitment to or admission into any college program.

Entry – Part-Time Students
Students who apply for part-time status in any program must meet all the requirements outlined for full-time status and will be considered only if a vacancy exists after full-time students have been accommodated.
ENTRY – CONCURRENT STUDIES STUDENTS
Students in or about to enter their final year of high school will be admitted into college level credit courses in accordance with the following:
1. Students must hold an academic record with a minimum overall average of 80% based on the marks for all courses completed in high school.
2. Students will be accepted on a first-come, first-served basis on the provision that space is available.
3. Access will normally be limited to one credit course in a given semester. Eligibility to enroll is restricted to one semester and will be reviewed for a second semester upon successful completion of the first semester course.
4. All fees and deadlines for regularly admitted students will apply.
5. Students applying for admission under this policy will be required to submit:
   a. a completed application form,
   b. an official high school transcript,
   c. a letter from the high school principal or guidance counsellor clearly recommending admission to “Concurrent Studies”, and
   d. a letter from the applicant requesting enrollment in a specific course.

ENTRY – STUDENTS WITH INTERNATIONAL STUDY PERMIT
Applicants must submit:
1. a completed Application for Admission;
2. an official transcript of academic record;
3. an application fee of CN $100 (non-refundable)
4. proof of proficiency in English

LANGUAGE REQUIREMENTS
International students must meet the college’s English proficiency requirements. Applicants who do not meet the required standard of English may be Conditionally Accepted, provided they are tested upon arrival and be required to enroll in an appropriate English class. Registration for other courses will be dependent on their assessed level of English.

ACADEMIC PREREQUISITES
Applicants must meet the college’s entrance requirements for the program as set out in the particular program. For most college programs, the entrance requirement is graduation from a secondary school with certain programs requiring achievement in specific subject areas such as Mathematics, English Language, Physics, Chemistry or Biology.

Applicants from British-oriented educational systems should present the general certificate in Secondary Education.

Applicants are required to submit the latest official transcript of marks which will be assessed on an individual basis.

PROOF OF STATUS
Students must provide proof of status in Canada at the time of registration.

LANDED IMMIGRANTS: REFUGEES AND OTHER CANADIAN STATUS STUDENTS
Students pay the provincial rates, as outlined in this calendar; however, if the student’s first language is not English, the college reserves the right to test the English proficiency of these students before admission.
DEFINITIONS OF ACADEMIC TERMS

Academic Year
Academic Year is the period from September 1 to August 31 consisting of three distinct 15-week semesters.

Access Programs
Developmental programs that students may enter prior to admission into regular Certificate/Diploma level programs.

Credit Course
An approved and recognized body of content, knowledge, skills assigned a credit value.

Credit
The weighted value of a course based on the depth and breadth of the learning objectives.

Diploma Program
An approved program of study consisting of a prescribed combination of courses that must address:
1. occupational skill development;
2. academic or general study
3. self interest or personal growth.

Diploma Programs will normally:
1. be prescribed over a minimum of a four semester period
2. be comprised of a minimum of 80 credits; and
3. consist of a maximum of seven courses per semester.

Advanced Diploma
An approved program of study consisting of in-depth training for graduates of a diploma program or equivalent.

Advanced Diploma Programs will normally:
1. be prescribed over a minimum of one semester;
2. be comprised of a minimum of 20 credits.

Post Diploma
A diploma to be issued upon successful completion of a minimum two-semester program that requires either graduation from a recognized two- or three-year post-secondary diploma or degree, or a combination of other post-secondary work and industry experience acceptable to the College as an entrance requirement.

Certificate Program
An approved program of study consisting of a prescribed combination of courses that must address:
1. occupational skill development;
2. academic or general study;
3. self interest or personal growth.

Certificate Programs will normally:
1. be prescribed over a two semester period;
2. be comprised of a minimum of 40 credits; and
3. consist of a maximum of seven courses per semester.

Continuing Education Studies (Certificate of Participation)
Any non-formalized course, seminar, workshop which addresses one or more of the following areas of study: occupational skill development, academic study, personal interest/growth, for which specific learning or performance is not measured or evaluated.

Certificate of Recognition
Certificates of Recognition may be awarded in various areas of study where students meet the criteria established for that area of study.

Workplace Development
The College may enter partnerships for the purpose of developing and/or delivering courses or programs. Such partnerships will be formally recognized on parchments in one of the following ways:
1. College Parchment
   When a course or program is developed by the College, either in partnership with or on behalf of another institution, agency or industry; a College parchment will be issued. This parchment may contain the phrase “designed in partnership with...” as an additional description of the course/program.
2. Joint Parchment
   When a course or program is developed and/or delivered in partnership with another educational institution, a joint certificate formally recognizing both institutions may be awarded. This parchment would recognize both institutions and may contain the signatures of duly authorized officers of both institutions.

Parchments for Workforce Development
1. Diploma in Skill Development
   Awarded upon completion of a program that is at least two years in duration for which learning is measured and evaluated.
2. Certificate in Skill Development
   Awarded upon completion of a program that is normally one year in duration but not less than one academic semester for which learning is measured and evaluated.
3. Certificate of Achievement
   Awarded upon successful completion of a program of less than one academic semester or upon completion of an academic course for which learning is measured and evaluated.
4. Continuing Studies Certificate (Certificate of Participation)
   Issued upon completion of a non-formalized course, workshop, seminar or program, for which specific learning or performance is not measured or evaluated.

Full-Time Student
Students who are registered for 4 or more courses in course-based programs.

Part-Time Student
Students who are registered for less than 4 courses in course-based programs.

Students who are registered for less than 18 hours per week in self-paced programs.

Semester
A 15-week period which will include class/learning time as well as administrative and evaluation time. The academic year will be divided into three semesters: the Fall Semester will commence in September; the Winter Semester will commence in January; and the Spring Semester will commence in May.

Intersession
A five to seven week period which will include class/learning time as well as administrative and evaluation time – usually scheduled at the beginning of the spring semester.

Summer Session
A five to eight week period which will include class/learning time as well as administrative and evaluation time – usually scheduled in the second half of the spring semester.

Mature Student
Persons who do not meet the entrance requirements for admission into a full-time program, but who are at least 19 years of age at the time of submitting an application, and who have been out of school for at least one year.

ACADEMIC REGULATIONS
It is the policy of the College that upon the successful completion of a program of studies, students will be awarded one of four parchments:
1. A Certificate in (Program Title)
2. A Diploma in (Program Title)
3. An Advanced Diploma in (Program Title)
4. A Certificate in Continuing Studies in (Program/Course Title)

QUALIFICATIONS FOR A DIPLOMA, AN ADVANCED DIPLOMA, A POST DIPLOMA OR A CERTIFICATE
To quality for a diploma, an advanced diploma, a post diploma or a certificate, students must meet the following requirements:
1. Meet all the requirements as prescribed in the program of studies;
2. Obtain a mark of not less than 50% in every course in the program unless otherwise specified;
3. Attain a minimum grade point average of 2.0;
4. Obtain 25% or more of their credits from the College.

Students who do not complete their diploma program in the prescribed time frame from first registration, may complete the program by following the regulations in effect at the time of first registration provided the program is completed in not more than three years beyond the regular date of completion. A student who does not complete a program within these prescribed time limits may be required to complete additional courses or to repeat certain courses before being deemed eligible to receive the diploma.

Students who return to complete a Diploma in Technology may not receive credit for courses that were completed more than five years prior to the date of readmission.

Students enrolled in accredited Health Sciences programs will be permitted a maximum of one additional year to complete their program of studies.
ADVANCED STANDING
Students may receive advanced standing for up to 75% of the content of the program to which they have been admitted on the basis of successful completion of this content in the same or similar programs at another college and as assessed by the College.

Applicants who wish to be considered for advanced standing should submit an application with the following documents:
1. Proof of high school completion;
2. Official transcript(s);
3. Calendar description of the courses claimed for credit.

Students seeking advanced standing will not be excused from any course until written authority has been received from the office of the Registrar.

TRANSFER OF CREDIT STATUS
Transfer of credit status is awarded for any course completed at the Marine Institute or at any one of the former Colleges provided that the course uses the same course description and course number. When Transfer of Credit is awarded, the College will accept the passing grade as awarded by the institution and this mark will be used in the calculation of the G.P.A.

EXEMPTION STATUS
Exemption status is granted if the course has a minimum of 70% equivalency in the course material required. When exemption status is awarded, no mark is reported on the transcript and the G.P.A. is not affected. The College will consider exemptions for courses if the student received a passing grade.

The college will accept any credit course from a recognized public post-secondary institution as an exemption for an elective even if that course is not offered at the College. For example, a course in Linguistics from MUN would be considered to have equivalent value to any other “elective” and, on request, could be granted exemption as a general elective. In some programs electives must be chosen from a designated group of courses, in which case a general elective cannot be used as a substitute.

CREDIT FOR PRIOR LEARNING
It is the policy of the College that students will be given every opportunity to receive credit for past learning experience through a comprehensive systematic process of evaluation referred to as Prior Learning Assessment and Recognition.

Credits awarded for Prior Learning Assessment and Recognition will be recorded on the student transcript as an exemption or as a mark.

There will be no charge for Prior Learning Assessment and Recognition for students who are enrolled in a college program. The maximum number of credits that can be awarded through the Prior Learning Assessment process is 75% of the number required to complete the certificate/diploma.

BLOCK TRANSFER/ADVANCED STANDING
The college will recognize course work completed in other programs/courses that fulfill the requirements for a designated percentage of the program in which the student is now applying. When students are granted a block transfer, their academic grades will be calculated beginning at the point of entry to the program.

CREDIT SYSTEM
A credit is a weighted value of a course based on the depth and breadth of the learning objectives.

For the purpose of assigning credit values, the measurement of learning objectives is usually accomplished by equating the value with the period of time scheduled to deliver the content in the conventional lecture methodology as follows:

Learning Objectives scheduled for delivery in a one hour period per week per semester constitutes a one credit value; therefore a course that is scheduled for three hours per week per semester represents a three credit value. However, a recognized laboratory experience is usually measured in the following manner:

2 – 4 hrs. of lab/week/semester is equivalent to one credit
5 – 7 hrs. of lab/week/semester is equivalent to two credits
8 – 10 hrs. of lab/week/semester is equivalent to three credits.

However, the actual process in achieving competency in specified learning objectives can be accomplished via a second equally legitimate and pedagogically sound methodology that is individualized, student-centered. In this latter methodology which embraces distance delivery, time is a flexible factor, fixed schedules do not apply and the process is student driven. This is in contrast to the conventional lecture mode which is teacher-directed with fixed learning times and schedules. The one constant for both modes is the set of learning objectives. Therefore, credit value is assigned by determining the equivalent time required if the learning objectives were delivered in the conventional mode and applying the formula as described under the definition of a credit.

GRADE POINT MARKING SYSTEM
The percentage mark in any course is converted to a grade point according to the following table:

- 80% and over: 4
- 70%, 75%: 3
- 60%, 65%: 2
- 50%, 55%: 1
- Below 50%: 0

The grade point average is obtained by multiplying the credit value of each course in the program by the grade point obtained in that course. The sum of all the products is then divided by the total number of credits.

When a course is repeated or a supplementary examination is written, the highest mark attained will be used in the calculation of the grade point average.

When students complete more than the minimum number of electives, students are able to select which electives will be used in the calculation of the G.P.A. by making application at the Registrar’s Office. Without such application the Registrar will select for calculation purposes the required number of electives as recorded chronologically on the transcript.

ACADEMIC STATUS
Clear Standing
a. Students are in clear standing when they have passed all courses and have attained a grade point average of at least 2.0
b. In Diagnostic Ultrasonography, Medical Laboratory Sciences II and III, Medical Radiography II and III, Respiratory Therapy II and III programs the pass mark is 60%, including a minimum of 60% on the final exam.
c. In Industrial Trades programs, the pass mark is 70% in the practical component and 70% in the theory component.
d. In Aircraft Maintenance Engineering Technician and Aircraft Structural Repair the passing grade is 70%.
e. In Primary Care Paramedic, the pass mark is 80%, including a minimum of 80% on the final exam.

Conditional Status
Students are classified as conditional when: they have a cumulative grade point average between 1.00 and 1.99 in any semester, or when they must complete courses before graduating (e.g., students who must successfully complete a failed course through supplementary examinations or repetition).

Students are expected to attempt courses from previous semesters (if available), before registering for any new course, and must consult with a faculty advisor and/or counsellor on or before registration.

Academic Dismissal
Students will be academically dismissed if their cumulative grade point average is less than 1.0 and/or they have not passed a minimum of 40% of the credits attempted in the semester.

One-Time Forgiveness
The College will waive the academic dismissal policy on a “one-time forgiveness” basis as per the following:

Students, who, for the first time fail to meet the minimum re-admission requirements will be given an academic warning and will be permitted to register for the next semester provided:
1. Those students are referred to a Student Services Counsellor and will participate in a review of their career/academic goals and will develop learning strategies that will lead to success.
2. An appropriate course load will be developed by the student in consultation with the academic advisor/counsellor. The maximum course load will not exceed the normal semester workload of the program.

Students will be permitted to register only for those courses for which prerequisites have been successfully met.

Academic Dismissal
Students who have availed of the “one-time forgiveness” policy and who fail to meet the re-admission requirements for a second occasion will be academically dismissed.

Students who have been academically dismissed will not be accepted to return until a period of six months has elapsed.
Students who have been academically dismissed will be permitted to register for one course for credit in a certificate or diploma program, or any number of courses for credit in the Adult Basic Education program.

Academically dismissed students are not eligible to write supplementary exams.

Students in the Health Sciences programs will be required to withdraw from their program of study at the point in their program where it is determined that the one additional year (maximum) will not be adequate for them to complete all the requirements of the program.

Students who have been academically dismissed on two or more occasions will not be eligible for readmission for a period of two years from the date of dismissal.

**Promotion Denied (General)**

Students who do not achieve a pass in all courses and a G.P.A. of 2.0 or better may not be able to continue with their program but may return to the College to complete deficiencies.

**Promotion – Engineering Technology Programs from First Year**

To qualify for the technical intersession, at the end of the first two semesters students must normally have successfully completed all prescribed courses and attained a minimum overall G.P.A. of 2.00. Students who have a G.P.A. between 1.00 and 1.99 at the end of the second and subsequent semesters may, with the permission of the College, be conditionally admitted to the next semester if there is a determination that the students are capable of attaining clear standing by the end of the subsequent semester.

**Promotion – Medical Sciences**

Promotion from Semester 2 to Semester 3 will be governed by the following:

1. Students will compete for places in the third semester of the program.
2. Competition will be based on academic standing in Semesters I and II of the program. Students must pass all first and second semester courses (minimum of 50%) and have a minimum G.P.A. of 2.00 to be eligible for promotion from second to third semester.
3. Students’ weighted averages at the end of the second semester will be used to calculate academic standing for purposes of competition.

**Promotion from second technical year (6th Semester) for Medical Laboratory II, Respiratory Therapy II and Medical Radiography II**

Students must have passed all courses in semesters 1 to 5 and have a minimum G.P.A. of 2.00 to be promoted at the sixth semester (start of the clinical year).

**Promotion in Food Services and Nutrition Management**

Students must pass all first and second semester courses (minimum of 50%) and have a minimum G.P.A. of 2.00 to be eligible for promotion from Semester 2 to Semester 3.

**CO-OP REGULATIONS**

1. Work term learning is integral to co-operative education, and a co-op diploma will be awarded to students who successfully complete work terms as articulated in their program structure.

2. To be eligible for a work term, a student must have "clear standing" for all courses prescribed in the program to the point where the work term marketing occurs; or be able to attain clear standing by writing one supplementary or one upgrading supplementary. Since work term arrangements are often made in advance of the commencement of the work term and before current academic assessments are available, eligibility will be based on the most recent transcript. Once a student has been confirmed for a work term, this arrangement shall be honored regardless of academic standing.

3. The co-op term mark will result from both employer and institutional evaluation. Students must achieve a minimum of 50% in each of the work term performance evaluation and the work term report, and must achieve a combined grade of 60%. The work term mark will be recorded on the student transcript.
   a. Work term performance is evaluated by the employer and monitored by the College.
   b. The work term report is validated by the employer and graded by faculty/coordinators. A student receiving a 40% or 45% grade on the work term report will be eligible to re-submit the report. The report must be re-submitted no longer than four weeks after receipt of the work term evaluation.

4. Students are encouraged to obtain their own work terms. Such work terms must be confirmed by letter from the employer and approved by the coordinator on or before the first day on which the student commences work.

5. Students are required to sign a waiver giving permission to the College to supply students’ resumes and transcripts to potential employers.

**REGISTRATION**

It is the policy of this College that all students will register for full-time programs at the beginning of each semester including the intersession. Students accessing "continuous intake" programs will be admitted and will engage in the initial registration process at any time during a semester but will be required to register with all other students at the beginning of each subsequent semester.

**Date of Registration**

Students will register in person on the date and at the time and place prescribed and publicized by the College. Registration for continuous intake programs will be scheduled on a continuous basis, and students will be admitted as vacancies occur.

**Late Registration**

With permission, late registration may sometimes be acceptable, up to two weeks after the official registration day.

**ADMISSION TO CLASSES**

Students will not be admitted to a class until they have satisfied the regulations regarding entrance and complied with the General College Regulations.

**COURSE LOAD**

The number of courses constituting a normal semester workload for a student is specified in the outline for each program as published in the College Calendar.

**Extended Course Loads**

Students who wish to register for extra courses must make application to the program administrator or designate.

**REPEATING COURSES**

With the permission of the program administrator or designate, students may repeat any course for which a passing grade has previously been awarded. The original passing grade will remain on the transcript and a second entry will be recorded with the new grade. The highest mark attained will be used in the calculation of the G.P.A.

**INDEPENDENT STUDIES**

When required courses are not available in a particular semester, full-time students may make application to the program administrator to register for such courses through independent study. Applications must be processed within two weeks from the commencement of the term.

Access to courses through Independent Study may be permitted when resources are available and with the permission of the program administrator and the coordinator (where applicable) in consultation with the faculty. Strategies to ensure adherence to course requirements may be documented in contract format to be signed by the student, the course instructor, the program administrator and the program coordinator (where applicable).

**CHANGE OF REGISTRATION**

**Adding Courses**

The last date for adding courses is two weeks from the commencement of the semester (one week from the commencement of the intersession/summer session) in which that course begins. In extenuating circumstances, in the normal semester the two-week period may be extended. Students must complete the appropriate registration change form. Changes must be approved by the program administrator or designate.

**Withdrawing**

Courses may be dropped without academic prejudice up to the end of the eighth week from the scheduled date of registration for a semester (or the end of the second week in the intersession/summer session). Courses dropped after this date are recorded as “Dropped/Fail” and will have a zero mark entered on the academic record for the course or courses dropped unless, in extenuating circumstances, the student has received the written permission of the program administrator to drop a course without penalty. Students are required to complete the appropriate registration change form which must be approved by the instructors concerned and by the program administrator or designate.

Registered students who wish to withdraw from the College will be invited to discuss the situation with the appropriate Student Services official. The withdrawal form must be completed and signed by the appropriate faculty and the program administrator.
Transfer Process for Engineering Technology (First Year)
If a student wishes to change his/her original program choice, he/she MUST request a program transfer and complete the appropriate form (Request to Transfer Form) which is available through the Registrar's Office. Applicants cannot request a change in program prior to entry into the first year. A request to transfer does not guarantee entry into one's alternate, "new" program choice. Program transfer will be granted only if sufficient space is available. The following conditions apply:
1. The Request to Transfer Form must be received at the Registrar's Office by February 15.
2. Transfers are granted based on 1) space availability and 2) the student's weighted average at the end of semester one. In cases where the student has been exempted from courses in his first semester, the mark(s) obtained by the student at another postsecondary institution or high school will be used in calculating the weighted average.

Students who opt to attend first year Engineering Technology without identifying a program choice for their second year, MUST BE AWARE that there will be no seats reserved for them in second year. These students will compete academically with all other students requesting program transfers under the transfer policy.

LATeRAL TRANSFer
Students wishing to change their program of studies must apply for Lateral Transfer.

From One Program to Another at the Same Campus
a. Applications for Lateral Transfer are available from the Registrar's Office. Students must discuss their request with the Counsellor and the program administrator and receive written approval.
b. Lateral transfer may be granted if there is space available and the appropriate counselling processes have been followed.

From One Campus to Another in the Same or Different Program
a. Students must discuss their request with the Counsellor and the program administrator and receive written approval.
b. Applications for Lateral Transfer are available from the Registrar's Office.
c. As certain programs are offered using different instructional methodology at the various campuses, transfer may be limited to the end of given semesters.
d. The campus Registrar’s agent will contact the program administrator at the receiving campus to determine space availability and appropriate transfer time frame.

EXAmINATIONS AND TESTS
Dates of mid-terms, final, and supplementary examinations will be set in advance. No more than two mid-term and final examinations will be scheduled for a student on any one day.

Student evaluation will be conducted on a continuous basis. The method of evaluation will be recommended in the official Course Description. The final grades submitted to the Registrar’s Office will be rounded in units of five.

Instructors shall not be permitted to give quizzes worth more than 10% of the total final mark in the two week period prior to the start of semester examinations. As well no previously unassigned work may be assigned in the last two weeks of the semester. This regulation does not apply to:
1. Courses with no final semester examination.
2. Laboratory examinations.
3. Self-directed and modular courses.
4. Courses with block teaching.
5. Assignments given prior to this period which are due in the two weeks prior to examinations.
6. Courses offered in the intersession and summer session (i.e. 5 – 7 week periods). The time frame for these courses will be one week prior to the start of examinations.

SUPPLEMENTARY EXAMINATIONS
Supplementary examinations provide an opportunity for students to improve their standing in a course in which they have attained a failing grade of 5 or 10 marks below the stated pass mark.

For upgrading purposes, in their last semester of studies, students may be given an opportunity to write a supplementary examination for a course in which they have attained a mark of 50% or 55%.

The grade attained in a supplementary examination will replace only the grade attained in the final examination for the course in question and will be combined with marks previously attained for term work. The following conditions must be met in order to qualify for supplementary examinations:
1. Students may be eligible to write one supplementary per semester.
2. Supplementary exams will not apply to any course in which the final exam is worth less than 30%.
3. Supplementary examinations will be scheduled and should be written during the supplementary period following the regular examination period.
4. Students must apply, in writing, for supplementary examinations. The established standard fee per supplementary examination must accompany the application form. Refunds of such fees will be permitted only if permission to write an examination is not granted.
5. If the mark obtained in the supplementary is lower than the original mark obtained on the regular examination, the original mark will be included in calculating the grade point average.
6. Where circumstances warrant, supplementary examinations may be written off-campus; the Registrar’s Office must be contacted for permission and guidelines prior to the examination period. All costs associated with the administration of off campus supplementary examinations will be borne by the student.
7. Academically dismissed students are not eligible to write supplementary exams.
8. For purposes of transfer of credit, students must be aware that other post-secondary institutions may not accept grades attained through Supplementary Examinations.

RE-READ OF FINAL EXAMINATIONS
Students may apply to have a final examination paper re-read.

An application for re-read must be made in writing to the Registrar's Office within one month following the release of the marks.
A re-read fee must be paid at the time of application. If the mark is changed after the re-read, the fee is refunded; if the mark is unchanged, the fee is forfeited.

The mark obtained in a re-read stands as the official mark in the course and is used in all calculations of the student’s academic record.

DEFERRED EXAMs
Students, who are prevented by illness or bereavement or other acceptable cause from writing a final examination, where one is scheduled, may apply for permission to write a deferred examination. The deferred examination is the final examination for the individual concerned.

Where possible, deferred exams should be completed by the last day of exams/classes for that semester, or as soon as feasible thereafter.

A request for deferred examinations must be submitted to the campus Registrar’s Office as soon as possible after the date on which the regular examination was scheduled. The request for a deferred exam will be assessed by the program administrator in consultation with faculty members. Students should note that permission to write deferred examinations is a privilege, not a right, granted solely on the basis of extenuating circumstances.

INCOMPLETE
Subject to the approval of the program administrator, an incomplete grade may be assigned when the mandatory components of the course are not completed. Incompletes must be cleared by the end of the third week after the beginning of the subsequent semester. If incompletes are not cleared by this date, students will receive a failing grade.

REASSESSMENT OF GRADES
Students, who feel that they may not have been accurately assessed on any assignment, examination, term paper, or laboratory or shop exercise should, in the first instance, discuss the matter with the instructor teaching the course. This should be done within three instructional days of the receipt of the assessment. If this does not result in a satisfactory resolution, students may request that the matter be reviewed by the program administrator. If this action is taken, it must be done within five instructional days of receipt of the assessment. Unsatisfactory resolution of the dispute at this stage may enable students to request a review of the grade(s) by the Academic Appeals Committee. Such an appeal should be made within ten days of receipt of the assessment.

Comprehensive Arts and Science (CAS) Transfer: College-University Program, a student must be informed in writing of #8. The written communication (i.e., form) must be signed/dated by the student, the instructor of the course and the Campus Administrator. Copies should be kept by the instructor and Campus Administrator, and a copy must be placed in the student’s file in Student Services.

RE-READ OF FINAL EXAMINATIONS
Students may apply to have a final examination paper re-read.

An application for re-read must be made in writing to the Registrar's Office within one month following the release of the marks.
A re-read fee must be paid at the time of application. If the mark is changed after the re-read, the fee is refunded; if the mark is unchanged, the fee is forfeited.

The mark obtained in a re-read stands as the official mark in the course and is used in all calculations of the student’s academic record.
**AEGROTAT STATUS**

Students who, through illness or other exceptional circumstances, have been absent from a scheduled final examination, or who have been unable to complete all of the required work in a course, may, on the recommendation of the Counsellor, in consultation with the program administrator and faculty be given credit for the course.

Application for Aegrotat Standing, with full details duly authenticated, must be made to the campus Registrar’s Office within two weeks after the last day of examinations, indicating each course for which the application is being made.

**ACADEMIC DOCUMENTATION**

*Note:* Transcripts, diplomas and certificates will be withheld from a student who is in possession of College property such as books, equipment or supplies or who owes money to the College.

**Grade Reports**

Grade reports will be issued at the end of each semester and intersession.

**Transcripts/Records of Achievement**

a. Official Transcripts/Records of Achievement may be obtained at any time from the campus Registrar’s Office.

b. A transcript includes the student’s academic record to date including academic decisions which may have been taken. Transcripts that are released will include the student’s complete academic history.

**STUDENT APPEALS (ACADEMIC)**

All registered students of the College have the right to appeal decisions or rulings which affect them and which pertain to academic matters.

**STUDENT APPEALS (NON-ACADEMIC)**

All students of the College have the right to appeal decisions or rulings that affect them and which pertain specifically to non-academic matters. Please consult the Student Handbook for details regarding these policies.
Awards

The College offers opportunities to students in many programs to compete for a variety of scholarships, bursaries, prizes and graduation awards. An awards handbook outlining all awards available as well as the specific criteria is available at the Student Services Office of each campus.

DEFINITION OF AWARDS

Bursary
Monetary award presented in recognition of academic performance and financial need.

Graduation Award
Awards of Excellence, medals, etc., presented upon graduation.

The Honour Society
Students achieving academic excellence as prescribed by specific criteria will become members of the College of the North Atlantic Honour Society.

Prize
Award presented in recognition of performance in a particular subject area or task.

Scholarship
Monetary award presented in recognition of academic excellence.

APPLICATION PROCESS
Application forms for awards administered by the College are available at the Student Services Office.

Unless otherwise stated, applications are not required in order to be considered for medals, scholarships or prizes.

The deadline for receipt of applications for bursaries and other awards can be obtained at each campus Student Service's Office but is generally October 15.

CRITERIA FOR AWARDS

• No scholarship or bursary administered at the College will be awarded to a candidate who holds an award of equal or greater value, unless specifically required by the terms of the award. Certain conditions apply.
  • To be eligible for any award, a student must be registered as a full-time student in a recognized college program.

The eligibility criteria for awarding a scholarship:
• Candidates should be in clear academic standing with a weighted average of 75%.
• At least 80% of the credits accumulated at the point of consideration for awards must have been obtained at the College.
• Courses which are not included in the requirements for graduation will not be included in the calculation of the weighted average.
• Candidates must have attained a passing grade in ALL courses being considered in establishing weighted average. Marks obtained in supplementary exams will be considered in the calculation of the weighted average.
• In cases where the student repeats a course, the best earned grade will stand for calculation of the weighted average.

The eligibility criteria for awarding a prize or bursary:
• A candidate in the second or third year of a program must have attained a minimum GPA of 2.00 and have clear academic standing.
• A candidate in a certificate-level program and in the first year of a diploma-level program must have attained a reasonable academic performance in their program of studies to date.

The eligibility criteria for awarding the Governor General's Medal:
The Governor General's Medal is awarded to a graduate who has achieved the highest academic standing at each campus of the College. The student must be graduating from a two or three-year, diploma level program.

The eligibility criteria for the President's Medal of Excellence:
The President's Medal of Excellence is awarded to one student in each program who attains the highest academic standing in his/her program; the student will also receive a Certificate. The student must meet all college scholarship criteria. The medal is campus based and is available to both the Certificate and Diploma level programs.

The eligibility criteria for the Honour Society:
The College has established an Honour Society to recognize those students who meet the following criteria:
• Those in diploma-level programs that have a grade point average (GPA) of 4.0
• Those in industrial trades programs who have 80% or greater in each course. This is to be determined at completion of their program of studies.
• Students who are registered under General Studies must be enrolled in at least four courses in any given semester and must achieve at least 80% in each course.
• Office Administration and Business Administration are taught, at some campuses, by the individualized instruction methodology. In order to qualify for Honour Society status, students must have completed 16 credits or more in a given semester. Students in this category must achieve a GPA of 4.0 in order to qualify for the Honour Society.

DOCUMENTATION
Awards administered by the College shall be recorded on the recipient's academic record.

OUTSTANDING FEES
Award recipients who owe outstanding fees to the College will have their monetary award credited to their account.
Fees and Charges

1.0 REGULATIONS GOVERNING PAYMENT OF FEES & CHARGES
a. All student fees must be paid prior to or at the time of registration unless otherwise specified below. Students receiving Student Aid must present their notification of Student Aid form at registration. These students are permitted to have fees outstanding after registration. Upon receipt of the Student Aid, these students must pay their accounts in full.
b. Students who have not paid all fees within the time limits given in these regulations may have their registration cancelled by the College.
c. Students with outstanding accounts will be ineligible for a subsequent term, will not be awarded a diploma or certificate, and will not be issued a certificate of standing (transcript), grade report, or access to on-line grades until the outstanding account has been paid in full. Students are notified of their account status on a regular basis. It is the student’s responsibility to address outstanding balances and to correct any problems.
d. Should the College cancel a program, all tuition and fees paid will be refunded.
e. Continuous intake students, registering or withdrawing within a term, will pay a prorated tuition and equipment and materials fee per week.
f. Senior Citizens, 60 years and older, are required to pay 50% of applicable fees.
g. Distributed Learning (DLS): Some campuses offer programs that do not have all courses delivered in the classroom - some courses in the program are offered by DLS. Students enrolled in these programs are therefore required to do courses via DLS because the offering is not available on site. These students will pay the regular program tuition fees. No additional DLS tuition fee or technology fee will be charged.

However, additional tuition and technology fees will be charged, under the following circumstances:
i. Any student electing to do a DLS course over and above their normal term load.
ii. Any student electing to do a DLS course instead of an identical on-campus course.
iii. Any student electing to repeat courses through DLS which was previously taken on campus or via DLS.

2.0 FEES AND CHARGES

2.1 FULL-TIME STUDENTS
a. Application fee per program
   (Non-refundable) $30.00
Application fee for International students
   (Non-refundable) $100.00
b. Registration fee $95.00
   Students must pay a non-refundable registration fee on confirmation of acceptance to each program at the College. The fee covers registration and student association fees and is paid annually for the duration of the program.
c. Tuition
   i. Term based program:
      Regular Term (15-weeks) $726.00
      Intersession (up to 7-weeks in duration) $343.00
   ii. Continuous in-take program $49.00 per week
d. Equipment/Materials fee per term (intended to help offset material costs of program; excluding DLS students)
i. Term based Program:
   Regular Term (15-weeks):
   ABE/College Preparation No Charge
   Business/IT Programs $55.00
   Applied Arts/College Transfer $110.00
   Health Science/Engineering Technology/
   Tourism and Natural Resources $ 165.00
   Intersession (up to 7-weeks in duration):
   ABE/College Preparation No Charge
   Business/IT Programs $27.50
   Applied Arts/College Transfer $55.00
   Health Science/Engineering Technology/
   Tourism and Natural Resources $82.50
   e. DLS technology fee $50.00 per course
   f. Work Term fee (Co-op and Non Co-op)
   $363.00 per term
   g. On the Job (OJT) fees or Work terms less than 7 weeks $49.00 per week
h. International Students
   Please refer to the International Students section of the calendar for fees information pertaining to International students, page 25.
i. Student Health and Dental Plan Fees (based on a calendar year). The Student Health and Dental Plan are applicable to all full time students enrolled in on-campus programs.
   Single – Health $268.00
   Single – Dental $123.00
   Family – Health $523.00
   Family – Dental $243.00
   For coverage details, please refer to page 17.
Fees and Charges

2.2 PART-TIME STUDENTS
Students enrolled in three (3) or less courses. (Including Regular Programs, Day-time General Studies, Distributed Learning and Open Learning)

a. Tuition fee per course $230.00
b. Technology fee per course (DL courses) $50.00

2.3 GENERAL STUDIES STUDENTS
General studies students who enroll in “classroom” courses will pay a maximum tuition of $726.00 and Equipment/Materials fee of $100.00.

General studies students who enroll in “DLS” courses will pay a maximum tuition of $230.00 and a $50.00 Technology fee for each DLS course.

General studies students who enroll in a combination of “classroom” and “DLS” courses will pay regular tuition for “classroom” courses and $230.00 tuition plus a $50.00 Technology fee for each DLS course.

2.4 COMMUNITY EDUCATION
Contact local campus for course fees.

2.5 RESIDENCE FEES
Students must pay a minimum of two weeks residence fees in advance, or upon arrival in residence. Students intending to move out of residence must give 30 days notice or pay a penalty of $100.00.

Students are responsible for providing their own bed linens and laundry service.

a. Fees applicable to all campuses

| Residence Application fee | $25.00 |
| (These are annual fees and are non-refundable) |
| Residence Registration fee | $50.00 |
| (These are annual fees and are non-refundable) |

b. Daily Room Charges

<table>
<thead>
<tr>
<th>Single</th>
<th>Double</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15.00</td>
<td>$10.00</td>
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</table>

c. Rooms and Meals

Bay St. George Campus
- Room and 10 meals weekly N/A $105.00
- Room and 14 meals weekly N/A $117.00
- Room and 19 meals weekly N/A $135.00

Burin Campus
- Room and 5 meals weekly $95.00 $75.00
- Room only weekly $60.00 $40.00

Happy Valley Campus
- Room and 14 meals weekly $137.00 $117.00

Family Residence (Apartments)
- 1 Bedroom-monthly /no meals $300.00
- 2 Bedroom-monthly /no meals $365.00
- 3 Bedroom-monthly /no meals $425.00

2.6 MISCELLANEOUS FEES
a. Supplementary Fee $25.00
b. Re-read Fee $25.00
c. Resource Camp Fee $30.00 per day (Covers food & Lodging - not tuition)
e. NSF Cheques $25.00
f. Replacement I.D. cards $15.00
g. Day care fees N/A (Contact applicable campus)

3.0 REFUNDS
a. Application fees are non-refundable.
b. Registration fees will be refunded only to individuals who were conditionally accepted and upon receipt of High School marks did not meet the academic entrance requirement to the program.
c. Tuition and Equipment/Materials Fees

i. Term-based (15-weeks)
A student who withdraws within the first two weeks of any term will receive a full refund. If the withdrawal takes place within three to six weeks, the refund will be prorated and the student will be liable for the number of weeks enrolled. No refund will be made after the sixth week of classes.

ii. Intercession (up to 7 weeks)
A student who withdraws within the first week of intercession will receive a full refund. If the withdrawal takes place within two to three weeks, the refund will be prorated and the student will be liable for the number of weeks enrolled. No refund will be made after the third week of classes.

iii. Continuous in-take
A student who graduates or withdraws from the program will be liable for the actual number of weeks in class. Any over-payment will be refunded.

iv. International students
Please refer to the International Students section of the calendar for refund information pertaining to international students, page 25.
d. Textbooks
Refunds may be given for returned textbooks under the following conditions:
- Books are unmarked and in saleable condition
- Books are returned within the first three weeks after the commencement of classes
- Original receipts are presented before a refund is issued.

Students are responsible for initiating their own refunds and are required to complete the Student Revenue Refund Form. Forms are available from the Student Services Office. All tuition refunds will be issued by Headquarters. Any refunds will be applied against outstanding accounts before any monies are returned to the student. If a student terminates or voluntarily withdraws from a program of studies, the refund from student loans will be forwarded to the National Student Loan Service Center.

4.0 STUDENT CREDIT
Students will be granted credit only as a last resort and upon the recommendation of the appropriate Student Services representative. Credit will be given only for Tuition and Equipment/Materials fees.

Students Receiving Student Loans
Students who will be receiving Student Loans and the amount of whose loan is confirmed may be eligible for a Student Waiver. The Waiver will specify what is covered and for what period of time. When the student loan arrives, the amount owing will be deducted by the College.

Students Not Receiving Student Loans
Students in this category are not normally eligible for credit; however, from time to time it may be necessary to give a Credit Note to students who are receiving funding assistance. Credit Notes in these cases will be issued only after a thorough interview is completed by the appropriate Student Services representative in order to determine need. The case will then be referred to the Campus Administrator with a recommendation.

5.0 FINANCIAL APPEALS
Appeals of a financial assessment should be made in writing to the Chief Financial Officer.

Receipts are issued for any financial transactions with the College. Students should ensure that they obtain and save these receipts for use in resolving any financial conflicts. In the absence of such documentation, the College financial records shall provide the basis for any decision.
Learner Services

INTRODUCTION
The primary role of Learner Service professionals is to help establish and sustain an environment in which students can learn and develop.

REGISTRAR’S OFFICE
The Registrar’s Office is responsible for the administration of academic policies and procedures and for an effective system of operations for admissions, registration, enrollment, transfer credit, grades processing, student awards, student fees, student loans, transcripts, graduation and certification. The office is also responsible for the provision of information regarding all college programs and courses.

COUNSELLING AND PERSONAL DEVELOPMENT
Counselling, including standardized testing, is available to all students. Each Campus has either a professional Guidance Counsellor or another Learner Services Professional to assist students. Students may seek assistance in all areas of counselling namely career, educational, and personal. Counselling is usually conducted on a one-to-one basis or in small groups.

STUDENT DEVELOPMENT SERVICES
The Student Development Officers (SDO) provide students with services of a non-academic nature. Specifically, the SDO may be involved with student government, peer tutoring, and assisting students with financial aid information. The Student Development Officer acts as a liaison between the students and administration of the campus and serves as a direct contact for employment-related issues. This involves delivering job-search seminars, promoting graduates to potential employers, and gathering information related to student and graduate employment, including surveys of students and graduates. The SDO is also responsible for organizing and conducting recruitment liaison program as well as participating in career fairs and trade shows. Students and/or potential students are encouraged to contact the Student Development Officer at their campus to find out more about the services available.

LIBRARIES/LEARNING RESOURCE CENTRES
The College’s Libraries/Learning Resource Centres are managed by professional staff and provide background and supplementary materials for all programs taught at the College. The growing collection includes books, AV materials, periodicals, newspapers, research and government documents. A small collection of recreational books is available.

Most materials borrowed from the College’s Libraries/Learning Resource Centres have a borrowing period of two weeks. Items are sometimes placed on reserve and resources such as books may be borrowed through inter-library loan from other libraries. To find out more about the services provided by our campus Libraries/Learning Resource Centres or to search our online catalogue click http://www.cna.nl.ca/bottomtoolbar/library/

STUDENT SUCCESS CENTRES
The Student Success Centers, located on some campuses, are an integral part of the Learning Resource Center in that they provide a place for students who seek remedial help especially in the areas of Mathematics and Communication Skills. These Centres also have a wide array of career resource materials including computer interactive Career Education programs such as CHOICES.

BOOKSTORE
Textbooks for all courses are available at the College bookstore on each campus and should be purchased at the time of registration.

SOCIAL AND RECREATIONAL ACTIVITIES
The Student Development Officer organizes and co-ordinates a number of social and recreational events throughout the College year. Clubs, sport teams, recreational activities, and special events contribute to the general well-being of the College students.

STUDENT AID
Information and assistance is provided to students applying for student aid, such as the Canada/Newfoundland Integrated Student Loans Program.

STUDENT GOVERNMENT
College of the North Atlantic supports the activities of the student body through its Student Representatives Councils (SRC) and the Council of Student Executives (CSE). Each of these student organizations is governed by Operating Guidelines which can be obtained from the Student Development Officer, Counsellor, Student Representatives Council or online at www.cna.nl.ca

STUDENT REPRESENTATIVES COUNCIL
Campus-based Student Representatives Councils aim to address the issues of the students locally, provincially, and nationally. In September of each year, an election is held at which time the student body elects its representatives for the Student Representatives Council. The Student Representatives Council may be involved in the organization and delivery of various extra-curricular activities on behalf of the student body such as: Winter Carnival, Recreational/Athletic Activities, Dances, Student Newspaper, Yearbook.

Students are encouraged to become involved with their Student Representatives Council and have a voice in the events that influence their educational experience.

COUNCIL OF STUDENT EXECUTIVES (CSE)
Purpose
The purpose of the CSE is:
1. To provide a forum in which the post-secondary students of College of the North Atlantic can work cooperatively in advancing the interests of the students who represent.
2. To promote a better understanding of the needs and issues confronting the students of College of the North Atlantic.
3. To represent, promote and advocate the common interests of the students of College of the North Atlantic.
4. To promote social responsibility between and amongst College of the North Atlantic local councils and the College as a whole.

Those who are interested in the Student Representatives Council or the Council of Student Executives, should contact the Student Development Officer or Counsellor at their campus.

CHAPLAINCY SERVICES
Chaplains may be available to students at the College on an as needed basis.

HARASSMENT POLICY
It is the policy of the College that all registered students have the right to pursue their studies and related activities free from personal harassment from College employees, agents of the College or other students. See the Student Handbook for the full description of this policy.

ACCIDENT INSURANCE
Student insurance coverage against accidents while going to and from the College, while in the College or participating in related College activities such as organized games is mandatory. The premium is included in the registration fee.

When an accident happens, minor or otherwise, students should report immediately to their instructor who will take the necessary action.

It is the responsibility of the Campus Administrator to assure that appropriate procedures for reporting accidents are followed.

STUDENT HEALTH/DENTAL PLAN
On March 31, 2004 students at College of the North Atlantic voted and referenda were passed to have a student health and dental plan. With this plan, students have access to drug, extended medical, and dental insurance coverage beginning in September 2004.

What if you already have coverage?
Students who are already covered under alternative plans (through employment/spouse/parent) may opt-out of the plans. Opting out of the plan coverage will be done during registration. Students will only be required to opt out once per academic year.

What type of coverage is provided?
Beyond the coverage of Newfoundland and Labrador Medical Coverage Plan, the student plan will provide insurance for prescription drug costs (including oral contraceptives, anti-depressants, and acne medication), physiotherapy, massage therapy, speech therapy, chiropractic, and podiatry as well as accidental death and dismemberment insurance ($10,000 coverage), and emergency travel insurance to protect students when they are away from school.

The Dental coverage includes cleaning, oral exams, scaling, x-rays, fillings, inlays, and root canal therapy with a maximum yearly benefit of $500.

What is the cost?
The cost of single health coverage is $268.00 and dental coverage is $123. Both plans provide 12 months of coverage and will be applied to student fee statements as part of their registration fees. Students who wish to do so will be able to extend their coverage to their partners, including same sex partners, and dependent children, by paying the appropriate fee. Students who wish to add family members to their coverage will pay a total of $523.00
for health and $243.00 for dental, to cover themselves and their entire family.

How do I find more information?
For more information please call the campus nearest you or visit our website at www.cna.nl.ca

STUDENT CODE OF CONDUCT (RIGHTS AND RESPONSIBILITIES)
The College has a policy in place which respects the general rights of students and recognizes that students also have responsibilities. Please see the Student Handbook for details.

STUDENT HANDBOOK
The College publishes a Student Handbook annually. This Handbook includes many useful tips for students and also includes a day planner. A copy of this handbook is provided free of charge to each student.

DAYCARE CENTRES
There are daycare centres located on the Corner Brook and Prince Philip Drive Campuses. These daycare centres are linked to the College’s Early Childhood Education programs. Interested students can contact either of these campuses for further information.

liaison
The Learner Services Division has an active recruitment team including Student Development Officers, Counsellors, and instructors. Members of this team make regular visits to high schools, career fairs and other community agencies. Inquiries can also be directed to the College’s toll free number at 1 888 982-2268 or to any of the College’s campuses. Please consult the campus directory in the calendar for contact information. Electronic inquiries can be directed to info@cna.nl.ca

STUDENT PARKING
Student Parking is considered a privilege and not a right. Students must park in the designated parking areas.

“No Parking” and “Restricted Parking” areas are designated either by a sign, road markings in yellow paint or both.

Appeals
All registered students of the College may appeal a decision or ruling which affects them as it pertains to academic matters, matters of student discipline and student rights and responsibilities. Please consult the Student Handbook for more details.

students with disabilities
Services for students with disabilities are available at all campuses through the Coordinators of Disability Services. It is the responsibility of the student to identify his/her accommodation needs/disability. The student, the Coordinator and others, as identified, will devise an acceptable program and service plan. Services and supports to students with disabilities are also available through the Resource Facilitator at many campus locations.
All campuses of College of the North Atlantic will offer inclusive programming to all students who are accepted. The College recognizes the ultimate purpose of training will be the eventual integration of all persons into the mainstream of post-secondary education, the community and society. To this end, the College has developed a four stage service delivery model that will complement current college operations, and increase service delivery to a wide range of students in specific areas.

**REGULAR COLLEGE CURRICULUM, PROGRAMS AND COURSES**  
Applicants who meet entrance requirements and do not require accommodations.

This includes all courses and programs offered by the College at all campuses. This is intended for all students and is based on the rationale that, for some students with disabilities, the regular College curriculum at the campus they are enrolled in will be sufficient to meet their needs, interests and abilities. An example of students in Stage 1 could include a student with a physical disability who is a wheelchair user and can access regular College programs without support.

**REGULAR COLLEGE CURRICULUM, PROGRAMS AND COURSES WITH SUPPORTS**  
Applicants who meet entrance requirements and require accommodations.

This includes all courses and programs offered by the College at all campuses and is intended for those students with disabilities who require accommodations in order to pursue a regular college curriculum. Based on the identified disability and supporting documentation, decisions are made regarding accommodations to support individual needs. Making an accommodation does not mean adding, deleting, or altering course objectives or changing the curriculum.

**MODIFIED COLLEGE CURRICULUM, PROGRAMS AND COURSES**  
Applicants who do not meet entrance requirements and require a modified program.

To provide a modified program to a student with a disability, changes will be necessary in the delivery of the program in the classroom as well as in preparation/tutorial time outside of formal instructional time. Courses will be modified in consultation with a Program Services Planning team (PSP). The Coordinator of Disability Service may provide program planning information to respective funding agencies, on behalf of the student and outline in a letter of request, the amount of monies required to deliver the modified program. Students who complete a modified program will receive a Record of Achievement to document their areas of competency. Students applying for admission should submit, with their application, appropriate documentation outlining their needs and follow an admissions process that ensures the necessary modified curriculum with supports be in place prior to entry to the College of the North Atlantic.

**ALTERNATE COLLEGE SERVICE**  
Inquiries regarding an alternate (work skills) curriculum or inquiries by individuals who followed an alternate program while in secondary school will be addressed by the Coordinator of Disability Services. Upon consultation, these individuals may be referred to the nearest employment corporation (or related agency) or to the Modified College Curriculum, Programs and Courses of the Disability Services Model.
Contract Training and Continuing Education

DID YOU KNOW?
• CNA has the lowest tuition in Atlantic Canada.
• We have transfer of credit agreements with universities all over the world.
• We have more than 100 full-time programs at 17 campuses throughout Newfoundland and Labrador.
• We operate a growing campus in the Middle East State of Qatar.
• Our Contract Training and Continuing Education Department can customize any training option to suit the goals and objectives of your organization.
• We can customize training for your organization from our existing 100 full-time programs, from our over 300 part-time continuing education courses, or we develop new training with our curriculum development expertise.
• Contract Training and Continuing Education served over 11,700 learners last year alone.

WHY TRAIN?
A positive effect on Profit
Industry research shows that increased productivity is directly linked to work-relevant training and to the bottom line of small, medium and large businesses. Continuous training almost always shows a positive return on investment. With one case in particular, an investment in training returned a minimum value of $1.30 for every dollar spent in the areas of increased productivity, reduced costs, and workforce disruption.

Improve staff retention
Training gives employees an incentive to stay with the company, resulting in significant savings to business, improves employee skills, increases output and profitability, equips employees with the tools to work more efficiently, and to cope with change in the workplace.

Increase quality and productivity
Worker-appropriate and employer-appropriate training results in increased accuracy, efficiency, safe work practices, and better customer service. In fact, employees receiving formal training are up to 230% more productive than untrained staff working in the same role.

Other benefits
• Increased staff morale and satisfaction
• Improved communication and leadership skills
• Better time management skills
• Greater customer satisfaction

Choosing the right training
College of the North Atlantic can develop customized training options from its extensive list of more than 95 full-time diploma and certificate programs and a comprehensive range of over 300 part-time courses. Its services are distributed throughout the province at 17 campuses and its international campus in Qatar.

CUSTOMIZED TRAINING – ON-SITE, ONLINE, ANYTIME
College of North Atlantic’s (CNA) customized training is designed to meet the needs of any business or organization. Training solutions are available for individuals, corporations, government, or networks of companies with similar training requirements.

Curriculum is custom designed to meet your specific training goals with a delivery timetable suited to your needs. From a one-day session to programs of several weeks, we deliver anytime, on-site or off-site with the appropriate training infrastructure and resources.

Inquire about our Advanced Certifications and Post Diploma, Post-Journey Training as well as our Office of Applied Research and Innovation.

We pride ourselves on being responsive to clients’ needs. Business Development Officers located strategically throughout the province (at our 17 campuses) provide access to experts for the development of training and other services to meet those needs. Call 1.888.982.2268 or visit www.cna.nl.ca/corporate to reach a Business Development Officer near you.
TRAINING FOR NEWFOUNDLAND AND LABRADOR’S INDUSTRY SECTORS

Organizations in all industry sectors throughout the province need access to training programs so they can remain competitive, recruit and retain employees, diversify, and sustainably develop their long-term potential in Newfoundland and Labrador.

Agrifood/Agriculture Sector Training

New technologies and the changing demands of consumers have significantly changed the agriculture sector. CNA provides comprehensive support to the agrifood/agriculture sector through the Centre for Agrifood Development, whose major services include: product development, primary production skills training, secondary processing skills training, applied research, and special services.

Recent Agrifood/agriculture training and activity includes:
- Agrifood Training
- AgriBusiness Development
- Backyard Farming
- Blueberry Production
- Food Sanitation
- Fur Farm Production
- Greenhouse Operations
- HACCP Training
- Horticultural Technician
- Kitchen Helper
- Meat Cutting
- Personal Hygiene
- Secondary Processing (Meat, Fruit, and Vegetables)
- Nutritional Analysis and Labeling
- Pilot Scale Production
- Product Development
- Sensory Analysis
- Test Market Analysis

Business & Information Technology Sector Training

Information technology, as both an enabler for existing business processes, and as a sector in itself, has significantly changed business models, operations, products and services, and the competitive environment of small and medium-sized businesses in all industry sectors as well as the public and community sectors. In order to remain competitive, employers and employees need access to quality training. CNA provides comprehensive support to the Business & Information Technology sector.

Recent business and information technology sector training includes:
- ArcGIS
- AutoCAD
- Broadband Training
- Business Wings Training for Small Business
- Clerical Skills Assessment
- Computer Hardware and Networking Fundamentals
- Computerized Office Administration Refresher
- Customer Service
- Digital Telephony
- Document Use
- Dreamweaver
- E-Commerce
- Fibre Optics
- GPS Map and Compass
- Local Government Management Certificate
- Microsoft Suite - Word, Excel, Powerpoint, Project
- Simply Accounting

Construction Sector Training

According to the Construction Sector Council (CSC), our future depends on the construction sector to build, repair, and maintain our homes and buildings, our roads and bridges, and the oil refineries and other structures that fuel community progress. CNA provides comprehensive support to the construction sector. Training covers the needs of a variety of employers – general contractors, builders, construction managers and specialty trade contractors – in new home building and renovation, heavy industrial, institutional and commercial, and civil engineering subsectors.

Recent training includes:
- Air Brake Endorsement
- Alberta “B” Welding
- Blueprint Reading
- Boom Truck Evaluation
- Boom Truck Training
- Canadian Electrical Code
- Construction Safety Training Systems
- Canadian GeoExchange Coalition: Installers & Residential Designers
- Construction/Industrial Electrical
- Scaffolding
- Excavator Training
- Forklift Operation and Safety Assessment
- Grader Training
- Heavy Equipment Operator
- Mobile Crane
- NDT (Non destructive testing)
- Occupational Health & Safety
- Plumber
- Fundamentals of Protective Coatings
- Water Well Drilling and Geothermal Heating Technician
- Welder

Energy Sector Training

New technologies and the changing demands of consumers, government and other stakeholders have significantly changed the energy sector. Regulations have evolved. Exploration, development and production methods are more advanced. This applies equally to the non-renewable energy sources. CNA provides comprehensive support to the oil and gas and hydroelectricity industries. We are committed to providing the same support to renewable energy including wind and geothermal sources.

Recent energy sector training includes:
- 3rd and 4th Class Power Engineering
- Alberta B Welding (post-journeyperson)
- AMA Supervisory Skills Development for Production Supervisors
- Canadian GeoExchange Coalition: Installers Course; Residential Designers Training
- Class 3 Tractor Trailer Endorsement
- Climbing Techniques and Safety Procedures
- Cultural Diversity
- Drill Rig Safety Inspection
- Fall Protection / Fall Arrest
- Hazardous “EX”
- H2S Alive
- Hoisting, Rigging and Slinging
- Hydraulic Safety and Testing Procedures
- Occupational Health and Safety
- Offshore Well Control
- Pre-employment Floorhand (Roughneck)
- Project Management
- Safe Practices in Offshore Rigging and Lifting
- SSPC: Fundamentals of Protective Coatings
- Water Well Drilling and Geothermal Heating Technician
Health Sector Training
Health care providers – government, professionals, researchers, business, and community organizations – along with the clients and communities they serve are challenged to meet or exceed the standards of community health services and institutional health care management, decision making, quality, innovation, program and service delivery, and accountability set by government’s vision that “... all Newfoundlanders and Labradorians will enjoy optimal health.” College of the North Atlantic provides comprehensive support to health sector professional staff, technicians and management.

Recent health sector training includes:
• Sterile Supply Technician
• Changing Minds Mental Health Education Workshops
• Commercial Cook
• Computer training
• Emergency Medical Responder
• Integrated Nursing Access
• Kitchen Helper
• Medical Terminology
• National Food Safety Training Program (NFSTP)
• Paramedics
• Personal Care Attendant/Home Support Worker
• Medical Laboratory Assistant
• Transportation of Dangerous Goods

Mining Sector Training
College of the North Atlantic is committed to providing comprehensive support to the mining sector. Training can address the unique needs of the sector during the exploration, development, production, processing and distribution stages. CNA’s training capabilities include training for occupations related to: prospecting, leadership, management and supervisory development, environment, health and safety certifications, installation, maintenance and repair; construction and extraction; production; and transportation and material moving.

Recent mining sector training includes:
• AMA Leadership Development for Mining and Related Industries
• Banksman Slinger/Signaler Training
• Computer Training
• Industrial Mechanic
• Mining Technician
• Machinist
• Occupational Health and Safety Committee/Representative Training
• 3rd and 4th Class Power Engineering
• Prospectors Training
• Process Operations Engineering Technology
• Safety Awareness Training and Certifications
• Standard First Aid
• Transportation of Dangerous Goods
• Heavy Equipment Operator

Safety Training
Businesses are required by law to meet the Occupational health and safety standards of the workplace. Safety training and certification is essential to ensure a healthy and productive workplace. In order to remain competitive, employers and employees need access to quality training. CNA is committed to providing comprehensive support to all of the provinces’ sectors with quality safety training.

Recent safety training includes:
• Accident Prevention
• Aerial Lift
• Asbestos Abatement
• Back Injury Prevention
• Boat Operators Accredited Training

• Brush Clearing
• Brush Saw Safety
• Chainsaw Safety
• CFC Refrigerant Handlers
• CPR Refresher
• Climbing Techniques and Aerial Rescue
• Confined Space Awareness
• Construction Safety Supervisor
• Construction Safety Training System (CSTS)
• Electrical Hazards Awareness
• Emergency and Standard First Aid
• Emergency Medical Responder
• Emergency Preparedness
• ENFORM certified safety training
• Environmental Awareness
• Fall Arrest/Fall Protection
• Firearms Safety Hunter Education
• Flag Person (Traffic Control)
• Forklift Safety
• H2S Alive
• High Voltage Industrial
• Industrial Scaffolding
• Occupational Health and Safety Committee/Representative
• Occupational Health and Safety Certificate Program
• Overhead Crane
• Paramedic Program
• Power Line Hazards
• Propane Safety
• Safety Engineering Technology
• Scaffolding Safety Awareness
• Transportation of Dangerous Goods
• WHMIS

TO INQUIRE ABOUT CUSTOMIZED TRAINING, CONTACT US.
Call Toll Free: 1.888.982.2268
Email: corporatetraining@cna.nl.ca
Website: www.cna.nl.ca

CONTINUING EDUCATION
For those who want to increase their chances of getting a job, upgrade their skills to advance in their present career, or are interested in pursuing a personal interest, College of the North Atlantic offers a vast array of continuing education programs in many campus locations throughout the province.

Certificate Programs
Continuing Education certificate programs are offered on a part-time basis through evening, daytime or through print-based distance education*. Students enrolling in a certificate program have the convenience of studying part-time while maintaining current employment.

Certificate programs available include:
• Conservation Law Enforcement Training
• Digital Design Fundamentals
• Emergency Medical Responder
• FITTSkills – Certified International Trade Practitioner
• Local Government Management
• Maintenance Management Professional
• Management Skills Development
• Occupational Health and Safety
• Phlebotomy Technician
• Power Engineering Fourth Class
• Power Engineering Third Class
• Records and Information Management
• Security Services
• Sterile Supply Technician
• Supervisory Skills Development
• Power Engineering Fourth Class
• Power Engineering Third Class
• Teaching English as a Foreign Language

Print-based distance education refers to correspondence courses.

### Post-Diploma Program (Post-Graduate)
Ask about our post-graduate diploma programs for those who have graduated from a 3-year diploma program or a university degree. These programs include:
- GIS Applications Specialist
- International Business Management
- Safety Engineering Technology
- Journalism
- Diagnostic Ultrasonography

Credit Courses (transferable to full-time programs)
Credit courses offered through continuing education are part of the following full-time programs:
- Business Management
- Programmer Analyst
- Computer Systems and Networking
- Engineering Technology
- Office Administration
- Health Sciences

Leadership, Management And Supervisory Skills Training
As the country’s baby boomers near retirement, the nation will face a major labour shortage, including administration and management sectors. We must plan for that shortage now by training our existing workforce in management and supervisory skills. College of the North Atlantic, in cooperation with American Management Association, offers one- and two-day management and supervisory courses scheduled every semester. Choose timeslots during evenings or business hours.

### Personal Interest Courses
Whether you want to learn a foreign language or you want to make a gourmet dish, Continuing Education offers many personal interest courses to suit your needs:
- Arts and Crafts
- Belly Dancing
- Cake Decorating
- Canadian Red Cross Babysitters Course
- Cooking
- Firearms Safety / Hunter Training
- Floral Design
- Interior Decorating
- Language Training
- Matting and Framing
- Photography
- Welding (Arc) for personal use
- Yoga

For a list of course descriptions and schedule information, visit our Continuing Education website at [http://www.cna.nl.ca](http://www.cna.nl.ca) and check out a campus near you. If our schedule of courses does not meet your timeframe, we can work with your business to schedule timeslots that are convenient through our customized training options.

TO INQUIRE ABOUT CONTINUING EDUCATION, CONTACT US.
Call Toll Free: 1.888.982.2268
Email: corporatetraining@cna.nl.ca
Website: www.cna.nl.ca

Responsive, Province-Wide Services
In addition to customized training delivered through the College’s 17 campuses, our team of Business Development Officers will facilitate the following services:
- Skills assessments
- Training needs analysis
- Training design
- Group facilitation
- Assistance with proposal writing
- Community board development
- Post-training coaching and evaluation
- Videoconference rentals
- Classroom and lab rentals

TO INQUIRE ABOUT OUR SERVICES, CONTACT US.
Call Toll Free: 1.888.982.2268
Email: corporatetraining@cna.nl.ca
Website: www.cna.nl.ca
The award-winning @College Distributed Learning Service (DLS) of College of the North Atlantic provides learners new opportunities to complete college credit courses and programs without having to attend a college campus. All online courses carry the same credentials and academic standards as their classroom equivalents. Our Help Desk provides extended service hours seven days per week during the academic year. We provide a toll-free service as well as an online chat service to ensure that you are supported throughout the duration of your course or program.

Distributed Learning provides a supported alternative approach to learning for individuals who are motivated, disciplined, independent learners who may not be able to attend a campus. @College courses provide the opportunity to complete course requirements from home, work, school or any other location that has an Internet connection.

This flexible approach allows students to balance the demands of work, family and learning. Learners and instructors are able to interact by using a digital network from different locations at times that are convenient for both. Information is exchanged between the instructor and the student primarily through the use of email and the discussion areas within the online learning management system. Audio and video conferencing tools are also used in some courses.

Because Distributed Learning is technology-mediated, learners must become familiar with using computers that are Internet ready. It is also essential that learners have access to a computer which is appropriately configured. Before registering for a course, potential students should take responsibility for learning about the technology, obtaining an email address and assuring access to a computer that has all the software required to complete a course. The time and planning invested at the beginning will pay dividends with a satisfactory and rewarding learning experience.

College of the North Atlantic is closer than you may think!

Visit the DLS webpage at http://dls.cna.nl.ca

AVAILABLE COURSES AND PROGRAMS
Distributed Learning Service provides credit courses from all academic Schools. For further information about specific programs and courses offered through DLS see the Course Descriptions section of the calendar or contact the Distributed Learning Service:

telephone (toll free): 1 877 465-2250
learn@cna.nl.ca
http://dls.cna.nl.ca

The Distributed Learning Service offers complete diploma and certificate programs in:
- Website Administration (OA)
- Business Administration (BA)
- Medical Assistant
- Physiotherapist Assistant
- Business Administration (BA)
- BA Certificate
- BA General Diploma
- BA Human Resources Management Diploma
- Office Administration (OA)
- OA Certificate
- OA Executive Diploma
- OA Medical Diploma
- Website Administrator

Note: The following list of courses is subject to change. Course descriptions can be viewed online. Courses leading to an Early Childhood Education diploma are now available; the complete diploma program is being developed.

DISTRIBUTED LEARNING COURSES
AC1100 Bookkeeping I
AC1260 Financial Accounting I
AC2100 Bookkeeping II
AC2230 Computerized Accounting
AC2250 Managerial Accounting I
AC2260 Financial Accounting II
AC3220 Intermediate Accounting I
AC3250 Managerial Accounting II
AT1100 Adventure Tourism Industry
AT1220 Heritage Interpretation
AT1300 Ethics for Sustainable Tourism
BL1020 Introductory Biology I
BL1021 Introductory Biology II
BL1320 Anatomy and Physiology
BL1330 Anatomy
BL1400 Fish and Wildlife Biology
CD2100 Community Development I
CD2300 Community Economic Development I
CD2310 Financing and Managing Community Economic Development
CJ2100 Canadian Criminal Justice System
CM1060 Essential English I
CM1061 Essential English II
CM1100 Communication Skills
CM1230 Communications for Rehabilitation Assistants
CM1240 Business Communications I
CM1241 Business Communicators II
CM1400 Communication Skills – Technical Reporting I
CM1401 Communication Skills – Technical Reporting II
CM2100 Workplace Correspondence
CM2150 Workplace Communications (Trades)
CM2200 Oral Communications
CM2300 Report Writing
CP1120 Introduction to Procedural Programming
CP1160 Introduction to the Internet
CP1310 Windows Server Administration
CP1400 Web Site Analysis & Design
CP1450 Operating Systems
CP1910 Internet Fundamentals
CP2120 Introduction to Programming II
CP2170 Windows Server
CP2190 Unix
CP2280 Introduction to Object Oriented Programming in Java
CP2310 Electronic Spreadsheet Applications
CP2320 Microdatabase Applications
CP2440 Web Server I
CP2450 Web Server II
CP2460 CGI Programming
CP2480 Microcomputer Database Programming
CP2510 Unix Management
CP2610 Scripting Language
CP2640 Desktop Publishing
CP3200 Object Oriented Programming
CP3410 Fundamentals of Database Design
CP3420 Systems Analysis and Design I
CR1100 Network Fundamentals
CR1240 Information Security
CR1310 Network Troubleshooting
CR3450 TCP/IP
CR1550 Website Development
CR1550 Website Trends
CR2110 Novell
CS1601 Leadership II
DM1200 Document Production I
DM1201 Document Production II
DM1300 Machine Transcription I
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International Students

The College of the North Atlantic welcomes students from all parts of the world. International students are attracted by the College’s high quality education, reasonable costs, safe and friendly living environment, student support services, and the acceptability and transferability of its certificates and diplomas. College of the North places a high value on the contribution that international students make towards the development of intercultural communications and understanding throughout the College and the community.

INTERNATIONAL STUDENT APPLICATION PROCEDURE

1. Applicants must complete an International Student Application Form and forward it, along with application fee, proof of English competency and academic transcripts to the address listed on the application form. Application Forms can be obtained by contacting College of the North Atlantic by email, telephone, fax, mail (see contact information below), from any Canadian Education Centre office or from any of our agents.

International Student Coordinator
Student Services Division
College of the North Atlantic
1 Prince Philip Drive
P.O. Box 1693
St. John’s, NL
Canada A1C 5P7

tel: 709 758-7290
fax: +1 709 758-7304
email: intstudents@cna.nl.ca
Web: www.cna.nl.ca

2. The application will be reviewed and, if accepted, a Letter of Acceptance or a Letter of Conditional Acceptance will be issued to the student. The letter will confirm fee, enrolment, program of study and length of program.

3. Upon receipt of the Letter of Acceptance/Conditional Letter of Acceptance, tuition for the first semester of the program of studies is due to the College. In the event that a student visa is not awarded by the Canadian Embassy and the student provides a letter and evidence to support this claim, the tuition will be refunded in full except for the application fee.

4. Applicants should take their letter of acceptance to the nearest Canadian Embassy, High Commission, or Consulate to apply for a Student Study Permit. An immigration officer will then provide the applicant with an information package about the documents that are necessary to process a student study permit. Generally, applicants will need:
   - documentation verifying personal identification (such as a passport)
   - an original Letter of Acceptance/Conditional Letter of Acceptance
   - proof of funds available to cover tuition and living expenses
   - assurance that the student will return to his/her country of residence

5. Once an applicant has been issued with a Student Study Permit from the Canadian Diplomatic Mission, they should advise the College and make arrangements to travel to Canada and begin their program at College of the North Atlantic.

LANGUAGE REQUIREMENTS

All international students must the College’s English proficiency requirements for acceptance into regular programs. The College will accept most internationally recognized tests of English proficiency (e.g. TOEFL 550 or equivalent, IELTS, etc.). Students who do not provide evidence of English proficiency will be accepted into English as a Second Language (ESL) and conditionally accepted into their program of choice if they meet all other entrance requirements.

Upon arrival, conditionally accepted students may take the College’s English proficiency test. If students successfully demonstrate English proficiency on this test, they are accepted into their program of choice and may begin immediately. If English as a Second Language is required prior to program entry, students may be allowed to complete some courses from their program concurrent with their English program, depending on their English ability.

ACADEMIC PREREQUISITES

Entrance requirements for each program are set out in the program description. For most programs the entrance requirement is graduation from secondary school with marks equivalent to 60% or better in the Canadian system. Certain programs require achievement in specific
subject areas, such as Mathematics, English Language, Physics, Chemistry or Biology. Applicants from British-oriented educational systems should present the General Certificate in Secondary Education. All applicants should submit the latest transcript of work which will be assessed on an individual basis. Those students who have completed advanced courses in Mathematics and Sciences may be eligible to receive advanced standing for those courses.

AGE OF STUDENTS
The minimum age accepted by College of the North Atlantic is 17 years.

PROGRAM START DATES
Normally, College programs commence in September of each year, however, College of the North Atlantic will do its utmost to allow students more flexibility around entry times. Students with advanced standing may be able to enter a program in its second or third semester.

English as a Second Language (ESL) classes normally start in September and January, but students may join ESL classes on a continuous intake basis, enrollment permitting. ESL Summer Sessions may also be available. Contact the International Student Coordinator for details.

STUDENT SERVICES AND ON-CAMPUS FACILITIES
The College’s Division of Student Services provides personal and academic counseling to all students of the College. Student tutoring and other learning resources are also available. The Student Council organizes various activities for students throughout the year, including sports and recreation activities and special events.

International students can also use the services of the International Student Coordinator. Staff of this office are sensitive to the special needs of international students and are experienced in providing support to them, especially upon first arriving at the College.

Services include:
- Airport Reception - students are met upon arrival to the province.
- Housing - prearrangement of homestay or living accommodations.
- Orientation - information sessions on health, weather, banking, transportation, taxes, etc.
- Assistance with immigration matters such as renewal/extension of visas, work permits, reinstatement of status, etc.
- Liaison with sponsoring agencies, foreign governments, consulates and embassies.
- General advising and counseling regarding personal and financial concerns.
- Language assessment.

All students at College of the North Atlantic have free access to the Internet and a variety of software, accessible through the College’s many networked computers.

HEALTH INSURANCE
Medical coverage should be arranged prior to arrival or at the very latest, as soon as the student arrives, since coverage does not take effect until the insurance application has been accepted and the premium has been paid. Students should budget approximately $500 to $600 per year for health insurance.

If the student decides to obtain medical coverage in her/his home country, details as to the extent of the coverage and the claim procedure must be made available (in English) to the College. Students will not be permitted to register unless they provide proof of medical insurance. Students whose medical insurance expires will not be allowed to continue their programs.

Registered students of College of the North Atlantic are covered under an accident insurance plan. This DOES NOT provide routine medical coverage for students.

FEES AND COSTS
All amounts are in Canadian Dollars and all fees must be paid in Canadian Dollars.

Regular Academic Studies
Application Fee: CAD $100 non-refundable – must be sent with application

Tuition Fees:
Regular-Full-time programs
- Intersession: CAD $3300 per semester (15 weeks)
- Part-time studies: CAD $1650 per semester (6 weeks)
- Co-op work term: CAD $1650 per semester (12-16 weeks)

On the Job Training: CAD $220 per week
Materials & Supplies: CAD $55-$165 (some exceptions may apply)

Non-technical programs have two (2) semesters a year (September – December/January – April). Technical programs include an intersession in May/June. See program description in the College calendar for details.

Registration Fee: All programs CAD $95 per academic year (September to August)

Other Costs (Note: these are estimations of expenses, not exact figures)
- Textbooks: CAD $500 per semester ($50 for ESL)
- Health Insurance: CAD $600 per year
- Living Costs: CAD $600 per month (See Accommodation section)

SCHEDULE OF PAYMENTS
- Application Fee ($100) must accompany application form
- Registration Fee ($95) paid at registration, once per year
- First semester tuition ($3300) due when student receives Letter of Acceptance
- Tuition is paid in advance of the beginning of each semester
- Medical Insurance must be purchased before or upon arrival in Canada

ACCEPTABLE METHOD OF PAYMENTS
Payment can be made by international money order, by international bank draft, by credit card or by direct transfer into the College’s account.

REFUNDS
Tuition and Fees for International Students
The following outlines the international eligibility for tuition refund:
- In the event a student has paid tuition fees in advance and he/she is not granted a visa by the Canadian Embassy and cannot attend the College as a result, any tuition paid will be fully refunded. (The Application fee and the registration fee are non-refundable).
- In the event that a student formally withdraws their acceptance to the College 30 days prior to the program registration date, a $1000 administration fee will be deducted and the remaining tuition fees will be refunded to the student. (The application fee and the registration fee are non-refundable).
- Once a student is registered in their program of study, they are not eligible for any refund of tuition for the semester in which they are registered or any prior semesters. If the student has paid tuition fees for more than the current semester in which they are registered, tuition fees for subsequent semesters will be refunded. (The application fee and the registration fee are non-refundable).

SCHOLARSHIPS
The College does not provide entrance scholarships, bursaries or student loans to international students. Second and third year international students are eligible to apply for most scholarships and/or bursaries.

LIVING EXPENSES
An average monthly estimate of living expenses (not exact figure):
- Housing: $350.00
- Meals: $150.00
- Transportation: $50.00
- Incidental: $50.00
- Total Average: $600.00

RESIDENCE
Three campuses, Bay St. George, Burin and Happy Valley-Goose Bay, each have a residence. Fees for room and board at the residences range between $520 and $600 per month.

OFF-CAMPUS HOUSING
Newfoundland and Labrador also has many off-campus housing options including rental apartments, rental houses, and boarding houses. There are often apartments within walking distance of the College and a public bus service at many college campuses. Students who would like to live off-campus can contact the International Student Coordinator for a listing of off-campus housing options. We will endeavor to work with you to find a suitable apartment.

HOMESTAY
International students can take part in the College’s Homestay program where an international student lives with a local family. The College matches the student’s needs and interests with those of the host family. Students are welcomed into their Homestay home and...
are often included in family activities. Homestay is an ideal way to learn English and to find out more about North American culture and lifestyle. For a Homestay application please contact the International Student Coordinator.

What is homestay?
College of the North Atlantic (CNA) provides a Homestay Service where students live with a Canadian family in a home-setting. Typically you will be given a private furnished room, with access to a washroom. You will normally have a key to your room, and be given a key to the house so that you can come and go as you wish. Whenever you are given the key, you are always given the responsibility to ensure that you lock the doors on departing the house.

How does the College choose a homestay family?
You will be asked to complete a Homestay Questionnaire. This will assist us in identifying the best home and family for your specific needs. For example, perhaps you are allergic to cats - then the College will ensure that your family is one which does not have a cat in the house.

The College will inspect the student bedrooms in all Homestay houses. The College will ensure that these rooms are spacious, clean, comfortable, and well-lit with adequate lamps, etc. The College will also interview each homestay family to make sure that they understand the requirements of students from different countries, and that they are willing to help students settle into the communities and to their home. The College guarantees its Homestay - if after arrival, the student finds that the homestay family is not suited to his/her needs, the College will assist them in locating another. The College is not, however, responsible for any costs associated with such a change; for example, the student may lose some portion of their month’s rent, etc.

Will I be offered meals? Can I also prepare my own?
This is entirely dependent on your needs. Most Homestay arrangements include the homestay family preparing one main meal, normally the evening meal. Most often you will be responsible for preparing your own breakfast and lunch. Lunch is often a take-with-you meal - rice, or a sandwich, piece of fruit, etc. so that you do not have to return home at lunch time to eat. As well, homestay families will often be very tolerant of students preparing their own snacks and meals. This is something which you should indicate on the attached questionnaire and CNA will try to match your needs to your family.

What other parts of the house can I share?
You will be provided with information on the following:
• can the homestay student use the house telephone
• what is the time limit on calls - duration and frequency
• what is the policy on long distance calls
• can s/he install a telephone for his/her own use - or for use of his/her computer
• can s/he use the laundry facilities and how often
• will s/he be given a key to the room and to the exterior door
• can s/he use the kitchen other than meal times
• when is the rent due
• how many days notice must be given prior to leaving your homestay family
• is there parking arrangements should you have a car
• where is the nearest bus stop; cost of a bus ticket
• location of a shopping centre for food and supplies

Why should I choose homestay, and not an alternative accommodation option?
Other accommodation options are available and if you wish we can help you with those, however, we particularly recommend Homestay, especially for English as a Second Language students. The benefits of this living arrangement are many:
• the environment is safe and secure;
• your Homestay family will be a source of advice and support throughout your stay in the province; and
• you will be given ample opportunity to practice your English on a day-to-day basis with your Homestay family while at the same time experiencing the wonderful Newfoundland and Labrador culture.

How much can I expect to pay for Homestay?
Where meals are provided for students, Homestay will cost about CAD$125 to CAD$150 per week (about CAD$500 per month). The College does not charge any fees for its service in providing Homestay.

It will all be so different and my culture is so different than my host family. How will I know what to do?
Within a couple of days of your arrival, the College will arrange for you to attend an orientation session at the College. You will be offered advice on all sorts of things: weather; appropriate clothing for the weather; banking; buying a car, a computer, etc.; study hours; how to use the phone system, local transportation systems, computer systems, etc. We want your transition to our province, our college and the host family to be as smooth and worry-free as possible. We will be very frank with you, and hope that you will be as open with us in addressing your concerns and your fears.

What do I do next?
If you are registering as an international student in College of the North Atlantic, and you would like to register for the Homestay program as well, then you should:
• Complete the Homestay Profile and send it along with your application

Our International Student Coordinator will contact you to make arrangements to meet you at the airport when you arrive and take you to your Homestay family. Within a day or so after your arrival, you will be expected to pay the first month’s rent to the Homestay family. You can pay in cash, purchase a money order or open a bank account and write a cheque.

Remember, it is very, very important that you maintain contact with us. Changes in your travel times, dates, routing, etc. may mean that you will not be met at the airport upon arrival. So stay in touch!

Other accommodation
Should you decide to choose other accommodation such as an apartment, we will provide you with lists of rental units. We will endeavor to work with you to find a suitable apartment. You will need to be very clear about which options you want when you complete the accommodation questionnaire.
International Contracts

Economic development is strongly linked to the presence of an effective and responsive education system and the establishment of an educated and trained workforce. College of the North Atlantic embodies the concept of education-industry interface through the development of partnerships, tailor-made training, technical assistance and consultancies around the world to promote labour market renewal and develop relevant professional and skills training programs.

INTERNATIONAL CONTRACT TRAINING
College of the North Atlantic develops tailor-made training programmes to meet the needs of businesses and organizations worldwide. Customized training can vary in duration from a one-day session to programmes of several months. We pride ourselves in responding quickly and accurately to clients’ needs.

College of the North Atlantic’s instructional and support staff have the expertise to ensure quality programmes and services. Training expertise at College of the North Atlantic exists in a wide range of sectors:
- Petroleum/Oil & Gas
- Safety & Construction
- Tourism & Hospitality
- Health Sciences
- Engineering Technology
- Industrial Trades
- Business
- Information Technology
- Management & Leadership
- English as a Second Language
- Distance Learning Systems
- Natural Resources

INTERNATIONAL PARTNERSHIPS
College of the North Atlantic works in partnership with educational institutions in joint delivery of programs, training needs assessment, curriculum and program development, teacher training, and other areas of educational cooperation. We have an excellent track record in working with partner institutes and organizations.

In 2002, College of the North Atlantic was chosen by the State of Qatar as its partner in the creation of a world-class technological institute. The Qatar campus is growing steadily towards a student population of 6000, with 22 brand new custom-designed buildings, state-of-the-art facilities and computer systems, classrooms, laboratories, industrial workshops and a comprehensive range of programs and student services.

INTERNATIONAL CONSULTANCIES AND TECHNICAL ASSISTANCE
The College has extensive experience and proven success in sharing best practices and processes in both the administrative and pedagogical aspects of technical/vocational education. College of the North Atlantic has provided technical support and consultancy services to projects operated by private companies, governments, non-government organizations and development agencies such as the World Bank, the International Development Research Centre, the Canadian International Development Agency and the Association of Canadian Community Colleges.

GEOGRAPHIC EXPERIENCE
In the past decade alone, College of the North Atlantic has worked with clients in Libya, Lebanon, Yemen, Qatar, West Bank/Gaza, Jordan, Egypt, Peru, Argentina, Chile, Jamaica, Barbados, the Caribbean, Tanzania, Vietnam, Malaysia, Latvia, Lithuania, Russia, India, Pakistan, Thailand, and China.

For additional information regarding custom-designed training, partnerships, and other international business initiatives please contact:

Business Development Manager
International Services
College of the North Atlantic
1 Prince Philip Drive
P. O. Box 1693
St. John’s, NL
Canada A1C 5P7
tel: +1 709 758-7261
fax: +1 709 758-7222
email: international@cna.nl.ca
Web: www.cna.nl.ca

International Business Development Officer
tel: +1 709 758-7499
fax: +1 709 758-7505
email: international@cna.nl.ca
web: www.cna.nl.ca
The Alumni and Advancement Office opened in January 2004 and operates within the Division of Development and College Advancement, located at the Prince Philip Drive Campus in St. John’s. Its role is to provide an opportunity for all Alumni to connect with the college and with one another.

College of the North Atlantic Alumni are those individuals who have graduated from an approved diploma or certificate program at CNA or one of its predecessors, for example the Labrador Community College, College of Trades and Technology or the Heavy Equipment School.

There are many benefits for alumni and current students to having a college Alumni Office and an Alumni Association. For example:

**BENEFITS FOR ALUMNI**
- The college has always felt its sense of responsibility, pride and interest in the lives of its graduates. With the development of an Alumni Office and Association, alumni will have a lifelong connection to the college and knowledge that it is interested in where alumni go and how they do.
- Alumni will have access to services which may include the alumni website, links to continuing education, use of the library, alumni merchandise, alumni association membership, etc.
- Opportunities to stay connected or to re-connect with the college, former teachers, classmates and friends.
- Opportunities to access career services.
- Opportunities to give back to the college by being a college ambassador within their communities by assisting in recruitment activities or volunteering with various alumni and student activities.

**BENEFITS FOR STUDENTS**
- The Alumni Office and Alumni Association will help current students have a connection with alumni in the workplace who may help with career guidance or mentorships.
- It will give students the knowledge that the relationships they are forming as students will continue beyond graduation.
- It will benefit students because alumni and other members of the community may support student scholarships and bursaries. Students with high academic standing deserve to be rewarded and students who want to attend CNA and cannot for financial reasons deserve assistance.
- Students will benefit from Alumni Association sponsored programs and services during such events as orientation, winter carnival and graduation.

To learn more about these benefits or to become involved contact:

Sonya Smith
Manager, Alumni and Advanced College of the North Atlantic
1 Prince Philip Drive, Room #203
P. O. Box 1693
St. John’s NL A1C 5P7
tel: 709 758-7515
fax: 709 758-7222
email: sonya.smith@cna.nl.ca

RECONNECT TO THE COLLEGE
Visit: www.cna.nl.ca/alumni
Applied Research and Innovation

OFFICE OF APPLIED RESEARCH
The Office of Applied Research (OAR) leads the college’s research and innovation activity. With state-of-the-art technologies, skilled workforce and the most modern infrastructure, we, at College of the North Atlantic, are well equipped to support pan-provincial innovation activity in response to industry and community needs. This office is mandated to foster exploratory activity through the application of new knowledge to sustainable economic activity. By coordinating its strengths with that of the private and public sector, the Office offers support and promise to the economic prosperity of the province. More specifically the OAR:
• Provides administrative support to units undertaking research within CNA
• Fosters industrial/business partnerships and linkages to funding opportunities
• Assists with proposal development, managing institutional grant applications and post-project activities
• Guides policy and process development, compliance and service quality monitoring
• Develops and guides intellectual property, technology transfer, royalty and commercialization agreements
• Manages personnel requirements for projects including faculty secondments and student internships
• Links applied research and innovation activity to program currency, professional development and technology transfer

RESEARCH STRATEGY
The research strategy of the college focuses on fostering areas of existing and emerging strengths, and undertakes a range of investigative and scholarship activity in support of its educational goals. The college undertakes applied research activities in selected technology areas, matching industrial opportunities with established in-house strengths. Our current areas of strength include, but are not limited to: engineering technology, information and communication technology, natural resources and environmental technology.

RESEARCH INITIATIVES
Nodes of research and development activity are present throughout the college. Active projects that involve multiple funding and participating partners include disciplines such as:
• Geospatial Resource Management
• Manufacturing Technology
• Instrumentation
• Telecommunication
• Agrifoods
• Petroleum
• Digital Animation
• Sustainable Industrialism
• Environmental Management

The Office of Applied Research can be contacted at the following coordinates:
Office of Applied Research
College of the North Atlantic
Prince Philip Drive Campus (Room K203)
P. O. Box 1693
St. John’s, NL, CA
A1C 5P7
tel: 709 758-7474
fax: 709 758-7327
e-mail: Office.AppliedResearch@cna.nl.ca
**Adult Basic Education (ABE)** is a high school equivalency program designed for adults who did not complete high school. Those who have graduated high school but who wish to upgrade their credentials in one or more subject areas will be considered based on suitability of ABE program and availability of seats.

Adult Basic Education is offered in the context of the college’s Access to Training and Careers (ATC) delivery model. Students are provided with an opportunity to complete a Career Development Portfolio and to prepare a Personal Career Plan. An advising process is used to support students throughout their participation in this program.

**Entrance Requirements**

In order to enroll in the ABE Program, a student must be at least 17 years of age and out of the school system for at least one year. Any requests for special admissions/exemption will need a rationale/documentation (i.e. letter from parents; letter from guidance counselor; letter from applicant; transcript of marks; completed application) to be submitted to the ABE Program Consultant and Registrar.

The college offers the following three levels of this program:

**Level I**

Level I refers to basic literacy and equates roughly to K-6 in the regular school system. All curriculum materials are adapted to various reading levels while maintaining an adult focus. This level of learning uses an updated curriculum, new assessment tools and delivery practices to ensure that adult learners meet a standard of literacy necessary for success in everyday life, and that they are adequately prepared to meet the requirements of future levels of education.

**Level II**

Level II content is similar to that which is encountered in the intermediate level (grades 7-9) of the regular school system. A student who left school prior to Grade 10 in the regular system would normally be placed in Level II. Many students who have been out of the school system for a number of years also enroll in Level II to “brush up on the basics” before attempting Level III. Level II students complete courses in study skills, English and literature, mathematics and science.

**Level III**

Level III has recently undergone a comprehensive revision process to bring it more in line with the current program of studies in the high school system. The new ABE Level III program currently consists of three profiles that lead students to post-secondary study options. (A fourth profile is presently being developed and will be implemented at a later date.) A student may choose to graduate under the Degree and Technical Profile, the Business-Related College Profile or the General College Profile. Graduation from any profile requires a minimum of 36 credits.

**Note:** For the specific number of credits required within subject areas/course categories in each profile, students are advised to see their ABE instructors/academic advisors. A description of each profile is included below.

**ACADEMICS**

**Degree and Technical Profile**

This is an academic profile in which core courses are directly equivalent to corresponding courses in the high school system. It is designed for ABE students who intend to go on to university or other post-secondary programs that require an equivalent level of secondary education (for example, Engineering Technology, Natural Resources, and Health Sciences programs).

Graduation requirements consist of a minimum of 36 credits, including the following:

- **English (9 Credits)**
  - English 1101A, 1101B, 1101C
  - English 2101A, 2101B, 2101C
  - English 3101A, 3101B, 3101C

- **Mathematics (9 Credits)**
  - Math 1104A, 1104B, 1104C
  - Math 2104A, 2104B, 2104C
  - Math 3104A, 3104B, 3104C

- **Science (8 Credits)**
  - Credits must include:
    - 2 credits from:
      - Biology 1101
      - Chemistry 1102
      - Physics 1104
      - Earth Systems 1109
    - Plus one of the following groupings:
      - Biology 2101A, 2101B, 2101C
      - Biology 3101A, 3101B, 3101C
      - OR
      - Chemistry 2102A, 2102B, 2102C
      - Chemistry 3102A, 3102B, 3102C
      - OR
      - Physics 2104A, 2104B, 2104C
      - Physics 3104A, 3104B, 3104C

- **Personal Development and Career Awareness (4 Credits):**
  - IE3211 Consumer Studies
  - IE3212 Computer Studies
  - IE3213 Career Awareness
  - IE3214 Personal Development

- **Electives**
  - Additional credits including those from subject areas above, as needed to make up the minimum of 36 credits

- **General Options**
  - Maximum of 10 credits

**Business-Related College Profile**

This is an academic profile in which many of the core courses are directly equivalent to corresponding academic courses in the high school system. It is designed for ABE students who intend to go on to business-related college programs (for example, Business Administration, Business Management, and Information Technology programs).

Graduation requirements consist of a minimum of 36 credits, including the following:

- **English (9 Credits)**
  - English 1101A, 1101B, 1101C
  - English 2101A, 2101B, 2101C
  - English 3101A, 3101B, 3101C
Mathematics (9 Credits)
Math 1104A, 1104B, 1104C
Math 2104A, 2104B, 2104C
Math 3104A, 3104B, 3104C

Science (6 Credits)
Students working under the Business Related college Profile may follow the graduation requirements in science for either the Degree and Technical Profile or the General college Profile, to a minimum of six credits.

Personal Development and Career Awareness (4 Credits)
IE3211 Consumer Studies
IE3212 Computer Studies
IE3213 Career Awareness
IE3214 Personal Development

Electives
Additional credits including those from subject areas above, as needed to make up the minimum of 36 credits.

General Options
Maximum of 10 credits

General College Profile
This is a profile in which many of the core courses are equivalent to corresponding general courses in the high school system. It is designed for ABE students who intend to go on to post-secondary programs that require a high school graduation certification (for example, Office Administration, Industrial Trades, and some Applied Arts programs). Certain options for courses in this profile have been designed specifically for preparation for Trades programs.

Graduation requirements consist of a minimum of 36 credits, including the following:

English (9 Credits)
English 1102A, 1102B, 1102C
English 2102A, 2102B, 2102C
English 3102A, 3102B, 3102C

Mathematics (6 Credits)
Math 2105A, 2105B, 2105C

plus one of the following groupings:
Math 3107A, 3107B, 3107C
OR
Math 3109A, 3109B, 3109C

Science (6 Credits)
Credits must include:

3 credits from the following:
Science 3101
Science 3102
Science 3103
Science 3104
Science 3105
Science 3106
IS3214 Environmental Science

Plus 3 more credits from the list above
OR
Science 2100A
Science 2100B
Science 2100C
OR
Any science from Degree and Technical Profile (provided that pre-requisites are met)

Personal Development and Career Awareness (4 Credits)
IE3211 Consumer Studies
IE3212 Computer Studies
IE3213 Career Awareness
IE3214 Personal Development

Electives
Additional credits including those from subject areas above, as needed to make up the minimum of 36 credits

General Options
Maximum of 10 credits

Note: Although the above profiles are aligned with post-secondary programs as indicated above, students must check specific program entrance requirements if intending to apply to a post-secondary program.

All students are counseled upon registering to ensure that the courses which they select are appropriate for the career goal they are pursuing. Students should also note that they may be eligible for credits for courses or programs which they may have completed since leaving school so it is important that all documentation (e.g. high school transcripts, certificates from other training) is obtained, preferably before registering.
ACADEMICS

Comprehensive Arts & Science College Transition

Comprehensive Arts and Science (CAS) College Transition is designed for high school and Adult Basic Education graduates who would like to improve their general employability skills or who are lacking either the academic courses or the required grades to meet the admission requirements of the College program they would like to enter. The College Transition program also provides a valuable “refresher” for mature students who have been away from education, training and/or the workforce for some time.

Students in the CAS College Transition program will be provided the opportunity to gain a wide range of knowledge and skills in preparation for further post-secondary training and/or employment. In addition to courses in English, mathematics and sciences, students will be able to select courses from a range of General Education and Social Science courses as well as Exploration and Student Success courses. College Transition courses such as Critical Thinking and Effective Learning provide students with the opportunity to develop the essential skills and strategies for successful learning in any college program. The completion of elective courses from other program areas will enable students to gain credits which may be used in a subsequent College program. (Note: The range of course offerings may vary between campuses. Prospective students are advised to check with the campus they will be attending to confirm available courses.)

OBJECTIVES

1. To provide the opportunity for secondary level graduates to meet entrance requirements for other College programs.
2. To provide secondary level graduates and mature students with the opportunity to strengthen academic skills and/or learning habits and strategies needed to succeed in post-secondary programs.
3. To enhance the employment opportunities of secondary level graduates and mature students through improving fundamental employability skills.
4. To provide the opportunity for secondary level graduates to clarify training and career goals.
5. To provide a refresher for mature students who have been away from education, training and/or the workforce for an extended period of time.

ENTRANCE REQUIREMENTS

A Provincial High School Graduation Certificate, OR
A Grade XI Public Examination Pass, OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile), OR

Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

FUTURE OPPORTUNITIES

One objective of the CAS College Transition program is to increase opportunities for the youth of this province to gain post-secondary qualifications, and thus improve their lifetime employment and earnings potential. A number of recent government reports have documented the declining significance of high school graduation alone as a predictor of employability/employment status.

CAS College Transition has the potential to significantly affect the employment and earnings potential of many adults in this province. For those who successfully make the transition to other College programs, the prospects for employment and increased lifetime earnings potential would be greatly enhanced. The Transition program also provides students with a post-secondary credential which could be of immediate benefit to them in the labour market, both in securing part-time work during their college studies and in attaining full-time work if they choose to postpone or suspend their studies for any reason.

Graduates of the CAS College Transition program who have successfully completed the appropriate courses may qualify for admission to other College programs or they may elect to enter the workforce directly.

REQUIREMENTS FOR COMPLETION

In order to complete the requirements of the Comprehensive Arts and Science College Transition Certificate program, students must attain 40 credits with a minimum Grade Point Average of 2.00. Credits must include completion of Essential English I and II, a minimum of 20 credits from Core Program courses, and a minimum of 6 credits from Electives. Students must also meet all qualification requirements for the awarding of a Certificate from the College.
ACADEMICS

Comprehensive Arts & Science Transfer: College-University

Comprehensive Arts and Science (CAS) Transfer: College-University program provides students with the opportunity to complete a suite of courses for which they will gain credit from College of the North Atlantic as well as from Memorial University of Newfoundland. It has been developed through an agreement with Memorial; courses identified in this section are developed in collaboration with Memorial’s respective departments.

Note: In the areas of curriculum content and testing methodologies, these courses are identical to Memorial’s.

These introductory courses are designed for students intending to transfer to university after completion of their first year at College of the North Atlantic.

OBJECTIVES
1. To enhance student access to courses that earn both University and College credits.
2. To provide an opportunity for students to gain University course credit at locations close to their home communities.
3. To allow students to choose career paths with maximum recognition of credit for work completed.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Two Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

OR
Provincial High School Graduation with 60% overall average in the following:
1. English (2 credits) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292
2. Language (1 credit) chosen from: 3101, 3103 or 4121 and Literature (2 credits) chosen from:
   a. Thematic Literature 3201 or Literary Heritage 3202
   b. Mathematics (2 credits) chosen from:
      Advanced: 3201, 3205, 3211, 3215, 3221, 3231, 3271, 3281, 3291, 4225
      Academic: 3203, 3200, 3204, 3210, 3214, 3230, 3270, 3280, 3290
   And 2 credits chosen from:
      Advanced: 2201, 2205, 2221, 2231, 2271, 2281, 2291
      Academic: 2203, 2200, 2204, 2230, 2270, 2280, 2290
3. Science (4 credits) two of which must be selected from:
   a. Biology 3201, 3211, 3231, 3271, 3281, 3291, 4221
   b. Geology 3203, 3213, 3223, 3273, 3283, 3293
   c. Physics 3204, 3214, 3274, 3284, 3294, 4224
   d. Chemistry 3202, 3212, 3230, 3272, 3282, 3292, 4222
   e. Earth Systems: 3213, 3209

The remaining two credits may be selected from 2000 level courses in the above noted subject areas or from Science 1206.
4. Either Social Science (2 credits) chosen from:
   a. Global Economics 3103, 3133, 4128, 4129
   b. World History 3201 or 3231
   c. World Geography 3202
   d. Global Issues 3205
   e. Or Modern/Classical Language (2 credits) at the 3000 level

5. Electives
   Two credits at the 3000 level in elective courses chosen from the subjects above or from additional courses approved by the Department of Education for offering at the 3000 level for certificate purposes.

OR
Applicants who do not meet the educational prerequisites will be considered for admission based upon either the completion of a recognized High School equivalency program or the College’s Mature Student Policy

OR
Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
1. Communications IC3112 plus IC3321 or IC3222.
2. Mathematics... from one of the following sections:
   a. Mathematics IM3115, 3211, 3212, 3213, 3216
   b. Mathematics IM3218, 3219, 3221
3. Science... from one of the following sections:
   a. Biology IB3111, 3115, 3117, 3121, 3122A/B, 3124, 3316.
   b. Chemistry IH3111, 3112, 3115, 3116, 3117, 3118, 3215
   c. Physics IP3111, 3112, 3123, 3125, 3126
d. Geology IS3212

OR
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science... from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Requirements for Completion
In order to complete the requirements of the Comprehensive Arts and Science Transfer: College-University Certificate program, students must complete 10 courses from the CAS Transfer: College-University suite of courses with a minimum Grade Point Average of 2.00.

Note: For purposes of completion of the Certificate, MA1670 Statistics and EP1110 Introduction to Business may also be included in the CAS Transfer: College-University suite of courses. Students must also meet all qualification requirements for the awarding of a Certificate from the College.

Maximum number of CAS Transfer: College-University courses per semester (i.e. Fall; Winter) is five.

COURSES

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Comprehensive Arts & Science Transfer: College-University – Course Descriptions

NOTE: The courses listed below have been developed through an agreement with Memorial; courses identified in this section are developed in collaboration with Memorial's respective departments. These courses, referred to as College-University Suite of Courses, are the courses required for graduation from the CAS Transfer College-University program and are different from regular College courses that transfer to other post-secondary institutions, as covered by the Council on Higher Education Transfer Guide.

BL1170 Principles of Biology I
Transferable to MUN Biology 1001
This is the first of two introductory courses developed for credit transfer to Memorial University of Newfoundland. The course is intended to be equivalent to MUN’s Biology 1001. The course contains the following subject areas: biology as science, basic biochemistry, introduction to cells, an introduction to metabolism, enzymes, and homeostasis, plasma membrane structure and function (transport), origins of life, diversity classification, and taxonomy of life, and classification of the kingdoms; an introduction to Kingdom Monera, including the use of bacteria as the model for molecular genetics; viruses, introduction to Prokaryotes and autotrophic Protists; an introduction to plants including plant evolution, structure, growth, nutrition, transport, and reproduction.
Prerequisite(s): None

BL1171 Principles of Biology II
Transferable to MUN Biology 1002
This is the second of two introductory courses developed for credit transfer to Memorial University of Newfoundland. The course is intended to be equivalent to MUN’s Biology 1002. This course continues the discussion of the five biological kingdoms and includes the following subject areas: eukaryotic cell division, heterotrophic Protists, fungi, and animals. The animal discussions include an introduction to animal structure, tissues, organs, and organ systems, bioenergetics, homeostasis, nutrition (digestive systems), circulatory systems, internal transport (circulatory systems), gas exchange systems, excretion and osmoregulatory systems, regulatory systems, nervous systems, support and movement, and reproductive systems.
Prerequisite(s): BL1170 or BL1500 or MUN Biology 1001

CH1130 Introductory Chemistry I
Transferable to MUN Chemistry 1010
This is an introductory course in chemistry dealing with the fundamental laws of chemistry, the nature of matter and the physical states of matter, the structure of the atom, the electronic structure and the periodic table, the significant figures and scientific notations, measurements and units, writing and balancing chemical reactions, stoichiometry and stoichiometric calculations, chemical bond- ing, gases and gas law calculations. Major topics include: Matter and energy; atoms, molecules and ions; mass relations in chemistry (stoichiometry); reactions in aqueous solution; gases; thermochemistry, electronic structure and the periodic table; and ionic and covalent bonding.
Prerequisite(s): None, but high school chemistry is recommended. Strong mathematical skills are required, and students with low marks in high school academic mathematics (less than 70%) are strongly recommended to upgrade their mathematics background before undertaking this course.

CH1131 Introductory Chemistry II
Transferable to MUN Chemistry 1011
This is a continuation of CH1130. This course will further develop the fundamental concepts of chemistry, with emphasis on physical properties of matter, intermolecular forces, molecular geometry and chemical bonding theory, rate of reaction, gaseous chemical equilibrium, acid-base equilibrium, precipitation equilibria and electrochemistry. Major topics include: physical properties of matter, molecular geometry, rate of reaction, gaseous chemical equilibrium, acid-base equilibria, precipitation equilibria and electrochemistry.
Prerequisite(s): CH1130 or MUN Chem 1010

CH1140 General Chemistry I
Transferable to MUN Chem 1050
This course is designed for students who have previously studied Chemistry either in high school or university. It is designed to give students a knowledge and understanding of the fundamental chemical concepts which will form the basis for further studies in the field of science. Major topics are: matter – its properties and measurement, atoms and atomic theory, chemical compounds, chemical reactions, introduction of reactions in aqueous solution, gases and hydrogen, electrons in atom, the Periodic Table and some atomic properties, chemical bonding I: basic concepts, chemical bonding II: additional aspects, liquids, solids, and intermolecular forces, solutions and Physical properties.
Prerequisite(s): At least 75% in high school Chemistry 3202 and a pass in high school Advanced Mathematics 3205.
Co-requisite(s): MA1130 (or MUN Math 1000) or MA2100. A physics course would be helpful, especially for students who did not take Physics in high school.

CH1141 General Chemistry II
Transferable to MUN Chem 1051
This course is designed for students who may have career interests in chemistry or other fields of science. The course will develop further the fundamental concepts of chemistry, with emphasis on practical applications. It is designed to identify and apply principles as well as provide visualization of their physical significance. Major topics are: chemical kinetics, principles of chemical equilibrium, acids and bases, additional aspects of acid-based equilibria, solubility and complex ion equilibria, spontaneous change; entropy and free energy, electrochemistry, and descriptive chemistry.
Prerequisite(s): CH1140, MA1130 or MA2100, (or MUN Chem 1050, Math 1000 or 1081).

CH1150 Introductory Chemistry III
Transferable to MUN Chemistry 1031
This course is designed to prepare students who have completed Chemistry 1131 (or MUN Chemistry 1011) for second year Chemistry courses. It deals with the topics in greater depth with emphasis on problem solving, as in Chemistry 1141.
Prerequisite(s): CH1131 or MUN Chem 1011.

CM1120 Critical Reading and Writing I
Transferable to MUN English 1080 or 1000
An exploration of literary texts, which will include such forms as poetry, short fiction, drama and the essay. Emphasis is placed on critical reading and writing including analyzing texts, framing and using questions, constructing essays, organizing paragraphs, quoting and documenting, revising and editing.
Prerequisite(s): Minimum of 60% in Language 3101 and a minimum of 60% in either Thematic Literature 3201 or Literary Heritage 3202 or English 3201 (minimum of 60%) or meet Memorial’s admission requirements or CM1061.

CM1135 Critical Reading and Writing II (Fiction)
Transferable to MUN English 1101 or 1001
This course is an introduction to such prose narrative forms as the novel, the novella, the story sequence and the autobiography. This course continues the emphasis on critical reading and writing begun in CM1120. It also introduces the student to longer prose narrative, particularly the novel form and to the practices of conducting research.
Prerequisite(s): CM1120 or MUN English 1080.

CM1145 Critical Reading and Writing II (Context, Substance, Style)
Transferable to MUN English 1110 or 1001
This course is an introduction to the writing and analysis of prose. Students will analyze prose writing and practice a number of writing strategies that consider a variety of audiences and purposes. The course furthers the development of writing and analytical skills acquired in CM1120. English and introduces the student to writing intended to critique, persuade, and analyze.
Prerequisite(s): CM1120 or MUN English 1080.

CM1155 Critical Reading and Writing II (Drama)
Transferable to MUN English 1102 or 1001
This course is an introduction to the study of plays, primarily as written texts. Elements of theatre history and dramatic theory and of live performance production processes may be introduced to enhance students’ understanding of this uniquely hybrid literature. This course continues to develop the critical reading and writing skills introduced in CM1120.
Prerequisite(s): CM1120 or MUN English 1080.

CM1165 Critical Reading and Writing II (Poetry)
Transferable to MUN English 1103 or 1001
English CM1165 introduces the writing and analysis of poetry. This course continues to develop critical reading and writing skills introduced in CM1120. Students will also learn to develop library/research skills.
Prerequisite(s): CM1120 or MUN English 1080.

EC1140 Introduction to Microeconomics
Transferable to MUN Economics 1103
This second year equivalent course is intended to prepare a student to take additional courses in economics and business. The subject matter of this course will help in understanding some of the concepts, problems, and arguments that are presented in other courses or in the public press. In this course the student will develop a set of tools of analysis that will provide insight into what is involved in the decision making process, realize implications that may not be readily apparent to the general public, and be situated in a position to more readily ask relevant questions concerning diverse initiatives. The course will cover the following topics: scarcity and opportunity cost, demand and supply, elasticity, household demand, marginal utility, indifference curves, production functions, short-run and long-run cost functions, and...
North America with special reference to Newfoundland

EC1150 Introduction to Macroeconomics
Transferable to MUN Economics 2020
This second year equivalent course is designed to introduce students to macroeconomics and is intended to prepare a student to take additional courses in economics and business. Topics that will be covered include national income accounting, aggregate income analysis, money, banking and foreign trade. The course examines the physical and monetary aspects of international trade, money, banking and monetary policy, the gross domestic product, national expenditure components, business cycles and fiscal policy. The emphasis is on Canadian examples where possible.

Prerequisite(s): None but strong mathematical skills are required; preferably the same prerequisite as MA1104 (or MUN Math 1090).

EH1100 Earth Systems
Transferable to MUN Earth Sciences 1000
A survey of major earth systems, including the interior of the Earth, lithosphere, hydrosphere, atmosphere, and biosphere – their structure, composition and interaction.

Prerequisite(s): None

EH1101 Evolution of Earth Systems
Transferable to MUN Earth Sciences 1001
The evolution of the earth’s structure and environment through geological time are explored from the rock and fossil record. Particular emphasis is given to the geological history of North America, especially Newfoundland and Labrador.

Prerequisite(s): EH1100 or MUN ES1000

EH1102 Concepts and Methods in Earth Sciences
Transferable to MUN Earth Sciences 1002
Introduction to a broad range of concepts concerning the development of the geological record and the Earth; practical methods for collection of field based data; topics in map interpretation and geometric analysis, stratigraphy, paleontology, structure and petrology, designed to develop the skills necessary to understand and prepare geologic maps and other general skills needed to pursue a career in Earth Sciences.

Prerequisite(s): EH1100 or MUN Earth Sciences 1000

Note: This course is required for all Earth Sciences majors and minors and for all joint Programs (Earth Sciences) at MUN.

EL1150 Introduction to Folklore
Transferable to MUN Folklore 1000
The role that tradition plays in communication, art and society will be discussed through an examination of folkloric materials from Newfoundland and Labrador and the English-speaking world. Through assignments students will identify and reflect on folklore in their own lives and the lives of others.

EL1320 Folklore Studies
Transferable to MUN Folklore 2401
An examination of the traditional cultures of Europe and North America with special reference to Newfoundland and Labrador. A selection of the following areas will be covered: settlement patterns, architecture, work and leisure patterns in the folk community, calendar customs, rites of passage, folk religion, folk medicine, language and folk culture, folk costume, foodways and folk art.

Prerequisite(s): Normally EL1150 (MUN Folklore 1000) is the prerequisite for the course; this can be waived with special permission of the head of the Folklore Department.

EL1420 Introductory French I
Transferable to MUN French 1500
This is an introductory course for students with little or no previous knowledge of French and for those who wish to review the basic vocabulary and structure. The course uses only the present tense and basic vocabulary, and covers the most common situations of daily life.

Prerequisite(s): None

EL1430 Introductory French II
Transferable to MUN French 1501
This is a course which teaches the use of past tenses and more advanced structures. Students begin to read short texts, to write longer compositions and to explore more complex situations.

Prerequisite(s): French EL1420 or MUN French 1500 or High School French 3200.

EL1440 Introductory French III
Transferable to MUN French 1502
This course introduces ways of dealing with future and hypothetical situations, and cases where emotion and personal feelings color the issue. The work of composition and intensive vocabulary building continues, and students are expected to engage in more advanced oral practice.

Prerequisite(s): EL1430 or MUN French 1501.

MA1104 Algebra and Trigonometry
Transferable to MUN Math 1090
This pre-calculus course is designed to strengthen students’ skills in basic algebra, review and develop a deeper understanding of the concept of a function and make students aware of the importance of trigonometry. After completing this course students will have the essential prerequisite elements to complete an introductory calculus course. Major topics include: fundamentals of algebra, functions and their graphs, exponential and logarithmic functions, trigonometry, analytical trigonometry, polynomials and rational functions.

Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test or MA1041.

MA1120 Finite Mathematics I
Transferable to MUN Mathematics 1050
This course is designed to satisfy part of the first year mathematics requirement for prospective teachers in primary and elementary education programs. This course is also suitable for students headed into a non-science area of study.

Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test or MA1041.

MA1121 Finite Mathematics II
Transferable to MUN Mathematics 1051
This course is designed to satisfy part of the first year mathematics requirement for prospective teachers in primary and elementary education. This course is also suitable for students headed into a non-science area of study.

Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test or MA1041.

MA1130 Calculus I
Transferable to MUN Mathematics 1000
An introduction to differential calculus including logarithmic, exponential, and trigonometric functions with applications. A brief introduction to integration.

Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test.

MA1131 Calculus II
Transferable to MUN Mathematics 1001
An introduction to integral calculus with applications.

Prerequisite(s): MA1130 or MUN Math 1000.

MA2150 Linear Algebra I
Transferable to MUN Mathematics 2050
Linear algebra is the branch of mathematics dealing with solutions of linear equations, and related ideas of vector spaces and linear transformations. This is a practical, non-calculus course where students learn how to solve systems of linear equations, perform matrix algebra, find eigenvalues, diagonalize matrices, and perform vector geometry.

Prerequisite(s): Math 1130 or ten credit hours in first-year mathematics courses (two first-year math courses)

PH1120 Introductory Physics I
Transferable to MUN Physics 1020
Physics I is a non-calculus based introduction to mechanics. This is an introductory course designed to extend students’ knowledge and understanding of the basic concepts, principles and applications of mechanics. Topics covered include: kinematics in one and two dimensions, vectors, dynamics, equilibrium, work and energy, linear momentum, circular motion, equilibrium, torque and gravitation.

Prerequisite(s): High School Level III Academic Mathematics with a minimum mark of 70%, or a pass in Advanced Mathematics, or College MA1104 (or MUN Mathematics 1090). MA1104 (MUN Mathematics 1090) may be taken concurrently.

PH1121 Introductory Physics II
Transferable to MUN Physics 1021
Physics II is a non-calculus based introduction to mechanics. It is an introductory course which may be used as a transfer credit course in physics in a Memorial University academic degree program. Topics covered are: fluids, vibrations and waves, sound, electric charge and electric field, electric potential and potential energy, electric current, D.C. circuits and instruments, magnetism and geometrical optics.

Prerequisite(s): PH1120 or MUN Physics 1020 or PH1130 or MUN physics 1050 and College MA1130 (or MUN Mathematics 1000). MA1130 (MUN Mathematics 1000) may be taken concurrently.
PH1130 Physics I
Transferable to MUN Physics 1050
This course is a calculus-based introduction to mechanics. The course emphasizes problem solving. One goal is to extend students’ knowledge and understanding of the basic concepts, principles and applications of mechanics, which underlies so much of science. An equally important goal, however, is to develop methods of learning and problem solving which will be of value in whatever endeavors students ultimately choose to pursue. Topics covered include Measurement, Kinematics in one and two Dimensions, Vectors, Laws of Motion, Application of Newton’s Laws, Work and Energy, Momentum, and Static Equilibrium.
Prerequisite(s): Completion of Physics 2204 and Physics 3204 in high school and enrolment in Mathematics 1130 (MUN Mathematics 1000) concurrently.

PH1131 General Physics II
Transferable to MUN Physics 1051
General Physics II is a Calculus-based Physics course. This course is integrated with the use of computers in a workshop environment. Computers will be used to collect and analyze data on simple physical systems. Physics 1130 (General Physics I) introduces mechanics. This course focuses on oscillation, wave motion, physical optics, electricity, and magnetism. This course further develops the processes of logical reasoning and critical thinking as applied to Physics in particular, and Science, in general. General Physics II is a college credit course which may be used as a transfer credit course in Physics in a Memorial University degree program. Topics covered include oscillations, wave motion, physical optics, and electromagnetism.
Prerequisite(s): PH1130 (MUN Physics 1050) or PH1121 (MUN Physics 1021) or PH1120 (MUN Physics 1020) (with a minimum grade of 65%), and MA1131 (MUN Mathematics 1001). MA1131 (MUN Mathematics 1001) may be taken concurrently.

PS1150 Introduction to Psychology I
Transferable to MUN Psychology 1000
This course introduces students to psychological theory and research in the areas of neuroscience, human development, learning and memory, sensation and perception of stimuli, and different states of consciousness.
Prerequisite(s): None

PS1151 Introduction to Psychology II
Transferable to MUN Psychology 1001
An introduction to psychological theory and research in the areas of human cognition and emotion, motivation, personality, psychological disorders and treatment, social psychology, health and stress, and sexuality.
Prerequisite(s): PS1150 or MUN Psychology 1000.

SC1150 Principles of Sociology
Transferable to MUN Sociology 2000
Sociology 1150 is an introduction to the concepts, principles and topics of sociology. The theoretical foundations of modern sociology are examined through the works of such social theorists as Karl Marx, Emile Durkheim and Max Weber, in addition to the contemporary theoretical perspectives of functionalism, feminism, conflict theory and symbolic interactionism. The course also examines a range of sociological topics and concepts including research methods, culture, socialization, social stratification, deviance and crime, race and ethnicity, sex and gender, health and healthcare, work and the economy, and populations.
Prerequisite(s): None

SC1160 Sociology of Families
Transferable to MUN Sociology 2270
Topics covered include: defining the family, sociological perspectives on the family, family diversity, dynamics of intimate relationships, marriage, children and parenting, lone parent families, separation, divorce and remarriage, the family and work, the family and poverty, midlife and beyond, social problems in the family, trends in Canadian family life.
Prerequisite(s): None

SC1430 Labrador Society and Culture
Transferable to MUN Sociology/Anthropology 2220
This course examines Labrador Society and Culture from its pre-Contact origins through to the present day. Through coursework, guest speakers and documentaries attention will center on specific cultural groups/traits within Labrador, as well as their interrelationships, which constitute Labrador society.
Prerequisite(s): None

SI1500 Introduction to Physical and Life Science I
Transferable to MUN Science 1150
This course is designed for non-science majors and students who want to pursue a degree in primary and elementary education. This course is divided into two parts, the first part focuses on the earth and sky, and the second part focuses on living systems. The first half of the course deals with Earth in relation to the rest of the solar system, galaxy, and the universe, and the geology of the earth in more detail. This is followed by a section on the atmosphere and weather systems, then by a brief description of soils. Atmospheric and soils will lead into the second half which will concentrate on living systems with emphasis on ecology and elementary cell biology.
Prerequisite(s): None

SI1501 Introduction to Physical and Life Science II
Transferable to MUN Science 1151
This is a continuation of SI1500 course. This course will develop the fundamental concepts of chemistry and physics. It will emphasize the (1) energy of motion, which includes mechanical and thermal energy, laws of thermodynamics, kinetic theory, and energy transfer; (2) energy of the atom, which includes structure of the atom, bonding, chemical energy, radioactivity, relativity, and nuclear energy; and (3) energy of the electron (light and electricity), which includes radiant energy, behavior of waves, light and color, electric current and circuits, effects of electric current, and production of electric current.
Prerequisite(s): None

WM1100 Introduction to Women’s Studies
Transferable to MUN Women’s Studies 2000
This course is a feminist introduction to the history, principles, and practices of Women’s Studies within a Canadian context. The initial readings document the key ideas leading to the rise of feminist consciousness in Western culture in general and the emergence of first wave feminism in Britain and North America specifically. The next group of readings documents the development of second wave feminism in Britain and North America, as well as second and third wave feminism in Canada. The impact of key second wave feminist theories on the establishment of Women’s Studies as an academic field of inquiry in Canada will form the context for the interdisciplinary analysis of a variety of Canadian women’s works, including (but not limited to) literature (fiction and non-fiction), film, artworks, and personal documents (for example, diaries, photographs, oral records) in archival collections.
Prerequisite(s): None
ACADEMICS

English as a Second Language (ESL)

College of the North Atlantic offers English as a Second Language program which is designed to address language training for a variety of academic, personal and social goals. ESL courses in listening, speaking, reading and writing are offered at five levels: Beginner, Intermediate I, Intermediate II, Advanced I and Advanced II. Students enrolled at the Advanced Levels are offered the opportunity to enroll in College credit courses as part of their ESL study.

This is an immersion program where the College environment and the community serve as a laboratory for learning. As a result, students inherently participate in Canadian culture through involvement in authentic activities that require specific language proficiencies.

OBJECTIVES
1. To address the language and cultural needs of students from diverse cultural and linguistic backgrounds.
2. To support the language needs of students destined for post-secondary education programs, including College programs.
3. To help students understand Canadian academic and social culture, and way of life, and to help them integrate into the new culture.

ENTRANCE REQUIREMENTS
Students must be 17 years of age at the commencement date of the program.

Entry assessment into the ESL program: Students are assessed and assigned a level of instruction on an individual basis in each of the four skill areas of listening, speaking, reading and writing. Assessment tools include an oral interview, listening and reading comprehension, and a writing sample. Lower level courses in each language skill area will be exempted.

CURRENT / FUTURE EMPLOYMENT OPPORTUNITIES
Knowledge of and skills in English language will be a requirement for individuals who want to train in English speaking institutions or work in environments where English is the primary language spoken.

ENTRANCE REQUIREMENTS
Students must be 17 years of age at the commencement date of the program.

Entry assessment into the ESL program: Students are assessed and assigned a level of instruction on an individual basis in each of the four skill areas of listening, speaking, reading and writing. Assessment tools include an oral interview, listening and reading comprehension, and a writing sample. Lower level courses in each language skill area will be exempted.

COURSES

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Level II
EO2001 | Intermediate Listening I       | 120    |
EO2002 | Intermediate Speaking I        | 120    |
EO2003 | Intermediate Reading I         | 75     |
EO2004 | Intermediate Writing I         | 60     |

Level III
EO3001 | Intermediate Listening II      | 90     |
EO3002 | Intermediate Speaking II       | 90     |
EO3003 | Intermediate Reading II        | 120    |
EO3004 | Intermediate Writing II        | 75     |

Level IV
EO4001 | Advanced Listening I          | 75     |
EO4002 | Advanced Speaking I            | 30     |
EO4003 | Advanced Reading I             | 120    |
EO4004 | Advanced Writing I             | 105    |
Elective #1 |                      | 45     |

Level V
EO5001 | Advanced Listening II          | 75     |
EO5002 | Advanced Speaking II           | 30     |
EO5003 | Advanced Reading II            | 90     |
EO5004 | Advanced Writing II            | 90     |
Elective #2 |                      | 45     |
Elective #3 |                      | 45     |

All courses in each Level are required for successful completion of that Level. Levels IV and V have electives.

CERTIFICATE
- Completion time varies
- Start time varies
- Corner Brook and Prince Philip Drive Campuses
- Note: This program will operate with continuous intake / exit from September to June.
The two-year program, Community Recreation Leadership, has been developed in response to an increasing awareness of the technological and societal changes in modern society that influence people’s leisure time, pursuits, and retirement. The program also recognizes the opportunities and challenges inherent in providing recreation services to people.

The purpose of the program is to train personnel who may contribute to the development and extension of individual and group interests and endeavours as they relate to the leisure time of people in urban and rural communities of the province, encompassing all ages and abilities.

In addition to the costs for textbooks, students will be required to pay for special materials required for specific courses as well as fees for certification, participation in selected training seminars or conferences, and for activities associated with outdoor recreation (fees subject to change). The accumulated costs for these materials and activities will be outlined prior to registration.

OBJECTIVES
1. To provide training in various recreational pursuits including therapeutic recreation, outdoor recreation, community-based programming appropriate to the province.
2. To provide training in program planning and administration in the use and management of recreational facilities.
3. To foster an appreciation of the nature of community life, including geographic structure, economic and social factors, and government controls.
4. To foster an appreciation of the various groups within a community and their particular recreational needs (including children, youth, adults and older adults).
5. To provide leadership training to enable personnel to:
   a. Exercise initiative in the development of leisure time activities.
   b. Recognize and stimulate growth at the community level.

CURRICULUM
1. General Education: Communications (oral and written), social sciences, psychology, accounting and computers.
2. Specific Recreational Activities: Outdoor: cross-country skiing, camping, canoeing, hiking, dryland/aquatic fitness, creative activities, and physical activity programming.
3. Technical Training: Problem solving, supervision and administration of recreation programs, community recreational development for all age groups, and facility development and maintenance.
4. Field Work: Supervised field work experience is scheduled in BLOCK FORM for each semester. The schedule for the winter semesters may coincide with the Easter break.

ENROLLMENT REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent,
OR
Grade XI public examinations pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%.
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%.
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

Note: A clear Certificate of Conduct is required. This certificate can be obtained from the Royal Newfoundland Constabulary (RNC) or the Royal Canadian Mounted Police (RCMP).
The Community Studies Program is a two-year diploma program which prepares students for challenging roles in community-based agencies and as community leaders. More specifically, the program focuses on leadership and other career-related skills required for work in a wide variety of Human Services professions. These may range from one-on-one support and counseling roles to positions which involve coordination and facilitation of groups or communities. The courses are fast-paced and dynamic, and are founded on the tenets of experiential learning and direct involvement with the community. Students are challenged to think critically and to become self-directed, lifelong learners.

Students in Community Studies experience a first semester in which they acquire general knowledge and skills fundamental to the human services field. Throughout the first year, students receive career counseling to assist them in making course selections best suited to their particular career choices. The program provides flexibility to allow students to select a combination of courses which will qualify them for work in a variety of areas of Human Services. To this end, students may choose courses from a number of the following areas: Addictions, Community Economic Development, Disability Studies, Healthy Aging, International Issues, Women’s Studies, Youth and Adult Corrections, and Family Services.

**FUTURE OPPORTUNITIES**

Based on the particular combination of courses selected, graduates may reasonably expect to find employment with a variety of community-based human services groups and agencies such as:

1. Economic and social development agencies, ranging from RED Boards, to Communities in Schools Programs, community-based entrepreneurial ventures, Family Resource Centres, and Community Youth Networks.
2. Community-based Correctional Services and advocacy groups such as youth assessment centers, group homes, residential centers for ex-offenders, and outreach services for offenders.
3. Social programs for older adults, including recreational programs, congregate housing, and long-term care centers.
4. Services and advocacy groups which support inclusion of persons with disabilities, such as residential services, employment corporations, early intervention programs, schools, and Associations for Community Living.
5. Services for women such as women’s centers and transition houses.
6. Addiction Treatment centers/programs.

Graduates who wish to further their education after graduation may choose to transfer credits to the Bachelor of Community Studies Program at the Cape Breton University. This program has provided many students with a foundation for advancement within the Human Services field, or to pursue further education in areas such as Social Work or Education.

**OBJECTIVES**

1. To develop the student’s interpersonal and leadership skills and abilities.
2. To provide the students with knowledge of human and group dynamics.
3. To develop the student’s ability to organize and facilitate specific target groups as well as the regional community as a whole.
4. To develop the student’s understanding of the importance of human relations as a tool for positive growth and change.
5. To assist students in acquiring and utilizing a variety of public relations skills, abilities and techniques.
6. To enhance the student’s ability to perform the role of change agents with individuals, groups and regional communities.
7. To increase the student’s skills in effective oral and written communication.
8. To give students direct work experience with community-based agencies.
9. To assist students in acquiring skills and knowledge related to working within their chosen area(s) of human services.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),

OR

A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent, OR

Grade XI public examinations pass with a 60% average or equivalent, OR

Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average passmark of 60%, OR

Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%, OR

Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**Note:** A clear Certificate of Conduct will be required. This Certificate can be obtained from the Royal Newfoundland Constabulary (RNC) or the Royal Canadian Mounted Police (RCMP).

**PRACTICUMS**

Students must complete two field placements during their program of studies.

**Students should note that not all electives are available each semester. Offerings vary according to campus location.**

**DIPLOMA**

- **Two years**
- **September start**
- **Bay St. George, Carbonear, Grand Falls-Windsor, and Happy Valley-Goose Bay Campuses**

**Note:** The first year of this program is offered every alternate year at the Carbonear and Grand Falls-Windsor Campuses. The Bay St. George Campus has an annual September intake.

**COURSES**

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**APPLIED ARTS**

**Digital Animation**

The explosion of technological developments, together with possibilities within the global marketplace, have created a demand for individuals trained in the development of marketable 3-D animation products. The 3-D animation field encompasses the design, development, and production of educational and recreational products. It includes the video processing of still and animated images, the mixing, and incorporation of sound and/or narration, the scripting of text, and the generation of any desired interactive components within the application.

The primary focus of the 3-D Digital Animation program is on the design and development of quality entertainment resources. Media products such as TRANSFORMERS, RATATOUILLE, and 300 exemplify the type of end product. Additionally, 3-D digital animators engage in the development of simulator training applications. Students will also acquire the skills to develop content for delivery via the World Wide Web, film and video.

**EMPLOYMENT OPPORTUNITIES**
The future offers excellent potential for graduates of this program. It is projected that graduates will reasonably expect to obtain employment with related private sector firms, educational institutions, or in their own entrepreneurial ventures.

**OBJECTIVES**
1. To introduce students to the microcomputer and the peripheral devices used in a 3-D production environment.  
2. To provide students with the knowledge and technical training required to design and develop 3-D animation products.  
3. To introduce students to the principles of design and to provide training in the application of a 3-D animation package with an entertainment focus.  
4. To assist students in the acquisition of the necessary knowledge, skills, and techniques for the marketing of a 3-D animation product.  
5. To assist students in the development of the appropriate attitudes, behaviours, and work habits for employment in the field.

**ENTRANCE REQUIREMENTS**
Comprehensive Arts and Science Certificate (College Transition program),  
OR  
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,  
OR  
Grade XI Public Examination pass with a 60% average or equivalent,  
OR  
Adult Basic Education (Level III) Graduation indicating completion of the General or Academic Stream with an average passmark of 60%,  
OR  
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,  
OR  
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

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Early Childhood Education

Early Childhood Education is a two-year Diploma program that is designed to prepare students to work in a variety of child care settings. Course work focuses on understanding child development, the child in the family and community, and the developing role of the student as an early childhood educator. Students complete specialized training in early childhood education, creative activities, health and nutrition. In addition, students avail of field placements at the on-campus demonstration child care centres and at external agencies offering child care services.

OBJECTIVES
1. To provide a quality early childhood education program consistent with best practices in the field and legislative requirements/provincial standards in Newfoundland and Labrador.
2. To provide students with knowledge of child growth and development to support their work with children from birth to age 12 (Infants: 0-2 years; Toddlers: 2-3 years; Preschool: 3-5 years; and School Age: 5-12 years).
3. To provide the knowledge that will enable students to plan developmentally appropriate programs for children.
4. To develop students’ skills in analyzing and interpreting systematic observations of children’s development as the basis for planning all for children.
5. To develop students’ knowledge and skills to design both indoor and outside play environments for children.
6. To build supportive partnerships within the Early Childhood Education field, early learning environments, and the broader community.

CURRICULUM
1. Specialized Training: Early Childhood Education (e.g. child observation, child development, curriculum, guidance, creative activities, health, nutrition, family studies, and inclusion).
2. Field Placement: Students will complete 5 field placements during the program, in a variety of child care settings. Provincial standards require students to complete a minimum of 720 field placement hours throughout their program.
3. General Education: Communications (oral and written), human relations.

The Graduate Certification: The graduate is awarded a Diploma of Applied Arts in the Early Childhood Education. This certifies successful completion of two years of post-secondary education, combining theory and practical experience in the care, education, and guidance of young children. Completion of this program is one of the steps towards provincial Child Care Services Certification. Currently, the ECE diploma is awarded Level II Certification for infant, preschool and school-age children.

Major Areas of Emphasis: Throughout the program, emphasis will be placed on the social, emotional, cognitive, and physical development of children, supporting that development, and interacting with families. This will be accomplished through enrichment of communication skills, observations and interactions in individual and group settings, and the study of current theories of and practices in child development.

EMPLOYMENT OPPORTUNITIES
The graduate from this program will be prepared for employment with organizations caring for children or self-employment providing child care and, with experience, be able to develop programs for and/or supervise in child care services in communities throughout the province.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),

OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,

OR
Grade XI Public Examination pass or equivalent with a 60% average or equivalent,

OR
Adult Basic Education (Level III) Graduation indicating completion of the General or Academic Stream with an average pass mark of 60%,

OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,

OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

Note: Provincial legislation requires that students must have the following on file: 1) a current record of immunization, 2) a satisfactory Certificate of Conduct from the RNC or RCMP; to include all jurisdictions in which the applicant has lived in the past 10 years, and a vulnerable sector check, and 3) a satisfactory Child Protection Records Check. Students must possess a valid First Aid Certificate to be eligible for a Diploma of Applied Arts in the Early Childhood Education Program.

FIELD PLACEMENT
Students complete five field placements during the program. Course hours during the remaining weeks of each semester in which a field placement occurs will be adjusted accordingly.

DIPLOMA
- Two years
- September start
- Corner Brook, Happy Valley-Goose Bay, and Prince Philip Drive Campuses

Note: The first year of this program is offered every alternate year at the Happy Valley-Goose Bay Campus. The Corner Brook and Prince Philip Drive Campuses have an annual September intake.

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Forty hours of Field Placement occur during the semester.

| Semester 2 |                                      |        |    |    |    |
| EE1161 | Child Development II                      | 4      | 4  |    |    |
| EE1171 | Curriculum II                              | 4      | 4  |    |    |
| EE1300 | Family Studies I                           | 3      | 3  |    |    |
| EE1451 | Creative Activities II – Literature        | 3      | 2  |    |    |
| EE2310 | Field Placement                            | 1      | 4  |    |    |
| EE1720 | Professional Development                   | 2      | 2  |    |    |
| CN2100 | Workplace Correspondence                   | 3      | 3  |    |    |

Four weeks of Field Placement occur at the beginning of the semester; Field Placement lecture in the remaining 11 wks. Other courses hours will be adjusted to reflect 11 weeks of the semester.

| Semester 3 (Intersession) |                                      |        |    |    |    |
| EE1800 | Inclusion I                                | 3      | 3  |    |    |
| EE1840 | Understanding Child Maltreatment           | 1      | 1  |    |    |
| FW1311 | Field Placement II                         | 4      | 1  |    |    |

Four weeks of Field Placement occur at the beginning of the semester; Field Placement lecture in the remaining 3 wks. Other courses hours will be adjusted to reflect 3 weeks of the semester.

| Semester 4 |                                      |        |    |    |    |
| EE2270 | Curriculum III                             | 4      | 4  |    |    |
| EE1280 | Infant & Toddler Care                      | 3      | 3  |    |    |
| EE2160 | Child Development III                      | 3      | 3  |    |    |
| EE1301 | Family Studies II                          | 3      | 3  |    |    |
| EE2500 | Creative Activities III – Movement         | 1      | 4  |    |    |
| HF1140 | Childhood Nutrition                        | 3      | 2  |    |    |
| FW2310 | Field Placement III                        | 5      | 1  |    |    |

Four weeks of Field Placement occur at the end of the semester; Field Placement lecture in the first 11 wks. Other courses hours will be adjusted to reflect 11 weeks of the semester.

| Semester 5 |                                      |        |    |    |    |
| EE1801 | Inclusion II                              | 3      | 3  |    |    |
| EE2255 | Advanced Behaviour Guidance Strategies     | 3      | 3  |    |    |
| EE2260 | Introduction to Child Care Administration | 3      | 2  |    |    |
| EE2500 | School-Age Development and Care            | 4      | 4  |    |    |
| FW2311 | Field Placement IV                         | 6      | 5  |    |    |
| HR1300 | Communications and Human Relations I       | 2      | 2  |    |    |

Five weeks of Field Placement occur at the end of the semester; Field Placement lecture in the first 10 wks. Other courses hours will be adjusted to reflect 10 weeks of the semester.

| Semester 6 (Intersession) |                                      |        |    |    |    |
| EE2453 | Creative Activities IV – Movement          | 2      | 1  |    |    |
| EE3360 | Adult Development                          | 3      | 3  |    |    |
| EE2310 | Family Studies III                         | 3      | 3  |    |    |
Applied Arts

Early Childhood Education by Distance Education

The ECE diploma program is also available by distance education, online through the College's Distributed Learning Service (DLS). Students register each semester from a list of course offerings.

A number of courses in the program require students to have regular and sustained contact with children. Therefore, distance students wishing to enrol in those courses will be required to be currently working directly with children in an early childhood setting, for a minimum of 15 hours per week for the semester. Documentation confirming employment status will be required each semester in order for a student to register for one of the 19 courses where working with children is a course requirement.

Prior Learning Assessment and Recognition (PLAR)

Students will be given every opportunity to receive credit for past learning experience through a comprehensive systematic process of evaluation. For further information about prior learning assessment, refer to page 10.

Certification

As students progress through their diploma program, they will be eligible to apply for certification through the Association of Early Childhood Educators - Newfoundland and Labrador for Level I Child Care Services Certification approximately half way through the program. Upon completion, students will be awarded a Diploma of Applied Arts in Early Childhood Education and can apply for Level II Certification in infant, preschool, and school-age classifications.

Entrance Requirements

All entrance requirements listed for the full-time program must be met. Please note the employment requirement stated above for certain course registrations.
APPLIED ARTS

Film and Video Production

This program is designed to prepare students to pursue new employment opportunities in the Film and Video Production industry and to produce quality entertainment and documentary products which reflect Newfoundland and Labrador’s unique cultural heritage. Graduates will also be positioned to avail of opportunities that arise nationally or internationally.

The film and video field encompasses the use of cameras, lighting and audio equipment, editing facilities and digital effects equipment. Areas of instruction include the history and evolution of the film industry, photography, screening and peer critique, cinematography, and rigging and grip.

The primary focus of the program is to prepare students to perform the technical tasks associated with film-making. Graduates will be well-positioned to perform all of the tasks that occur behind the camera, while the acting and related talents that occur in front of the camera will be left to other specialized training programs.

OBJECTIVES
1. To provide students with an overview of the history and evolution of the film industry.
2. To provide students with the knowledge and technical training required to develop and produce quality entertainment and documentary products.
3. To provide students with an opportunity to develop teamwork skills and to acquire relevant industry certifications.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate: (College Transition Program)
OR
A Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent,
OR
A Grade XI Public Examination pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
The Province of Newfoundland and Labrador has committed itself to the development of a healthy and viable film production industry. The establishment of Newfoundland and Labrador Film Development Corporation in 1997 represented a concerted focus on the part of government to attract film production projects to the Province, and the subsequent introduction of the most generous incentives in North America signaled the depth of the commitment to this new sector.
DIPLOMA
- Two years
- September 2009
- Prince Philip Drive Campus

COURSES

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Nutrition and Foodservice Management

The two year program leading to a Diploma in Nutrition and Foodservice Management has been developed to achieve standards of skill and competency required in the field of food service management. Applicants for the program should have an interest in people, the ability to organize, an appreciation of food quality, an awareness of business principles as well as good health and vitality.

The program involves a combination of classroom work and practical experience. Students obtain theoretical and practical training in food preparation, nutrition, foodservice operations, supervision, accounting, purchasing procedures as well as first aid and sanitation.

Practical training which occurs in semesters 3 and 6 is spent in hospital and institutional settings.

OBJECTIVES

1. To train students to participate in the management of food services in health care facilities, commercial catering services, educational facilities and the hospitality industry.
2. To provide students with a broad understanding of activities involved in the administration of food services.
3. To assist students in the development of supervisory skills (plan, organize, direct, control and evaluate).
4. To train students to supervise food preparation and distribution according to established regulations and standards.
5. To assist students in the development of human resource management skills in leadership, teamwork, cooperation and problem solving.
6. To train students to apply a knowledge of normal and clinical nutrition, and participate in the provision of nutritional care in a variety of settings.
7. To train students to communicate appropriately with clients, staff and management, and to exhibit professional conduct.

ENTRANCE REQUIREMENTS

- Comprehensive Arts and Science Certificate (College Transition Program)
- A Provincial High School Graduation Certification with a 60% average in nine Level 3000 credits or equivalent;
- Grade XI Public Examination pass or equivalent with a 60% average or equivalent;
- Adult Basic Education (Level III) Graduation indicating completion of the General or Academic Stream with an average pass mark of 60%:
- Adult Basic Education (Level III) graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%:
- Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

A Health Certificate and a clear Certificate of Conduct are required.
The Graphic Design program is a two-year diploma program that helps students to develop strong conceptual and technical skills for today’s dynamic Graphic Arts industry. Through both traditional techniques and cutting-edge digital tools, students will learn what it takes to gain successful employment as a Graphic Designer in a number of related fields, including advertising, website design, packaging, publication design, information design, new media, illustration and photography.

The program’s strong technical core, as well as its focus on creative problem-solving, have helped students to win more than twenty-five provincial, regional and national awards over the past five years. Graduates are working at exciting careers throughout Canada and around the world.

**OBJECTIVES**
1. To help students develop strong technical and conceptual design skills.
2. To help students explore and understand the issues involved in contemporary Graphic Design practice.
3. To train students in all of the skills relevant to this industry, both traditional and digital.
4. To provide students with hands-on knowledge of, and experience with industry-standard tools and equipment.
5. To provide a supportive, positive, creative environment in which students can grow as Graphic Designers.
6. To train students to successfully compete for entry-level employment in the Graphic Design industry.

**EMPLOYMENT OPPORTUNITIES**
Past graduates have a strong record of success in the Graphic Design industry, both within Newfoundland and Labrador and beyond. Graduates can choose from a variety of employment options with big and small companies, as well as freelance or self-employment. The skills learned in this program are in high demand in the global communications industry.

**ENTRANCE REQUIREMENTS**
Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,
OR
Grade XI public examination pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**PORTFOLIO REQUIREMENTS**
All students must submit a portfolio. Please refer to the portfolio guidelines on page 6. A portfolio is a compilation of visual materials such as drawings, photographs, paintings or design work that reflects your interests and experience. The portfolio should consist of:
- a. Between 10 and 20 works, which should include no less than five (5) freehand drawings;
- b. All work should be original: no copies of work by others will be accepted;
- c. No framed, 3-dimensional or very fragile work will be accepted;
- d. Portfolios should be no larger than 2 feet x 3 feet;
- e. There are two (2) special projects that must also be included in the portfolio. Please select any two (2) from the following:

**Special Projects**
1. Using visuals and text, produce a work that reflects some aspect of the community in which you live. Try to explore some of your thoughts and feelings about your community in your work. How the image or images you choose and the text interact are important considerations. Please think carefully about how you will present this material, in that it could be presented as a poster, a brochure, in book form, as drawings or collages, as a web page, as a multimedia presentation or a variety of other means.
2. Design a logo for an organization you admire. A logo is a symbol that stands for and expresses the ideals of an organization. In a perfect world, the logo or symbol embodies the positive attributes that an organization wishes to be associated with (words like professional, caring, contemporary and traditional are examples of attributes that might be suitable). Try to ensure that your logo is simple and direct, with few colours used. Your final result can be produced by hand or digitally. The final result must be no less than four (4) inches on the shortest side.
3. Design a poster for a favourite film. Include the title of the film and a visual that represents the viewer’s experience of the film. The purpose of your poster should be to get people excited about seeing the film while expressing some aspect of the emotional content of the film. In other words, it is an action film, the combination of visuals and text should suggest “action”. If the film is romantic, then the combination of image(s) and text should suggest “romance”. Your finished size should be approximately 11 x 17 inches and can be produced in the medium or media of your choice.
4. Create a collage using a variety of materials. The collage should express one of the following words (your choice): anger, happiness, surprise, or sorrow. Make sure the combination of shapes, colours and patterns expresses the word you choose. Your finished size should be no more than 11 x 17 inches.

**COURSES**

**Diploma**
- Two years
- September start
- Prince Philip Drive Campus

**CR1521 Advanced Website Design**
2 2 0

**CM1100 Writing Fundamentals**
3 3 1

**GA1100 Graphic Arts History /Typography**
3 2 4

**GA1410 Page Layout I**
2 2 1

**MC1180 Computer Systems For Graphic Arts**
3 2 2

**GA1200 Post Press Op. I**
3 2 2

**Semester 2**
Cr Le La
**VA1231** Graphic Design II: Design for Business
3 2 2

**GA1930 Introduction to Darkroom**
2 1 4

**GA1600 Lithography I**
6 5 3

**GA1630 Illustration I**
4 4 0

**GA1411 Page Layout II**
2 1 3

**Semester 3 (Intersession I)**
Cr Le La
**GA1510 Digital Imaging I**
2 2 0

**GA1870 Business Practices for Graphic Design**
3 3 0

**GA1800 Multimedia I**
2 1 3

**VA2240 Graphic Design III: Packaging Design**
4 3 2

**VA1500 Photographic Illustration I**
3 2 3

**HY1100 Art History I**
3 3 0

**Semester 4**
Cr Le La
**CM1400 Technical Reporting I**
3 3 0

**GA1511 Digital Imaging II**
2 1 3

**GA1870 Business Practices for Graphic Design**
3 3 0

**GA1800 Multimedia I**
2 1 3

**VA2240 Graphic Design III: Packaging Design**
4 3 2

**VA1500 Photographic Illustration I**
3 2 3

**HY1100 Art History I**
3 3 0

**Semester 5**
Cr Le La
**VA2231 Graphic Design IV: Corporate Identity Systems Design**
4 3 2

**GA1560 Publication Design**
3 2 3

**VA1501 Photographic Illustration II**
3 2 3

**CR1520 Website Design**
3 2 2

**WT1350 Work Experience**
5 0 14

**Semester 6 (Intersession II)**
Cr Le La
**ST2500 Design Studio**
3 2 2

**SD1860 Portfolio Development**
2 2 0

**GA2360 Production for Graphic Design**
2 2 0

**CR1521 Advanced Website Design**
2 2 0
APPLIED ARTS

Graphic Production and Printing

This is a two-year diploma program designed to provide training in modern methods of graphic production. The program offers a balanced selection of traditional and electronically enhanced skills. The goal of the program is to help the student develop competencies in the areas of electronic pre-press, production technologies, and post-press operations that will help lead to successful employment.

Program topics include: problem solving, basic layout & design, electronic pre-press, offset press operation, and post-press operation skills, and screen printing. Students are exposed to the computer software applications commonly used in this industry, such as page layout, design, image manipulation, and drawing. Other topics include: digital scanning, colour proofing, direct-to-film image setting, to digital photography, and digital printing (colour and black & white). A schedule balanced between theory and hands-on work provides students with a positive, work-like environment that reinforces the learning process.

OBJECTIVES
1. To develop personal competencies.
2. To develop basic skills in electronic pre press aspects of visual communication.
3. To develop basic skills in printing press operation.
4. To develop basic and specific computer skills related to the graphics arts industry.
5. To develop basic skills in post-press finishing and bindery.

EMPLOYMENT OPPORTUNITIES
Graduates of the program may be employed in many areas of the Graphic Arts industry. Some of the entry level positions include: design & layout agencies, commercial printers, in-plant printers, government agencies, digital copy centres, and sign printers.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program), OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent, OR
Grade XI public examination pass with a 60% average or equivalent, OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%, OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.
This program prepares students to work as professional journalists. The curriculum provides a strong foundation in the fundamentals of reporting and news writing as well as in media technical skills. The program gives students hands-on training in print, radio, television and online journalism. Students hone their skills through the production of an online newspaper, a provincial youth newspaper, a weekly radio show, and various video projects. A special projects course in the fourth semester will allow students to focus on print, broadcast or online media. Students complete courses in academic and general interest fields, thereby broadening their educational backgrounds and assisting them to understand today’s society.

It is highly recommended that those applying for this program be competent in English language usage and that they possess a general knowledge of current affairs. It is further recommended that students have a word processing speed of 25 words per minute (wpm) before entering the program.

OBJECTIVES
1. To enable the student to acquire an understanding of the news media, its influence on society, and the responsibilities of the journalist.
2. To provide training in the skills necessary to produce news for print, broadcast and online media.
3. To provide training in the skills necessary to gather, write and present news in an accurate, comprehensive and responsible manner.
4. To teach students about the realities of working in the journalism industry.
5. To train students in the production of quality copy in specialized areas of writing.
6. To enable students to acquire an understanding of the law as it applies to journalism.
7. To provide training in newspaper layout and design using software that can be applied to a variety of desktop publishing formats.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent and a minimum of 60% in a 3000 level Language or a level 3000 English.
OR
Grade XI Public Examination passmark with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

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This accelerated program allows students who already have a university degree or a two-year college diploma to obtain a Journalism diploma in one year.

This program prepares students to work as professional journalists. The curriculum provides a strong foundation in the fundamentals of reporting and news writing as well as media technical skills. The program gives students hands-on training in print, radio, television and online journalism. Students hone their skills through the production of an online newspaper. A special projects course in the fourth semester will allow students to focus on print, broadcast or online media. Students complete courses in academic and general interest fields, thereby broadening their educational backgrounds and assisting them to understand today's society.

It is highly recommended that those applying for this program be competent in English language usage and that they possess a general knowledge of current affairs. It is further recommended that students have a word processing speed of 25 words per minute (wpm) before entering the program.

OBJECTIVES
1. To enable the student to acquire an understanding of the news media, its influence on society, and the responsibilities of the journalist.
2. To provide training in the skills necessary to produce news for print, broadcast and online media.
3. To provide training in the skills necessary to gather, write and present news in an accurate, comprehensive and responsible manner.
4. To teach students about the realities of working in the journalism industry.
5. To train students in the production of quality copy in specialized areas of writing.
6. To enable students to acquire an understanding of the law as it applies to journalism.
7. To provide training in newspaper layout and design using software that can be applied to a variety of desktop publishing formats.

ENTRANCE REQUIREMENTS
A university degree OR a minimum of a two-year college diploma from an institution recognized by the College of the North Atlantic (OR a combination of other post-secondary work and industry experience acceptable to the College as an entrance requirement).
The Music Industry and Performance program is designed for students who wish to pursue careers as performers in the music industry. This industry has become increasingly prominent in recent years as evidenced in a dramatic increase in the number of successful acts from the Atlantic Provinces. Events such as the East Coast Music Awards and the Juno Awards highlight the success of such performers and demonstrate that the region is generating music that is gaining worldwide popularity.

The intent of this program is to provide an opportunity for students whose interests include country, traditional, fusion, pop, rock, blues, and other genres, to refine their skills in the company of like-minded students, while gaining exposure to all aspects of the music industry. Hands-on experience in the recording studio, scheduled performances in local venues and extensive exposure to sound, business, marketing and public relations skills, will enable students to realistically assess their prospects for success in a fiercely competitive industry. Indeed, some students may determine that they may not have what it takes to succeed as performers but are ideally suited for careers as agents or managers. In either case, the Music Industry and Performance program provides the skills which should ensure success.

It should be noted that the program is not intended for students seeking a career in the field of classical music. Universities provide excellent programs for students whose interests lie in the field of classical music. It should be noted that the program is not intended for students seeking a career in the field of classical music. Universities provide excellent programs for students whose interests lie in classical music.

Note: Successful graduates from this program may consider returning to the College for a third year in which they can complete the Recording Arts diploma program. This option allows for the completion of both diploma programs in three (3) years.

FUTURE OPPORTUNITIES

Graduates from this program should not expect to enter into conventional 9-5 positions with established companies. The music industry is fuelled by a combination of solid talent and strong managerial personnel. Graduates can expect to operate as independent entrepreneurs while potentially establishing long-term partnerships with recording companies, distributors, managers, and other key industry stakeholders. The environment is challenging but there are plenty of success stories.

OBJECTIVES

1. To provide training in the technical and financial aspects of the music industry, with particular emphasis on the industry’s complex standard business practices.
2. To provide an opportunity to review the history of music and its evolution into distinct genres.
3. To provide an opportunity to refine musical talent and to demonstrate that talent through scheduled performances in local venues.
4. To provide opportunities for the social and intellectual development of the student in order to meet the challenges of a demanding industry.

ENTRANCE REQUIREMENTS

1. Comprehensive Arts and Science Certificate (College Transition program),
   OR
   A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,
   OR
   Grade XI Public Examination pass with a 60% average or equivalent,
   OR
   Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
   OR
   Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
   OR
   Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

2. Portfolio
   All applicants must submit a demo recording in ONE of the following formats:
   • A standard audio cassette;
   • A compact disk;
   • A video cassette
   The demo recording must be clearly labelled, include a list of the material contained on the demo, and specify the role of the applicant on each track.
   The demo should contain three contrasting pieces, clearly demonstrating the applicant’s level of performance ability and experience.

   The demo will be evaluated with the following criteria in mind:
   i. Quality of performance;
   ii. Quality of presentation;
   iii. Demonstration of a reasonable chance of success in the MIP program;
   iv. The recording should be accompanied by a resume outlining any music-related experiences, live performances, and previous training.

DIPLOMA

- Two years
- September start
- Bay St. George Campus

COURSES

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Elective Courses

A list of elective courses to be offered in each semester will be made available prior to registration. Other courses may be chosen provided that:

1. all prerequisites have been met,
2. the course is offered during the semesters,
3. the maximum enrollment for the course is not exceeded,
4. the student's schedule can accommodate all scheduled classes for that course.
### Recording Arts

The Recording Arts program is a two-year diploma program which provides training in the skill areas of sound recording and editing, sound reinforcement and digital processing of audio signals.

- **Sound recording** involves studio design and setup, analog and digital multitrack recording, mixing and editing.

- **Sound reinforcement** involves the design and operation of appropriate sound systems to support events such as theatre performance and music concerts in outdoor and indoor environments.

- **Digital processing of audio signals** includes the recording and editing in a non-linear environment used in CD mastering, and editing sound effects and dialogue for film or theatre.

Recording Arts students receive hands-on training in sound recording and editing in a non-linear environment used in CD mastering, and editing sound effects and dialogue for film or theatre.

#### Objectives
1. To provide training in the aural and technical aspects of recording, mixing and editing music in analog and digital media.
2. To assist students in developing skills in the recording and editing of music and sound effects for animation, film and video as well as operating same for live theatre productions. A lighting component will allow the graduate to fill theatre positions that often require a knowledge of lighting as well as sound.
3. To provide students with knowledge of basic business practices with particular emphasis placed on the complexities of the music business.
4. To assist students with the development of appropriate attitudes, behaviours, and work habits in preparation for employment as a sound recordist/operator.

#### Courses

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### ENTRANCE REQUIREMENTS
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent including:
- Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum. Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60%) minimum.
- Mathematics (4 credits) chosen from: Advanced: 2205, 3205 (50% minimum in each course).
- OR
  - Grade XI public examination pass with a 60% average including a 60% pass in Matriculation Mathematics or 50% in Honours Mathematics.

#### Employment Opportunities
Graduates of the Recording Arts program find (and have found) work as the following in their appropriate venues: Production Mixer, Boom Operator, Production Sound Assistant, Sound Transfer Operator, Sound Editing, Dialogue Editor, Sound Effects Editor, Music Editor, Assistant Sound Editor, ADR/Sound Effects Mixer, The Music Mixer, Re-recording Mixer (Dubbing Mixer), Dubbing Theatre Sound Camera Operator, and Sound Maintenance Engineer.

#### Objective
1. To provide training in the aural and technical aspects of recording, mixing and editing music in analog and digital media.
2. To assist students in developing skills in the recording and editing of music and sound effects for animation, film and video as well as operating same for live theatre productions. A lighting component will allow the graduate to fill theatre positions that often require a knowledge of lighting as well as sound.
3. To provide students with knowledge of basic business practices with particular emphasis placed on the complexities of the music business.
4. To assist students with the development of appropriate attitudes, behaviours, and work habits in preparation for employment as a sound recordist/operator.

#### Note
Successful graduates from this program may consider returning to the College for a third year in which they can complete the Music Industry and Performance diploma program. This option allows for the completion of both diploma programs in three (3) years.

#### Application Process
Graduates may apply to complete the Music Industry and Performance Diploma program for the following courses:
- Mathematics IM3219.
- OR
  - Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
    - b. Mathematics IM3219.
  - OR
    - Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) including the following courses:
    - OR
      - Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.
Textiles: Craft & Apparel Design

Textiles: Craft and Apparel Design provides a strong foundation in the skills and knowledge of design and construction for craft and apparel. Individuals with creative and artistic interests will learn by doing as they gain skills in drawing, design, sewing, embroidery and quilting, apparel construction, knitting, weaving, print and dye, and related areas.

Different skills, media and techniques are introduced in the first year of the program. Innovation and creativity are encouraged through contemporary applications of traditional skills and the incorporation of non-traditional materials into project ideas. The second year is an opportunity to focus on two studio areas. Students may choose to concentrate their studies in the areas of knitting, print and dye, embroidery and quilt, weaving, and/or apparel construction with a focus toward developing technical skills. Both years are supported by courses in computer applications, art and craft history, communication skills, entrepreneurial studies, portfolio development, proposal writing, and special projects.

The program strives for innovative training that reaches beyond the classroom. The emphasis is on “real life” experiences that include involvement in fine craft and design fairs, whole trade shows, gallery exhibitions, commissions, and fashion shows.

Graduates of the Textiles: Craft and Apparel Design program have a solid foundation to build a career as an independent textile artist or an employee in the craft and/or apparel industry. The program may also inspire individuals to pursue further studies in particular concentration areas.

OBJECTIVES
1. Develop skills and knowledge in craft and apparel and ongoing technical innovation in all studio areas and creative processes.
2. Provide an opportunity for exploration and experimentation with a variety of creative and artistic techniques.
3. Provide a strong foundation in competencies and applications.
4. Develop an increased awareness of and appreciation for fine art and craft, and their varying schools of philosophical thought.
5. Encourage a spirit of entrepreneurship, and to assist in the development of entrepreneurial skills through “real life” experiences.
6. Develop the ability to promote one’s work through the development of communication skills, portfolio development, and organizing special events.
7. Develop a desire for life-long learning.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program), OR
A Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent, OR
Grade XI public examination pass with a 60% average or equivalent, OR
Adult Basic Education (Level III) Graduation indicating a completion of the general or academic stream with an average pass mark of 60%, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%, OR
Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

NOTE: This program is not suitable for applicants with respiratory problems or color blindness.

COURSES

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- **Two years**
- **September start**
- **Anna Templeton Center (Prince Philip Drive Campus)**
APPLIED ARTS

Video Game Design

Video games are a recognized technological, cultural and economic force in today’s society. The game industry is a growing industry with a varying range of career opportunities. If you have a passion for creating stories, characters, environments and gameplay for video games, this is the program for you.

The primary focus of this program is Game Design. Today’s Game Designer needs to have skills or knowledge in many different areas. The Video Game Design program provides students a marketable set of skills by studying game theory, level design, cinematics, art, animation, elementary game programming and production methods. It emphasizes creative writing and non-linear storytelling skills. Students will study design principles and game documentation, the creative process and pre-production planning, the processes of game design, level design, audio, and visual-based principles such as game interface design, and 2D and 3D modeling.

These skills are further built on by a rigorous look at the production process, project and team management techniques, and the business of games. The program’s focus will allow students to create quality content to place in personal portfolios to demonstrate a thorough understanding of video game design.

OBJECTIVES
1. To introduce students to computer software and the hardware resources to create video games.
2. To provide students with the knowledge and technical training to design video games.
3. To assist students in the development of appropriate attitudes, behaviours, and work practices for employment in the game design industry.
4. To assist students in the development of the ability to promote their work through the advancement of communication skills and portfolio development.
5. To assist students in the development of skills to work productively in a team environment.
6. To assist students to cultivate a desire for life-long learning.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition Program)
OR
A Provincial High School Graduation Certification with a 60% average in nine Level 3000 credits or equivalent;
OR
Grade XI Public Examination pass or equivalent with a 60% average or equivalent;
OR
Adult Basic Education (Level III) Graduation indicating completion of the General or Academic Stream with an average pass mark of 60%;
OR
Adult Basic Education (Level III) graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%;
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.
The Visual Arts program provides basic and intermediate studio experiences for the student. The four-semester program has been carefully designed to be both comprehensive and general in nature. Previous experience or a portfolio is not required; however, by the time the students complete the program, they will have developed skills in drawing, design, photography, art history, and a selection of visual art and craft areas. The program is designed to provide a foundation for people who have a general interest in art as well as for those who are interested in career-oriented training. Particular emphasis is placed on developing students’ personal and creative potential while learning new technical skills. Unique program features such as studio field trips, gallery visits, and guest artist lectures support the hands-on studio component of the curriculum as well as the business of art. At the end of year two, the students host an exhibition of their work and produce a catalogue highlighting their art work and personal development over the two years of study.

Through the production of a portfolio and relevant career counselling, students will be well prepared to make career choices in art-related fields and to apply for advanced standing in other art schools and training institutions.

OBJECTIVES

1. To provide training in a range of visual arts skills, media and techniques.
2. To provide opportunities to grow intellectually, culturally and socially by exploring the various facets of the arts and the nature of the creative process.
3. To provide opportunities to develop self-expression through the Visual Arts in a way that can be personally satisfying.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,
OR
Grade XI Public Examination pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,
OR
Grade XI Public Examination pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

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Electives

A list of elective courses to be offered in each semester will be made available prior to registration. Other courses may be chosen provided that:
1. all prerequisites have been met,
2. the course is offered during the semester,
3. the maximum enrolment for the course is not exceeded,
4. the student’s schedule can accommodate all scheduled classes for that course.

Please note that Studio Options are not available as electives.

STUDIO OPTIONS

ST2110 Metal I
ST2111 Metal II
ST2120 Painting I
ST2121 Painting II
ST2130 Ceramics I
ST2131 Ceramics II
ST2140 Printmaking I
ST2141 Printmaking II
ST2160 Photography I
ST2161 Photography II

*Students should note that not all studio options are available each semester. Offerings are based on student demand and availability of instructors. Normally three or more studio options are available each semester.
SCHOOL OF
BUSINESS &
INFORMATION
TECHNOLOGY
BUSINESS

Business Administration/Management Entrance Requirements

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
OR
High School Graduation Certificate with a 60% average in the following:
1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3192, 4121
OR
English (2 credits) (minimum 60%) chosen from 3201, 3202, 3211, 3212, 3231, 3232, 3281, 3282, 3291, 3292
2. Mathematics (2 credits) chosen from:
   Advanced: 3201, 3211, 3221, 3271, 3281, 3291, 4225 (50% minimum)
   Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60% minimum)
OR
   Mathematics (4 credits) chosen from:
   Advanced: 2205, 3205 (50% minimum in each course)
   Academic: 2204 (50% minimum), 3204 (60% minimum)
3. Additional credits at the 3000 level chosen from any of the remaining 3000 level courses offered in the Senior High School Program.
a. six credits at the 3000 level for those who complete a Language course
OR
b. five credits at the 3000 level for those who complete an English course,
OR
Grade XI Public Examination pass or equivalent with a 60% average, including 60% in each of English and Mathematics (Matriculation) or a pass in Mathematics (Honours) plus any three other subjects,
OR
Adult Basic Education (Level III) Graduation including the following courses:
1. Communications IC3211, IC3112 plus ONE of IC3116, IC3215, IC3321, or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. IM3219
OR
Adult Basic Education Graduation (Level III) with Business-Related College Profile including the following courses:
1. English 3101A, 3101B, 3101C
OR
Persons 19 years of age or older who do not meet the entrance prerequisites for this program may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.
**Business Administration**

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
   OR
   High School Graduation Certificate with a 60% average in the following:
   1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3172, 3192, 4121
   OR
   2. Mathematics (2 credits) (minimum 60%) chosen from 3201, 3202, 3211, 3212, 3231, 3232, 3281, 3282, 3291, 3292
   OR
   2. Mathematics (2 credits) chosen from:
      Advanced: 3201, 3211, 3212, 3231, 3232, 3281, 3282, 3291, 4225 (50% minimum)
      Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60% minimum)
   OR
   Mathematics (4 credits) chosen from:
      Advanced: 2205, 3205 (50% minimum in each course)
      Academic: 2204, 3204 (60% minimum in each course)

3. Additional credits at the 3000 level chosen from any of the remaining 3000 level courses offered in the Senior High School Program.
   a. six credits at the 3000 level for those who complete a Language course
   OR
   b. five credits at the 3000 level for those who complete an English course,
   OR
   Grade XI Public Examination pass or equivalent with a 60% average, including 60% in each of English and Mathematics (Matriculation) or a pass in Mathematics (Honours) plus any three other subjects,
   OR
   Adult Basic Education (Level III) Graduation including the following courses:
   1. Communications IC3211, IC3112 plus ONE of IC3116, IC3215, IC3321, or IC3222
   2. Mathematics from one of the following sections:
      a. Mathematics IM3212, IM3213 and IM3216
      b. IM3219
   OR
   Adult Basic Education Graduation (Level III) with Business-Related College Profile including the following courses:
   1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
   OR
   Persons 19 years of age or older who do not meet the entrance prerequisites for this program may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

**PROGRAM TRANSFERABILITY**

The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

**Year 1**: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

**Year 2**: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

**Year 3**: The three third-year options are Accounting, Human Resource Management, and Marketing. Students may graduate with a Business Management Diploma at the end of Year 3.

Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:
- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead College, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society

**COURSES**

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**DIPLOMA PROGRAM**: Semester 3 (Intersession)

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BUSINESS

Business Administration (Accounting)

The two-year program leading to a Diploma in Business Administration (Accounting) has been developed to achieve competencies required in the field of general financial accounting. Industry requires personnel with skills to provide complex information and to produce comprehensive reports.

Upon completion of this program, students will be capable of performing many accounting functions in small and large businesses and at various levels of government.

Notes: Year 2 of the Business Administration (Accounting) and the Business Management (Accounting) programs is common.

OBJECTIVES
1. To develop skills in various key areas of accounting such as financial and intermediate accounting, taxation, and finance.
2. To help students develop self-reliance, initiative and the ability to solve business management problems.
3. To expand through related courses the basic accounting concepts and to apply them to real-life situations through the use of tools such as statistical analysis and economic planning.
4. To introduce the student to computerized business applications.
5. To train students for employment in the private industry or government sectors of business and to provide them with a sound base for further professional development.
6. To provide students with the skills and knowledge which will increase their success as entrepreneurs.

CAREER OPPORTUNITIES
Graduates may obtain employment in a variety of businesses, organizations and government departments. Possible positions are: accountant, comptroller, business analyst, taxation officer, financial officer, administrative manager, payroll officer.

PROGRAM TRANSFERABILITY
The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

Year 1: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

Year 2: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

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• Lakehead University, Ontario
• Northwood University, Michigan, USA
• Certified General Accountants of Canada (CGA)
• The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
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• Canadian Professional Sales Association
• Canadian Public Relations Society
BUSINESS

Business Administration (General)

The successful business administrator must be an effective leader, communicator and problem solver; one who can integrate rapidly emerging technology with diverse business functions such as accounting, marketing, and human resource management.

Students in this program will develop interpersonal and organizational skills. They will use the latest computer technology in business decision making and learn practical skills which will help them to be productive members of the workforce. Graduates can expect to build on this solid base during their entire business career.

Note: Year 1 courses can be completed at campuses that offer the Business Administration certificate program.

OBJECTIVES
1. To provide students with a broad understanding of business practices.
2. To develop skills in the areas of accounting, marketing and human resource management.
3. To develop leadership, teamwork, and problem solving skills.
4. To introduce students to current computer technology and how it may be applied to business applications.

CAREER OPPORTUNITIES
Graduates may find entry level job opportunities in a wide spectrum of organizations such as public institutions, small and/or large businesses, financial institutions.

PROGRAM TRANSFERABILITY
The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

Year 1: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

Year 2: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

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Year 1 courses can be completed at campuses offering the Business Administration certificate program.

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DIPLOMA
- Two years
- Start date varies: At some campuses the program begins in September; at others seats are filled as vacancies occur. Please check with the campus concerned.
- Bay St. George, Burin, Clarenville, Corner Brook, Grand Falls-Windsor, and Prince Philip Drive Campuses and through @college Distributed Learning Service (DLS)
DIPLOMA
- Two years
- September start
- Bay St. George, Burin, Clarenville, Grand Falls-Windsor and Prince Philip Drive Campuses and through @ College Distributed Learning Service (DLS)

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BUSINESS

Business Administration (Human Resource Management)

The Human Resource Management program has been designed to provide students with insight into the theory and practice of effective Human Resource Management. In today’s competitive business environment, managers recognize the importance of their human resources to the success of their organization.

The program is designed to provide students with an opportunity to pursue a career in Human Resource Management, Industrial/Labour Relations, Supervision and General Management.

Note: Year 2 of the Business Administration (Human Resource Management) and the Business Administration (Human Resource Management) programs is common.

OBJECTIVES

1. To provide students with a broad understanding of fundamental business principles and practices essential to efficient and effective management.
2. To develop skills in various key areas of human resource management such as recruitment, selection, training and development, compensation, and industrial/labour relations.
3. To develop leadership, teamwork, and problem-solving skills.
4. To introduce various aspects of computerized information technology.
5. To develop an appreciation for the entrepreneurial process, particularly as it relates to small business development.
6. To provide students with an opportunity to integrate classroom study with relevant work experience.

CAREER OPPORTUNITIES

Graduates may obtain employment in a variety of areas such as private businesses, consulting agencies, associations, unions, Federal/Provincial/Municipal Governments.

The following is a brief list of the positions that graduates may occupy after successful completion of the program: recruitment/selection officer, personnel officer, training and development officer, compensation/benefits specialist, sexual harassment officer, employee assistance coordinator, labour relations officer, professional development officer, human resource officer, personnel manager, manager of human resources, classification officer.

PROGRAM TRANSFERABILITY

The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

Year 1: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

Year 2: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

Year 3: The three third-year options are Accounting, Human Resource Management, and Marketing. Students may graduate with a Business Management Diploma at the end of Year 3.

Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:
- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead College, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society
- International Personnel Management Association – Canada
BUSINESS

Business Administration (Marketing)

The two-year program leading to a Diploma in Business Administration (Marketing) is designed to give students a broad background in business management with emphasis on the area of marketing. Graduates find employment in marketing, sales, retailing, administration, advertising, and general management.

Note: Year 2 of the Business Administration (Marketing) and the Business Management (Marketing) programs is common.

OBJECTIVES
1. To provide students with a broad understanding of activities involved in the administration of any organization.
2. To develop skills in selected key areas of management activity which will lead to specialization in areas such as marketing, advertising and promotion, retail merchandising.
3. To develop capacity for leadership, teamwork and cooperation in problem solving.
4. To acquire skills, knowledge and experience that will complement personal initiative, creativity and energy in contributing to any job situation.
5. To relate management studies to the needs of the public and private sectors of the economy of Newfoundland and Labrador.

CAREER OPPORTUNITIES
Graduates of this program may obtain employment in a variety of marketing areas such as distribution, media, advertising, retailing, and personal selling in a variety of industries and associations.

PROGRAM TRANSFERABILITY
The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

Year 1: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

Year 2: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

Year 3: The three third-year options are Accounting, Human Resource Management, and Marketing. Students may graduate with a Business Management Diploma at the end of Year 3.

Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:
- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead College, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society

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Year 1 courses can be completed at campuses offering the Business Administration certificate program.

| Semester 4                          | Cr  Le  La     |
| CM2200 | Oral Communications                         | 2  0  0 |
| EC1100 | Microeconomics                              | 3  0  0 |
| LW1200 | Business Law                                | 3  0  0 |
| MR1500 | Consumer Behavior                           | 3  0  0 |
| MR1600 | Professional Selling                         | 4  2  2 |
| MR2300 | Business Research                           | 4  3  2 |
| Elective |                                              | 4  3  2 |

| Semester 5                          | Cr  Le  La     |
| CM2300 | Report Writing                              | 2  0  0 |
| EC1200 | Macroeconomics                              | 3  0  0 |
| MR2200 | Retailing                                  | 3  2  3 |
| MR2350 | Introduction to E-Commerce                  | 4  3  2 |
| MR2400 | Marketing Communications                     | 4  3  2 |
| SD1420 | Workplace Skills                            | 3  1  1 |

Business Administration Students:
EP2250 Small Business Development | 4  3  2
Business Management Students:
Elective

| Semester 6                          | Cr  Le  La     |
| QJ1530 | Work Exposure                              | 4  wks  |
Diploma
- Three years
- September start
- Grand Falls-Windsor and Prince Philip Drive Campuses

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**Year 1 courses can be completed at campuses offering the Business Administration certificate program.**

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**Year 2 courses can be completed at campuses offering the Business Administration (Accounting) diploma program.**

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The three-year program leading to a Diploma in Business Management (Accounting) has been developed to achieve competencies required in the field of general financial accounting. Management now requires personnel with skills to provide complex information and to produce comprehensive reports.

Upon completion of this program, students will be capable of performing many accounting functions in small and large businesses and at various levels of government.

**Objectives**

1. To develop skills in various key areas of accounting such as financial and intermediate accounting, taxation, auditing, and finance.
2. To help students develop self-reliance, initiative and the ability to solve business management problems.
3. To expand the basic accounting concepts through related courses and to apply them to real-life situations through the use of tools such as statistical analysis and economic planning.
4. To introduce students to computerized business applications.
5. To train students for employment in the private industry or government sectors of business and to offer them a sound base for further professional development.
6. To provide students with the skills and knowledge which will increase their success as entrepreneurs.

**Career Opportunities**

Graduates may obtain employment in a variety of businesses, organizations and government departments. The following is a brief list of the positions that graduates may occupy after successful completion of the program: accountant, comptroller, auditor, business analyst, taxation officer, financial officer, administrative manager, payroll officer.

**Program Transferability**

Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:

- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead College, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:

- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society
**BUSINESS**

**Business Management (Human Resource Management)**

The Human Resource Management program has been designed to provide students with insight into the theory and practice of effective Human Resource Management. The program seeks to provide the student with a broad understanding of fundamental business principles and practices essential to effective and efficient management.

The program is designed to provide students with an opportunity to pursue a career in Human Resource Management, Industrial/Labour Relations, Supervision and General Management.

**OBJECTIVES**
1. To provide students with a broad understanding of fundamental business principles and practices essential to efficient and effective management.
2. To develop skills in various key areas of human resource management such as recruitment, selection, training and development, compensation, and industrial/labour relations.
3. To develop leadership, teamwork, and problem-solving skills.
4. To introduce various aspects of computerized information technology.
5. To develop an appreciation for the entrepreneurial process, particularly as it relates to small business development.
6. To provide students with an opportunity to integrate classroom study with relevant work experience.

**CAREER OPPORTUNITIES**
Graduates of the program may obtain employment in a variety of areas such as private business, Federal/Provincial/Municipal government, industry, consulting agencies, institutions, associations, and unions.

The following is a brief list of the positions that graduates may occupy after successful completion of the program: recruitment/selection officer, personnel officer, training and development officer, compensation/benefits specialist, sexual harassment officer, employee assistance coordinator, human resource officer, personnel manager, manager of human resources, classification officer, and other business related occupations.

**PROGRAM TRANSFERABILITY**
The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

**Year 1**: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

**Year 2**: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

**Year 3**: The three third-year options are Accounting, Human Resource Management, and Marketing. Students may graduate with a Business Management Diploma at the end of Year 3.

Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:
- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead University, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society
- International Personnel Management Association - Canada

Graduates of the program may obtain employment in a variety of areas such as private business, Federal/Provincial/Municipal government, industry, consulting agencies, institutions, associations, and unions.

The program is designed to provide students with an opportunity to pursue a career in Human Resource Management, Industrial/Labour Relations, Supervision and General Management.

**OBJECTIVES**
1. To provide students with a broad understanding of fundamental business principles and practices essential to efficient and effective management.
2. To develop skills in various key areas of human resource management such as recruitment, selection, training and development, compensation, and industrial/labour relations.
3. To develop leadership, teamwork, and problem-solving skills.
4. To introduce various aspects of computerized information technology.
5. To develop an appreciation for the entrepreneurial process, particularly as it relates to small business development.
6. To provide students with an opportunity to integrate classroom study with relevant work experience.

**CAREER OPPORTUNITIES**
Graduates of the program may obtain employment in a variety of areas such as private business, Federal/Provincial/Municipal government, industry, consulting agencies, institutions, associations, and unions.

The following is a brief list of the positions that graduates may occupy after successful completion of the program: recruitment/selection officer, personnel officer, training and development officer, compensation/benefits specialist, sexual harassment officer, employee assistance coordinator, human resource officer, personnel manager, manager of human resources, classification officer, and other business related occupations.

**PROGRAM TRANSFERABILITY**
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Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society
- International Personnel Management Association - Canada

Graduates of the program may obtain employment in a variety of areas such as private business, Federal/Provincial/Municipal government, industry, consulting agencies, institutions, associations, and unions.
BUSINESS

Business Management (Marketing)

The three-year Business Management (Marketing) diploma program is designed to give students a background in business management with emphasis on the area of Marketing. Students acquire a solid understanding of the practices involved in marketing and promoting a product or service. This includes advertising, market research, professional selling, distribution, business planning, and customer relations.

OBJECTIVES
1. To provide students with an in-depth understanding of activities involved in the management of organizations.
2. To develop skills in selected key areas of management activity such as marketing, advertising, promotion, retail merchandising.
3. To develop a capacity for leadership, teamwork and cooperation in problem solving.
4. To acquire skills, knowledge and experience that will complement personal initiative, creativity and energy to ensure a successful career.
5. To relate management studies to the needs of the public and private sectors of the economy of Newfoundland and Labrador.

CAREER OPPORTUNITIES
Graduates of the program may obtain employment in a variety of marketing areas such as distribution, media, advertising, retailing, and personal selling in a variety of industries and associations.

PROGRAM TRANSFERABILITY
The Business Administration/Management programs offer exit points after Year 1, Year 2, and Year 3.

Year 1: The first year is a common year at the end of which students may graduate with a Business Administration Certificate.

Year 2: Students select one area of specialization for the second year from the following options: Accounting, General, Human Resource Management, and Marketing. Students may graduate at the end of Year 2 with a Business Administration Diploma.

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- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society

DIPLOMA
- Three years
- September start
- Grand Falls-Windsor and Prince Philip Drive Campuses

COURSES

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Year 1 courses can be completed at campuses offering the Business Administration certificate program.

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Year 2 courses can be completed at campuses offering the Business Administration (Human Resource Management) diploma program.

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Graduates of the Business Administration/Management programs may have the opportunity to transfer credits to institutions/associations such as:
- Memorial University of Newfoundland
- Cape Breton University, Sydney, Nova Scotia
- Athabasca University, Alberta
- Lakehead College, Alberta
- University of Lethbridge, Alberta
- Lakehead University, Ontario
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- Canadian Public Relations Society
BUSINESS

Office Administration

Graduates from the certificate program will acquire knowledge and office skills for entry-level employment in the office of today.

OBJECTIVES
1. To develop competencies needed to enhance personal and professional growth through lifelong learning.
2. To develop communication, problem-solving, and human relations skills to effectively complete assigned responsibilities individually and in a team environment.
3. To develop proficiency in business computer applications such as word processing, spreadsheets, databases, e-mail, and Internet.
4. To produce accurate business documents within established deadlines by applying organizational and technological skills.
5. To develop basic accounting skills.
6. To develop records management skills to facilitate the effective flow of information.
7. To organize meetings, special events, and travel including the preparation of related documents.

CAREER OPPORTUNITIES
Graduates of the diploma program may expect to find employment opportunities in both the public and private sectors, including all levels of government, legal and medical offices, accounting firms, hospital and education facilities, and general business offices. As well as acquiring skills and knowledge necessary to become effective employees in today’s electronic office, graduates may gain insight into the creation of a small business of their own. Graduates are trained for the following specific positions: administrative assistant, word processing operator, computerized bookkeeping, data processing, legal transcription, medical transcription, microcomputer specialist as well as additional employment opportunities depending on electives selected.

Graduates from the certificate program may obtain employment as an entry-level administrative assistant, office clerk, data entry clerk, or word processing operator.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile),
OR
Persons 19 years of age or older who do not meet the educational prerequisites for this program may be considered on an individual basis under the Mature Student Clause.

PROGRAM TRANSFERABILITY
The Office Administration Program offers exit points after Year 1 and Year 2.

Year 1: The first year is a common year at the end of which students may graduate with an Office Administration Certificate.

Year 2: Students going on to complete the diploma program can select one area of specialization for the second year from the following options: Executive, Legal, Medical, Records and Information Management.

Students must achieve a typing speed of 30 net words per minute at the end of Semester 2 in order to be eligible for an Office Administration Certificate from the College.

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Certificate
- One year
- Start date varies: At some campuses the program begins in September; at others seats are filled as vacancies occur. Please check with the campus concerned.
- Baie Verte, Bay St. George, Bonavista, Burin, Clarenville, Corner Brook, Grand Falls-Windsor, Happy Valley-Goose Bay, Port aux Basques, Prince Philip Drive, St. Anthony, Labrador West Campuses, and through @College Distributed Learning Service (DLS)
DIPLOMA

- Two years
- Start date varies: At some campuses the program begins in September; at others seats are filled as vacancies occur. Please check with the campus concerned.
- Baie Verte, Bay St. George, Bonavista, Burin, Clarenville, Corner Brook, Grand Falls-Windsor, Happy Valley-Goose Bay, Port aux Basques, Prince Philip Drive, St. Anthony Campuses, and through College Distributed Learning Service (DLS)

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Year 1 courses can be completed at campuses offering the Office Administration certificate program.

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Students must achieve a typing speed of 40 net words per minute at the end of Semester 5 in order to be eligible for an Office Administration (Executive) Diploma from the College.

BUSINESS

Office Administration (Executive)

This two-year diploma program is designed to enable students to acquire the knowledge and skills needed to work as administrative assistants in today’s modern office.

The major components of the program include document production, transcription, and office management. Related courses include communications, computerized accounting, computer applications, and organizational behaviour.

ENTRANCE REQUIREMENTS

- Comprehensive Arts and Science Certificate (College Transition program),
- High School Graduation,
- Adult Basic Education (Level III) Graduation,
- Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile),
- Persons 19 years of age or older who do not meet the educational prerequisites for this program may be considered on an individual basis under the Mature Student Clause. It is recommended that the mature student have a good working knowledge of English and Mathematics.
This two-year diploma program is designed to enable students to become administrative assistants in a legal or general office environment.

The program provides students with extensive knowledge and skills in the formatting and production of legal and general documentation, legal terminology, legal transcription and office management tasks.

Related courses include communications, computerized accounting, organizational behaviour and computerized business applications.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile),
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Students must achieve a typing speed of 40 net words per minute at the end of Semester 5 in order to be eligible for an Office Administration (Legal) Diploma from the College.
**BUSINESS**

**Office Administration (Medical)**

This two-year diploma program is designed to enable students to develop the knowledge, skills and abilities needed to be a medical secretary or a medical office assistant.

The major areas of the program include document production, medical transcription, medical terminology and medical office management. Related areas include communications, medical billing, computer applications and biology.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile),
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Year 1 courses can be completed at campuses offering the Office Administration certificate program.

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Students must achieve a typing speed of 40 net words per minute at the end of Semester 5 in order to be eligible for an Office Administration (Medical) Diploma from the College.

Students are required to complete CPR and St. John Ambulance Emergency First Aid in Semester 3 or 4.
BIOUSINESS

Office Administration (Records and Information Management)

This two-year diploma program incorporates a strong emphasis on office management, computer skills, and an intense study of records and information theories and practices. Major areas are Record Management Principles and Procedures, Document Production, and Office Management. Related areas include Communications (oral and written), Organizational Behaviour, and Human Resource Management.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),

OR

High School Graduation,

OR

Adult Basic Education Level (III) Graduation,

OR

Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile),

OR

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Year 1 courses can be completed at campuses offering the Office Administration certificate program.

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Students must achieve a typing speed of 40 net words per minute at the end of Semester 5 in order to be eligible for an Office Administration (Records and Information Management) Diploma from the College.

DIPLOMA

- Two years
- September start
- Bay St. George & Prince Philip Drive Campuses
- **Note:** This program is offered through Continuing Education at Prince Philip Drive Campus in addition to the regular full-time program.
### INFORMATION TECHNOLOGY

**Computer Systems and Networking**

The Computer Systems and Networking two-year program focuses on the skills, competencies and attitudes required to research, design, install and maintain computer systems and network infrastructure in a highly available and secure computing environment. The program combines theoretical and practical learning experiences in a team-oriented setting encompassing front-line computer systems, back-end server environments and the local and wide-area network infrastructure.

The program includes course work, team-oriented projects, and a final 15-week work term focusing on areas of technical learning, team building, communications, interpersonal skills, ethics, and best practices. This diversity provides opportunities for the student to acquire the skills, professionalism and adaptability required to succeed in the dynamic and challenging field of Information Technology infrastructure support.

The student will create and maintain a career plan and learning portfolio throughout the program to provide the opportunity to continually assess skill development and create/adapt career plans that set personal expectations and professional goals.

The capstone project will enable the student to demonstrate the application of knowledge and skills developed throughout the program by performing an in-depth study of a problem, design, or technological application and fully documenting and presenting the findings.

#### OBJECTIVES

The aim of the Computer Systems and Networking program is to graduate a student with:

1. The theoretical and practical skills in information technology infrastructure support. This will enable her/him to:
   - a. Provide computer technical assistance, support, and advice to customers and other users.
   - b. Install, modify and repair computer hardware and software.
   - c. Support local-area networks (LAN), wide-area networks (WAN), network segments, and Internet and intranet systems.
   - d. Design an organization’s computer system in which all of the components including computers, the network, and software, work properly together.
   - e. Plan, coordinate, and implement the organization’s information security policy.
   - f. The skills required to interpret and effectively apply industry procedures and policies in the workplace.
   - g. The social, interpersonal and communication skills necessary to be a productive member of a team in a software development environment.
   - h. The self-awareness and reflective skills required to create, evaluate and modify personal growth and career plans.

#### EMPLOYMENT OPPORTUNITIES

Given the presence of computer systems and networks in all industries, Computer Systems and Networking graduates may find employment in both the private and public sectors.

Graduates of the program will be able to fill roles in industry such as:

- Computer Support Specialist
- LAN Team Member
- I.T. Support Technician
- Help Desk Technician
- Server Support Analyst/Technician
- Help Desk Analyst
- Technology Support Analyst

### ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:

1. Math Fundamentals I and II
2. Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50% minimum) Academic: 3203, 3205, 3211, 3219, 3230, 3270, 3280, 3290 (60% minimum)

3. Additional credits at the 3000 level chosen from any of the remaining 3000 level courses offered in the Senior High School Program:
   - a. six credits at the 3000 level for those who complete a Language course
   - b. five credits at the 3000 level for those who complete an English course,
   - c. Grade XII Public Examination pass with a 60% average, including 60% in each of English and Mathematics (Matriculation) or, a pass in Mathematics (Honours).

#### OR

Adult Basic Education (Level III) Graduation including the following courses:

1. Communications IC3211, IC3112 plus ONE of IC3116, IC3215, IC3321, or IC3222
2. Mathematics from one of the following sections:
   - a. Mathematics IM3212, IM3213 and IM3216
   - b. IM3219

#### OR

Adult Basic Education Graduation (Level III) with Business-Related College Profile including the following courses:

1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

#### OR

Persons 19 years of age or older who do not meet the entrance prerequisites for this program may be considered on an individual basis under the Mature Student Clause.
This three-year program is a comprehensive training program designed to include introductory courses for those without previous computer experience. It places emphasis on programming, Internet development, systems analysis and design, management and program development of database management systems.

Students will receive hands-on experience using the latest technologies. They will receive the skill set needed to obtain entry-level positions in the Information Technology sector. Emphasis is placed on soft skills and working in a team environment. Students complete a work term to enable them to become aware of and build on the skill set required to obtain a job in the market place.

OBJECTIVES
1. To provide students with a broad understanding of the fundamental computer skills necessary to work effectively and efficiently in the Information Technology industry.
2. To develop skills for effective communication, a capacity for leadership, teamwork, and co-operation in problem solving.
3. To develop skills for problem solving and programming in desktop, enterprise, and Internet environments.
4. To develop skills for database creation, management, and design.
5. To develop quality assurance and project management skills.
6. To develop the required skills to effectively analyze, write, and maintain secure, customized computer applications based on user requirements.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
OR
High School Graduation Certificate with a 60% overall average in the following:
1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121
OR
English (2 credits) (minimum 60%) chosen from: 3201, 3202, 3202, 3231, 3232, 3281, 3282, 3291, 3292
2. Mathematics (2 credits) chosen from:
Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (minimum 50%)
Academic: 3203, 3200, 3210, 3220, 3270, 3280, 3290 (minimum 60%)
OR
Mathematics (4 credits) chosen from:
Advanced: 2205, 2205 (minimum 50% in each course)
Academic: 2204 (50% minimum), 2204 (60% minimum)
3. Additional credits at the 3000 level – chosen from any of the remaining 3000 level courses offered in the Senior High Program:
six credits at the 3000 level for those who complete a Language course
OR
five credits at the 3000 level for those who complete an English course.
OR
A Grade XI public examination pass with a 60% average including a 60% pass in Language and Matriculation Mathematics or 50% in Honours Math.
OR
Adult Basic Education (Level III) Graduation including the following courses:
1. Communications IC3211, IC3112 plus ONE of IC3116, IC3215, IC3321, or IC3222.
2. Mathematics from one of the following sections:
a. IM3212, IM3213 and IM3216
b. IM3219
OR
Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses:
1. English 3101A, 3101B, 3101C
Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.
OR
Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.
**DIPLOMA**
- Three years
- September start
- Prince Philip Drive Campus

**Programmer Analyst (Business) Co-op**

Programmer Analyst (Business) Co-op is a three-year program which trains the student to work effectively as a team member in a wide variety of business application development environments. This is a co-operative education program that offers the student work term placements in May of the first academic year, in January of the second academic year and in September of the third academic year. Each work term placement affords the student 12 to 16 weeks of workplace experience, for a total of 36 to 48 weeks during the three-year program.

The program's main emphasis is on the design and development of a variety of business-oriented applications using the most recent versions of widely used computer programming languages. Emphasis is on database design and programming, the traditional and object-oriented system development life cycles, and web-based programming. As well, ethics, best practices, team building, communications and interpersonal skills are developed throughout the program via coursework and participation on project teams.

The student is required to create a career plan and learning portfolio throughout the life of the program. The student will be given opportunities to assess skills, create/modify career plans and to reflect on her/his progress. The student must complete a comprehensive project in the final semester thereby consolidating all of the skills and knowledge acquired throughout the program.

The combination of coursework and work term experience provides the student with a skill set that will prepare her/him for an entry-level business programming position. With relevant work experience, the student should be able to follow the career progression to Programmer Analyst and eventually to Systems Analyst.

**ACCREDITATION**

The Programmer Analyst (Business) Co-op program has been accredited by the Canadian Information Processing Society (CIPS) until 2011. The Co-op delivery method of the program has been accredited by the Canadian Association for Co-operative Education (CAFCE).

**EMPLOYMENT OPPORTUNITIES**

Graduates of the Programmer/Analyst (Business) Co-op program may find employment in computer-related industries, such as: provincial and federal government departments, as well as small, medium and large corporations. Typical activities may include computer programming, database design and development, and web page and web component implementation.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:

1. Math Fundamentals I and II
2. High School Graduation Certificate with a 60% overall average in the following:
   1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3172, 3192, 4121
   3. English (2 credits) (minimum 60%) chosen from: 3201, 3211, 3221, 3231, 3271, 3281, 3191, 4224 (minimum 50%)
   5. Additional credits at the 3000 level - chosen from any of the remaining 3000 level courses offered in the Senior High Program: six credits at the 3000 level for those who complete a Language course

**COURSES**

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Successful completion of three work terms is required for graduation with a co-op diploma. However, in exceptional circumstances and with college approval, the co-op diploma may be awarded to students who successfully complete two work terms.
The Web Site Administration program is a two-year diploma program which trains students to effectively choose, install, configure, and administer a WWW server – for UNIX or Windows NT.

Graduates will have knowledge and skills in CGI scripting, server configuration, multi-homed Web servers, access control, database integration, firewalls, proxy servers, web server software, web page design, HTML, Java, and PERL programming, and web site maintenance.

The development of communication and interpersonal skills in a team environment contributes to the base of experience needed to become a web site administrator.

**EMPLOYMENT OPPORTUNITIES**

Graduates of this program will find employment as Webmasters, Web Site Administrators, Web Developer/Designer, Webmaster Specialist, Certified Web Technician, Web Page Producer, and Web Programmer.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:

1. Math Fundamentals I and II
2. High School Graduation Certificate with a 60% overall average in the following:
   1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121
   2. English (2 credits) (minimum 60%) chosen from: 3201, 3202, 3202, 3231, 3232, 3281, 3282, 3291, 3292
   3. Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (minimum 50%)
   4. Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (minimum 60%)
3. Additional credits at the 3000 level - Chosen from any of the remaining 3000 level courses offered in the Senior High Program:
   1. six credits at the 3000 level for those who complete a Language course
   2. OR five credits at the 3000 level for those who complete an English course.

**OR**

Grade XI Public Examinations pass or equivalent with a 60% average including a 60% pass in language, 60% in Matriculation Math, or 50% pass in Honours Mathematics.

**OR**

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:

1. Communications IC3211 & IC3112 plus one of IC3116, IC3215, IC3321, or IC3222
2. Mathematics from one of the following sections:
   a. IM3212, IM3213, IM3216.
   b. IM3219
**OR**

Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses:

1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C, 3104A, 3104B, 3104C
3. Additional credits at the 3000 level - Chosen from any of the remaining 3000 level courses offered in the Senior High Program:
   1. six credits at the 3000 level for those who complete a Language course
   2. OR five credits at the 3000 level for those who complete an English course.

**OR**

Grade XI Public Examinations pass or equivalent with a 60% average including a 60% pass in language, 60% in Matriculation Math, or 50% pass in Honours Mathematics.

**OR**

Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses:

1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C, 3104A, 3104B, 3104C
3. Additional credits at the 3000 level - Chosen from any of the remaining 3000 level courses offered in the Senior High Program:
   1. six credits at the 3000 level for those who complete a Language course
   2. OR five credits at the 3000 level for those who complete an English course.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

**OR**

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational requirements, may be considered on an individual basis under the Mature Student Clause.
Diploma
- September start
- Burin, Carbonear, Clarenville, Corner Brook, Gander, Happy Valley-Goose Bay, Labrador West, Ridge Road (St. John’s), and St. Anthony Campuses

Courses

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<td>MA1700</td>
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<td>PHT100</td>
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<td>CH1120</td>
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<td>SO1170</td>
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*Admission into the appropriate Mathematics course will be decided by the grade in high school math.

Either
- Students who received at least 70% in level III Math 3200 or a pass in Math 3201 can be exempted from MA1700
- Students who received a combined average of 70% in 2204 and 3204, or a pass in both of 2205 and 3205 can be exempted from MA1700.

Note: Students may apply for an exemption from MA1700 provided they meet the appropriate high school level in Mathematics as noted above.

Semester 2

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Engineering Technology

Engineering Technology (First Year)

The following Engineering Technology Programs are available and follow the first year of Engineering Technology:

Burin Campus
- Electrical Engineering Technology (Industrial Control)
- Civil Engineering Technology
- Electronics Engineering Technology (General)
- Process Operations Engineering Technology
- Architectural Engineering Technology
- Civil Engineering Technology
- Electrical Engineering Technology (Co-op) (Power & Controls)
- Electronics Engineering Technology (General) options in:
  - Biomedical
  - Instrumentation
- Geomatics Engineering Technology (Co-op)
- Mechanical Engineering Technology
- Mechanical Engineering Technology (Manufacturing) (Co-op)
- Petroleum Engineering Technology (Co-op)
- Safety Engineering Technology (Post Diploma)
- Software Engineering Technology (Co-op)
- Telecommunications Engineering Technology

Selection Process

The College offers a common first year in the Engineering Technologies. This initiative allows students to attend the first two semesters of an engineering technology program at the campus nearest their hometown. After completing the first two semesters, students then enter the campus which offers the program of their choice to complete the seven week Spring (May, June) Technical Intersession, and the subsequent years of their program.

Individuals must submit their application to the campus where they intend to complete the first two semesters of their program. This begins a first come, first served provincial process which reserves a seat at the designated campus for the appropriate Technical Intersession, and subsequent years of program study.

After successful completion of the first two semesters, students progress to the Technical Intersession in the program for which a seat has already been reserved. Any student who, after registration, wishes to change his/her original program choice MUST apply for a Program Transfer (see below).

Transfer Process

If a student wishes to change his/her original program choice, he/she MUST request a program transfer and complete the appropriate form (Request to Transfer Form) which is available through the Registrar’s Office.

Applicants cannot request a change in program prior to entry into the first year. A request to transfer does not guarantee entry into one’s alternate, “new” program choice. Program transfer will be granted only if sufficient space is available. The following conditions apply:

1. The Request to Transfer Form must be received at the Registrar’s Office by February 15
2. Transfers are granted based on 1) space availability and 2) the student’s weighted average at the end of semester one. In cases where the student has been exempted from courses in the first semester, the mark(s) obtained by the student at another postsecondary institution or high school will be used in calculating the weighted average.

Entrance Requirements

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that CAS students who intend to enrol in Engineering Technology programs complete both of the Introductory Chemistry courses and both of the Introductory Physics courses.

OR

High School Graduation Certificate with a 60% average in the following:
1. Language (1 credit) (minimum 60%) from: 3101, 3102, 3103, 3112, 3172, 3192, 4121
2. English (2 credits) (minimum 60%) chosen from: 3201, 3202, 3211, 3212, 3231, 3232, 3281, 3282, 3291, 3292
3. Mathematics (2 credits) chosen from: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum
Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60% minimum)
4. Science (4 credits) chosen from:
   a. Advanced: 3205, 3205 (50% minimum in each course)
   b. Academic: 3204 (50% minimum), 3204 (60% minimum)
5. Three Science (4 credits) two of which must be selected from:
   a. Biology: 3201, 3211, 3231, 3271, 3281, 3291, 4221
   b. Physics: 3204, 3214, 3274, 3284, 3294, 4224
   c. Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   d. Geology: 3203, 3213, 3223, 3273, 3283, 3293
Earth Systems: 3213, 3209

Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

OR

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

OR
Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Matriculation Mathematics or 50% in Honours Mathematics, and one Science course

OR

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:

1. Communications IC3211, IC3112 plus ONE of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. IM3219
3. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3315, IB3316
   b. Chemistry IH3215, IH3316, IH3117, IH3118
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214

OR

Adult Basic Education Graduation (Level III) with Degree and Technical Profile including the following courses:

1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

TRANSFERABILITY

Currently there are a number of agreements in place with other Colleges and Universities where students can obtain advanced standing into Engineering and Bachelor of Technology Programs.

- Memorial University – Bachelor of Technology
- Lakehead University – Bachelor of Engineering
- Memorial University – Bachelor of Engineering
- Cape Breton University – Bachelor of Technology
- Athabasca University – Bachelor of Science (Post Diploma)
- Indiana University Purdue University at Indianapolis – Master of Science
- Victoria University – Bachelor of Engineering
- College of the North Atlantic – Other engineering technology programs (on course by course basis). Every effort has been made to ensure that the maximum numbers of transfer credits are attainable by articulating new and revised courses for common curriculum areas.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).

Note: Transfer and articulation agreements with other post-secondary institutes are continuing to evolve. To find out about the latest educational opportunities please contact the Registrar’s Office or any of the campus program administrators.
ENGINEERING TECHNOLOGY

Chemical Processing Engineering Technology (Co-op)

Chemical Processing Engineering Technologists play a vital role in the monitoring, operation, control and maintenance of equipment in a variety of industries including oil & gas. The program equips graduates with the knowledge and practical skills necessary to begin their career as competent process operators, chemical engineering technologists and power (stationary) engineers.

The program covers safe practices, process operations, Power (Stationary) Engineering Certification training, chemical engineering principles and regulatory processes, process stream analysis, instrumentation, and process control. Students will also acquire valuable work experience through the completion of two co-op work terms.

ACCREDITATION
College of the North Atlantic will seek accreditation for this program from the Canadian Technology Accreditation Board (CTAB) of the Canadian Council of Technicians and Technologists (CCTT) and through the Canadian Association for Co-operative Education (CAFCE).

OBJECTIVES
1. To provide graduates with the technical knowledge and practical skills needed to assist in safe and efficient design, operation, troubleshooting, and maintenance of chemical process equipment.
2. To provide graduates with the theoretical and technical knowledge to qualify for examinations required for Third Class Power (Stationary) Engineering.
3. To develop the ability to operate control systems used in the monitoring and optimization of industrial processes.
4. To prepare graduates to interpret and effectively adhere to government legislation and policies in accordance with ethical principles and safety practices, thereby preventing health and environmental hazards.
5. To provide graduates with effective problem solving skills through application of problem solving methodologies in the classroom, in the laboratory, and in real-life situations.
6. To enable graduates to work and communicate as members of a team with other professionals, as well as supervise the work of skilled professionals and trades persons.

EMPLOYMENT OPPORTUNITIES
Graduates of the Chemical Processing Engineering Technology program can expect to find employment as process operators and technologists in oil & gas extraction and refining, offshore petroleum production installations, petrochemical industries, primary metal manufacturing, thermal power plants and water and waste treatment facilities. Completion of the Third Class Power (Stationary) Engineering Certificate will enable graduates to find employment as Power (Stationary) Engineers in other industries (i.e. utilities, health care facilities, etc.).
Engineer Technology

Architectural Engineering Technology

Buildings are an exciting and vital part of our physical environment. Not only must they provide shelter, but they must do it in a way which provides safe, healthy, and comfortable environments which can be built and operated within given cost guidelines. To achieve these goals buildings have become complex structures requiring teams of specialists. An important member of the design and construction team is the Architectural Engineering Technologist.

The three-year Architectural Engineering Technology Program has been developed in response to provincial needs with input from professionals associated with the design and construction of buildings. The common first year emphasizes academic subjects designed to support the technical subjects emphasized in the second and third years. Projects and assignments are designed to be as close as possible to the type of work students will encounter upon graduation.

Every effort is made to expose students to the latest technology. Computers are used as a tool in problem solving in many technical courses. Microcomputers, computer aided drafting (CAD) equipment, and a variety of architectural and engineering software packages are made available to students to carry out their projects and assignments.

Accreditation
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Objectives
1. To prepare students for employment in architectural and engineering fields by providing a learning environment encouraging them to be inquisitive, take initiative, and make decisions.
2. To provide knowledge in theory, practice, and legal requirements to enable students to take an important role in the decision making process of their work.
3. To help students develop the necessary skills to apply the results of this process accurately in graphic, written and oral communications.

Curriculum
A series of theoretical and practical subjects oriented toward the technical aspects of architecture.

A series of theoretical and practical subjects oriented toward the technical aspects of building services.

A series of theoretical and practical subjects oriented toward the technical aspects of computer applications in building design and construction. General subjects such as technical writing, mathematics, and physics designed to support the technical subjects.

Employment Opportunities
The need is growing for people trained in building technology. Graduates may find employment in a variety of areas such as architectural firms, engineering firms, government departments, crown corporations, construction firms, manufacturing industries, and supply and sales companies.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).

Diploma
- Three years
- September start
- Ridge Road Campus (St. John’s)

Courses

| Semester 1 and 2 - Refer to Engineering Technology (First Year) |
|---|---|---|
| CR | Le | La |
| DR2100 Architectural Drawings | 4 | 6 |
| EG1210 Engineering Graphics | 3 | 6 |
| HY1400 Architectural History | 2 | 0 |
| SU1220 Surveying | 3 | 4 |

| Semester 3 (Technical Intersession I) |
|---|---|---|
| CR | Le | La |
| DR2101 Architectural Working Drawings I | 6 | 6 |
| EG1210 Engineering Graphics | 3 | 6 |
| HY1400 Architectural History | 2 | 0 |
| SU1220 Surveying | 3 | 4 |

| Semester 4 |
|---|---|---|
| CR | Le | La |
| BU2200 Architectural Building Services I | 3 | 4 |
| BU2300 Architectural Building Codes I | 2 | 2 |
| BU2400 Architectural Building Science I | 2 | 2 |
| CF2600 Building Materials I | 4 | 0 |
| DR3100 Architectural Working Drawings I | 6 | 6 |
| LW1610 Management Construction Law | 2 | 0 |
| MA2100 Mathematics | 5 | 0 |

| Semester 5 |
|---|---|---|
| CR | Le | La |
| BU2201 Architectural Building Services II | 3 | 2 |
| BU2300 Architectural Building Codes II | 3 | 0 |
| BU2401 Architectural Building Science II | 3 | 3 |
| CF2601 Building Materials II | 3 | 3 |
| CM2200 Oral Communications | 2 | 0 |
| CM2300 Report Writing | 2 | 0 |
| DR3101 Architectural Working Drawings II | 6 | 4 |
| EG2200 Graphics Presentation | 2 | 0 |

| Semester 6 (Technical Intersession II) |
|---|---|---|
| CR | Le | La |
| PR2300 Major Technical Project | 5 | 0 |

| Semester 7 |
|---|---|---|
| CR | Le | La |
| BU3200 Architectural Building Services III | 3 | 4 |
| BU3300 Building Specifications | 3 | 3 |
| CF2500 Strength of Materials I | 4 | 3 |
| CF3600 Building Materials III | 4 | 0 |
| CG3200 Business & Project Administration | 4 | 0 |
| DR4100 Architectural Working Drawings III | 4 | 2 |

| Semester 8 |
|---|---|---|
| CR | Le | La |
| BU3201 Architectural Building Services IV | 3 | 2 |
| CF3420 Structural Design | 3 | 2 |
| CG3300 Architectural Cost Analysis | 3 | 2 |
| DR3200 Advanced CAD | 3 | 1 |
| DR4101 Architectural Working Drawings IV | 4 | 2 |
| PR2211 Major Technical Thesis | 3 | 0 |
COURSES

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The field of civil design and construction plays a central role in the economic viability of many industries and the province as a whole. The Civil field includes such areas as residential, commercial, and industrial buildings; harbours, wharves, and breakwater improvements; airports, roads, and other transportation facilities; and municipal infrastructure.

Natural resource development projects (hydropower, oil and gas, mineral processing, etc.) will continue to create substantial employment opportunities for Civil Engineering Technology graduates. The training program will enable the graduate to play an important role in the professional team which is responsible for the translation of ideas into the finished product. The program will ensure that the graduates understand the need of the construction industry for cost effective and efficient planning of projects from concept to completion.

ACCREDITATION

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES

The main objective of the program is to produce graduates who can function in the Civil Engineering environment at the technologist level. Some of the tasks which a graduate will be able to perform are:

1. Estimate construction costs.
2. Supervise construction projects for contractors, consultants, or owners.
3. Inspect construction projects for various agencies.
4. Assist engineers in structural design in wood, concrete, and steel.
5. Perform standardized testing of concrete, soils, aggregates and asphalt.
6. Administer and manage the construction of civil works, including scheduling.
7. Provide advice on environmental considerations.
8. Perform construction surveying.

EMPLOYMENT OPPORTUNITIES

The student, upon graduation, may find employment with contractors, consultants, house builders, manufacturers, suppliers, municipalities, provincial and federal governments and their agencies, and many others involved in such projects as the design of off-shore and on-shore structures and facilities, testing and inspection of structural components, estimation, sales, construction surveying, and project management.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
**ENGINEERING TECHNOLOGY**

**Electrical Engineering Technology (Industrial Controls)**

The three-year Electrical Engineering Technology program, with a specialization in Industrial Controls, has been developed in response to provincial and national needs with input from professionals associated with the design, installation and maintenance of Industrial Control systems. The common first year emphasizes academic subjects designed to support the technical subjects emphasized in the second and third years. Projects and assignments are designed to be as close as possible to the type of work students will encounter upon graduation. Once in the workforce, the graduate technologist may be responsible for designing, installing, commissioning, maintaining, and troubleshooting various industrial control systems ranging from simple motor controls to complicated automated systems.

Every effort is made to expose students to the latest technology. Computers are used as a tool in problem-solving in many technical courses. The technical training focuses on theoretical and practical skills pertaining to motors and generators, motor controls, and variable speed drives; industrial analog/digital electronics; microprocessors; programmable logic controllers; industrial instrumentation; process control; pneumatic/hydraulic systems; and robotics.

**ACCREDITATION**

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

**Note:** This program may not be suitable for applicants who do not have normal colour perception.

**OBJECTIVES**

As engineering technologists, graduates of this program will have the knowledge and skills that will allow them to:

1. Design, install, commission, maintain and troubleshoot industrial control systems.
2. Design, analyze and maintain motors and motor control systems.
3. Work with an awareness of, and concern for, environments and ethical issues that confront the practicing technologist in the workplace.
4. Foster and promote good safety practices and procedures.
5. Work and communicate as a member of a team with other professionals, as well as supervise the work of skilled technicians, and trade persons.

**CURRICULUM**

General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.

Extensive training in the theory and principles of Industrial Electronics; Industrial Electrical Power Distribution Systems; Electrical Machines, Fluid Power; Advanced Autocad; Engineering Economics; and Engineering Management.

Specific education in Industrial Motor Control Systems; Variable Speed Motor Drives; Programmable Logic Controllers; Microprocessors and Microcontrollers; Robotics and Computer Aided Manufacturing; and Industrial Instrumentation.

A large portion of the training includes practical skills and specific techniques. Projects are designed to reflect industrial work situations.

**EMPLOYMENT OPPORTUNITIES**

Typical employers would come from the following areas: marine, mining, mineral processing, paper mills, oil refineries, off-shore oil and gas production, petrochemical plants, utilities, consulting engineering firms, Provincial and Federal government departments, food packaging and processing, and the service sector. Positions of employment range from engineering design to maintenance and support.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
**DIPLOMA**
- Three years
- September start
- Ridge Road Campus (St. John’s)

**COURSES**

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**Semester 5**

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<td>Transformers</td>
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**Semester 6 (Technical Intersession II)**

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**Semester 7**

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<td>Power Systems: Analysis &amp; Operation</td>
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<td>Power Devices &amp; Motor Drives</td>
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**Electrical Engineering Technology (Power & Controls) Co-op**

Electrical Engineering Technology (Power and Controls) Co-op is a three-year cooperative education program providing a comprehensive coverage of the electrical power discipline with emphasis on power systems, control systems and electrical design. The theoretical aspects of this program are complemented by extensive practical components that allow students to gain invaluable experience with installation, operation and maintenance practices. This is further supplemented with real-world experience provided by two work terms.

**ACCREDITATION**

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

**OBJECTIVES**

1. Analyze and design electrical generation, transmission and distribution systems.
2. Install, operate, troubleshoot and maintain electrical equipment (including, but not limited to, motors, generators, transformers and related control and protection devices) found in utilities and industrial plants.
3. Apply the Canadian Electrical Code and employ specific computer software to plan, design and specify building electrical systems (including, but not limited to, power, lighting, heating, control and protection circuitry).

**EMPLOYMENT OPPORTUNITIES**

A graduate of the Electrical Engineering Technology (Power and Controls) Co-op program can find employment with a wide variety of companies involved in the electrical industry. Typical employers include production plants, oil and gas exploration production companies, refineries, offshore servicing companies, power utilities, pulp and paper mills, electrical sales and service groups, shipyards, Provincial and Federal Government Departments and consulting engineering companies.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
Electronics Engineering Technology (General)

The three year Electronics Engineering Technology Program is general in nature to ensure graduates will have access to job opportunities in a variety of areas, including: telecommunications, software programming, networking, computer aided design, industrial instrumentation, and process control.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland (AETTN), as well as any similar association in Canada. In addition, graduates can apply to Lakehead University and if accepted, receive full credit toward an engineering degree.

ACCREDITATION
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Note: This program may not be suitable for applicants who do not have normal color perception.

OBJECTIVES
The student will be able to:
1. Develop a high level of skill in the application of electronic principles.
2. Analyze and design electronic systems using computer aided design software or traditional workbench.
3. Configure and design computer circuits and systems.
4. Assemble, maintain and troubleshoot analog and digital communication systems.
5. Install, configure and maintain industrial instrumentation and process central equipment.
6. Assemble, maintain and troubleshoot computer networks.
7. Work and communicate with professionals, as well as supervise the work of skilled technicians.
8. Think and work independently.

CURRICULUM
General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.

Specific education in the theory and application of analog and digital electronics with a specialized emphasis on Telecommunications, Computer Programming and Networking, Microprocessor Interfacing, and Industrial Process Control.

Practical education employing labs and shops focused on installation, configuration, operation and maintenance training associated with electronic instrumentation, digital communications, wireless systems, programmable logic controllers, process control loops, transmitter calibration, microcontrollers, computer networks, and cabling systems.

EMPLOYMENT OPPORTUNITIES
The Electronics Engineering Technology program is designed to produce a well rounded student who will be capable of working in a variety of electronic related fields. Past graduates have obtained employment in the areas of telecommunications, pulp and paper, computer sales, service and support, provincial agencies, federal agencies, consulting firms, business equipment servicing, school boards, industrial sales, NAVCAN, R&D and power companies.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P.Tech).

DIPLOMA
- Three years
- September start
- Corner Brook Campus

COURSES

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The Electronics Engineering Technology (Biomedical) Program is an option available in the three-year Electronics Engineering Technology Program. The program is designed to provide graduates with the knowledge and ability to ensure medical electronic equipment is performing safely and effectively. The program includes a seven week practicum where the students will work in hospital-based biomedical departments or medical equipment sales and service companies. Memberships in the Canadian Medical and Biological Engineering Society (CMBES) as well as the Association of Engineering Technicians and Technologists of Newfoundland (AETTN) are encouraged. Education and training is provided in the areas of biomedical instrumentation, microprocessor applications in the health care setting, anatomy and physiology, chemistry, biochemistry, health care and safety.

ACREDITATION
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Note: This program may not be suitable for applicants who do not have normal colour perception.

OBJECTIVES
1. To emphasize an awareness of and concern for patient safety in the health care environment.
2. To provide an engineering systems approach to problem solving with respect to the hospital environment, so that graduates can readily upgrade their knowledge and skills.
3. To develop proficiency in the safe use of specialized test instrumentation and troubleshooting techniques associated with electro-medical equipment.
4. To familiarize the student with a wide range of electro-medical devices including patient care monitoring systems, defibrillators, electrosurgery units, diagnostic medical imaging systems, clinical laboratory instrumentation, and numerous other diagnostic, therapeutic and patient care instruments.

CURRICULUM
General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.

Specific education in the theory and application of analog and digital electronics with a specialized emphasis on biomedical instruments, equipment and techniques.

Practical education in a Health Care environment through curriculum integrated labs and the biomedical practicum.

EMPLOYMENT OPPORTUNITIES
The graduates of this program may enter the work force in the employment of hospital biomedical engineering departments, with manufacturers and distributors of biomedical instrumentation, as well as independent sales and service organizations. Employment may include design and development of medical instrumentation, as well as purchase evaluation, acceptance testing, preventive and demand maintenance and operator training.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
### Electronics Engineering Technology (Instrumentation)

Instrumentation involves automation in the production of various commodities. Complex process control and measurement systems such as those found in the oil and gas industries, chemical plants, food processing operations, power generating, and the pulp and paper industry require sensitive, accurate instruments. Recent technical developments in measuring and controlling process variables like pressure, temperature, flow and composition have increased the quality of products and cut operating costs. Today conventional pneumatic and electronic controls are being rapidly replaced by computer-based systems. These advances in technology demand qualified personnel trained in the field of industrial instrumentation.

### ACCREDITATION

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**Note:** This program may not be suitable for applicants who do not have normal colour perception.

### OBJECTIVES

1. Provide students with sound training in the principles of operation and maintenance of pneumatic devices, control valves, electronic instruments, digital logic devices and computer-based process control systems.
2. Extensive theoretical and practical training in personal computer applications in instrumentation, process control systems design, distributed control system design and actual interfacing of industrial microcomputer control systems with real processes.
3. Provide students with hands-on experience using laboratory facilities designed to provide a modern industrial setting and a pilot scale version of processes found in various industries.
4. Provide students with practical experience in configuring, installing, programming, maintaining, and troubleshooting distributed control systems (DCS), industrial microprocessors, personal computers and programmable controllers (PLC).

### CURRICULUM

**General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.**


Practical education through curriculum integrated labs employing industrial equipment, techniques and practices relating to the installation, operation and maintenance of transducers, transmitters, measurement and control instruments, and microprocessor-based instrumentation.

### EMPLOYMENT OPPORTUNITIES

Areas of employment open to graduating students include: plant maintenance, engineering design and construction, instrument/control systems technical services and sales, engineering consulting.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).

### DIPLOMA

- Three years
- September start
- Ridge Road Campus (St. John’s)

### COURSES

| Semester 1 and 2 - Refer to Engineering Technology (First Year) |
|---|---|---|
| **COURSE** | **CODE** | **TITLE** | **Cr** | **Le** | **La** |
| AE1200 | Electronic Devices | 5 | 7 | 4 |
| CI1310 | Electrical/Electronic Fabrication Techniques | 3 | 4 | 5 |
| ET2100 | Electrotechnology | 3 | 5 | 3 |

| Semester 3 (Technical Intersession I) |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| AE2301 | Analog Electronics I | 4 | 3 | 3 |
| CI2800 | Process Measurement I | 3 | 2 | 2 |
| DP1110 | Digital Electronics | 4 | 3 | 2 |
| DR2410 | Electronic CAD I | 2 | 1 | 2 |
| MA2100 | Mathematics | 5 | 5 | 0 |
| MP2100 | Electrical Machines and Devices | 4 | 3 | 3 |

| Semester 4 |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| AE2301 | Analog Electronics II | 4 | 3 | 3 |
| CI1100 | Electronic Instrumentation | 3 | 2 | 2 |
| CI2810 | Process Control I | 3 | 2 | 2 |
| CI1510 | Visual Basic | 4 | 3 | 3 |
| MA2101 | Mathematics | 5 | 5 | 0 |
| MP3130 | Industrial Electronics and Power Systems | 4 | 3 | 2 |

| Semester 5 |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| AE2301 | Analog Electronics II | 4 | 3 | 3 |
| CI1100 | Electronic Instrumentation | 3 | 2 | 2 |
| CI2810 | Process Control I | 3 | 2 | 2 |
| CI1510 | Visual Basic | 4 | 3 | 3 |
| MA2101 | Mathematics | 5 | 5 | 0 |
| MP3130 | Industrial Electronics and Power Systems | 4 | 3 | 2 |

| Semester 6 (Technical Intersession II) |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| CE2800 | Industrial Communication Systems | 4 | 3 | 2 |
| CI2240 | Instrumentation (Hydraulics and Pneumatics) | 2 | 3 | 3 |
| CM2200 | Oral Communications | 2 | 4 | 0 |
| PE2700 | Industrial Instrumentation Practical | 2 | 0 | 9 |

| Semester 7 |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| CG3400 | Engineering Management | 3 | 3 | 0 |
| CI1500 | Introduction to Process Analysis | 4 | 5 | 3 |
| CJ2801 | Process Measurement II | 4 | 3 | 3 |
| CI1100 | Automatic Control Systems | 4 | 3 | 3 |
| DP2410 | Digital/Microprocessors | 4 | 3 | 2 |
| DP3100 | Programmable Logic Control | 4 | 3 | 3 |
| PR2630 | Technical Thesis (Seminar) | 0 | 0 | 3 |

| Semester 8 |
|---|---|---|
| **COURSE** | **Code** | **Title** | **Cr** | **Le** | **La** |
| CI2811 | Process Control II | 4 | 3 | 3 |
| CI2820 | Process Analyzers | 4 | 3 | 3 |
| CI3830 | Computer Control Systems | 4 | 3 | 3 |
| CE2900 | Human Machine Interface Development | 4 | 3 | 2 |
| CM2300 | Report Writing | 2 | 2 | 0 |
| EC1700 | Engineering Economics | 2 | 2 | 0 |
| PR2632 | Technical Thesis | 3 | 0 | 3 |
Geomatics Engineering Technology

Geomatics Engineering Technology (Co-op)

Geomatics is the art and science of acquiring, analyzing, presenting, and managing geographical and spatial data. Geomatics includes the traditional surveying and mapping sciences together with new study areas such as Geographical Information Systems (GIS) and the satellite controlled positioning system the Global Positioning Systems (GPS). With the development of off-shore petroleum, management of the fishery, infrastructure and hydro development and the resulting expansion in the construction industry, the need for more and better trained Geomatics Engineering Technologists becomes apparent.

The three-year diploma level Geomatics Engineering Technology program is a cooperative education program. It is designed to train persons who will become the senior field members of land, hydrographic, geodetic or engineering survey teams or supervisors in digital data management, analysis and presentation.

The study of Geomatics includes such diverse subjects as photogrammetry, cartography, geodesy, astronomy, hydrography, cadastral surveying, digital mapping, and GIS. These subjects are based on a firm foundation in the sciences of mathematics, physics and chemistry. The associated areas of communications, management, and economics are also an integral part of the program.

In addition to theoretical instruction, the student obtains considerable field and office experience during labs, field camps, and work terms.

ACREDITATION

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

This program is also CAFCE (Canadian Association for Cooperative Education) accredited.

OBJECTIVES

1. To train the student for the Geomatics and construction industries at technologist level.
2. To develop an acceptable degree of competence in general surveying techniques.
3. To provide theory and practical experience in branches of the Geomatics industry including; Plane Surveying, Cadastral, Marine Surveying, GIS, Photogrammetry, and Construction surveying.

CURRICULUM

General Education consisting of Communications (oral or written), Mathematics and Physics, Chemistry, Electrotechnology, Computers, and Engineering Graphics. Specific Education in all aspects of geomatics. Extensive field training to provide experience with instrumentation and software, surveying Camps.

EMPLOYMENT OPPORTUNITIES

Graduates generally find employment with various departments of the federal and provincial government, crown corporations, utility companies, construction engineering, oil exploration and surveying companies. For graduates who desire to further their careers in Geomatics, the University of New Brunswick awards a limited number of credits for this program toward a Bachelors Degree in Surveying Engineering.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
Industrial Engineering Technology (Co-op)

Industrial Engineering Technologists rely on strong technical ability, good business judgment, and superior people skills to improve safety, quality, and productivity in the production and service sectors. This unique combination of skills makes graduates attractive to employers in a wide variety of industries including manufacturing, food processing, fabrication, construction, government, consulting, and health care.

ACCREDITATION
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

This program is also a 40 month CAFCE (Canadian Association for Co-op Education) accredited program.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES
1. To provide graduates with a strong technical education in industrial engineering principles and analysis techniques.
2. To provide graduates with the complementary business knowledge needed to achieve process designs that are both safe and productive while ensuring quality standards are met at minimal cost.
3. To provide graduates with problem solving and management strategies that are fundamental to success in various industry settings.

CURRICULUM

Generic engineering technology education consisting of computer based analysis and design, materials science, strength of materials, hydraulics and pneumatics, and shop processes.

Extensive industrial engineering technology education such as ergonomics, work measurement, plant layout, facility planning, production planning, and computer integrated manufacturing.

EMPLOYMENT OPPORTUNITIES
Graduates of this program may obtain employment in both the service and production sectors. Previous graduates have been successful in obtaining employment with such companies as Haliburton, Pratt and Whitney, Fishery Products International, Iron Ore Company of Canada, Newdock and the Health Care Corporation.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).

COURSES

| Semester 1 and 2 - Refer to Engineering Technology (First Year) |
|---|---|---|
| CG1500 | Work Methods & Measurement | 4 6 4 |
| EG1520 | Engineering Graphics for Mechanical Engineering Technologies | 2 2 3 |
| SP2410 | Safety Engineering Technology | 2 5 0 |
| SP1200 | Machine Shop Practice | 1 1 5 |
| Semester 3 (Technical Intersession I) | Cr Le La |
| CF1100 | Materials & Processes | 3 3 1 |
| CF2540 | Mechanics of Solids | 3 3 1 |
| MA1670 | Statistics | 4 4 1 |
| DE1110 | Applied Research | 3 3 0 |
| SP1830 | Metrology and Quality Control | 4 3 2 |
| CG2160 | Lean Methods | 3 3 1 |
| SE1070 | Human Factors Engineering | 3 3 1 |
| Semester 4 | Cr Le La |
| CF1120 | Materials and Processes | 3 3 1 |
| FM2201 | Mechanics | 3 3 1 |
| MA2100 | Mathematics | 5 5 0 |
| SP2300 | Quality Assurance | 3 3 0 |
| DE3300 | Information Systems Design | 3 2 2 |
| TD2100 | Thermodynamics | 3 3 1 |
| DE2350 | Logistics and Project Management | 3 3 1 |
| Semester 5 | Cr Le La |
| WC1400 | Co-op Work Term I | 5 0 0 |
| Semester 6 | Cr Le La |
| CF1120 | Materials and Processes | 3 3 1 |
| FM2201 | Mechanics | 3 3 1 |
| MA2100 | Mathematics | 5 5 0 |
| SP2300 | Quality Assurance | 3 3 0 |
| DE3300 | Information Systems Design | 3 2 2 |
| TD2100 | Thermodynamics | 3 3 1 |
| DE2350 | Logistics and Project Management | 3 3 1 |
| Semester 7 | Cr Le La |
| WC1400 | Co-op Work Term II | 5 0 0 |
| Semester 8 | Cr Le La |
| FM2201 | Machine Design | 3 3 1 |
| PR3610 | Technical Thesis (Seminar) | 3 0 3 |
| CG3400 | Engineering Management | 3 3 0 |
| CIT210 | Instrumentation Controls & Automation | 3 2 2 |
| FM3100 | Fluids (Hydraulics and Pneumatics) | 3 3 1 |
| SP2510 | Plant and Facility Layout | 4 3 2 |
| PS1330 | Organizational Behaviour | 3 3 0 |
| DE1200 | Operations Research | 3 3 1 |
| Semester 9 | Cr Le La |
| WC1400 | Co-op Work Term III | 5 0 0 |
| Semester 10 | Cr Le La |
| PR3711 | Technical Thesis | 4 1 2 |
| CG3500 | Production Planning | 3 3 1 |
| EC1700 | Engineering Economics | 2 2 0 |
| DE3410 | Computer Integrated Manufacturing | 4 3 2 |
| LW1500 | Law and Ethics | 3 3 0 |
| SP1400 | Facilities Engineering | 3 2 2 |
| AC2280 | Accounting | 4 4 0 |
COURSES

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ACREDITATION

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists. Graduates are also eligible for third class Power Engineering certification.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES

Through this program of study, graduates are equipped with the technical knowledge and “hands-on” skills required for:

1. The design, implementation, installation, operation, maintenance, and management of power generation systems, Heating Ventilation and Air Conditioning (HVAC) systems, and general mechanical support systems which are required for petroleum production systems, petroleum refineries, processing plants, office buildings and residences.

2. The development of mechanical working drawings and computer based models of mechanical systems using AutoCAD and related engineering analysis software.

EMPLOYMENT OPPORTUNITIES

The broad base of competencies acquired through this program of study prepares graduates for careers in a wide variety of industries including the petroleum sector, mining, electrical power generation, food processing, manufacturing, and engineering consulting. Previous graduates have been successful in obtaining employment relevant to their field with such companies as HMDI, Syncrude, Schlumberger, Haliburton Services Ltd., J.B. Irving, the Iron Ore Company of Canada, INCO, Johnson Controls, and BFL Consultants.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
Mechanical Engineering Technologists, who complete a studies focus in manufacturing, are proficient in the specification, implementation, operation, maintenance and supervision of manufacturing systems and personnel. These technologists are prepared to assume the role of decision maker early in their careers in both the traditional and advanced manufacturing sectors. The knowledge of core mechanical engineering principles, above average problem solving ability, and superior “hands-on” skills also make these graduates well suited to employment in related industries.

Students in this program utilize the advanced technology resources available through the College’s Manufacturing Technology Center (MTC). The MTC is mandated to provide both direct and indirect support to industry through activities such as product and process prototyping. Students benefit from exposure to these “real-life” industry projects and also acquire valuable work experience through the completion of two Co-op work terms.

ACCREDITATION
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES
2. The ability to design mechanical components/assemblies and create engineering drawings and specifications through the use of 2D and 3D CAD and Modeling software.
3. Hands-on practical experience with programming and operating Computer Numerical Control (CNC) equipment, Robotics, Programmable Logic Controllers (PLC), electro-pneumatic systems, and other automation systems.
4. The ability to use Design Computer Integrated Manufacturing (CIM) systems drawing on the knowledge learned through core engineering concepts of materials science, strength of materials, and machine design.

5. A competent knowledge of quality assurance standards and practical quality control techniques in precision measurement.
6. Problem solving and related skills for managing projects, resources and people in a supervisor role.
7. An understanding of industry standards and workplace procedures relating to safety, manufacturing protocols, and professionalism.
8. The skill to prepare technical reports and presentations for effective communications in the workplace.
9. On-the-job experience with two (2) paid work terms.

CURRICULUM
A primary year technology core curriculum which includes courses in Communication skills, Physics, Chemistry, Mathematics, Engineering CAD Graphics, Computer Applications, and Electrotechnology.


EMPLOYMENT OPPORTUNITIES
Career opportunities for graduates of this program exist with consulting firms, manufacturing firms, food processing plants, research institutions and government departments. Previous graduates have been successful in obtaining employment with such companies as Newdock, Brown Offshore, Iron Ore Company of Canada, Suncor, and Oceanic Ltd.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).
DIPLOMA
- Three years
- September start
- Ridge Road Campus (St. John’s)

COURSES

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Petroleum Field Camp

Students in Petroleum Engineering Technology will be required to complete a one week drill camp (FT1610) during semester 7 prior to beginning their work term.

Safety Certifications

Students in Petroleum Engineering Technology will be required to complete safety certifications in the following training:
H2S, First Aid, WHMIS and Transportation of Dangerous Goods (TDG) during the second year of studies.

Semester 7

| PM2111 | Drilling Technology II                    | 4 3 2    |
| TD2120 | Thermodynamics                            | 3 3 1    |
| PH1500 | Geophysics                                | 3 2 2    |
| PM2501 | Facilities Engineering                    | 4 3 2    |
| PM2210 | Petroleum Production I                    | 4 3 2    |
| PM2310 | Reservoir I                               | 4 3 2    |
| EC1700 | Engineering Economics                     | 2 2 0    |

Semester 8 | Cr Le La               |
| PR3711 | Technological Thesis                      | 4 1 2    |
| PM3110 | Drilling Technology III                   | 2 1 3    |
| PM2400 | Logging and Formation Evaluation          | 5 4 3    |
| PM2211 | Petroleum Production II                   | 4 3 2    |
| PM2301 | Reservoir II                              | 5 4 3    |
| CE2400 | Engineering Management                    | 3 3 0    |
| CM2200 | Oral Communications                       | 2 2 0    |

Semester 9 (Technical Intersession III) | Cr Le La               |
| PM2401 | Production Logging & Applications         | 2 3 3    |
| PM3210 | Petroleum Production III                  | 5 8 2    |
| EN1300 | Environmental Technology                  | 3 6 0    |

ENGINEERING TECHNOLOGY

Petroleum Engineering Technology (Co-op)

The reliance upon fossil fuels, particularly oil and gas, to supply Canada’s growing industrial and domestic requirements has increased rapidly during the past decade. However, the increasing world demands for these fuels and the growing uncertainty of traditional sources of supply have intensified Canada’s commitment to become self-sufficient in its fossil energy needs. With sustained discoveries of oil and gas resources, along the east coast and in the Arctic regions, and with proper management and development policies, this goal may be attainable. Continued oil and gas discoveries on the Grand Banks off Newfoundland have intensified interest and activities in the science and technology of developing these reservoirs. The three year program leading to the Diploma of Technology is designed to train technologists for all aspects of the oil and gas industry.

ACCREDITATION

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES

1. To provide a basic knowledge of the petroleum industry.
2. To introduce the special characteristics, challenges and constraints associated with oil and gas extraction.
3. To provide knowledge and skills related to all aspects of oil and gas exploration and production.
4. To provide knowledge of and experience in working with the specialized hardware and equipment associated with the oil industry.

CURRICULUM

A primary year of core technology curriculum which includes courses in Communication Skills, Physics, Chemistry, Mathematics, Engineering CAD Graphics, Computer Applications, and Electrotechnology.

An intermediate and advanced curriculum in the second and third years of study which consists of technical courses such as Mechanics, Fluids, Thermodynamics, Materials and Processes, Instrumentation and Technological Thesis (Design and Project). Discipline specific courses in Drilling, Production, Facilities, Reservoir and Geology.

A minimum twelve week work term which provides students the opportunity to gain valuable related work experience. To be eligible for work placement, students must be in clear academic standing with a minimum GPA of 2.00.

EMPLOYMENT OPPORTUNITIES

The graduate of this program may obtain employment in all aspects of the petroleum industry. These opportunities include but are not limited to oil and natural gas exploration, production and processing, refining, oil and gas pipeline construction, gas utilities, as well as a variety of related activities associated with refining, transportation.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P.Tech).
Process Operations Engineering Technology

The Process Operations Engineering Technology program is designed to train graduates to operate and optimize modern industrial plants and processes. Typically, the graduates will work as process operators, process technologists and supervisors in pulp and paper, mineral processing, and petroleum related industries. They will graduate with the knowledge and skills needed to optimize manufacturing processes, improve product quality, and reduce costs.

ACCREDITATION:
This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

OBJECTIVES
Upon completion the graduates will:
1. Understand the process industries, focusing on pulp & paper, mineral processing, and petroleum refining,
2. Evaluate and apply chemistries underlying industrial processes,
3. Be able to apply the principles of process control and process optimization,
4. Demonstrate technical competence in environmental protection, balanced by an appreciation of market forces and cost control,
5. Work and communicate as members of a team with other professionals, as well as supervise the work of technical and non-technical persons,
6. Think and work independently.

The training program has a strong focus on Process Optimization, Quality Management, and Environmental Abatements. This core curriculum is supported by courses which bring together technological concepts and competencies from the fields of process control, automation, chemical and environmental engineering, mechanical systems, and information technology.

EMPLOYMENT OPPORTUNITIES
Career opportunities for graduates of this program exist with pulp and paper companies, mineral processing plants, oil & gas refining, petrochemical plants, and specialty chemical companies. Previous graduates have been successful in obtaining employment with Corner Brook Pulp & Paper, Voisey’s Bay Nickel Co. (Hydromet plant), Iron Ore Company of Canada, and Syncrude, as well as with mineral processing operators.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).

CURRICULUM

DIPLOMA
- Three years
- September start
- Corner Brook Campus

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POST DIPLOMA
- One year
- January start
- Ridge Road Campus (St. John’s)

COURSES

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Semester 3

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In the present economic climate, the human and financial costs of workplace accidents have increased to such an extent that they have become a negative factor in economic growth. Progressive companies and organizations are constantly looking for ways in which they can reduce costs and become more competitive. Due to recent changes in the Occupational Health & Safety Act and in the administration of Workers’ Compensation employer assessments, employers are becoming increasingly aware that an opportunity exists for them to significantly improve efficiency and profitability through a reduction of losses due to accidents and occupational disease. Employer due diligence requirements have been considerably expanded with the implementation of these recent legislative changes.

Safety Engineering Technology (Post Diploma) Co-op utilizes a combination of engineering, physical and behavioural sciences to reduce and eliminate losses. The program consists of two academic terms which may be completed either full-time or part-time on a course credit basis. Completion of the Diploma also requires a cooperative education work term during which the student conducts a comprehensive on-the-job identification, analysis and evaluation of the various stages necessary to initiate or upgrade an existing safety program.

OBJECTIVES

1. To provide an understanding of the methods of recognition, evaluation and control of hazards to people, facilities, equipment and the environment.
2. To provide a high level of knowledge and skill in the development and implementation of programs, systems, procedures and techniques to reduce the ever-increasing losses associated with accidents and occupational disease in industry, government and health care.

ENTRANCE REQUIREMENTS

Applicants must have graduated with a three-year diploma from a recognized college or a degree from a recognized University or Polytechnical Institute. Applicants who have graduated with a two-year diploma may also be accepted if they have significant (5 year minimum) progressive industry experience as a safety professional.

CURRICULUM

The curriculum includes a series of theoretical and practical subjects oriented toward the technical and management aspects of Occupational Health and Safety. The subject matter consists of several fundamental courses in occupational health, safety and environment which are supplemented by in-depth specialized courses in such areas as Occupational Hygiene, Fire Protection, Risk Management and Systematic Safety Management.

EMPLOYMENT OPPORTUNITIES

Graduates are prepared to take a proactive approach to occupational health and safety management. They may find employment as Safety Coordinators, Loss Prevention Specialists, Occupational Health and Safety Officers, Safety Auditors and Consultants. Potential employment opportunities include public health care, construction, waste management, oil and gas, manufacturing and government.

TRANSFERABILITY

A number of courses in the Safety Engineering Technology (Post Diploma) Program can be used as credit toward other College programs.

NOTICE

The following conditions apply to work term WC1250 Safety Program Development.

Sequence

The work term must be completed in the sequence indicated in the College Calendar. Students will receive a failing grade if they do not comply with this requirement.

Eligibility

In order to be eligible for WC1250 Safety Program Development work term, a student must meet the following criteria:

1. Attain 100% credits in all subjects from the first semester; and
2. Attain a cumulative G.P.A. of 2.00 or higher.

It is the responsibility of each student to obtain suitable employment for the work term. The College will assist with contacts, information and job leads.

All work term employment must be approved by the work term coordinator prior to the commencement of employment. A report must be submitted for each work term – detail and content of the report to be outlined by the work term coordinator in conjunction with the WC1250 Safety Program Development instructor. This report must be submitted to the appropriate Instructor on or before the deadline date. In special circumstances permission to submit a late report may be granted by the Work Term Coordinator. Late reports will not be graded unless prior permission is obtained.

When feasible, each student will be visited during the work term for evaluation of on-the-job performance.

Students who fail to honor an agreement to work with an employer, or who leave the work term employment without prior approval of the Work Term Coordinator, or who conduct themselves in such a manner as to cause their discharge from the job, will normally be awarded a failed work term.

A failed work term must be repeated to meet requirements for graduation, however, only one repeat is allowed.
The Software Engineering Technology (Co-op) program is designed to provide the graduates with the skills and knowledge to work in the field of software engineering technology. Graduates will have a sound background in electronics as well as specialized skills in the systems analysis and design of software solutions for integrating computer technology into customer and industrial products and would be the technology partner to the computer scientist/software engineer.

**Note:** This program may not be suitable for applicants who do not have normal colour perception.

**ACCREDITATION:**
The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

**OBJECTIVES**
1. To develop an awareness of and concern for good safety practices and procedures in the workplace.
2. To provide a basic knowledge of modern equipment, instrumentation techniques and electronic devices, associated with the general field of electronics.
3. To develop a high level of skill and knowledge in the field of software engineering technology.

**EMPLOYMENT OPPORTUNITIES**
The graduate from the program will be a technologist who specializes in integrating computer technology into consumer and industrial products, who find employment with hi-tech companies utilizing computers in new and innovative ways. Employers have included NewTel, NewTech, Consolidated Technologies, Instrumar, Rutter Technologies, and Xwave in both onshore and offshore environments. Opportunities may also exist in sales and service.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P.Tech).

**CURRICULUM**
General Education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.

Extensive training in the theory and principles of electronics.

Specialized training in the field of software engineering technology.

Laboratory and field experience in the application of all facets of electronics and software engineering.

**DIPLOMA**
- Three years Co-op
- September start
- Ridge Road Campus (St. John’s)

**COURSES**

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The Telecommunications Engineering Technology Program is designed to provide graduates with the skills and knowledge to work in modern communication systems using digital and fiber optics principles. Graduates will have hands-on experience in maintaining and aligning communication systems as well as the ability to design systems using established methods. Graduates of this three-year program receive the Diploma of Telecommunications Engineering Technology.

**ACCREDITATION**

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

**NOTE:** This program may not be suitable for applicants who do not have normal colour perception.

**OBJECTIVES**

1. To develop an awareness of and concern for good safety practices and procedures in the workplace.
2. To provide a basic knowledge of modern equipment, instrumentation techniques and electronic devices associated with the general field of electronics.
3. To develop a high level of skill and knowledge in the application of basic electronic principles to the operation, testing and maintenance of electronic equipment.

**CURRICULUM**

General Education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Computers, Engineering Graphics, Technology Awareness, and Student Success.

Extensive training in the theory and principles of electronics.

Specialized training in the field of software engineering, Laboratory and field experience in the application of all facets of electronics.

**CURRENT AND FUTURE EMPLOYMENT OPPORTUNITIES**

Job prospects for the telecommunications industry are expected to be strong in the foreseeable future. The Institute for Business Trends Analysis in a report titled Employment Trends in the Telecommunications Industry Fall 2001 noted the following findings:

“Job and career opportunities in the telecommunications industry for support and professional staff is strong. This is true even though the consequences of continuing regulatory and technological change remain unclear.”

“The demand for “craft” and professional staff exceeds supply by some significant but unknown amount. Among craft positions, workers with cable splicing skills are in great demand, and among professional positions, workers in pre-sales engineering are very much in demand.”
Welding Engineering Technician

This program is designed to develop the skills and knowledge required to ensure that welding processes, procedures, and weldments conform to engineering specifications and related codes.

The program is supported by modern shop and laboratory facilities for instruction in Welding, Materials, Science, Nondestructive Testing and Computer Aided Design/Computer Aided Manufacturing (CAD/CAM).

EMPLOYMENT OPPORTUNITIES

The successful graduate of this program will be employed in the welding industry to assume the following responsibilities:

• implement and enforce quality control
• interpret and apply specifications and codes
• determine inspection procedures
• carry out welding inspection and nondestructive testing procedures as defined by specifications and codes
• interpret and evaluate test results
• verify procedures and welder or welding operator qualifications
• verify the application of approved procedures
• prepare and maintain inspection records and reports
• set up equipment, lay out work to specifications and weld to prescribed standards.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Two Science courses chosen from one of the following three combinations:
   a. Introduction Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enroll in Engineering Technology programs complete both Introductory Chemistry courses and both Introductory Physics courses.

OR

High School Graduation Certificate with a 60% average in the following:
1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121
OR

English (2 credits) (minimum 60%) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292
2. Mathematics (2 credits) chosen from Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum
   Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290, (60%) minimum
OR

Mathematics (4 credits) chosen from:
Advanced: 2205, 3205 (50% minimum in each course)
Academic: 2204 (50% minimum), 3204 (60% minimum)
3. Science (4 credits) two of which must be selected from:
   Biology: 3201, 3211, 3231, 3271, 3281, 3291, 4221
   Physics: 3204, 3214, 3274, 3284, 3294, 4224
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   Geology: 3203, 3213, 3223, 3273, 3283, 3293
   Earth Systems: 3213, 3209

Note: Although all of the above High School Science courses are acceptable for entrance to Engineering Technology programs, the Physics and/or Chemistry streams are strongly recommended.

OR

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

OR

Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Matriculation Mathematics or 50% in Honours Mathematics, and one Science course,

OR

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
1. Communications IC3211, IC3112 plus one of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. IM3219
3. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3315, IB3336
   b. Chemistry IH3215, IH3316, IH3171, IH3318
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214

OR

Adult Basic Education Graduation (Level III) with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

DIPLOMA

- Two years
- September start
- Burin Campus

COURSES

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*Admission into the appropriate Mathematics course will be decided by the grade in high school math.

EITHER

Students who received at least 70% in level III Math 3200 or a pass in Math 3201 can be exempted from MA1700.

OR

Students who received a combined average of 70% in 2204 and 3204, or a pass in both of 2205 and 3205 can be exempted from MA1700.

Note: The student must apply for the exemption from MA1700 provided they meet the appropriate high school level Math and they receive an appropriate score on the math placement test.

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Semester 5

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HEALTH SCIENCES

Health Sciences Programs

OBJECTIVES
1. To provide education in the Allied Health Sciences as considered necessary by the Government, the College, registering associations and the community.
2. To graduate well trained personnel who can serve their employers and the community with the highest degree of competence.
3. To develop in students the ability to freely communicate with their fellow workers in the allied health professions.
4. To promote professionalism and a high level of responsibility in the student.
5. To impress on students the vital importance of maintaining at all times a high level of competence in the performance of their duties.
6. To foster in students the importance of maintaining up to date knowledge in their profession.
7. To provide continuing education programs for graduates.

NOTICE
Prospective students should NOTE CAREFULLY that while the College may admit students to a program of studies in Health Sciences, the right to practice is granted only through the appropriate authority of the Province in conjunction with national registration/certification bodies. Applicants with prior convictions or offences, or mental/physical disabilities should communicate with the appropriate organization involved.

HEALTH SCIENCES PROGRAMS EDUCATION REGULATIONS
1. Students accepted into programs in the School of Health Sciences must submit an official Pre-admission Physical Examination and Proof of Immunization form prior to registration.
2. A Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal police force must be submitted prior to registration for any course involving a clinical placement.
3. Applicants wishing to pursue a career in Medical Laboratory Sciences, Medical Radiography or Respiratory Therapy will be considered for admission to a common two-semester program (Medical Sciences I (General)). Selection to the third semester (discipline specific) program will be competitive and will occur at the end of the second semester.
4. Examinations and Promotions
   The general rules and regulations of the College shall govern, except in instances specifically covered by the following regulations.
   a. The faculty constitutes the examining body for all examinations. The standing of every student will be assessed at the end of each semester and will be communicated to individual students by the Registrar.
   b. Students have the right to appeal a decision made with respect to their promotions. Appeals will be heard by the appeals committee of the Academic Council.
   c. To be promoted a student must, in addition to obtaining the requisite academic standard, complete and deliver all laboratories, assignments, and work reports as required.
5. Medical Sciences I (General)
   a. The College regulations govern promotion from semester 1 to semester 2.
   b. Students must pass all first and second semester courses (minimum 50%) and have a minimum G.P.A. of 2.00 to be promoted from the second to the third semester. Students who do not meet this standard and have not been academically dismissed under the College regulations may be readmitted to the first year of the program and repeat all deficiencies.
   c. Promotion from semester 2 to semester 3 will be governed by the following:
      i. Students will compete for places in the third semester of the programs.
      ii. Competition will be based on academic standing in semesters 1 and 2 of the program.
      iii. The student’s weighted average at the end of the second semester will be used to calculate academic standing for purposes of competition.
      iv. In the case of students who have been exempted from courses in the first and second semester, the mark obtained in the course completed by the student at another post-secondary institution or other College program will be used in calculating the weighted average as if the course had been completed as part of the Medical Sciences I (General) program.
6. Course Pass Mark
   a. Medical Sciences I (General), Occupational Therapists Assistants, Physiotherapists Assistants – 50%
   b. Diagnostic Ultrasonography, Medical Laboratory Sciences II and III, Medical Radiography II and III, Respiratory Therapy II and III – 60%, including a minimum of 60% on the final exam.
   c. Primary Care Paramedicine – 80%, including a minimum of 80% on the final exam.
   d. Promotion from semester 5 to semester 6.
      Students must have passed all courses in semesters 1, 2, 3, 4 and 5 and have a minimum G.P.A. of 2.00 to be promoted to the sixth semester (start of the clinical training).
7. Students may be required to withdraw from the program at any time if, in the opinion of Academic Council, they are unlikely to profit from continued attendance.
8. Students enrolled in three-year Health Sciences programs will be permitted a maximum of one additional year to complete their program of studies and will be required to withdraw from the program, at the point where completion of the program within the allowable time frame is not possible. Students will be required to reapply for admission under re-admission guidelines as outlined in the current College Calendar.

7. Students may be required to withdraw from the program at any time if, in the opinion of Academic Council, they are unlikely to profit from continued attendance.
8. Students enrolled in three-year Health Sciences programs will be permitted a maximum of one additional year to complete their program of studies and will be required to withdraw from the program, at the point where completion of the program within the allowable time frame is not possible. Students will be required to reapply for admission under re-admission guidelines as outlined in the current College Calendar.
Diagnostic Ultrasonography (Post Diploma)

Ultrasonography encompasses the medical use of sound waves to evaluate internal anatomy in real time and to produce diagnostic images. With the continuously expanding applications of ultrasound in today’s technologically advanced society, it has made for an exciting and demanding career field. Ultrasound images are used by Radiologists to retrieve critical information regarding the patient and their subsequent diagnosis and treatment. Ultrasound has grown to include applications in abdomen, obstetrics, gynecology, small parts, vascular and superficial structures.

OBJECTIVES
1. To provide the academic knowledge outlined in the National Occupancy Profile of the Canadian Association of Registered Diagnostic Ultrasound Professionals.
2. Application of the academic knowledge to the clinical practice.
3. To prepare the students in the ability to perform and complete the clinical competencies required by the Canadian Association of Registered Diagnostic Ultrasound Professionals.
4. To maintain a high level of professional conduct in the performance of all duties.

CURRICULUM
This is a thirteen month program, which includes training at the College and Eastern Regional Integrated Health Authority. Graduates of the program at the Prince Philip Drive Campus will be eligible to write the certification examinations set by the American Registry of Diagnostic Medical Sonographers (ARDMS) and the examinations set by the Canadian Association of Registered Diagnostic Ultrasound Professionals (CARDUP).

ACREDITATION
The program at the Prince Philip Drive Campus is accredited by the Canadian Medical Association.

PROGRAM TRANSFERABILITY
Graduates may elect to further their studies and obtain a Bachelor of Technology degree from Memorial University of Newfoundland or a Bachelor of Science (Post Diploma, Human Science) from Athabasca University.

ENTRANCE REQUIREMENTS
To be accepted into the Diagnostic Ultrasonography program, an individual must have successfully completed an accredited program in Medical Radiation Technology (Medical Radiography, Radiation Therapy or Nuclear Medicine) and possess a certificate of registration with the Canadian Association of Medical Radiation Technologists (CAMRT).

Interested applicants should submit to the Registrar’s Office at the College an official application form along with a certified copy of: (1) high school marks (2) Medical Radiation Technology program marks (3) results of CAMRT examinations and (4) proof of current registration with the CAMRT. Students are accepted on a first come first served basis provided they meet the entrance requirements.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.

CURSSES

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Note: UL4310 has a Clinical Component of 2.5 hours per week for 9 weeks.

Students must possess a valid St. John Ambulance Emergency First Aid Certificate and a Basic Cardiopulmonary Resuscitation Certificate to be eligible for a diploma from the College.
 Applicants wishing to pursue a career in Medical Laboratory Sciences, Medical Radiography or Respiratory Therapy will be considered for admission to a common two-semester program, Medical Sciences I (General). Selection to the specific allied health program (third semester) is competitive and will occur at the end of the second semester.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:

1. Essential English I and II (minimum 60%)
2. Math Fundamentals I and II (minimum 60%)
3. Four Science courses chosen from two of the following three combinations:
   a. Introduction Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enroll in this program complete both Introductory Biology courses. In addition, it is recommended that students who intend to enroll in the Medical Laboratory Sciences program or the Respiratory Therapy program complete both Introductory Chemistry courses and that students who intend to enroll in the Medical Radiography program complete both Introductory Physics courses.

OR

High School Graduation Certificate with a 60% overall average in the following:

1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3172, 3192, 4121
2. Mathematics (2 credits) (minimum 60%) chosen from 3201, 3202, 3212, 3221, 3231, 3232, 3281, 3282, 3291, 3292
3. Science courses chosen from two of the following:
   a. Introduction Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enroll in this program complete both Introductory Biology courses. In addition, it is recommended that students who intend to enroll in the Medical Laboratory Sciences program or the Respiratory Therapy program complete both Introductory Chemistry courses and that students who intend to enroll in the Medical Radiography program complete both Introductory Physics courses.

OR

Adult Basic Education (Level III) Graduation indicating completion of the academic stream with an overall 60% average including the following courses:

1. Communications (minimum of 60%) IC3211 and IC3112
2. Mathematics (minimum of 60%) from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. IM3219
3. Science from two of the following sections:
   a. Biology IB3113, IB3214, IB3115, IB3316
   b. Chemistry IH3215, IH3117, IH3118
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses:

1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from two of the following sections:
   a. Biology 3101, 3101A, 3101B, 3101C, 3101A, 3101B, 3101C
   b. Chemistry 3102, 3102A, 3102B, 3102C, 3102A, 3102B, 3102C

OR

Applicants who do not meet the entrance requirements, and are 19 years of age or older, may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.
Medical laboratory technologists are integral members of the health care team who perform diagnostic laboratory testing on blood, body fluids and tissues to aid the physician in the diagnosis, treatment and prevention of disease. It is a fast-paced and challenging profession that will appeal to students with a fascination for biological science.

The medical laboratory technologist examines bacterial cultures for identification and antibiotic sensitivity, assures the compatibility of blood for transfusion, identifies abnormal cells and analyzes the chemical composition of body fluids. As one of Canada’s largest group of health care professionals they play an essential role in the health care system.

This profession requires manual dexterity, visual color discrimination, a keen eye for detail, organizational/time management skills and judgement/decision-making ability.

**OBJECTIVES**

1. To provide the basic knowledge and skills necessary to perform clinical laboratory procedures.
2. To develop the ability to communicate effectively with the patient and with other members of the health team.
3. To maintain a high level of professional conduct in the performance of duty.

**CURRICULUM**

The curriculum for this program is designed to encompass three years of training. The first two years are spent at the College and the emphasis is placed on academic and theoretical training.

During the sixth, seventh, eighth and ninth semesters experience is conducted in health care institutions and a simulated hospital laboratory environment.

Graduates of the program at the Prince Philip Drive Campus will be eligible to sit the certification examination set by the Canadian Society for Medical Laboratory Science (CSMLS). The CSMLS is the national professional body for medical laboratory technologists.

**ACCRREDITATION**

The program at the Prince Philip Drive Campus is accredited by the Canadian Medical Association.

**PROGRAM TRANSFERABILITY**

Graduates may elect to further their studies and obtain a Bachelor of Technology degree from Memorial University of Newfoundland or a Bachelor of Sciences (Post Diploma, Human Science) from Athabasca University.

**ENTRANCE REQUIREMENTS**

Applicants who wish to pursue a career in Medical Laboratory Sciences must complete the Medical Sciences I (General) program of studies. Selection to Medical Laboratory Sciences is competitive and will occur at the end of the second semester.

**Selection:**

1. Students will compete for entry into the third semester.
2. Competition will be based on academic standing in semesters 1 and 2 of the Medical Sciences I (General) program. Students must pass all first and second semester (minimum 50%) courses and have a minimum G.P.A. of 2.00 to be considered for admission to the third semester.
3. The student’s weighted average at the end of the second semester will be used to calculate academic standing for purposes of competition. In the case of students who have been exempted from courses in the first and second semesters, the mark obtained in the course completed by the student at another post secondary institution, or other College program will be used in calculating the weighted average as if the course had been completed as part of the Medical Sciences I (General) program.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.

**Note:** To be employed in the Medical Laboratory Science field, one must have sufficiently strong eyesight to permit extended microscopic work, and normal colour perception.

**DIPLOMA**

- Three years
- September start
- Prince Philip Drive Campus

**COURSES**

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One week per discipline

Students in the seventh and ninth semesters of the program will be assigned to one of the affiliated hospitals: Burin Peninsula Health Care Centre, Carbonear General Hospital, Central Newfoundland Regional Health Centre, St. B. Cross Memorial Hospital, Health Sciences Centre, St. Clare’s Mercy Hospital, James Paton Memorial Hospital, Charles S. Curtis Memorial Hospital, Labrador Health Centre, and Western Memorial Regional Hospital.

Students must possess a valid St. John Ambulance Emergency First Aid Certificate and Basic Cardiopulmonary Resuscitation Certificate to be eligible for a diploma from the College.
DIPLOMA
- Three years
- September start
- Prince Philip Drive Campus

COURSES
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Students rotate through the sites of the Eastern Regional Integrated Health Authority.

Students must possess a valid St. John Ambulance Emergency First Aid Certificate and Basic Cardiopulmonary Resuscitation Certificate to be eligible for a Diploma from the College.

HEALTH SCIENCES

Medical Radiography

Medical radiological technologists play a vital role in the diagnosis and treatment of many injuries and illnesses. At a physician’s request, radiological technologists use equipment that emits x-rays to produce images of a body part or system. Their work involves a broad variety of procedures and specialties including: plain film routine general radiography, mammography, angiography, fluoroscopy and computerized tomography.

OBJECTIVES
1. To provide the academic knowledge outlined in the Canadian Association of Medical Radiation Technologists (CAMRT) Competency Profile.
2. To apply the learned academic knowledge in clinical practice.
3. To develop a sense of professionalism and responsibility.
4. To provide comprehensive knowledge of the hazards involved and appropriate protection methods.
5. To provide the community with trained personnel who can serve their employers and patients with the highest degree of competence.

CURRICULUM

The curriculum for this program emphasizes theory and practice of medical radiography. Second year classroom and laboratory sessions are supplemented by weekly assignments at Eastern Regional Integrated Health Authority.

The clinical phase of the program is designed to train the student in practical aspects of medical radiography and to discipline the student to the working conditions of the radiology department. This portion of the course is a clinical training period during which the student will apply, under supervision, the theories and principles learned during the previous years of training.

The aim of this portion of the program is:
1. To ensure that the student can accurately and confidently perform the varied examinations that are carried out on a daily basis in a radiology department.
2. To ensure that the student has performed the number and variety of examinations required to complete the course.

The clinical phase will consist of 48 weeks of training. The program is conducted at sites of Eastern Regional Integrated Health Authority. Students will follow a rotation schedule designed to provide broad clinical exposure to the different radiographic specialties.

Graduates of the program at the Prince Philip Drive Campus will be eligible to write Canadian Association of Medical Radiation Technologists (CAMRT) certification examinations. The CAMRT is the national professional body for medical radiation technologists.

ACCREDITATION

The program at the Prince Philip Drive Campus is accredited by the Canadian Medical Association.

PROGRAM TRANSFERABILITY

Graduates may elect to further their studies and obtain a Bachelor of Technology degree from Memorial University of Newfoundland or a Bachelor of Sciences (Post Diploma, Human Science) from Athabasca University.

ENTRANCE REQUIREMENTS

Applicants wishing to pursue a career in Medical Radiography must complete the Medical Sciences I (General) program of studies. Selection to Medical Radiography is competitive and will occur at the end of the second semester.

Selection:
1. Students will compete for entry into the third semester.
2. Competition will be based on academic standing in semesters 1 and 2 of the Medical Sciences I (General) program. Students must pass all first and second semester (minimum 50%) courses and have a minimum G.P.A. of 2.00 to be considered for admission to the third semester.
3. The student’s weighted average at the end of the second semester will be used to calculate academic standing for purposes of competition. In the case of students who have been exempted from courses in the first and second semesters, the mark obtained in the course completed by the student at another post secondary institution, or other College program will be used in calculating the weighted average as if the course had been completed as part of the Medical Sciences I (General) program.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.
OCCUPATIONAL THERAPIST ASSISTANT

OCCUPATIONAL THERAPIST ASSISTANTS provide client care and treatment under the supervision of an occupational therapist. They are involved in the safe and proficient delivery of activities that have been established as a treatment plan for clients coping with temporary or permanent limitation in occupational performance. The role of the occupational therapist assistant varies depending on the practice setting. The occupational therapist assistant may work with individuals, families, groups or agencies to help individuals perform self-care and be productive.

Employment opportunities exist in rehabilitation facilities, hospitals and community settings.

OBJECTIVES
1. To understand the scope of practice and the responsibilities inherent in the role of an assistant to occupational therapists.
2. To understand and apply the principles of rehabilitation in the performance of their duty.
3. To implement the components of the treatment plan as delegated by the occupational therapists.
4. To perform delegated therapeutic skills safely and effectively under the supervision of the occupational therapist.
5. To observe and report change, to use sound judgments and problem-solving skills in the performance of their duties.
6. To develop skills so that the assistant will be able to work in an occupational therapy service in a community and/or institutional setting.
7. To participate as a member of the multidisciplinary health care team through the use of effective communication and the development of positive working relationships.

CURRICULUM
The curriculum for this program encompasses 5 semesters of training. The program is offered through the College’s Distributed Learning Service.

The Distributed Learning format enables learners to take part in education without the restraints of geography and time. Technology enabled learning offers flexibility, collaboration, and interaction without the isolation normally associated with traditional distance education. It also improves access for independent disciplined learners.

Web based courses are enhanced by structured clinical placements and hands-on laboratory sessions. These activities take place as close as possible to the student’s home location; however, in some cases travel may be necessary. Students may enroll on a full or part-time basis.

PROGRAM TRANSFERABILITY
Graduates of the program may apply for admission to the Physiotherapist Assistant program.

ENTRANCE REQUIREMENTS:
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Essential English I and II (minimum 60%)
2. Math Fundamentals I and II (minimum 60%)
3. Two Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that CAS students who intend to enroll in the Occupational Therapist Assistant program complete both of the Introductory Biology courses.

OR
High School Graduation Certificate with a 60% overall average in the following:
1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3172, 3192, 4121
   OR
   English (2 credits) (minimum 60%) chosen from 3201, 3211, 3212, 3231, 3252, 3281, 3282, 3291, 3292
2. Mathematics (2 credits) chosen from:
   Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50% minimum)
   Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60% minimum)
   OR
   Mathematics (4 credits) chosen from:
   Advanced: 2205, 3205 (50% minimum in each course)
   Academic: 2204 (50% minimum), 3204 (60% minimum)
3. Science (2 credits) chosen from:
   Biology: 3201, 3221, 3231, 3271, 3281, 3291, 4221
   Physics: 3204, 3214, 3274, 3284, 4224
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   Geology: 3203, 3213, 3223, 3273, 3283, 3293
   Earth Systems: 3213, 3209
   Environmental Science: 3213, 3209
4. Electives (2 additional credits) chosen from any of the remaining 3000 level courses offered in the Senior High School Program.
   OR
   Adult Basic Education (Level III) Graduation indicating completion of the academic stream with an overall 60% average including the following courses:
   Communication Skills from one of the following:
   1. Communications (minimum of 60%) IC3211 & IC3122 plus one of IC3116 or IC3215 or IC3321 or IC3222.
   2. Mathematics (minimum of 60%) from one of the following sections:
      a. IM3212, IM3213 and IM3216
      b. IM3219
   3. Science from one of the following sections:
      a. Biology IB3113, IB3214, IB3315, IB3316
      b. Chemistry IH3115, IH3116, IH3117, IH3118
      c. Physics IP3111, IP3112, IP3215, IP3216
      d. Earth Sciences IS3212, or IS3213 or IP3214
   OR
   Adult Basic Education Graduation (Level III) with Degree and Technical Profile (overall 60% average) including the following courses:
   1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
   3. Science from one of the following sections:
   OR
   Applicants who do not meet the entrance requirements, and are 19 years of age or older, may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.

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Certificate
- Length of program varies
- September start
- Prince Philip Drive through @College Distributed Learning Service
Physiotherapist Assistants provide client care and treatment under the supervision of a physiotherapist. They are involved in the safe and proficient delivery of activities that have been established as a treatment plan for clients with temporary or permanent limitations in functional movement and ambulation. The role of the physiotherapist assistant varies depending on the practice setting. The physiotherapist assistant may work with individuals, groups or agencies to help individuals achieve their optimal level of functional ability.

Employment opportunities exist in rehabilitation facilities, acute and long-term care facilities, and in private practice.

OBJECTIVES
1. To understand the scope of practice and the responsibilities inherent in the role of an assistant to physiotherapists.
2. To understand and apply the principles of rehabilitation in the performance of their duties.
3. To implement the components of the treatment plan as delegated by the physiotherapists.
4. To perform delegated therapeutic skills safely and effectively under the supervision of the physiotherapist.
5. To observe and report change, to use sound judgments and problem-solving skills in the performance of their duties.
6. To develop skills so that the assistant will be able to work in a physiotherapy service in a community and/or institutional setting.
7. To participate as a member of the multidisciplinary health care team through the use of effective communication and the development of positive working relationships.

CURRICULUM
The curriculum for this program encompasses 5 semesters of training. The program is offered through the College’s Distributed Learning Service.

The Distributed Learning format enables learners to take part in education without the restraints of geography and time. Technology enabled learning offers flexibility, collaboration, and interaction without the isolation normally associated with traditional distance education. It also improves access for independent disciplined learners.

Web based courses are enhanced by structured clinical placements and hands-on laboratory sessions. These activities take place as close as possible to the student’s home location; however, in some cases travel may be necessary. Students may enroll on a full or part-time basis.

PROGRAM TRANSFERABILITY
Graduates of the program may apply for admission to the Occupational Therapist Assistant program.

ENTRANCE REQUIREMENTS:
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Essential English I and II (minimum 60%)
2. Math Fundamentals I and II (minimum 60%)
3. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology I and II
b. Introductory Chemistry I and II
c. Introductory Physics I and II

Note: It is strongly recommended that CAS students who intend to enroll in the Occupational Therapist Assistant program complete both of the introductory Biology courses.

OR
High School Graduation Certificate with a 60% overall average in the following:

1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3172, 3192, 4211
2. Mathematics (2 credits) (minimum 60%) chosen from 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292
3. Science (2 credits) chosen from:
   - Biology: 3201, 3211, 3231, 3232, 3281, 3291, 4221
   - Chemistry: 3202, 3212, 3230, 3272, 3282, 4222
   - Geology: 3203, 3213, 3223, 3273, 3283, 3293
   - Earth Systems: 3213, 3209
   - Environmental Science: 3213, 3209
4. Electives (2 additional credits) chosen from any of the remaining 3000 level courses offered in the Senior High School Program.

OR
Adult Basic Education (Level III) Graduation indicating completion of the academic stream with an overall 60% average including the following courses:

Communication Skills from one of the following:
1. Communications (minimum of 60%) IC3211 & IC3112 plus one of IC3213 or IC3216 or IC3222.

Curriculum:
1. Mathematics (minimum of 60%) from one of the following sections:
a. IM3212, IM3213 and IM3216
b. IM3219

Science from one of the following sections:
a. Biology IB3113, IB3214, IB3115, IB3316
b. Chemistry IH3215, IH3316, IH3117, IH3118
c. Physics IP3111, IP3112, IP3215, IP3216
d. Earth Sciences IS3212, or IS3213 or IP3214

OR
Adult Basic Education Graduation (Level III) with Degree and Technical Profile (overall 60% average) including the following courses:
1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from one of the following sections:
b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

OR
Applicants who do not meet the entrance requirements, and are 19 years of age or older, may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Students must submit an official Pre-admission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.
Primary Care Paramedicine

Provision of emergency medical services (EMS) is a unique and vital community service. Paramedics are highly skilled health care professionals who function in the realm of EMS, initiating medical treatment for individuals in crisis situations. Based on sound technical knowledge, paramedics demonstrate rational problem solving abilities and excellent decision making skills. The paramedic profession demands universal integrity, exemplary behavior, and dedication to the service of humanity. Paramedics adhere to the standards of ethical behavior, and their professional activities are characterized by honesty, empathy, conscientiousness, and reliability.

The Primary Care Paramedicine program at College of the North Atlantic provides students with the educational preparation to deliver pre-hospital care. The Primary Care Paramedicine program meets or exceeds the standards established by the Paramedic Association of Canada in its guidelines for the National Occupational Competencies Profiles for paramedicine. This is a challenging program that provides the student with both extensive classroom and clinical experiences.

Graduates of this program will be prepared as competent, skilled practitioners to provide pre-hospital patient care in accordance with the national standards for paramedics, with the associated delegated medical acts related to the respective levels of training.

OBJECTIVES
1. To provide the academic knowledge outlined in the National Occupational Competencies Profile (NOCP) for paramedicine, as outlined by the Paramedic Association of Canada.
2. To enable the student to apply the application of the academic knowledge to field practice and patient care.
3. To prepare the student to meet the competencies for the Primary Care Paramedic (PCP) as described in the NOCP at the level of PCP.
4. To prepare the graduate to meet additional competencies as required for employment as a PCP in the province of Newfoundland and Labrador.
5. To maintain a high level of professional and ethical conduct in the performance of all duties.

ACCREDITATION
This program is accredited by the Canadian Medical Association.

ENTRANCE REQUIREMENTS:
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Essential English I and II (minimum 60%)
2. Math Fundamentals I and II (minimum 60%)
3. Four Science courses chosen from two of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II
Note: It is strongly recommended that all CAS students who enroll in the Primary Care Paramedicine program complete both of the Introductory Biology courses.

OR
High School Graduation Certificate with a 60% overall average in the following:
1. Language (1 credit) (minimum 60%) chosen from 3101, 3102, 3103, 3112, 3172, 3192, 4121
2. Mathematics (2 credits) chosen from:
   - Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50% minimum)
   - Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60% minimum)
3. Science (4 credits) chosen from:
   - Biology: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4221
   - Physics: 3204, 3214, 3274, 3284, 3294, 4224
   - Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222

NOTE: Employers in land ambulance require that Paramedics have a class 04 driver’s licence which can be obtained through a Provincial Motor Vehicle Registration Office.
Geology: 3203, 3213, 3223, 3273, 3283, 3293
Earth Systems: 3213, 3209

OR

Adult Basic Education (Level III) Graduation indicating completion of the academic stream with an overall 60% average including the following courses:
1. Communications (minimum of 60%) IC3211 and IC3112 plus one of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics (minimum of 60%) from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. IM3219
3. Science from two of the following sections:
   a. Biology IB3113, IB3214, IB3115, IB3316
   b. Chemistry IH3115, IH3116, IH3117, IH3118
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses:
1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from two of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Note: Is strongly recommended that all High School / ABE students who intend to enroll in this program complete two level 3 Biology courses.

OR

Applicants who do not meet the entrance requirements and are 19 years of age or older, may be considered on an individual basis under the Mature Student Clause.

Applicants with Adult Basic Education (Level III) Graduation with a different Profile (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Additional entrance requirements include:
- Current CPR Certificate (Level C or HCP)
- Current First Aid Certificate (Standard)
- Class 05 Drivers License

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mount Police (RCMP) or local provincial/municipal force prior to registration.

CURRICULUM:
The 37-week Primary Care Paramedicine program combines lectures and laboratories with supervised clinical and field experience. The first semester (15 weeks) consists of 11 weeks didactic and 4 weeks clinical and field placements. The second semester (15 weeks) consists of 9 weeks didactic and 6 weeks clinical and field placements. The third semester (7 weeks) is devoted entirely to clinical and field placements.

CLINICAL AND FIELD PLACEMENTS:
Students will be expected to travel and incur costs associated with placements in various hospital and ambulance departments (private and hospital-based). These clinical/field placements are limited and students will be placed based on availability. Sites may include Eastern, Central, Western and Labrador - Grenfell Regional Health Authorities which includes St. John’s, Carbonear, Freshwater, Placentia Bay, Clarenville, Burin, Gander, Grand Falls-Windsor, Lewisporte, Deer Lake, Corner Brook, Stephenville, Port aux Basques and St. Anthony. Other sites may be available as they are developed.
Respiratory Therapy

Respiratory Therapists are healthcare professionals who assist physicians with the diagnosis and treatment of lung disorders. Most respiratory therapists work in hospitals in neonatal nurseries, operating rooms, intensive care units, general wards and emergency departments. Respiratory therapists may also work in community settings such as homecare, asthma clinics, research, and medical equipment sales and service. Respiratory therapists require good judgment, excellent interpersonal skills, and the ability to maintain their composure in critical medical situations.

OBJECTIVES
1. Explain the theory behind all procedures outlined in the syllabus of studies of the Canadian Society of Respiratory Therapists.
2. Apply theoretical knowledge to clinical practice.
3. Perform all equipment related to procedures outlined in the syllabus.
4. Use all equipment related to procedures outlined in the syllabus.
5. Demonstrate understanding of the therapist’s role in health care, and function with responsibility and empathy as members of the health care team.

CURRICULUM
The three year Respiratory Therapy program combines lectures and laboratories with supervised clinical experience. Program topics include: anatomy, physiology, microbiology, chemistry, physics, pharmacology, pathophysiology, respiratory therapy procedures, respiratory therapy equipment, mechanical ventilation, cardiopulmonary diagnostics, pediatric and neonatal care.

Graduates of the program at the Prince Philip Drive Campus will be eligible to write the Canadian Board for Respiratory Care (CBRC) national certification examinations. Successful candidates earn the Canadian Society of Respiratory Therapists (CSRT) Registered Respiratory Therapist (RRT) credential. The CSRT is the national professional organization for respiratory therapists.

ACREDITATION
The Respiratory Therapy program at the Prince Philip Drive campus is accredited by the Council on Accreditation for Respiratory Therapy Education (CoARTE).

PROGRAM TRANSFERABILITY
Graduates may elect to further their studies and obtain a Bachelor of Technology degree from Memorial University of Newfoundland or a Bachelor of Sciences (Post Diploma, Human Science) from Athabasca University.

ENTRANCE REQUIREMENTS
Applicants wishing to pursue a career in Respiratory Therapy must complete the Medical Sciences I (General) program of studies. Selection to Respiratory Therapy is competitive and will occur at the end of the second semester.

Selection:
1. Students will compete for entry into the third semester.
2. Competition will be based on academic standing in semesters 1 and 2 of the Medical Sciences I (General) program. Students must pass all first and second semester (minimum 50%) courses and have a minimum G.P.A. of 2.00 to be considered for admission to the third semester.
3. The student’s weighted average at the end of the second semester will be used to calculate academic standing for purposes of competition. In the case of students who have been exempted from courses in the first and second semesters, the mark obtained in the course completed by the student at another post secondary institution, or other College program will be used in calculating the weighted average as if the course had been completed as part of the Medical Sciences I (General) program.

Students must submit an official Preadmission Physical Examination and Proof of Immunization form as well as a Certificate of Conduct from the Royal Newfoundland Constabulary (RCMP), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.

Students must possess a valid St. John Ambulance Emergency First Aid Certificate and a Basic Cardiopulmonary Resuscitation Certificate to be eligible for Diploma from the College.
SCHOOL OF
INDUSTRIAL TRADES
This two-year Aircraft Maintenance Engineering Technician program offers training in the inspection, maintenance, and repair of aircraft and aircraft components. Topics include the role of the Aircraft Maintenance Engineer as being responsible for aviation safety and airworthiness. Courses cover all aspects of aircraft maintenance for both fixed wing and rotary wing aircraft and include safety practices, ground handling, inspection techniques, power plant, structural repair, aircraft systems, and avionics. Upon completion of the two-year program students are awarded an Aircraft Maintenance Engineering Technician diploma.

ACCREDITATION
This program is accredited by Transport Canada as meeting the basic training requirements for the Aircraft Maintenance Engineer's license categories “M1”, “M2” and “E”. Transport Canada also grants qualified graduates a 21-month experience credit towards the 48 months required and credit for having completed the required knowledge exams. After successful completion of this program and the required work experience, apprentices qualify to write an exam in Aircraft Maintenance Regulations to acquire an Aircraft Maintenance Engineer’s license.

OBJECTIVES
1. To develop an awareness of safety practices in the aviation industry.
2. To develop the skills and knowledge required to work in the aircraft maintenance field.
3. To develop and strengthen the related knowledge and skill in subjects which complement and support the technical training.
4. To develop positive attitudes and behaviour that will enable students to become successful in the industry.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition) with MA1040 (Math Fundamentals I) and MA1041 (Math Fundamentals II)

OR
High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent, including the following:
- Mathematics (2 credits) chosen from Advanced courses: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4220 (50% minimum)
- OR Academic Mathematics courses: 3203, 3202, 3210, 3230, 3270, 3280, 3290 (50% minimum)

OR
Mathematics (4 credits) chosen from Advanced courses: 2205, 3205 (50% minimum) in each course

OR
Academic: 2204 (50% minimum), 3204 (60% minimum)

OR
Grade XI Public Examination pass with a 60% average, including a 50% pass in Matriculation Mathematics or 50% in Honor Mathematics.

OR
Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisites for this program, may be considered on an individual basis under the Mature Student Clause.

OR
Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following Mathematics courses from on of the following sections: Mathematics IM3212, IM3213, and IM 3216

OR
Mathematics IM3219

OR
Adult Basic Education (Level III) Graduation with a Degree and Technician Profile (or Business Related College Profile) including the following Mathematics courses: 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C. Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses, including those outlined above, have been completed.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment with fixed wing or rotary wing commercial airlines, aircraft manufacturers and repair and overhaul companies. In addition, there are opportunities with private operators, flying schools and government departments.
The Aircraft Structural Repair Technician is responsible for the assessment of damage, control of corrosion, repairs, modifications, and replacement of aircraft structures and structural components using recognized techniques and specialized tools and equipment. Students are trained in the maintenance, repair and fabrication of aircraft structural components. In addition to training with wood, fabric and sheet metal materials, this program includes extensive training in modern composite materials.

OBJECTIVES
1. To develop positive attitudes and behaviors that will enable graduates to become successful in the industry.
2. To expose students to the techniques, standards and practices of structural repair that conform to Transport Canada guidelines for the occupation.
3. To provide a broad overview of aircraft maintenance and repair functions with specific emphasis on safety practices in the industry.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
• Aircraft repair stations
• Aircraft manufacturing facilities
• Composite fabricators
• Composite repair stations
• Helicopter service centres
• Helicopter overhaul facilities
• Regional and national airlines

Students will receive Transport Canada credit towards the “S” license upon completion of the program.
INDUSTRIAL TRADES

Automotive Service Technician

This program is designed to provide trainees with skills and knowledge required for employment in the Automotive Service Technician field. Automotive Service Technicians diagnose problems and make repairs. They examine automobiles for defects, locate the cause of the malfunction, dismantle and overhaul components, repair defects or fit new parts, and reassemble and make final adjustments.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations. The registration of an apprentice will take place when an employer and the apprentices qualify to return the Journeyperson’s Examination to complete advanced level training in preparation for writing the Journeyperson’s Examination.

After successful completion of this program, and the required work experience, the apprentices qualify to return the Journeyperson’s Examination to complete advanced level training in preparation for writing the Journeyperson’s Examination.

Note: This program may not be suitable for applicants who do not have normal color perception.

OBJECTIVES

1. To develop good safety habits and the proper use and maintenance of various tools and equipment used in an automotive repair shop.
2. To develop an understanding of and skill in recognizing, servicing, removing, overhauling and installing the various related parts and systems on automobiles.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following: 1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES

The graduate may obtain employment in all phases of the Automotive Service Technician trade, especially with garages and service stations. Additional training may lead to self employment or employment as a foreperson, supervisor or inspector, as well as work in the automotive sales and service area.
INDUSTRIAL TRADES

Baker

This program provides practical training with supporting theory to enable the successful students to find and maintain employment as a baker's helper or to become bakers in small bakeries, hotels, restaurants or other such establishments. It is also the intent to familiarize the student with the opportunities and working conditions in the baking industry.

The program consists of lectures and demonstrations combined with practical experience in an operational kitchen and dining area. DVDs, online instructional videos and in class PowerPoint presentations will constitute a major part of classroom instruction.

OBJECTIVES
1. To teach the proper techniques of sanitation and hygiene.
2. To teach proper skills to develop a high degree of proficiency in the basic skills of the trade.
3. To help students develop desirable attitudes and good work habits.
4. To develop a sense of pride in being a member of the food industry.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program)
OR
High School Graduation
OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age of older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

CERTIFICATE
• One year
• Start date varies
• Bay St. George Campus

COURSES

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<td>SP2350</td>
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</table>
INDUSTRIAL TRADES

Bricklayer

This program is designed to provide students with general basic skills in laying block, brick and tile as well as fundamental skills in decorative masonry.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop the fundamental knowledge and initial skills required as an apprentice in the masonry industry.
2. To instill in each graduate a responsible attitude toward the duties required in the trade.
3. To enable graduates to develop and practice good safety habits.
4. To demonstrate problem solving skills and high standards of craftsmanship.
5. To enable graduates to continue apprenticeship training.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment with masonry contractors as bricklayer apprentices in residential, commercial or industrial construction. Future career opportunities may lead to supervisor or inspector positions.

COURSES

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This program is designed to provide students with general basic skills in laying block, brick and tile as well as fundamental skills in decorative masonry.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop the fundamental knowledge and initial skills required as an apprentice in the masonry industry.
2. To instill in each graduate a responsible attitude toward the duties required in the trade.
3. To enable graduates to develop and practice good safety habits.
4. To demonstrate problem solving skills and high standards of craftsmanship.
5. To enable graduates to continue apprenticeship training.
This program is designed to prepare trainees for employment opportunities in this field. They use a variety of woods and laminates to construct and repair wooden cabinets, furniture, fixtures and related products.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry-level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

**OBJECTIVES**
1. To develop the fundamental knowledge and the initial practical skills required as a cabinetmaker apprentice.
2. To instill in each graduate a responsible attitude toward the duties in the trade.
3. To enable graduates to develop and practice good safety habits.
4. To demonstrate problem-solving skills and high standards of craftsmanship.
5. To enable graduates to continue apprenticeship training.

**ENTRANCE REQUIREMENTS**
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**EQUIPMENT REQUIRED**
Safety boots, safety hat, safety glasses, coveralls, 16 ft. measuring tape metric and standard
**COURSES**

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**Related Courses**

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**Block 2 Advanced Level**

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<td>Gambrel, Mansard &amp; Unusual Roof Framing</td>
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**INDUSTRIAL TRADES**

**Carpenter**

Carpentry is a program which covers the use, care and operation of basic tools and machinery, building layout, form construction and framing, interior and exterior finish with emphasis on the National Building Code standards and energy efficient concepts.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry level courses and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

**OBJECTIVES**

1. To develop the fundamental knowledge and the initial practical skills required as a carpenter in apprentice.
2. To instill in each graduate a responsible attitude toward the duties in the trade.
3. To enable graduates to develop and practice good safety habits.
4. To demonstrate problem solving skills and high standards of craftsmanship.
5. To enable graduates to continue apprenticeship training.

**ENTRANCE REQUIREMENTS**

- Comprehensive Arts and Science Certificate (College Transition program)
- High School Graduation
- Grade XI Certificate (Public Examinations or equivalent), OR
- Adult Basic Education (Level III) Graduation, OR
- Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
  1. Mathematics MA3107A, MA3107B, MA3107C
  2. Science 3101, 3102, 3103
- Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**EMPLOYMENT OPPORTUNITIES**

Graduates of this program may be employed by general contractors, contractors specializing in specific aspects of the construction trade, custom woodworking shops, building suppliers and as general carpenters working in a self-employed capacity.
INDUSTRIAL TRADES

Commercial Transport

This program offers training in the safe and effective operation of tandem trucks and Tractor Trailer units. Emphasis is placed on preventive maintenance, defensive driving, and fuel conservation with students developing the necessary practical skills to enter the work force as qualified drivers.

Students successfully completing the program qualify for a Class 1 license with Class 3 and 9A endorsements.

Note: Graduates under the age of 25 should note that they may encounter problems obtaining employment because of the cost and complications of insurance experienced by employers.

OBJECTIVES
1. To provide knowledge of defensive driving techniques, proper economical vehicle operation, and emergency procedures.
2. To provide knowledge of types of trucks, power trains, engines, drive lines, brake systems, tires and trailers.
3. To provide skills training in backing procedures, serpentine, alley dock, right angle parking and overhead clearances.
4. To provide operating techniques where students drive on course roads, through town and on the Trans Canada Highway.
5. To provide knowledge of proper freight handling procedures and methods of preparing and handling documentation connected with transfers of cargo and monies.

ENTRANCE REQUIREMENTS
1. Comprehensive Arts and Science Certificate (College Transition program),
   OR
   High School Graduation,
   OR
   Grade XI Certificate (Public Examinations or equivalent),
   OR
   Adult Basic Education (Level III) Graduation,
   OR
   Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
   1. Mathematics MA3107A, MA3107B, MA3107C
   2. Science 3101, 3102, 3103
   OR
   Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.
2. A valid Newfoundland driver’s license - minimum of full Class 5. Must have been held for a minimum of 1 year,
3. Must be 18 years of age on or before course completion,
4. Valid medical certificate for Class 1; completed on form required by the Department of Works, Services and Transportation. This form is available from any driver examiner,
5. Driver’s abstract with maximum of 4 points and no motor vehicle related Criminal Code convictions in the last 5 years.

EQUIPMENT REQUIRED FOR TRAINING
Safety boots, safety hat, safety glasses, coveralls and gloves.

SUBJECT DESCRIPTIONS
Trade Theory
This subject includes the study of proper machine care and preventive maintenance; start-up and shut-down procedures; the effects of different temperatures on these procedures; types and characteristics of lubricants; correct procedures involved in the operation of various transmissions; and the interpretation of operation and maintenance manuals with respect to safe operation techniques such as loading and weight restrictions. The Highway Traffic Act, Motor Carrier Act and License and equipment regulations are also covered. Students also complete a First Aid course, an Air Brake course, Professional Driver Improvement Course and Transportation of Dangerous Goods course.

Practical
Students perform pre-trip inspection, actual starting and driving vehicle; hauling of materials; judging for clearance, vertical and horizontal; backing trailer with aid of mirrors; selecting proper speed to coincide with driving conditions. Students must manoeuvre through an obstacle course with a medium transport and later with semi-trailer. This must be accomplished before going on the road. The obstacle course is structured to the Canadian Trucking Association Standards. Students then complete supervised road trips and are rated in accordance with their performance.
The Construction/Industrial Electrician is a program which covers basic electrical concepts, residential wiring, commercial installations, service and distribution systems, emergency electrical systems, communication and signaling systems, heating systems, industrial equipment installation and maintenance as well as industrial electronic control devices and systems.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

OBJECTIVES

1. To develop the basic knowledge and practical skills required to meet initial performance standards needed by the electrical industry.
2. To enable graduates to continue apprenticeship training as an industrial or construction electrician.
3. To instill in each student a responsible attitude toward the duties required in the trade.
4. To enable graduates to develop and practice good safety habits.
5. To demonstrate problem solving skills and high standards of craftsmanship.

Note: This program may not be suitable for applicants who do not have normal color perception.

EQUIPMENT AND SUPPLY FEE
In addition to tuition cost, students will be required to pay an equipment and supply fee. Please refer to “Fees and Charges” section of this calendar for details.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program)
OR
High School Graduation
OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Successful graduates may find employment, career opportunities in residential wiring, commercial electrical installation and maintenance, and industrial electrical installation as well as in industrial controls.

The Construction/Industrial Electrician is a program which covers basic electrical concepts, residential wiring, commercial installations, service and distribution systems, emergency electrical systems, communication and signaling systems, heating systems, industrial equipment installation and maintenance as well as industrial electronic control devices and systems.

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After successful completion of the entry level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

OBJECTIVES

1. To develop the basic knowledge and practical skills required to meet initial performance standards needed by the electrical industry.
2. To enable graduates to continue apprenticeship training as an industrial or construction electrician.
3. To instill in each student a responsible attitude toward the duties required in the trade.
4. To enable graduates to develop and practice good safety habits.
5. To demonstrate problem solving skills and high standards of craftsmanship.

Note: This program may not be suitable for applicants who do not have normal color perception.

EQUIPMENT AND SUPPLY FEE
In addition to tuition cost, students will be required to pay an equipment and supply fee. Please refer to “Fees and Charges” section of this calendar for details.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program)
OR
High School Graduation
OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Successful graduates may find employment, career opportunities in residential wiring, commercial electrical installation and maintenance, and industrial electrical installation as well as in industrial controls.
Cook

This program is designed to qualify persons for employment as Junior cooks in the Food Industry.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry level courses and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop interest and understanding in the preparation of food.
2. To develop an awareness and concern for good standard safety practices in the workplace.
3. To develop a sense of pride in being a member of the Food Industry.
4. To develop basic cooking skills and knowledge required to enter the commercial cooking field.
5. To develop and strengthen related knowledge and skill in subjects that complement and support the trade training.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program)

OR
High School Graduation

OR
Grade XI Certificate (Public Examinations or equivalent),

OR
Adult Basic Education (Level III) Graduation,

OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103

OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

COURSES

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<td>TS1530</td>
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<td>CK1105</td>
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<td>CK1120</td>
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<td>CK1125</td>
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<td>CK1135</td>
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<td>CK1136</td>
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<td>CK1138</td>
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<td>Pastas and Dumplings</td>
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<td>Thickening Agents</td>
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<td>CK1182</td>
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<td>CK1183</td>
<td>Veal and Lamb (Preparation and Cooking)</td>
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<td>CK1225</td>
<td>Breakfast Cookery</td>
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<td>CK1230</td>
<td>Baking Ingredients and Associated Conveniences Products</td>
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<td>Yeast Products</td>
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<td>Dressert Pies, Fillings and Toppings</td>
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<td>Quick Breads</td>
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<td>Basic Cakes, Icings and Meringues</td>
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<td>CK1251</td>
<td>Specialty Icings and Meringues</td>
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<td>Specialty Cakes</td>
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<td>Cookies and Squares</td>
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<td>MA1060</td>
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<td>CM1250</td>
<td>Workplace Communications</td>
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<td>MR1220</td>
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<tr>
<td>SP1230</td>
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<tr>
<td>SD1700</td>
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<td>SD1710</td>
<td>Job Search Techniques</td>
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<td>SD1720</td>
<td>Entrepreneurial Awareness</td>
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Block 2 Advanced Level

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<td>CK1139</td>
<td>Fruit Specialty Dishes</td>
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<td>CK1166</td>
<td>Specialty and National Soups</td>
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<td>CK1171</td>
<td>Specialty and Derivative Souces</td>
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<td>CK1186</td>
<td>Fish and Seafood Specialty Dishes</td>
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<td>Specialty Salad and Salad Dressings</td>
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<td>CK1215</td>
<td>Styles of Service (American and Cafeteria)</td>
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<td>Styles of Service (English and Buffet)</td>
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<td>CK1221</td>
<td>Styles of Service (French and Russian)</td>
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Block 3 Advanced Level

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<td>CK1141</td>
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<td>CK1164</td>
<td>Specialty Meat, Game Birds and Venison</td>
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<td>CK1205</td>
<td>Appetizers</td>
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<td>CK1211</td>
<td>International and Specialty Cheese</td>
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<td>CK1222</td>
<td>Terrines, Pates, Galantines and Mousse</td>
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<td>CK1223</td>
<td>Chauf-Froid</td>
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<tr>
<td>CK1280</td>
<td>Menu Planning</td>
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<tr>
<td>CK1285</td>
<td>Menu Costing</td>
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</table>

CERTIFICATE
• One year
• Start date varies
• Bay St. George, Burin, Seal Cove, and Prince Philip Drive Campuses
This course is a program designed to give basic training in the fundamentals of Hairstyling. The course is designed to provide a study in the science and art of Hairstyling of both males and females.

**Note:** This program may not be suitable for persons with allergies and/or respiratory problems. Anyone with either of these conditions should check with a doctor to determine medical suitability.

**Objectives**
1. To develop appreciation, understanding and skills required for the practice of Hairstylist.
2. To develop habits of good workmanship, as well as practicing hygienic measures and following safety regulations.
3. To learn to select wisely, use properly and care for all commercial products, tools, and equipment pertaining to the trade.
4. To provide an environment that will be conducive for students to develop further such mature qualities as responsibility, emotional control, leadership and citizenship.

**Entrance Requirements**
Comprehensive Arts and Science Certificate (College Transition program)
OR
High School Graduation
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**Equipment Required for Training**
Uniforms and flat shoes, and hairstylist tool kit.
INDUSTRIAL TRADES

Heavy Duty Equipment Technician

This program is designed to provide trainees with skills and knowledge required for employment in the field of Heavy Duty Equipment Technician. Heavy Duty Equipment Technicians diagnose problems, locate the cause of the malfunction, dismantle and overhaul components. They repair defects, reassemble existing parts or fit new parts, and make final adjustments.

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The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To familiarize the student with the principles of operation, construction, care and maintenance of various types of hand tools and power tools.
2. To acquaint the student with the various routines and practices pertaining to the Heavy Duty Repair Trade.
3. To develop skills and to impart knowledge relative to this particular trade.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
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2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EQUIPMENT REQUIRED FOR TRAINING
Safety boots, safety hat, safety glasses, two pairs of coveralls and gloves, tool box and selection of tools.

COURSES

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<td>SV1101</td>
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<td>SV1121</td>
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<td>SV1131</td>
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<td>SV1261</td>
<td>Vehicle Hydraulic Brake Systems</td>
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<td>SV1271</td>
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<tr>
<td>SV1281</td>
<td>Drive Lines</td>
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<tr>
<td>SV1301</td>
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<td>SV1303</td>
<td>Engine Principles</td>
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<td>SV1331</td>
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<td>SV1830</td>
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<td>SV2381</td>
<td>Hydraulic Fittings, Piping, Tubing and Hoses</td>
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<tr>
<td>SV2391</td>
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<td>TS1510</td>
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<tr>
<td>WD2330</td>
<td>MIG Welding</td>
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Block 1 Advanced Level
SV2265 | Vehicle Management Systems | 60 |
SV2350 | Torque Converters | 30 |
SV2365 | Automatic/Power Shift | 35 |
SV2570 | Engine Brakes and Retarders | 30 |
SV2651 | Electronically-Controlled Diesel Fuel Injection Systems | 45 |
SV2771 | Emission Control Systems | 20 |
WD2320 | SMAW Welding | 30 |

Block 2 Advanced Level
SV1321 | Engine Lubrication Systems | 15 |
SV2266 | Diesel Fuel Injection Systems | 45 |
SV2560 | Preventative Maintenance Inspections | 15 |
SV2591 | Turbo Chargers, Blowers and Intercoolers | 25 |
SV2605 | Diesel Engine Overhaul | 120 |
SV2611 | Base Engine Diagnostics | 20 |

Block 3 Advanced Level
SV1251 | Front and Rear Suspensions | 40 |
SV1281 | MIG Welding | 30 |
SV2341 | Manual Transmissions and Power Take-Offs | 30 |
SV2411 | Control Valves | 10 |
SV2420 | Hydraulic Cylinders | 15 |
SV2431 | Accumulators | 10 |
SV2451 | Hydrostatic Drives | 25 |
SV2461 | Hydraulic Systems Diagnostics and Testing | 15 |
SV2510 | Blade Buckets and Cutting Edges | 15 |
SV1245 | Wheel and Axle Alignment | 25 |

CERTIFICATE
- 43 weeks
- Start date varies
- Bay St. George, Placentia and Happy Valley-Goose Bay Campuses

Related Courses
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<tr>
<td>MC1050</td>
<td>Introduction to Computers</td>
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<td>MR1220</td>
<td>Customer Service</td>
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<td>SD1700</td>
<td>Workplace Skills</td>
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<td>SD1710</td>
<td>Job Search Techniques</td>
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<tr>
<td>SD1720</td>
<td>Entrepreneurial Awareness</td>
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<td>MA1600</td>
<td>Basic Math</td>
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Block 4 Advanced Level
SV2265 | Vehicle Management Systems | 60 |
SV2350 | Torque Converters | 30 |
SV2365 | Automatic/Power Shift | 35 |
SV2570 | Engine Brakes and Retarders | 30 |
SV2651 | Electronically-Controlled Diesel Fuel Injection Systems | 45 |
SV2771 | Emission Control Systems | 20 |
WD2320 | SMAW Welding | 30 |

Block 5 Advanced Level
SV1321 | Engine Lubrication Systems | 15 |
SV2266 | Diesel Fuel Injection Systems | 45 |
SV2560 | Preventative Maintenance Inspections | 15 |
SV2591 | Turbo Chargers, Blowers and Intercoolers | 25 |
SV2605 | Diesel Engine Overhaul | 120 |
SV2611 | Base Engine Diagnostics | 20 |

Block 6 Advanced Level
SV1231 | Power-Assisted Steering Systems | 25 |
SV1410 | Fire Suppression Units | 15 |
SV2341 | Manual Transmissions and Power Take-Offs | 30 |
SV2441 | Articulated Steering Systems | 15 |
SV2471 | Winches, Wire Ropes and Accessories | 25 |
SV2481 | Cabs and Protective Structures | 10 |
SV2491 | Pneumatic Systems | 20 |
SV2555 | Material Handling Equipment | 40 |
SV2556 | Equipment Hydraulic Brake Systems | 30 |
SV2729 | Engine Clutches | 15 |
SV2741 | Transfer Cases | 15 |
INDUSTRIAL TRADES

Heavy Equipment Operator

This program provides pre-employment and apprenticeship level training, exposing students to the safe and effective operation of Heavy Duty Earth Moving Equipment. Students study the theory of operation and preventive maintenance and develop the necessary practical skills to become proficient in the use of three of the six available categories of machinery.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

EQUIPMENT CATEGORIES

- Tractor/Bulldozer
- Front End Loader
- Grader
- Dump Truck (Off-Highway and Tandem)
- Tractor/Loader/Backhoe
- Excavator

Note: Graduates under the age of 25 should note that they may encounter problems obtaining employment because of the cost and complications of insurance experienced by employers.

OBJECTIVES

1. To expose students to terminology associated with construction equipment.
2. To provide knowledge of machine capabilities and industry expectations.
3. To provide servicing procedures and techniques to maximize the life span of construction equipment.
4. To provide skills training in basic machine manouevring, control and operation in work simulated projects.
5. To provide knowledge of standards for road construction as well as other municipal projects.

ENTRANCE REQUIREMENTS

1. Comprehensive Arts and Science Certificate (College Transition program),
OR
2. High School Graduation,
OR
3. Grade XI Certificate (Public Examinations or equivalent),
OR
4. Adult Basic Education (Level III) Graduation,
OR
5. Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following: 1. Mathematics MA3107A, MA3107B, MA3107C 2. Science 3101, 3102, 3103 OR
6. Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.
7. Students selecting the Equipment Category – Dump Truck (Off-Highway and Tandem) must have a valid Newfoundland Class 5 driver’s license for one year prior to the commencement of the program.
8. Satisfactory medical report for Class 03 is required by the Department of Works, Services and Transportation.

EQUIPMENT REQUIRED FOR TRAINING

- Safety boots, safety hat, safety glasses, coveralls, and gloves

COURSES

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<td>HE1120</td>
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Three Courses from the following:

- HE1500 Bulldozers 75
- HE1510 Graders 75
- HE1520 Backhoes 75
- HE1530 Front End Loaders 75
- HE1540 Tandem Trucks 75
- HE1550 Off Highway Trucks 75
- HE1560 Excavators 75

Related Courses

- CM2150 Workplace Communications 45
- M1005 Introduction to Computers 30
- MR1220 Customer Service 30
- SD1700 Workplace Skills 30
- SD1710 Job Search Techniques 15
- SD1720 Entrepreneurial Awareness 15
- SP2330 Quality Assurance/Quality Control 30
The Heritage Carpentry program was developed to train carpenters to work on heritage restoration projects. This program offers contemporary construction carpentry training along with training in the traditional skills that were used to construct the wood frame buildings of yesteryear. In addition, the program also provides background information on architectural styles in Atlantic Canada and Quebec. Although the program has a heritage orientation, it is fully articulated with the Red Seal Construction Carpentry program and students may, if they wish, continue on to complete their apprenticeship and become journeypersons in Construction Carpentry.

OBJECTIVES
1. To develop the fundamental knowledge and the initial practical skills required as a carpentry apprentice specializing in heritage restoration.
2. To instill in each graduate a responsible attitude toward the duties in the trade.
3. To enable graduates to develop and practice good safety habits.
4. To demonstrate problem solving skills and high standards of craftsmanship.
5. To enable graduates to continue apprenticeship training.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates of this program may be employed by general contractors, contractors specializing in specific aspects of the construction trade, custom woodworking shops, building suppliers and as general carpenters working in a self-employed capacity.

Heritage Carpentry

CERTIFICATE
• 1.5 years
• Start date varies
• Carbonara Campus

COURSES

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<td>Rigging for Carpentry</td>
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<td>AJ1150</td>
<td>Basic Drawing and Sketching/Drafting</td>
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<td>AJ1400</td>
<td>Interior Walls and Ceilings</td>
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Related Courses

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<td>SD1700</td>
<td>Workplace Skills</td>
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<td>SD1710</td>
<td>Job Search Techniques</td>
<td>15</td>
</tr>
<tr>
<td>SD1720</td>
<td>Entrepreneurial Awareness</td>
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</tr>
<tr>
<td>SP2330</td>
<td>Quality Assurance/Quality Control</td>
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</table>
INDUSTRIAL TRADES

Industrial Mechanic (Millwright)

This is a nine month certificate level program designed to assist persons in developing sufficient basic skills and knowledge to enter the labour force as an apprenticed industrial mechanic-millwright.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

OBJECTIVES

1. To develop an awareness of and concern for good safety practices in the work place.
2. To develop basic skills and knowledge required for work as an apprenticed industrial mechanic-millwright.
3. To develop and strengthen related knowledge and skill (technical and general) in subjects that complement and support the trade training.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program), OR
High School Graduation, OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103

Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES

Graduates may obtain employment in a variety of occupational settings including: industrial, mining, pulp and paper, oil refining, private companies, breweries, bakeries, bottling plants, construction, fabrication and with various provincial and federal government agencies or departments.
Instrumentation and Control Technician

Instrumentation involves automation in the production of various commodities. Complex process control and measurement systems such as those found in the oil and gas industry, chemical plants, food processing operations, and the pulp and paper industry require sensitive and accurate instruments. Recent technical developments in measuring and controlling process variables such as pressure, temperature, flow, and composition have increased the quality of products and have reduced operating costs. Today conventional pneumatic and electronic controls are being rapidly augmented or replaced by computer-based systems. These advantages in technology demand qualified technical personnel trained in the field of instrumentation.

OBJECTIVES
The objective of the Instrumentation Program is to provide students with theoretical and practical training in the principles of operation and maintenance of pneumatic devices, control valves, electronic instruments, digital logic devices and computer-based process control systems.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understand (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1 Mathematics MA3107A, MA3107B, MA3107C
2 Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
With industry becoming increasingly automated, instrument technicians are needed virtually anywhere there are control and metering systems. They are employed in the following industries:
• Pulp and Paper Processing
• Hydro Power Generation
• Mining, Petrochemical, and Natural Gas
• Industrial and Commercial Manufacturing
• Industrial Construction
• Industrial Instrument Servicing

CERTIFICATE
• One year
• Start date varies
• Burin, Gander and Seal Cove Campuses

COURSES

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<td>Fasteners &amp; Adhesives</td>
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Block 2 Advanced Level

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Block 4 Advanced Level

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INDUSTRIAL TRADES
Ironworker (Generalist)

The Ironworker program is designed to train individuals in the knowledge and skills associated to fabricate, erect, hoist, install, repair and service structural ironwork, pre-cast concrete, concrete reinforcing materials, curtain walls, ornamental iron and other metals used in the construction of buildings, bridges, highways, dams and other structures and equipment.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry-level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To provide the appropriate learning opportunities required for employment as an Ironworker.
2. To develop an awareness of and concern for safety practices in the workplace.
3. To develop and strengthen related knowledge and skills in subjects that complement and support the trade.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EQUIPMENT REQUIRED
Safety boots, safety hat, safety glasses, coveralls, gloves

COURSES

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The Machinist program is designed to train individuals in the knowledge, skills, and experience necessary to fabricate, assemble and repair machinery.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

**ENTRY REQUIREMENTS**

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<th>Comprehensive Arts and Science Certificate (College Transition program), OR</th>
<th>High School Graduation, OR</th>
<th>Grade XI Certificate (Public Examinations or equivalent), OR</th>
<th>Adult Basic Education (Level III) Graduation, OR</th>
<th>Adult Basic Education (Level III) Graduation with General College Profile or Business Related College Profile or Degree and Technical Profile. It is strongly recommended that courses include the following: 1. Mathematics MA3107A, MA3107B, MA3107C 2. Science 3101, 3102, 3103</th>
<th>Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.</th>
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**CERTIFICATE**

- One year
- Start date varies
- Baie Verte and Placentia Campuses

**COURSES**

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<td>MW1920</td>
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**Block 2 Advanced Level**

| MW1810 | Mechanical Drawings II (Intermediate) | | 30 |
| MW1830 | Planning and Measuring/Precision Layout | | 45 |
| MW1930 | Horizontal Milling Machine Operation | | 45 |
| MW1940 | Advanced Lathe Operation | | 105 |
| MW1990 | Testing and Inspecting | | 15 |

**Block 3 Advanced Level**

| MW1980 | Spur Gears | | 45 |
| MW2000 | Vertical Milling Machine Operation | | 85 |
| MW2010 | Boring Mills | | 5 |
| MW2020 | Abrasives | | 15 |
| MW2030 | Cylindrical Grinders | | 30 |
| MW2040 | Universal Cutter and Tool Grinder | | 30 |
| MW2100 | Surface Grinders | | 30 |

**Block 4 Advanced Level**

| MW2050 | Electrical Discharge Machines | | 5 |
| MW2090 | Bevel, Helical and Worm Gears | | 95 |
| MW2110 | Electrical ARC Welding | | 45 |
| MW2130 | Electro-Chemical Machinery and Electrolytic Grinding | | 5 |
| MW2140 | Advance CNC Operation (NL Only) | | 90 |
INDUSTRIAL TRADES

Metal Fabricator (Fitter)

This program is designed to prepare trainees for employment opportunities in the field of Structural Fitting. The program provides the necessary training in operating iron workers, plate rollers, press brakes, cold frame benders, overhead cranes, shears, Quality Control and Quality Assurance, non-destructive testing, fabricating sub-assemblies and unit assemblies; outfitting, erecting and repairing steel structures; arranging job components by nesting; reading and interpreting drawings; and computer awareness.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed by the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

OBJECTIVES

1. To develop skills in the proper use of basic tools and equipment.
2. To develop skills in the proper use of fabrication equipment.
3. To develop skills in the different disciplines of welding and cutting ferrous and non-ferrous metals.
4. To develop skills in reading and interpreting blueprints.
5. To develop skills relative to production flow.
6. To provide basic knowledge of Quality Assurance and Quality Control.
7. To help trainees develop attitudes conducive to successful applications of skills on the job.
8. To develop an awareness and concern for good safety practices in the work place.
9. To develop and strengthen the related mathematics, science and communication skills that support the occupation skills and knowledge.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EQUIPMENT REQUIRED

Safety boots, safety glasses, coveralls, welding goggles and welding gloves.
Mining is a growing, changing industry that requires individuals to be trained in operating and maintaining mine/ mill equipment. The Mining Technician functions as part of a mining team. Job duties may include operating a variety of production equipment and the performance of maintenance work. The Mining/Mineral Processor will have a good understanding of mining and plant processes.

The Mining Technician student should enjoy the active lifestyle involved in this work and have an interest in the mining field.

The Mining Technician is a two-year program that trains individuals in trade-specific courses, academic courses and industry-specific courses. It consists of five academic semesters and one work term.

OBJECTIVES
1. To provide education and training in a broad range of practical, academic, technical and general employability skills in mining and mineral processing technology.
2. To provide general transition and access to technology.
3. To provide transition and access to employment in the mining and mineral processing industry.
4. To set the foundation and provide specific credit toward industry certifications in a number of trades related to the mining and mineral processing industry and in mining and mineral processing engineering technology.
5. To provide the opportunity for students to participate in self-managing teams and to work and learn in an "industrial laboratory".

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Two Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II
OR
High School Graduation Certificate with a 60% average in the following:
1. Language (1 credit) (minimum 60%) from 3101, 3102, 3103, 3112, 3172, 3192, 4121
OR
English (2 credits) (minimum 60%) chosen from: 3201, 3211, 3221, 3231, 3232, 3281, 3282, 3291, 3292.
2. Mathematics (2 credits) chosen from Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum
   Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60%) minimum
OR
Mathematics (4 credits) chosen from:
Advanced: 2205, 3205 (50% minimum in each course)
Academic: 2204 (50% minimum), 3204 (60% minimum)
3. Science (4 credits) two of which must be selected from:
   Biology: 3201, 3211, 3231, 3271, 3281, 3291, 4221
   Physics: 3204, 3214, 3274, 3284, 3294, 4224
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   Geology: 3203, 3213, 3223, 3273, 3283, 3293
   Earth Systems: 3213, 3209
Note: The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.
OR
Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

OR
Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Matriculation Mathematics or 50% in Honours Mathematics, and one Science course,

OR
Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
1. Communications IC3211 & IC3112 plus one of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. Mathematics IM3219
3. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3315, IB3316
   b. Chemistry IH3215, IH3316, IH3117, IH3118
   c. Physics IP3111, IP3312, IP3215, IP3216
d. Earth Science IS3212, IS3213, IP3214.

OR
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
   a. Biology 1101, 1101A, 1101B, 1101C, 3101A, 3101B, 3101C
   b. Chemistry 1102, 1102A, 1102B, 1102C, 3102A, 3102B, 3102C
   c. Physics 1104, 1104A, 1104B, 1104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

EMPLOYMENT OPPORTUNITIES
The Mining Technician graduate may find employment as part of the Operations and Maintenance Teams in a mining environment. The graduate of this program may also find employment as a millwright apprentice. Graduates completing this program may also choose to pursue further studies in the technology areas. Employment rates for Mining Technician graduates have been strong with 80-90% of current graduates finding employment in the local area. This program provides the appropriate selection of courses including those outlined above have been completed.

CREDIT TRANSFER TO OTHER PROGRAMS
An added bonus to graduates of the Mining Technician program is the awarding of a certificate in apprentice Millwright. Graduates are also able to transfer many of their credits towards various School of Engineering two and three year diploma programs. However, courses such as Math, Chemistry and Electro Technology would have to be completed to enroll in many of the technology programs.

DIPLOMA
• Two years
• September start
• Labrador West Campus

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Mobile Crane Operator

This program exposes students to the safe and efficient operation of Mobile Cranes. Students study the theory of operation and preventive maintenance, develop practical skills necessary for the operation on modern state of the art cranes which include 18 Ton Boom Truck, 30 Ton Rough Terrain and 50 Ton Lattice Boom Crawler Cranes. Numerous training scenarios are set up that will test the students’ abilities to work under stress conditions and face safety hazards that will be experienced in Industry.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

OBJECTIVES
1. To expose students to terminology associated with the crane industry.
2. To provide knowledge of crane capabilities and industry expectations.
3. To provide skills training in servicing procedures and techniques to maximize the life span of the crane.
4. To provide skills training in rigging, load chart computations and lifting procedures.
5. To develop and strengthen the related mathematics, science and communication skills that support the occupational skills and knowledge.
6. To develop the driving skills necessary to obtain a Class 3 license and safely drive a disassembled crane.

ENTRANCE REQUIREMENTS
1. Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.
2. A valid Newfoundland driver’s license – minimum of full Class 5. Must be held for a minimum of 1 year.
3. Department of Transportation Medical for a Class 3 license including colour perception, visual acuity and hearing tests. A depth perception test is also required.

EQUIPMENT REQUIRED FOR TRAINING
Safety boots, safety hat, safety glasses, coveralls and gloves.
INDUSTRIAL TRADES

Motor Vehicle Body Repairer (Metal and Paint)

This certificate level program is designed to assist persons in developing sufficient basic skills and knowledge to enter the labour force as an apprenticed Mechanic in Motor Vehicle Body Repairer (Metal and Paint).

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop an awareness of and concern for good safety practices in the work place.
2. To develop basic skills and knowledge required for work as a mechanic in Motor Vehicle Body Repairer (Metal and Paint).
3. To develop and strengthen related knowledge and skill (technical and general) in subjects that complement and support the trade training.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
The graduate may obtain employment in all phases of the Motor Vehicle Body Repairer (Metal and Paint) trade, especially with garages and service stations. Additional experience and training may lead to self employment or employment as a shop foreperson, inspector, or claims investigator, as well as to work in the automotive sales and service area.

COURSES

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<td>AB2940</td>
<td>Damage Analysis and Estimating Costs</td>
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This program is designed to prepare trainees for potential employment opportunities in the field of Non-Destructive Testing of materials. The program structure provides the necessary training in a variety of methods namely: Liquid Penetrant Inspection, Magnetic Particle Inspection, Ultrasonic Inspection, Industrial Radiography Inspection, other inspection methods, and Quality Assurance, Control Documentation and Reporting systems for various industrial sectors.

**Note:** This program may not be suitable for applicants who do not have normal colour perception.

**OBJECTIVES**
1. To provide sufficient basic knowledge of the Liquid Penetrant Inspection Method to enable the graduate to perform Liquid Penetrant Inspection.
2. To provide sufficient basic knowledge of the Magnetic Particle Inspection Method to enable the graduate to perform Magnetic Particle Inspection.
3. To provide sufficient basic knowledge of the Ultrasonic Inspection Method to enable the graduate to carry out Ultrasonic Inspection.
4. To provide sufficient basic knowledge of Industrial Radiography to enable the graduate to carry out Radiographic Inspection.
5. To provide basic knowledge of Quality Assurance, Control Documentation and Reporting Systems for various industrial sectors.
6. To help trainees develop attitudes conducive to the successful application of skills on the job.
7. To develop an awareness and concern for good safety practices in the work place.
8. To provide related academic skills and knowledge in Mathematics, Communications and Science.

**ENTRANCE REQUIREMENTS**
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

**EQUIPMENT REQUIRED FOR TRAINING**
Safety glasses, safety boots, and laboratory coats.

**SUBJECT DESCRIPTIONS**
- Liquid Penetrant Inspection
- Magnetic Particle Inspection
- Ultrasonic Inspection
- Radiography
- Metallurgy
- Metallurgy and Welding Methods
- Quality Assurance, Quality Control and Documentation
- Blueprint Reading.

**LABORATORY**
There will be practical applications in all disciplines to assist the trainees in developing self-confidence to carry out Non-Destructive Testing.
This certificate level program is designed to provide a course of study that will prepare persons for employment in the residential heating industry, and further training during apprenticeship.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to write the Journeyperson’s Examination.

**OBJECTIVES**

1. To use and maintain tools, materials and equipment required for the maintenance and installation of heating systems (oil, and solid fuels).
2. To develop the basic knowledge and skill required to test and adjust residential heating systems.
3. To develop the basic knowledge and skill required to install residential heating systems.
4. To develop the basic knowledge and skill required to interpret trade blueprint schematics.

**ENRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),

OR

High School Graduation,

OR

Grade XI Certificate (Public Examinations or equivalent),

OR

Adult Basic Education (Level III) Graduation,

OR

Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:

1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103

OR

Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

**CERTIFICATE**

- One year
- Start date varies
- Seal Cove Campus

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This is a program designed to prepare persons for employment in the plumbing and domestic heating occupations.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

OBJECTIVES
1. To provide the appropriate learning opportunities required for employment.
2. To assist students with the development of appropriate attitudes and behaviour that are conducive to working with other persons in this occupation.
3. To develop and strengthen related knowledge and skills in subjects that complement and support the trade.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following: 1. Mathematics MA3107A, MA3107B, MA3107C 2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.
Power Engineers, Power Plant or Boiler Operators or Operating, Steam and Stationary Engineers, are some of the descriptions that summarize a technically skilled professional who is responsible for the safe operation and maintenance of equipment such as pumps, gas compressors, generators, motors, boilers, steam turbines, air conditioning systems, heat exchangers and refrigeration equipment.

The objective of this program is to prepare the student for entrance into the power engineering field at the fourth class level. Upon successful completion the student is entitled to write an Inter Provincial Certification Exam for Power Engineer, 4th Class that is conducted by the Industrial Training division of the Department of Education.

Successful completion of this 4th class exam entitles the student to work in an industrial area containing heating and power plants which can be located in areas such as refineries, paper mills, government institutions such as hospitals, and a variety of processing and manufacturing plants.

With appropriate work experience plus additional education a 4th Class Power Engineer can successfully obtain the highest certification level of 1st Class Power Engineer. It is the choice of each individual to pursue your level of qualification. The Department of Education has adopted the Standardization of Power Engineers Examination Committee (SOPEC) Regulations as the framework to govern writing of Power Engineering Exams. Power Engineering is not a Red Seal Program but is similar in that a combination of hours worked and education enables the learner to progress to a higher level.

**OBJECTIVES**
1. Develop the knowledge and practical skills necessary for a Fourth Class, Power Engineer.
2. Develop and practice proper safety procedures.
3. Demonstrate problem solving skills and good work practices.
4. Provide related skills to further enhance a graduates learning and working abilities.

**ENTRANCE REQUIREMENTS**
- Comprehensive Arts and Science Certificate (College Transition program),
- High School Graduation,
- Grade XI Certificate (Public Examinations or equivalent),
- Adult Basic Education (Level III) Graduation,
- Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
  1. Mathematics MA3107A, MA3107B, MA3107C
  2. Science 3101, 3102, 3103
- Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**EMPLOYMENT OPPORTUNITIES**
Graduates may obtain employment as a 4th Class Power Engineer, in most large plants or buildings in both the public and private sector. These may include government buildings (Municipal, Provincial, Federal); health and educational institutions; manufacturing, production and service industries such as mining, fish plants, pulp and paper, electric utilities, refineries, bottling companies, food processing plants, etc.

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| Intersession | Work Job Placement 4 weeks | 120 |
| Intersession | Power Engineering and Industrial Applications | 90 |

This program is under review and it is anticipated that changes will occur.
This is a program designed to prepare persons for employment with electric power distribution utilities.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

Note: Students should be aware of the strenuous physical dexterity required in this training program. Employers will normally demand all applicants to undergo a physical capabilities assessment prior to hiring.

OBJECTIVES
1. To provide the appropriate learning opportunities required for employment as a powerline technician.
2. To assist students with the development of appropriate attitudes and behaviour that are conducive to working with other persons in this occupation.
3. To develop and strengthen related knowledge and skills in subjects that complement and support the trade.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program), OR
High School Graduation, OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103

Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EQUIPMENT REQUIRED FOR TRAINING
Coveralls, boots, gloves, safety hat, safety glasses, chin strap and rain clothes.

Note: All entrants must have a valid Class 5 License prior to entry into the Powerline Technician (Operating) program. Motor Vehicle Regulations require persons to have a valid Class 5 for a minimum of 24 months prior to applying for a Class 3 License.
The Refrigeration and Air Conditioning program is designed to train individuals in the knowledge, skills, and experience necessary to mechanics in the field.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to write the Journeyperson’s Examination.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program),

OR

High School Graduation,

OR

Grade XI Certificate (Public Examinations or equivalent),

OR

Adult Basic Education (Level III) Graduation,

OR

Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:

1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103

OR

Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

**CERTIFICATE**

• One year
• Start date varies
• Ridge Road Campus

**COURSES**

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**Block 2 Advanced Level**

| RF1420 | Evaporative Condensers and Cooling Towers |         |             | 20  |
| RF1430 | Fluid Dynamics and Pumps                  |         |             | 15  |
| RF1500 | Refrigeration Equipment                    |         |             | 30  |
| RF1530 | Refrigeration System and Pipe Design       |         |             | 30  |
| RF1540 | Refrigeration and A/C Installation II      |         |             | 30  |
| RF1550 | System Capacity Control                    |         |             | 30  |
| RF1560 | Compressor Diagnostics and Repair          |         |             | 20  |
| RF1570 | Troubleshooting Systems and their Components|     |             | 20  |
| RF1640 | Understanding, Interpreting and            |         |             | 30  |
| RF1760 | Wiring Diagrams                            |         |             | 30  |
| RF1780 | Specialized Control Systems                |         |             | 30  |
| RF1790 | Industrial Refrigeration Systems           |         |             | 40  |

**Block 3 Advanced Level**

| RF1580 | Psychrometrics                             |         |             | 25  |
| RF1590 | Air Conditioning System Design             |         |             | 25  |
| RF1600 | Heat Pump Systems                          |         |             | 30  |
| RF1610 | Fans, Mechanical Drives and Air Filtration |     |             | 25  |
| RF1620 | Air Measuring Instruments and System       |         |             | 15  |
| RF1630 | Control Applications and Components        |         |             | 25  |
| RF1660 | Air Conditioning Load Calculations         |         |             | 15  |
| RF1670 | Duct Systems and Design                    |         |             | 25  |
| RF1680 | Humidification and Dehumidification        |         |             | 15  |
# INDUSTRIAL TRADES
## Sheet Metal Worker

This program is designed to prepare trainees for employment opportunities in the field of Sheet Metal Work. Sheet Metal Workers fabricate, assemble, install and repair sheet metal products.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry-level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson's Examination.

### OBJECTIVES
1. To develop an awareness of the concern for good safety practices in the work place.
2. To develop and apply related academic knowledge to support and complement the professional training.
3. To develop basic knowledge and skill required to work as an apprenticed Sheet Metal Worker.
4. To develop the good work habits and attitudes desired by employers.

### ENTRANCE REQUIREMENTS
- Comprehensive Arts and Science Certificate (College Transition program),
- OR
- High School Graduation,
- OR
- Grade XI Certificate (Public Examinations or equivalent),
- OR
- Adult Basic Education (Level III) Graduation,
- OR
- Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
  1. Mathematics MA3107A, MA3107B, MA3107C
  2. Science 3101, 3102, 3103
- OR
- Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

### EQUIPMENT REQUIRED
- Safety boots, safety hat, safety glasses, coveralls, gloves

### COURSES

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| Sheet Metal Products | 60 |
The Small Equipment Service Technician program is designed to train individuals in the knowledge and skills associated with the repair and maintenance of recreational equipment, such as snowmobiles, ATVs, motorcycles, personal water craft and outboard motors, as well as fuel-powered tools such as snowblowers, chainsaws and lawnmowers.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations. The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

OBJECTIVES
1. To provide the appropriate learning opportunities required for employment.
2. To assist students with the development of appropriate attitudes and behaviour that are conducive to working with other persons in this occupation.
3. To develop and strengthen related knowledge and skills in subjects that complement and support the trade.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
A provincial High School Graduation Certificate or equivalent,
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates of the Small Equipment Service Technician program may find employment in a variety of mechanical settings, including the service, sales and/or parts departments of the many recreational vehicle and rental dealerships that exist throughout the province. In addition, opportunities exist with independent garages, service stations, and repair shops, as well as manufacturers. Additional experience and training may lead to positions such as foreperson, supervisor, or inspector. Opportunities for self-employment are quite good in this area.

COURSES

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<td>Snowmobile Servicing Fundamentals</td>
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<td>Marine Equipment Servicing Fundamentals</td>
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</table>
This is a program designed to prepare persons for employment in the steamfitter/pipefitter trade.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop skills in the use of the tools of the trade.
2. To develop good work habits and attitudes for employer and co-worker relations.
3. To develop good safe working attitudes on the job.
4. To provide related academic support skills and knowledge in mathematics, communication skills and science.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not meet the educational prerequisite may be considered on an individual basis under the Mature Student Clause.

EQUIPMENT REQUIRED FOR TRAINING
Safety hat, safety boots, safety glasses, coveralls, welding goggles, welding gloves, four meter tape, Math set (metric/imperial).
This training program is designed to provide trainees with skills and knowledge required for employment in the field of Heavy Equipment Repair. Truck and Transport Technicians diagnose problems, locate the cause of the malfunction, dismantle and overhaul components. They repair defects, reassemble existing parts or fit new parts, and make final adjustments.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of the entry-level program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

### OBJECTIVES
1. To familiarize students with the principles of operation, construction, care and maintenance of various types of hand tools and power tools.
2. To acquaint students with the various routines and practices pertaining to the maintenance and repair of diesel powered trucks and trailer units.
3. To develop skills and to impart knowledge relative to this particular trade.

### ENTRANCE REQUIREMENTS
1. Comprehensive Arts and Science Certificate (College Transition program),

High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107, MA3108, MA3107C
2. Science 3101, 3102, 3103

OR

Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

2. Students selecting Tandem Truck (Class 3) require a valid Newfoundland driver’s license (Class 6) and medical.

### HIGHWAY TRAFFIC REGULATIONS, 1999 under the HIGHWAY TRAFFIC ACT (O.C. 98-729):
- The Registrar shall not issue to a person a Class 1, 2, 3 or 4 driver’s license unless that person has first been issued a Class 5 driver’s license and has had not less than one year of driving experience as a holder of a Class 5 license.
- A person who would like to hold a Class 1, 2, 3 or 4 driver’s license must undergo a medical examination and obtain a certificate from a qualified medical practitioner for the required class.

### EQUIPMENT REQUIRED FOR TRAINING
Tool kit, safety boots, clear safety glasses, two pairs of coveralls, welding gloves, welding goggles.

### COURSES

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<td>Ozone Depleting Substances</td>
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<td>Introduction to Hydraulics</td>
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<td>Service Information Systems</td>
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<td>Tools and Equipment</td>
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<tr>
<td>SV1181</td>
<td>Fasteners, Tubing, Hoses and Fittings</td>
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<td>SV1190</td>
<td>Lubrication and Fluid Services</td>
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<td>SV1201</td>
<td>Start, Move and Park Vehicle</td>
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<td>Tires, Rims and Wheels</td>
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<td>Vehicle Hydraulic Brake Systems</td>
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<td>SV1271</td>
<td>Basic Air Brake Systems</td>
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<td>Drive Lines</td>
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<td>SV1301</td>
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<td>Non-Diesel Fuel Systems</td>
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<td>SV1491</td>
<td>Conventional Lighting Systems</td>
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<td>SV1501</td>
<td>Wiring Harness and Accessories</td>
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<td>SV1800</td>
<td>Hoisting and Lifting</td>
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<td>SV1810</td>
<td>Preventative Maintenance</td>
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<td>SV1830</td>
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<td>Hydraulic Fittings, Piping, Tubing and Hoses</td>
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<td>Reservoirs, Coolers and Filters</td>
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<td>Occupational Health and Safety</td>
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### RELATED COURSES

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<td>Charging Systems</td>
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<td>SV1840</td>
<td>Heating and Ventilation Systems</td>
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<td>SV2400</td>
<td>Hydraulic Pumps and Motors</td>
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<td>Electronic Ignition Systems</td>
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<td>Frames and Chassis</td>
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<td>Wheel and Axle Alignment</td>
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<td>Trailer Coupling Devices</td>
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<td>Automatic/Power Shift</td>
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<td>Engine Brakes and Retarders</td>
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<td>SV2651</td>
<td>Electronically Controlled Fuel Injection Systems</td>
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INDUSTRIAL TRADES
Welder

This is a program designed to prepare persons for employment in the labour force as an apprenticed welder.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop an awareness of and concern for good safety practices in the work place.
2. To provide a knowledge of the capabilities of oxygen, acetylene and arc welding equipment.
3. To understand the effects of these processes on materials.
4. To develop skill in applying weld material to obtain good welds.
5. To provide related academic skills and knowledge in Mathematics, Communication Skills and Science.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program), OR
High School Graduation, OR
Grade XI Certificate (Public Examinations or equivalent), OR
Adult Basic Education (Level III) Graduation, OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following: 1. Mathematics MA3107A, MA3107B, MA3107C 2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may obtain employment as an apprenticed welder in machine shops, fabrication plants, garage, production plants, shipyards, oil rigs, Provincial, Federal and Municipal Governments. Additional experience and training leads to employment opportunities such as foreperson, supervisor, inspector, engineering assistant.
This is a program designed to prepare persons for employment in the labour force with the combined skills of a welder and a metal fabricator.

The Provincial Apprenticeship and Certification Board through legislative authority is responsible for the registration of apprentices and trade qualifiers into the designated occupations.

The registration of an apprentice will take place when an individual is employed in a field of work directly relating to a designated occupation, and has a Memorandum of Understanding (MOU) signed between the Division of Institutional and Industrial Education, an employer and the apprentice.

After successful completion of this program, and the required work experience, the apprentices qualify to return to complete advanced level training in preparation for writing the Journeyperson’s Examination.

OBJECTIVES
1. To develop awareness of and concern for good safety practices in the work place.
2. To provide a knowledge of the capabilities of oxygen, acetylene and arc welding equipment.
3. To study the effects of welding processes on materials and fitting.
4. To develop skills in applying weld material to obtain good welds.
5. To provide related academic skills and knowledge.
6. To develop skills in reading and interpreting blueprints.
7. To develop skills in proper layout and fabrication processes.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
High School Graduation,
OR
Grade XI Certificate (Public Examinations or equivalent),
OR
Adult Basic Education (Level III) Graduation,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical Profile). It is strongly recommended that courses include the following:
1. Mathematics MA3107A, MA3107B, MA3107C
2. Science 3101, 3102, 3103
OR
Persons 19 years of age or older who do not possess the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may obtain employment as an apprentice in machine shops, fabrication plants, garages, production plants, shipyards, oil rigs, Provincial, Federal and Municipal Governments. Additional experience and training leads to employment opportunities such as foreperson, supervisor, inspector, engineer, assistant, inspector, engineering assistant.

CERTIFICATE
• Two years
• Start date varies
• Port aux Basques and Burin Campuses

COURSES

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<td>Hand, Measuring and Layout Tools</td>
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<td>Hand and Power Cutting Tools</td>
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<td>Basic Triangulation Layout</td>
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<td>Press Brake Operation</td>
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<td>CM2150</td>
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<td>SP3350</td>
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<td>SD1710</td>
<td>Job Search Techniques</td>
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<td>Entrepreneurial Awareness</td>
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<td>WD2200</td>
<td>Welding Codes</td>
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<td>Basic Radial Layout</td>
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<td>WD2450</td>
<td>Material Handling, Rigging and Scaffolding</td>
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<td>WD1600</td>
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<tr>
<td>WD1880</td>
<td>Fusion, Brazing, and Braze Welding</td>
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<td>WD1610</td>
<td>SMAW – Set-Up and Maintain Arc</td>
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<td>WD1870</td>
<td>Build Up Metal Parts</td>
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<tr>
<td>WD1630</td>
<td>GMAW – Set-Up and Maintain Arc</td>
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<tr>
<td>WD1340</td>
<td>GMAW – Filled Welds Fillet Welds (Flat &amp; Horizontal)</td>
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<td>WD1820</td>
<td>GMAW – Fillet Welds all Positions</td>
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<td>WD1830</td>
<td>GMAW – Groove Welds</td>
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<td>GMAW – Fillet Welds</td>
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<td>WD1680</td>
<td>Metallurgy, Expansion and Contraction</td>
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<td>WD1810</td>
<td>SMAW – Medium and High Carbon Steel</td>
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<td>WD1690</td>
<td>Quality Control</td>
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<td>WD1270</td>
<td>SMAW – Butt Joint (Flat and Horizontal)</td>
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<td>WD1800</td>
<td>SMAW – Groove Welds All Positions</td>
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<td>FCAW – Setup</td>
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<td>WD1890</td>
<td>FCAW – Fillets and Grooves</td>
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<td>WD1900</td>
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<td>WD1640</td>
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<td>GTAW – Grooves</td>
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<td>GTAW – Fillet and Groove Weld, Medium and High Carbon Steel</td>
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<td>ND1201</td>
<td>Magnetic Particle Inspection I</td>
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<td>ND1202</td>
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SCHOOL OF

TOURISM &

NATURAL RESOURCES
**DIPLOMA**
- Two years
- September start
- Corner Brook Campus

**COURSES**

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<td>SU1150</td>
<td>Field Navigation</td>
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<tr>
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**Semester 2**

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<td>Desktop Publishing</td>
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<td>Wilderness Medicine</td>
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<td>AT1500</td>
<td>Cross-Country Skiing</td>
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<td>AC1300</td>
<td>Accounting</td>
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**Semester 3 (Intersession I)**

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<td>AT2510</td>
<td>Sea Kayaking</td>
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<tr>
<td>BL2210</td>
<td>Freshwater &amp; Wetlands Ecosystems</td>
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<td>BL2230</td>
<td>Coastal/Wetlands Ecosystems I</td>
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Intersession courses hours per week are doubled to accommodate the six-week period. Credit value is based on a fifteen-week semester.

**Semester 4**

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<td>BI2220</td>
<td>Boreal Forest &amp; Barren Ecosystems</td>
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<td>Leadership II Guiding Principles</td>
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**Semester 5**

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<td>Entrepreneurial Studies</td>
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<td>Ethics for Sustainable Tourism</td>
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<td>AT2500</td>
<td>Backcountry Skiing</td>
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<td>HM2210</td>
<td>Hospitality Marketing</td>
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<td>CS2600</td>
<td>Leadership III Wilderness Survival</td>
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<td>HY1300</td>
<td>Newfoundland History</td>
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<td>LW1300</td>
<td>Legal Liability &amp; Risk Management</td>
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**Semester 6 (Intersession II)**

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<tbody>
<tr>
<td>OJ1160</td>
<td>Wk Term</td>
<td>6 wks</td>
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**CERTIFICATIONS**

In addition to the formal semester subjects listed in the program of studies, students in the Adventure Tourism - Outdoor Recreation program are required or may have the opportunity to complete certification in the following training over the two-year period of studies:

- **CANSI (Classic, Skate & Telemark Skiing)**
- **Canadian Firearm Safety Course / Hunter Education**
- **Paddle Canada (Flatwater Canoeing Level A & B)**
- **Paddle Canada-Kayaking (Flatwater or Level II)**
- **Pleasure Craft Operators Card**
- **Wilderness 1st Aid Certification w/ CPR/AED**
- **WHMIS / OHS**
- **Restricted Operators Certificate (Maritime) DSC Endorsement**

**NOTE:** Students should be aware that additional fees and expenses apply for some of these certifications and for field camps, tours and on-the-job training.

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**TOURISM & NATURAL RESOURCES**

**Adventure Tourism – Outdoor Recreation** is a comprehensive education and training program designed to prepare individuals for challenging careers in the fastest growing sector of the tourism industry. This program provides students with a solid foundation in the natural sciences and social history of the province of Newfoundland and Labrador and a strong base in outdoor leadership skills and techniques. The ability for graduates to safely deliver high quality environmental and cultural interpretation to a broad audience in an adventure setting is a fundamental goal of the program. The program addresses “excellence” by assisting students in becoming confident leaders skilled in imparting information to others in an interesting and enjoyable way.

There are a number of extended field experiences in demanding environments which will develop students’ inner strengths, group management and living skills, and personal technical skills in a range of outdoor pursuits: sea-kayaking, canoeing, cross-country skiing, back-country skiing, camping, and back-packing.

**OBJECTIVES**

1. To provide learning opportunities for students to develop the necessary knowledge and skills for employment in the Adventure Tourism – Outdoor Recreation industry.
2. To provide students with opportunities to develop appreciation and pride for our natural and social histories, and to develop skills to interpret them to others.
3. To develop in students an acceptable entrance level competency in selected outdoor recreation activities and to prepare them for various certificates associated with the industry.

**THE CONTEXT**

The Adventure Tourism – Outdoor Recreation diploma program is a two-year industry driven program based in spectacular Western Newfoundland, 90 minutes from Gros Morne National Park. The program has access to two UNESCO World Heritage Sites, numerous National Historic Sites, and breathtaking natural wilderness and ocean environments. It is supported by a world class public college system with an excellent transfer program with colleges and universities across Canada.

**EMPLOYMENT OPPORTUNITIES**

Tourism is a growth industry; and according to the World Tourism organization, it is now the largest industry in the world. Around the world, Adventure Tourism is expanding and therefore, employment opportunities continue to grow each year. Although there are recognizable peak seasons in the industry, Canadian adventure tourism operators are expanding their season to include four-season activities. Job opportunities include adventure guides, ski and kayak instructors, bus tour guides, cruise ship interpreters, provincial and national parks interpreters, and program coordinators for youth camps and environmental education programs. Since a major portion of programming deals with natural resources, possibilities also exist in the area of resource management.

**PROGRAM TRANSFERABILITY**

Students who have graduated from the Adventure Tourism – Outdoor Recreation program can apply for entry with advanced standing at a number of Bachelor of Tourism, Bachelor of Science and post-diploma programs in Canada. Please refer to the Transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or contact your intended university or college.

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (college Transition program) with the following courses:

1. Two Science courses chosen from one of the following three combinations:
   - a. Introductory Biology I and II
   - b. Introductory Chemistry I and II
   - c. Introductory Physics I and II

**Note:** It is strongly recommended that all CAS students who intend to enroll in the Adventure Tourism – Outdoor Recreation program complete both Introductory Biology courses.

**OR**

High School Graduation Certificate with a 60% overall average in the following:

1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121

**OR**

English (2 credits) (minimum 60%) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292

2. Science (4 credits) two of which must be selected from:
   - Biology: 3201, 3211, 3231, 3271, 3281, 3291, 4221
   - Physics: 3204, 3214, 3274, 3284, 4224
   - Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   - Environmental Science: 3205
   - Geology: 3203, 3213, 3223, 3233, 3283, 3293
   - Earth Systems: 3213, 3209

**Note:** The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

**OR**

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

**OR**

Grade XI Public Examination pass with a 60% average including a 60% pass in language, or 50% in Honours Mathematics, and one Science course.

**OR**

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
1. Communications IC3211 & IC3112 plus one of IC3116 or IC3215 or IC3222
2. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3115, IB3316
   b. Chemistry IH3215, IH3116, IH3117, IH3118
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214.

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

Note: Entrance requirements for this program are currently under review and are subject to change for students being admitted to the program, September 2009. If proposed changes are approved, students may be required to provide a completed Pre-Admission Examination Form, prior to registration, verifying suitability for the program.

SPECIAL REQUIREMENTS
Because of the extensive field exposure incorporated in this program, students will be required to obtain quality outdoor clothing and equipment. A list of suggested items is available upon request, and will be sent to applicants upon application. This program requires satisfactory completion of activities which place physical and mental demands on students in activity courses such as backpacking, canoeing, kayaking and skiing.
Conservation Law Enforcement

Conservation Officers who are responsible for administering natural resources laws and regulations must be well versed in this area and capable of performing their duties and responsibilities. The Advanced-Diploma program will be of interest to students who have completed a related program in natural resources at the technician and baccalaureate level and who have career interests in conservation enforcement. The one-year advanced-diploma program is designed to supplement student’s natural resource background and with specific learning opportunities in the area of conservation law enforcement.

This program prepares students for careers in conservation enforcement by focusing on the skills, competencies, and attitudes necessary to meet the needs of the natural resources law enforcement sector. The program combines practical, theoretical and experiential learning in the classroom and field, in College of the North Atlantic’s facilities.

OBJECTIVES

1. To train students in the field of Conservation Enforcement
2. To develop practical, theoretical and experiential skills and competencies necessary for all aspects of Natural Resources Conservation Law Enforcement.
3. To provide knowledge and experience with a wide range of field and office equipment and techniques associated with Conservation Enforcement.
4. To provide the knowledge and attitudes that will enable students to identify natural resources conservation enforcement challenges and opportunities and to undertake measures and treatments as might be associated with natural resources protection, management and utilization.

EMPLOYMENT OPPORTUNITIES

Graduates of this program may obtain employment throughout Canada in a variety of Conservation Enforcement fields of protection and enforcement with Federal and Provincial Departments as well as the Private Sector.

TRANSFERABILITY

Graduates of Conservation Enforcement may elect to further their studies and obtain a Degree at a number of Canadian Universities.

ENTRANCE REQUIREMENTS

Applicants must have graduated from a recognized college or university with a diploma and or degree in a relevant natural resource program area.

Students must submit an official Preadmission Physical Examination and a Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal force prior to registration.

COURSES

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Sequencing of courses and delivery may vary if delivered in a modular format.

CERTIFICATIONS

In addition to the formal semester subjects listed in the program of studies, students in the Conservation Program are required to complete the following certifications prior to program graduation:

• Pressure Point Control Training
• Survival First Aid

NOTE: Students should be aware that additional fees apply for the above certifications, field trips/tours. Additional expenses will be necessary for the purchase of items of clothing which are required for scheduled labs.

SPECIAL REQUIREMENTS

Because of the extensive field exposure incorporated in this program, the student is required to acquire appropriate clothing for outdoor work.
The Environmental Technology Industry is one of the fastest-growing sectors of the economy. The industry needs a supply of skilled technical people to meet the challenges of the 21st century by reducing environmental pollution and maintaining the well being of ecosystems. Students of this Environmental Technology Program will receive multidisciplinary training in chemical, biological, and engineering science focused on dealing with environmental pollution and sustainable development.

The College offers a three-year Co-operative Education diploma program in Environmental Technology. The co-operative education component affords graduates the opportunity to combine practical work experience with academic learning.

**OBJECTIVES**

1. To train students in the environmental field at a technical level.
2. To provide knowledge and skills related to all aspects of environmental technology.
3. To provide knowledge and experience in working with specialized equipment and techniques used in the field.

**EMPLOYMENT OPPORTUNITIES**

The graduates of the program may obtain employment in government or private industry. Employment would include such work as providing technical support to professional pollution control specialists, providing technical assistance with impact assessment studies to firms and/or consultants, and assisting government and industry in promoting their environmental education programs.

**PROGRAM TRANSFERABILITY**

Many graduates have gone on to pursue studies with advanced standing at a number of Canadian universities. Students who have graduated from the Environmental Technology program may apply for entry with advanced standing at a number of Bachelor of Environmental Science, Environmental Studies and post-diploma programs in Canada. Please refer to the Transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or contact your intended university or college.

**ACCREDITATION**

To ensure the benefits of a consistently high standard of education, the College of the North Atlantic’s Environmental Technology program is nationally accredited by the Canadian Technologies Accreditation Board (CTAB), and the Canadian Association for Cooperative Education (CAFE).

**ENTRANCE REQUIREMENTS**

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:  
1. Math Fundamentals I and II  
2. Two Science courses chosen from one of the following three combinations:
   a. Introduction Biology I and II  
   b. Introductory Chemistry I and II  
   c. Introductory Physics I and II  

**Note:** It is strongly recommended that all CAS students who intend to enroll in the Environmental Technology (Co-op) program complete both Introductory Chemistry courses.

**OR**

High School Graduation Certificate with a 60% overall average in the following:

1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121  
   OR  
   English (2 credits) (minimum 60%) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292  
2. Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 4225 (50%) minimum  
   Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290, (60%) minimum  
   OR  
   Mathematics (4 credits) chosen from:  
   Advanced: 2205, 3205 (50% minimum in each course)  
   Academic: 2204 (50% minimum), 3204 (60% minimum)  
3. Science (4 credits) two of which must be selected from:  
   Biology: 3201, 3211, 3231, 3271, 3281, 4221  
   Physics: 3204, 3214, 3274, 3284, 3294, 4224  
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222  
   Environmental Science: 3205  
   Geology: 3203, 3213, 3223, 3272, 3283, 3293  
   Earth Systems: 3213, 3209  

**Note:** The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

**OR**

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

**OR**

Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Matriculation Mathematics or 50% in Honours Mathematics, and one Science course.

**OR**

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:

1. Communications IC3211 & IC3112 plus one of IC3116 or IC3215 or IC3221 or IC3222

2. Mathematics from one of the following sections:  
   a. Mathematics IM3212, IM3213 and IM3216  
   b. Mathematics IM3219

3. Science from one of the following sections:
   - Biology IB3113, IB3214, IB3215, IB3316
   - Chemistry IH3215, IH3316, IH3317, IH3318

**CERTIFICATIONS**

In addition to the formal semester subjects listed in the program of studies, students in the Environmental Technology Co-op program are required to obtain certification in the following areas over the three-year period of studies:

- Restricted Operators Certificate (Marine) DSC Endorsement
- WHMIS
- Transportation of Dangerous Good (TDG)
- Pleasure Craft Operators Card
- Small Boat Safety
- Standard First Aid & CPR/AED
- Back Injury Prevention
- Power Line Hazards

**NOTE:** Students should be aware that additional fees and expenses apply for some of these certifications and for field trips, tours and On-the-job training.

Students will also be required to complete a number of non-credit co-op education seminars throughout the course of the 3-year program (resume writing, job search skills and interview preparation).

**DIPLOMA**

- Three years
- September start
- Corner Brook Campus

**COURSES**

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<thead>
<tr>
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<tr>
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<td>MA1100</td>
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<td>CH1120</td>
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<tr>
<td>EN2120</td>
<td>Environmental Citizenship</td>
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*Admission into the appropriate Mathematics course will be decided by the grade in high school math.*

**EITHER**

Students who received at least 70% in level III Math 3200 or a pass in Math 3201 can be exempted from MA1100.

Students who received a combined average of 70% in 2204 and 3204, or a pass in both of 2205 and 3205 can be exempted from MA1100.

Students must apply for the exemption.

**Semester 2**

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<td>EG1100</td>
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**Semester 3 (Intersession I)**

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Intersession course hours per week are doubled to accommodate the six-week period. Credit value is based on a fifteen-week semester.

**Semester 4**

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<td>PH1100</td>
<td>Physics I</td>
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<td>CH2700</td>
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<td>MA1670</td>
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**Semester 5**

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<td>EN1540</td>
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**Semester 6**

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**Semester 7**

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**Semester 8**

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**Semester 9**

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<td>PR2551</td>
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<td>EN2700</td>
<td>Project Management</td>
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</table>
c. Physics IP3111, IP3112, IP3215, IP3216

d. Earth Science IS3212, IS3213, IS3214.

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:

1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

SPECIAL REQUIREMENTS

Because of the extensive field and laboratory exposure incorporated in this program, students will be required to obtain specialized clothing and equipment, including a lab coat, safety glasses, graphics calculator, navigation compass, quality safety boots, rainwear, and other clothing appropriate for outdoor work.
TOURISM & NATURAL RESOURCES

Fish and Wildlife Technician

With increasing emphasis on sustainable development, integrated resource policy and ecosystem based management across Canada and the world, technicians in the natural resources sector must have a foundation in matters related to biodiversity in general and fish and wildlife management issues in particular. The two-year Fish and Wildlife Technician program, which shares many subjects with the Forestry Resources Technician program, has been designed to enable students with a specific interest in fish and wildlife to participate in studies directed specifically towards their career goals. The program reflects the trend towards integrating a wide range of natural resources technology within government departments at Federal and Provincial levels. The requirement for the forest industry to consider wildlife in its management practices and the increased monitoring and management of freshwater and marine resources highlights the need for this program. The program provides a balance of field and classroom experiences that include a significant computer based data collection and analysis component.

OBJECTIVES

1. To provide students with the knowledge and skills that are required to actively participate in the solution of fish and wildlife management problems and challenges.
2. To provide the knowledge and attitudes that will enable students to identify forest ecosystem challenges and opportunities and to undertake such assessments, preventive measures and treatments as might be associated with fish and wildlife conservation and management.
3. To provide knowledge and experience with a wide range of field and office equipment and techniques associated with the assessment and analysis of fish and wildlife resources data.
4. To provide the foundation for continued learning experiences at the post graduate level.

EMPLOYMENT OPPORTUNITIES

Graduates of this program may obtain employment throughout Canada in a variety of fish and wildlife related fields: protection and enforcement, resource inventory and site classification, habitat protection and improvement, environmental impact assessment, parks and interpretation programs. Graduates are employed with governmental and private agencies in fields ranging from forestry technicians to fisheries observers.

PROGRAM TRANSFERABILITY

Many graduates have gone on to pursue studies with advanced standing at a number of Canadian universities. Students who have graduated from the Fish and Wildlife Technician program can apply for entry with advanced standing at a number of Bachelor of Science and post-technician programs in Canada. Please refer to the Transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or contact your intended university or college.

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Two Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enroll in the Fish and Wildlife Technician program complete both Introductory Biology courses.

OR

High School Graduation Certificate with a 60% overall average in the following:
1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3172, 3192, 4121
OR
English (2 credits) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292

2. Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum
Academic: 3203, 3200, 3210, 3230, 3270, 3280, 3290 (60%) minimum
OR
Mathematics (4 credits) chosen from:
Advanced: 2205, 3205 (50% minimum in each course)
Academic: 2204 (50% minimum), 3204 (60% minimum)

3. Science (4 credits) two of which must be selected from:
   Biology: 3201, 3211, 3231, 3271, 3281, 3291, 4221
   Physics: 3204, 3214, 3274, 3284, 3294, 4224
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222

Environmental Science: 3205
Geology: 3203, 3213, 3223, 3273, 3283, 3293
Earth Systems: 3213, 3209

Note: The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

OR

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

OR

Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Matriculation or 50% in Honours Mathematics, and one Science course,

OR

Adult Basic Education (Level III) Graduation indicating completion of the academic stream including the following courses:
1. Communications IC3211 & IC3112 plus one of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. Mathematics IM3219
3. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3115, IB3316
   b. Chemistry IM3215, IM3316, IM3317, IM3318
   c. Physics IP3111, IP3312, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214.

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Mathematics 1104A, 1104B, 1104C, 2104A, 2104B,

DIPLOMA

• Two years
• September start
• Corner Brook Campus

COURSES

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<td>EY2210 Silvics/Forestry I</td>
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<td>Semester 3 (Intersession I)</td>
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Intersession course hours per week are doubled to accommodate the six-week period. Credit value is based on a fifteen-week semester.

| Semester 4 | | |
| | SY1200 Ecosystem Ecology | 2 | 1 | 3 |
| | FT1430 Fish and Wildlife Fall Camp | 1 wk |
| | HR2200 Human Relations | 2 | 1 | 2 |
| | LW2210 Natural Resources Policy and Law | 4 | 4 | 0 |
| | RM1401 Wildlife Techniques II | 3 | 2 | 2 |
| | RM1501 Fisheries Techniques II | 3 | 2 | 2 |
| | RM2200 Habitat Assessment | 3 | 2 | 3 |
| | SU2310 Geographic Information Systems | 2 | 1 | 3 |

| Semester 5 | | |
| | CS2620 Wilderness Survival | 2 | 1 | 2 |
| | EY2510 Population Ecology | 3 | 2 | 2 |
| | LW2211 Law Enforcement | 4 | 3 | 2 |
| | RM1810 Integrated Resource Management | 2 | 1 | 2 |
| | PR2600 Technical Report | 2 | 1 | 2 |
| | RM2420 Habitat Management | 3 | 2 | 2 |
| | RM2410 Wildlife Techniques III | 3 | 2 | 2 |
| | RM2500 Fisheries Techniques III | 3 | 2 | 2 |

| Semester 6 | | |
| | OJ1301 On-the-Job Training | 3 wks |

CERTIFICATIONS

In addition to the formal semester courses listed in the program of studies, students in the Fish and Wildlife Technician program are required to obtain certification of completion of the following training over their two-year period of studies:
Canadian Firearm Safety Course / Hunter Education
Paddle Canada (Flatwater Canoeing Level A & B)
Canoeing
Coastal Navigation
Paddle Canada (Flatwater Canoeing Level A & B)

Students graduating from the Fish and Wildlife Technician program can complete the Forest Resources Technician program with one additional year. Interested students must begin their studies in the First Technical Intersession.
3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

**SPECIAL REQUIREMENTS**

Because of the extensive field exposure incorporated in this program, the students are required to acquire the following equipment and clothing: hard hat, compass, axe, snowshoes, quality safety boots, rainwear, and other clothing appropriate for outdoor work.
The concept of proper management of forest lands using the principles of sustainable development and integrated resource management is rapidly being implemented across Canada. In Newfoundland and Labrador, as elsewhere, industry and government agencies are applying these principles to the management, protection and utilization of forest resources. This two-year technical program has been designed to provide graduates with the capacity of making a meaningful contribution to the expanded requirement for ecosystem based technology within this changing environment. The program places great emphasis on field based activities as well as a significant computer based component.

OBJECTIVES

1. To provide students with the knowledge and skills that are required to actively participate in the solution of forest management problems and challenges.
2. To provide the knowledge and attitudes that will enable students to identify forest ecosystem challenges and opportunities and to undertake such assessments, preventive measures and treatments as might be associated with forest resource protection, management and utilization.
3. To provide knowledge and experience with a wide range of field and office equipment and techniques associated with the assessment and analysis of natural resources data.
4. To provide the foundation for continued learning experiences at the post graduate level.

EMPLOYMENT OPPORTUNITIES

Graduates of this nationally accredited program may obtain employment throughout Canada in a variety of forestry related fields: protection and enforcement, forest inventory and site classification, logging and engineering, forest access road construction and maintenance, silviculture as well as parks, wildlife and environmental assessment. This program has an established reputation for supplying graduates to employers across all Canada.

PROGRAM TRANSFERABILITY

Many graduates have gone on to pursue studies with advanced standing at a number of Canadian universities. Students who have graduated from the Forest Resources Technician program can apply for entry with advanced standing in a number of Bachelor of Science, Forestry and post-diploma programs in Canada. Please refer to the Transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or contact your intended university or college.

ACCREDITATION AND RECOGNITION

To ensure the benefits of a consistently high standard of education, the College of the North Atlantic’s Forest Resources Technician program is nationally accredited by the Canadian Technology Accreditation Board (CTAB).

ENTRANCE REQUIREMENTS

Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Two Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enroll in the Forest Resources Technician program complete both Introductory Biology courses.

OR

High School Graduation Certificate with a 60% overall average in the following:
1. Language (1 credit) (minimum 60%) chosen from: 3011, 3101, 3102, 3103, 3112, 3192, 4121
2. Mathematics (2 credits) (minimum 60%) chosen from: 3201, 3211, 3221, 3231, 3232, 3281, 3282, 3291, 3292
3. Science (2 credits) chosen from: Advanced: 3201, 3211, 3221, 3231, 3271, 3281, 3291, 4225 (50%) minimum
   Academic: 3230, 3232, 3233, 3230, 3270, 3280, 3290, (60%) minimum
   Mathematics (4 credits) chosen from: Advanced: 3220, 3225 (50% minimum in each course)
   Academic: 3220 (50% minimum), 3224 (60% minimum)
4. Science (4 credits) two of which must be selected from:
   Biology: 3201, 3211, 3231, 3271, 3281, 4221
   Physics: 3204, 3214, 3274, 3284, 3294, 4224
   Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   Environmental Science: 3205
   Geology: 3203, 3213, 3223, 3273, 3283, 3293
   Earth Systems: 3213, 3209

Note: The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

OR

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

OR

Grade XI Public Examination pass with a 60% average including a 60% pass in language, 60% in Mathematics or 50% in Honours Mathematics, and one Science course,

OR

An adult Basic Education (Level III) Graduation Certificate indicating completion of the academic stream including the following courses:
1. Communications IC3211 & IC3112 plus one of IC3116 or IC3215 or IC3321 or IC3222
2. Mathematics from one of the following sections:
   a. Mathematics IM3212, IM3213 and IM3216
   b. Mathematics IM3219
3. Science from one of the following sections:
   a. Biology IB3113, IB3214, IB3115, IB3316
   b. Chemistry IH3215, IH3116, IH3117, IH3118
   c. Physics IP3111, IP3112, IP3215, IP3216
   d. Earth Science IS3212, IS3213, IS3214.

OR

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Mathematics 1104A, 1104B, 1104C, 2104A, 2104B,
2104C, 3104A, 3104B, 3104C

3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

SPECIAL REQUIREMENTS

Because of the extensive field exposure incorporated in this program, the student is required to acquire the following equipment and clothing: hard hat, compass, axe, snowshoes, quality safety boots, rainwear, and other clothing appropriate for outdoor work.
The GIS Applications Specialist is the "expert" who provides technical expertise to produce and analyze spatial information for effective planning and reporting activities in a broad range of disciplines. Specifically, a GIS Applications Specialist will help various agencies and government to effectively apply Geographic Information Systems (GIS), remote sensing, Global Positioning Systems (GPS), internet mapping solutions and data visualization technologies to support informational needs, workflows or business processes. GIS Applications Specialists can work in various Sectors, the current market for GIS Applications Specialists in Newfoundland and Labrador includes: various provincial and federal departments, crown corporations, municipalities, research agencies, post-secondary institutions and private corporations.

This post-graduate, intensive, three-semester GIS program utilizes current high-end technology tools to collect, store, manipulate, analyze, interpret, and communicate geographic information within a variety of disciplines. The students will be versed in several spatial computing technologies used in the industry today and have access to the latest in appropriate computer hardware, software, and field technology - with a student to computer ratio of one-to-one. Students will have considerable opportunities to practice their skills in a work-life setting by putting theory into practice.

**OBJECTIVES**

1. To provide the student with knowledge and generic skills needed to develop and implement solutions to computational problems. Students will be exposed to problem analysis techniques and solution development using top-down development method, modular design approach, and object-oriented design concepts. To implement developed solutions, students will use Microsoft Visual Studio.

2. To allow the student to develop and apply skills for the effective presentation of geographic information using software typically encountered in a GIS working environment.

3. To enable the student to learn the techniques of gathering geographic related information from the field or existing maps or records and positioning them onto a framework of existing spatial data structures.

4. To give the student the capabilities to understand fundamental principles of database processing with respect to GIS environments and develop skills in designing, implementing and managing databases.

5. To provide the student with a firm foundation of subsequent studies in GIS applications in various program areas. As well, the techniques learned will allow students to apply the knowledge and skills to develop simple to elaborate good practice applications with some theory relating to Vector GIS technology.

6. To provide the student with the skills necessary to analyze geographic data using hypothesis testing, significance tests, descriptive and inferential statistics.

7. To allow the student, within a project team, to design and implement a GIS application that addresses predefined objectives. During this process, the student will apply their knowledge and skills and rely on each other, with guidance from faculty, to acquire new skills to solve GIS problems.

8. To allow the student to expand his/her GIS skills to include web-based GIS applications. The student will learn how to build web-based GIS applications to contribute to the world of Distributed Geographic Information.

9. To give the student the capability of designing efficient and user-friendly graphical interfaces and integrating Microsoft Windows-based software in the development of GIS applications.

10. To give the student the capability of designing GIS applications based on the integration of programming languages, database management systems and GIS software to achieve the most efficient data access, manipulation and presentation.

**ENTRANCE REQUIREMENTS**

The College of the North Atlantic entrance requirements for the Geographic Information Systems Applications Specialist (Post Diploma) program is a University Degree or College Diploma in a related discipline. Related fields include, but are not limited to forestry, natural resource sciences, engineering, environmental studies, geology, surveying, geography, business, municipal planning and law enforcement.

This post-graduate, intensive three-semester GIS program utilizes current high-end technology tools to collect, store, manipulate, analyze, interpret, and communicate geographic information within a variety of disciplines. The students will be versed in several operating systems used in the industry today and have access to the latest in appropriate computer hardware, software, and field technology - with a student to computer ratio of one-to-one.

**EMPLOYMENT OPPORTUNITIES**

GIS Applications Specialist graduates have a consistently high placement rate of over 90 percent within six to 12 months of graduating. On graduation, when combined with your previous education/work experience, graduates work in positions as diverse as GIS programmer/analyst, applications specialist/consultant, ecosystem IT manager, utilities manager, database manager, GIS systems operator, and land information manager.

**PROGRAM TRANSFERABILITY**

**Advanced Standing** - Students may receive advanced standing for up to 75 percent of the content of the program to which they have been admitted on the basis of successful completion of this content in the same or similar programs at another college and as assessed by the College. Applicants who wish to be considered for advanced standing should submit an application with the following documents:

1. Official transcript(s).
2. Calendar description of the courses claimed for credit.

Deadline for receipt of applications by the Registrar is four weeks following registration date. Students seeking advanced standing will not be excused from any course until written authority has been received from the office of the Registrar.

**Transfer of Credit Status** - Transfer of credit status is awarded for any course completed at any former College provided that the course uses the same course description. When Transfer of Credit is awarded, the College will accept the passing grade as awarded by the institution and this mark will be used in the calculation of the G.P.A.
**Exemption Status** – Exemption status is granted if the course has a minimum of 70 percent equivalency in the course material required. When exemption status is awarded, no mark is reported on the transcript and the G.P.A. is not affected. The College will consider exemptions for courses if the student received a passing grade. If you have university or college credits and are seeking advanced standing, you must request a copy of your post-secondary transcripts to be forwarded to Student Services for assessment.

**SPECIAL REQUIREMENTS**
The program incorporates a Major Geographic Information Systems Project establishing industry-student linkages. Students will have considerable opportunities to practice their skills in a work-life setting by putting theory into practice.
Hospitality Tourism Management

Tourism is a dynamic part of our economy. The global tourism industry is the world’s largest industry and, in Canada, this industry is growing at a steady pace. There is ongoing demand for qualified staff to manage growing and increasingly sophisticated hospitality/tourism operations. If you are a “people oriented” individual with a desire to work in a fast-paced environment, then this is the program for you.

This program prepares students for careers in tourism by focusing on the skills, competencies, and attitudes necessary to meet the needs of this industry. The program combines practical, theoretical and experiential learning in the classroom, in College of the North Atlantic’s renowned hospitality facilities, and during work terms.

The first year of the program focuses on the core skills and characteristics of the hospitality tourism industry. Students will complete a six-week work term between semesters and four that will provide valuable work experience and knowledge of what is required to manage a hospitality tourism establishment. Students may exit after the successful completion of year one (semesters 1, 2 and 3) with a Certificate in Hospitality Services.

Year two provides an opportunity to develop strong supervisory and management skills.

The curriculum is designed to meet the standards established by the Canadian Tourism Human Resource Council and the provincial hospitality tourism industry. Graduates of this program may find work in a wide variety of tourism organizations. Alternatively, employment may be possible with government and non-government agencies or associations dedicated to hospitality and tourism. Graduates may also decide to take the entrepreneurial route and start their own businesses.

OBJECTIVES
1. To enable students to acquire an understanding of the hospitality tourism industry and the role and economic importance it has in society;
2. To have students understand the operation and management principles of the hospitality tourism industry;
3. To develop practical, theoretical and experiential skills and competencies necessary for the management of a tourism business/organization;
4. To provide students with skill development for entry level and managerial positions, interpersonal relations and quality customer service, with a focus on leadership, team building and problem solving.

EMPLOYMENT OPPORTUNITIES
The growth of the tourism sector globally offers employment opportunities throughout the world, and graduates will be well qualified to seek opportunities nationally and internationally. Graduates of this program should have medium-term career goals that include junior supervisory and supervisory positions, and long-term goals such as departmental or facility management. Employment opportunities exist in corporations, non-profit tourism organizations, tourism associations, hotels, resorts, attractions, and private businesses.

TRANSFERABILITY TO OTHER PROGRAMS
This program was designed to offer graduates many credit transfer opportunities across Canada. Students who have graduated from the Hospitality Tourism Management program can apply for entry with advanced standing for a number of Bachelor of Tourism and post-diploma programs in Canada. College of the North Atlantic has developed credit transfer agreements with several Canadian universities. Further information may be obtained by referring to the transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or by contacting your intended university or college.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program),
OR
A Provincial High School Graduation Certification with a 60% average in nine level 3000 credits or equivalent,
OR
Grade XI Public Examination pass with a 60% average or equivalent,
OR
Adult Basic Education (Level III) Graduation indicating completion of the general or academic stream with an average pass mark of 60%,
OR
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an average pass mark of 60%,
OR
Persons 19 years of age or older who do not meet the educational prerequisite for this program may be considered on an individual basis under the Mature Student Clause.

CERTIFICATIONS
In addition to the formal semester subjects listed in the program of studies, students in the Hospitality Tourism Management program are required to complete the following certifications for the Hospitality Services Certificate or the Hospitality Tourism Management Diploma:
- NFSTP (National Food Safety Training Program)
- CPI (Non-Violent Crisis Prevention Intervention Seminar)
- Weapons in the Workplace
- It’s Good Business (Responsible Alcohol Service)
- Mature Consumer
- St. John Ambulance Standard First Aid
- SuperHost Atlantic
- WHMIS – Workplace Hazardous Materials Information System
- Back Injury Prevention

Note: Students should be aware that additional fees apply for the above certifications, field trips, trips/tours and OJ1480 Work Term. Additional expenses will be necessary for the purchase of items of clothing which are required for the program.

DIPLOMA
- Two years
- Bay St. George - September 2009
- Prince Philip Drive - September 2010

COURSES

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Semester 2

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Semester 3 (Intersession)

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NOTE: Students may qualify for a Certificate in Hospitality Services, if exiting at the end of Year I.

Semester 4

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Semester 5

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A list of elective courses to be offered each semester will be made available at registration. Other courses may be chosen provided that:
1. all prerequisites have been met
2. the course is offered during the semester
3. the maximum enrolment for the course is not exceeded
4. the student’s schedule can accommodate all scheduled classes for that course
The Natural Resources Technician program integrates content from the study of both the terrestrial and aquatic environments to produce competent technicians and enforcement officers for various natural resource management agencies. The program reflects the trend towards integrating a wide range of natural resources technology within government departments at Federal and Provincial levels. The requirement for the natural resources industry to consider its management practices within the context of monitoring and managing terrestrial, freshwater and marine resources highlights the need for this program.

OBJECTIVES
1. To provide the knowledge and attitudes that will enable students to identify natural resource challenges and opportunities and to undertake such assessments, preventive measures and treatments as might be associated with resource protection, management and utilization.
2. To provide students with the knowledge and skills that are required to actively participate in the solution of natural resources problems and challenges.
3. To provide knowledge and experience with a wide range of field and office equipment and techniques associated with the assessment and analysis of natural resources data.
4. To provide the foundation for continued learning experiences at the post graduate level.

EMPLOYMENT OPPORTUNITIES
Graduates of the Natural Resources Technician program are qualified for employment with federal and provincial governments as well as the private sector. Examples include Department of Fisheries and Oceans, Parks Canada, Department of Natural Resources, and private companies such as Seawatch who provide offshore observers and river guards for Department of Fisheries and Oceans.

PROGRAM TRANSFERABILITY
Students who have graduated from the Natural Resources Technician program can apply for entry with advanced standing at a number of Bachelor of Science, Bachelor of Environmental Science and post-diploma programs in Canada. Please refer to the Transfer Guide of the NL Council on Higher Education (www.edu.gov.nl.ca/council), or contact your intended university or college.

ENTRANCE REQUIREMENTS
Comprehensive Arts and Science Certificate (College Transition program) with the following courses:
1. Math Fundamentals I and II
2. Science courses chosen from one of the following three combinations:
   a. Introductory Biology I and II
   b. Introductory Chemistry I and II
   c. Introductory Physics I and II
Note: It is strongly recommended that all CAS students who intend to enroll in the Resources Technician program complete both of the Introductory Biology courses.

OR
High School Graduation Certificate with a 60% minimum
1. Language (1 credit) (minimum 60%) chosen from: 3101, 3102, 3103, 3112, 3112, 3192, 4121
OR
English (2 credits) chosen from: 3201, 3211, 3202, 3212, 3231, 3232, 3281, 3282, 3291, 3292
2. Mathematics (2 credits) chosen from: Advanced: 3201, 3211, 3212, 3231, 3271, 3281, 3282, 4225 (50%) minimum
   Academic: 3203, 3220, 3210, 3230, 3270, 3280, 3290

Special Requirements
Because of the extensive field exposure incorporated in this program, students will be required to obtain quality outdoor clothing and equipment, including navigation compass, snowshoes, quality safety boots, rainwear, and other clothing appropriate for outdoor work.

DIPLOMA
• Two years
• September 2009 start
• Bonavista Campus

COURSES

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| Intersession course hours per week are doubled to accommodate the six-week period. Credit value is based on a fifteen-week semester. |

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CERTIFICATIONS
In addition to the formal semester subjects listed in the program of studies, students in the Natural Resources Technician program are required to obtain certification of completion of the following courses:

- Canadian Firearm Safety Course / Hunter Education
- Coastal Navigation
- Electro-Fishing Certification
- Marine Advanced First Aid
- Marine Search & Rescue Seminar
- Pollution Control (Coast Guard Oil Spill)
- Restricted Operators Certificate (Maritime) DSC Endorsement
- WHIMS / OHS

Note: Students should be aware that additional fees and expenses apply for some of these certifications and for field camps, tours and On-the-job Training.

This program is currently under review and it is anticipated that changes will occur.
**Northern Natural Resources Technician**

The Northern Natural Resources Technician program is designed to produce competent technicians for various wildlife, forestry and fisheries agencies with major emphasis on working in northern ecosystems. The concept of proper management of our natural resources using the principles of sustainable development, integrated resource policy for ecosystem based management has become the norm in our global community. Industries and all levels of government around the world are beginning to apply these principles to the management, protection and utilization of our existing and changing environment and its resources. The program provides a balance of field and office experiences that includes a significant computer based data collection and analysis component.

**EMPLOYMENT OPPORTUNITIES**

Graduates of this program are qualified for employment throughout Canada with federal and provincial governments and with private industry. Government agencies may include the Department of Fisheries and Oceans, Parks Canada, and the Department of Forestry, Resources, and Agrifoods. Typical job duties might include protection and enforcement, resource inventory, site classification, habitat protection and improvement, environmental impact assessments, parks programs, providing technical support and environmental education programs.

**OBJECTIVES**

1. To train students in the field of Natural Resources to the technician level.
2. To provide knowledge and skills related to all aspects to Northern Natural resources.
3. To provide knowledge and experience in working with specialized equipment and techniques used in the field.
4. To provide knowledge and experience with a wide range of office equipment and techniques associated with the assessment and analysis of natural resources data.
5. To foster positive attitudes toward forestry, wildlife and fisheries ecosystems and to deal effectively with challenges and problems that impact negatively on our environment.
6. To provide an understanding of the interaction between northern ecosystems and the native peoples living in them.
7. To provide the foundation for continued learning experiences.

**PERSONAL EQUIPMENT REQUIREMENTS**

Students in the Northern Natural Resources Technician Program are required to provide the following equipment:

1. Rain Gear
2. Field Clothes appropriate for outdoor work in various seasonal conditions
3. Safety/Hiking Boots
4. Rubber Boots
5. Backpack
6. Compass
7. Padlock
8. Scientific Calculator

**ENTRANCE REQUIREMENTS**

**Comprehensive Arts and Science Certificate (College Transition program) with the following courses:**

1. Math Fundamentals I and II
2. 2 Science courses chosen from one of the following three combinations:
   - Introductory Biology I and II
   - Introductory Chemistry I and II
   - Introductory Physics I and II

Note: It is strongly recommended that all CAS students who intend to enrol in the Northern Natural Resources Technician program complete both of the Introductory Biology courses.

**OR**

High School graduation Certificate with a 60% overall average in the following:

1. Language (1 credit) (minimum 60%) chosen from:
   - 3101, 3102, 3103, 3112, 3172, 3192, 4121
2. English (2 credits) chosen from:
   - 3201, 3202, 3211, 3212, 3221, 3222, 3261, 3281, 3291, 3292
3. Mathematics (2 credits) chosen from:
   - Advanced: 3201, 3211, 3221, 3271, 3281, 3291, 4225
   - Academic: 3200, 3203, 3210, 3230, 3270, 3280, 3290 (60% minimum)

**OR**

Mathematics (4 credits) chosen from:

- Advanced: 2205, 2205 (50% minimum in each course)
- Academic: 2204 (50% minimum), 3204 (60% minimum)
- 3. Science (4 credits) two of which must be selected from:
   - Biology: 3201, 3211, 3221, 3271, 3281, 3291, 4221
   - Physics: 3204, 3214, 3274, 3284, 3294, 4224
   - Chemistry: 3202, 3212, 3230, 3272, 3282, 3292, 4222
   - Environmental Science: 3205
   - Geology: 3203, 3213, 3223, 3273, 3283, 3293
   - Earth Systems: 3209, 3213

Note: The remaining 2 Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

**OR**

Persons 19 years of age or older, who have been out of school for at least one year and do not meet the educational prerequisite for this program, may be considered on an individual basis under the Mature Student Clause.

**Safety Training**

In addition to the formal semester subjects listed in the program of studies, students will obtain certification in the following safety training courses:

- Standard First Aid & CPR
- Wilderness First Aid
- Marine/Land Radio Operator
- Flatwater Canoeing
- Small Craft Safety
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
1. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
3. Science from one of the following sections:
   b. Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C
   c. Physics 1104, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

Applicants with Adult Basic Education (Level III) Graduation with a different Profile may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

**SPECIAL REQUIREMENTS**
Because of the extensive field exposure incorporated in this program, students will be required to obtain the following equipment: navigation compass, quality safety/hiking boots, rainwear, backpack, padlock, scientific calculator and other clothing and footwear appropriate for outdoor work in various seasonal conditions.
COURSE DESCRIPTIONS
AB1600 Trade Related Documents
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of trade documents; demonstrate knowledge of preparing and interpreting trade documents; demonstrate knowledge of ordering and organizing parts and materials.

AB1610 Safety
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of types of safety equipment; demonstrate knowledge of the applications and procedures for use of safety equipment; demonstrate knowledge of safe work practices; demonstrate knowledge of regulations pertaining to safety.

AB1620 Tools and Equipment
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of tools and equipment, their applications, maintenance and procedures for use.
Prerequisite(s): AB1610

AB1630 Fasteners and Adhesives (Theory Only)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of fasteners and adhesives, their applications and safety considerations.
Prerequisite(s): AB1610, AB1620

AB1641 Vehicle Construction (Theory Only)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of vehicle construction; demonstrate knowledge of vehicle components.
Prerequisite(s): AB1610

AB1651 Pre/Post Repair Vehicle Inspection
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge to perform a visual inspection; demonstrate knowledge of vehicle component operation.
Prerequisite(s): AB1650

AB1660 Metallurgy
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of various metals and their characteristics; demonstrate knowledge of metallurgical principles and their applications to control expansion, contraction and distortion.
Prerequisite(s): AB1640

AB1671 Cutting and Heating
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of cutting and heating equipment, their applications, maintenance and procedures for use.
Prerequisite(s): AB1620

AB1680 Gas Metal Arc Welding – GMAW (MIG)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of gas metal arc welding equipment, its applications, maintenance and procedures for use; demonstrate knowledge of weld defects, their causes and the procedures to prevent and correct them.
Prerequisite(s): AB1620, AB1670

AB1690 Resistance Spot Welding (RSW)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of resistance spot welding and its applications.
Prerequisite(s): AB1620, AB1670

AB1701 Metal Working I (Mild Steel)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of metal working procedures for sheet metal repair.
Prerequisite(s): AB1660

AB1711 Body Fillers and Abrasives
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of abrasives, their applications, safety considerations and procedures for use; demonstrate knowledge of types of body fillers, their applications, safety considerations and procedures for use.
Prerequisite(s): AB1700

AB1721 Corrosion Protection
Upon successful completion of this course, the apprentice will be able to: demonstrate understanding of corrosion and its causes; demonstrate knowledge of the effects of corrosion on metal; demonstrate knowledge of types of corrosion protection, their characteristics and application procedures.
Prerequisite(s): AB1700

AB1731 Surface Preparation (Cleaning, Stripping and Masking)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of surface cleaning procedures; demonstrate knowledge of surface preparation using abrasives; demonstrate knowledge of stripping equipment and products, their applications, safety precautions and procedures for use; demonstrate knowledge of masking techniques.
Prerequisite(s): AB1729

AB1740 Non-Metal Repair
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of non-metal materials, their applications and associated repair procedures.
Prerequisite(s): Completion of all entry level courses.

AB1750 Stationary Glass
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the types of stationary glass, its characteristics and importance to vehicle structure; demonstrate knowledge of the procedures to replace stationary glass to industry standards.
Prerequisite(s): AB1760

AB1760 Moveable Glass and Hardware
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of types of moveable glass and their characteristics; demonstrate knowledge of hardware and attachments associated with moveable glass; demonstrate knowledge of procedures to replace moveable glass and repair or replace its associated hardware and attachments.
Prerequisite(s): AB1790

AB1770 Undercoats
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of undercoats, their applications, safety considerations and procedures for use; demonstrate knowledge of undercoat materials, their characteristics and mixing procedures; demonstrate knowledge of types of equipment used in applying undercoats, their set-up, maintenance and procedures for use.
Prerequisite(s): AB1720

AB1780 Cleaning and Detailing
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of cleaning and detailing equipment and products; demonstrate knowledge of cleaning and detailing practices and procedures.
Prerequisite(s): AB1800

AB1790 Upholstery, Trim and Hardware
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of types of trim, their applications and characteristics; demonstrate knowledge of procedures to repair and replace upholstery, trim and hardware; demonstrate knowledge of procedures to detect and repair noises and leaks contributed by trim and hardware.
Prerequisite(s): AB1620

AB1800 Refinishing I
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of refinishing materials and their characteristics; demonstrate knowledge of refinishing equipment, its applications, maintenance and procedures for use.
Prerequisite(s): AB1770

AB1811 Batteries
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of batteries, their operation and associated safety considerations; demonstrate knowledge of procedures to test and charge batteries; demonstrate knowledge of procedures to remove and replace batteries.
Prerequisite(s): AB1810

AB2700 Metal Working II (Aluminium)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of metal working procedures for aluminium sheet metal repair.
Prerequisite(s): AB1660

AB2710 Electrical Fundamentals
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of electrical theory and its application; demonstrate knowledge of equipment and procedures used to test electrical and electronic components; demonstrate knowledge of safety precautions relating to electrical and electronic components; demonstrate knowledge of electrical schematics, their applications and interpretation.
Prerequisite(s): AB1810

AB2720 Position Arc Welding (GMAW)
This GMAW course requires the use of safety equipment. GMAW equipment and accessories for welding light metals (110 volt MIG welder), and materials and supplies. It involves setting up GMAW equipment, preparing and welding the joint, shutting down the equipment and testing the weld. It includes information on types of welding machines, types of shielding gas, power supplies, types of wire, codes and standards, welding techniques, methods of transfer and GMAW parameters.
Prerequisite(s): AB1620, AB1670

AB2730 Restrayment Systems
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of types of restraint systems, their components and operation; demonstrate knowledge of procedures to replace restraint systems; demonstrate knowledge safety considerations relating to restraint systems.
Prerequisite(s): AB2270, AB1810
AB2740 Non-Structural Components
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of non-structural component repair and replacement procedures; demonstrate knowledge of procedures to align and adjust non-structural components.
Prerequisite(s): AB1640, AB1660

AB2800 Refinishing II
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of refinishing materials, their characteristics and mixing procedures.
Prerequisite(s): AB2710

AB2811 Structural Components
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the procedures to repair and replace structural components; demonstrate knowledge of procedures to adjust and align structural components.
Prerequisite(s): AB1640, AB1660

AB2821 Electrical and Electronic Repairs
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of procedures for diagnosing and determining damage to electrical and electronic systems and components; demonstrate knowledge of procedures to repair and replace electrical and electronic components.
Prerequisite(s): AB2710

AB2830 Damage Analysis of Conventional Frames and Unitized Bodies
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of tools and equipment used to analyze damage to conventional frames and unitized bodies; demonstrate knowledge of procedures to analyze damage to conventional frames and unitized bodies.

AB28901 Mechanical Systems and Components
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of procedures for inspecting and determining damage to mechanical systems and components; demonstrate knowledge of procedures to repair and replace mechanical systems and components.
Prerequisite(s): Completion of all entry level courses

AB2910 Steering, Suspension and Braking Systems
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of procedures for inspecting and determining damage to steering, suspension and braking systems and components; demonstrate knowledge of procedures to repair and replace steering, suspension and braking systems and components.
Prerequisite(s): AB2900

AB2920 Unitized Body Repairs
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of equipment used to repair unitized bodies, their applications and procedures for use; demonstrate knowledge or procedures used to repair unitized bodies; demonstrate knowledge of anchoring and anchoring equipment; interpret related documentation and specifications.
Prerequisite(s): AB2830

AB2930 Conventional Frame Repair
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of equipment used to repair and align frames, their applications and procedures for use; demonstrate knowledge of procedures used to repair and align frames; demonstrate knowledge of sectioning procedures for frames.
Prerequisite(s): AB2830

AB2940 Damage Analysis and Estimating Costs
Upon successful completion of this course, the apprentice will be able to: perform an estimate; prepare estimate documentation.
Prerequisite(s): Completion of all entry level courses

AC1100 Bookkeeping I
Bookkeeping I is a study of the fundamental principles, the mechanics of bookkeeping, recording, classifying, and the summarizing of financial data for a service business. It involves the control of cash, petty cash, banking procedures, and payroll accounting.
Prerequisite(s): AB2710

AC1120 Computerized Bookkeeping I
Computerized Bookkeeping I is a study of the fundamental principles, the mechanics of bookkeeping, recording, and classifying. It involves the control of cash, petty cash and banking procedures. This course introduces the student to the concepts of a basic integrated accounting software package - Simply Accounting.

AC1260 Financial Accounting I
The student is introduced to accounting concepts in this course. Beginning with the recording of transactions he/she is led through the basics of the double-entry system of accounting from adjusting entries to financial statements. In addition, accounting for assets is investigated in more detail covering topics from the handling of cash through receivables and inventory. Accounting for payroll is also included.

AC1300 Accounting
This is an introductory course to accounting. Students will be introduced to accounting concepts as well as a basic integrated accounting package.

AC1350 Income Tax
This is an introductory course covering the basic principles of the Canadian Income Tax. Emphasis is placed on computing taxable income and taxes payable for individuals and corporations. The course includes basic tax planning ideas for individuals and corporations.
Prerequisite(s): AC2220

AC2100 Bookkeeping II
Bookkeeping II involves the application of accounts receivable, accounts payable, and the study and application of the generally accepted accounting principles within merchandising firms using special journals, end-of-the-year adjustments for depreciation, accruals, bad debts, closing entries, and financial statements.
Prerequisite(s): AC1100

AC2220 Intermediate Financial Accounting I
This course is designed to build on the knowledge obtained in Financial Accounting I and II. Its focus is on the asset side of the Balance Sheet, providing an in-depth study of current assets, property, plant and equipment, and intangible assets. The recognition and measurement of revenues and expenses are also covered.
Prerequisite(s): AC2260

AC2230 Computerized Accounting I
This course introduces the student to the concepts of a basic integrated accounting package such as DeCeasy or Simply Accounting (Bedford).
Prerequisite(s): AC1100 and AC2100 or AC1260 or equivalent introductory accounting course and CP1450 or MC1220.

AC2250 Managerial Accounting I
This course is designed to introduce the student to the accounting techniques needed by management for planning and control, decision making, performance evaluation and preparation of internal reports. Topics include organizational structure, cost terminology, job order and process costing, cost-volume-profit analysis, cost allocation, and segment analysis.
Prerequisite(s): AC2260

AC2260 Financial Accounting II
This is an introductory course focusing on the principles and procedures to account for fixed assets, liabilities, and equities. The student is introduced to the concepts of financial reporting and decision making for both partnerships and corporations.
Prerequisite(s): AC1260

AC2280 Accounting
The course is designed to provide a working knowledge of the fundamentals of financial and managerial accounting that can be useful for the graduate industrial technologist in understanding, interpreting, and preparing financial statements. Basic principles of managerial accounting including cost behaviour, cost systems, and cost-volume relationships are investigated. The focus will be on the extraction of relevant information from accounting data and how this information can be used in engineering decision-making and budget preparation.

AC2340 Principles of Auditing
This course is designed to provide an introduction to auditing for accounting students who do not have significant auditing or accounting experience. The course is a practical guide to auditing theory and practice.
Prerequisite(s): AC2260 or AC3220

AC2530 Oil & Gas Production Accounting
This course will provide students with an overview of the development of the oil and gas industry, from inception to modern practices and from the reservoir to refining, and the role which the production accountant plays in accounting for oil and gas. This will enable students to understand and communicate effectively with professionals in the oil and gas industry and to understand and apply the accounting concepts.
Prerequisite(s): EC1100, EC1200, AC2260

AC2600 Managerial Accounting for Human Resource Managers
This course is designed to introduce the students to the accounting techniques needed by management for planning and control, decision making, performance evaluation and preparation of internal reports. Topics covered include Basic Concepts of Managerial Accounting, Departmental, Project and Program Cost Allocation, Budgeting and Control, Control Through Standard Costs, Flexible Budgets and Overhead Analysis, Control of Decentralized Operation, and Pricing of Products and Services.
Prerequisite(s): AC2260

AC3220 Intermediate Financial Accounting II
This course is a continuation of the study of the principles and procedures covered in the previous semester of Intermediate Accounting. The contents present an in-depth study of the liabilities and owner’s equity side of the balance sheet as well as the changes in financial...
position.

Prerequisite(s): AC2220

AC3230 Computerized Accounting II
This is a more advanced computerized accounting course. Students will be introduced to a computerized accounting package such as ACCPAC, Newviews, or System II.

Prerequisite(s): AC1100 or AC1260 or equivalent introductory accounting course and CP1450 or MC1220.

AC3250 Managerial Accounting II
This course is designed to build on the knowledge gained in Managerial Accounting I by taking the student’s previous knowledge of cost behaviour and applying it to specialized areas of cost and management accounting including budgeting, standard costing, relevant cost analysis, pricing of products and services, and capital budgeting.

Prerequisite(s): AC2250

AC3260 Payroll and Commodity Taxes
This course is designed to provide a working knowledge of the various payroll taxes and enable the students to utilize a software package to file T1, T12 returns and T-4, T-5, information slips and summary reports. The course prepares the student to account for and file required reports for commodity taxes including GST and PST.

Prerequisite(s): AC2260

AE1200 Electronic Devices
This course will include the description, operation and application of simple electronic components with particular emphasis on semiconductor theory. Analysis techniques involving diode equivalent circuits will be introduced and expanded to bipolar transistor DC biasing.

Prerequisite(s): ET1101

AE1240 Electronic Devices
This course will include the description, operation and application of simple electronic components with reference to semiconductor theory. The PN Junction Diode, Bipolar junction Transistor, MOSFET, and some other devices will be introduced. Analysis techniques will be introduced for linear power supplies and transistor amplifier circuits.

Prerequisite(s): ET1101

AE2210 Power Control Devices
This course provides a study of two-terminal devices, Schottky diodes, Tunnel diodes, IR Emitters, LCD’s, Solar Cells, Thermistors, Photoconductive Cells, Thyristors-SCR, UJT, PUT, DIAC, TRIAC, Opto-Isolators, Phototransistors - commonly used in power control applications in the electrical and electronics industries.

Prerequisite(s): AE2301

AE2250 Power Electronics
This course introduces the student to practical circuit design and applications of electronic devices and circuits.

Prerequisite(s): AE1200

AE2260 Electronic Power Devices and Circuits
This course will include three-phase rectification and the analysis, operation and application of op amps and power amplifiers. Power MOSFETs and various thyristors will also be introduced with applications for power control.

Prerequisite(s): AE1240

AE2300 Analog Electronics
This course involves the application of linear circuit theory to transistor circuits. The student will be introduced to linear models of discrete transistors and will learn how to use them to build up Generalized Amplifier models of complete amplifier systems.

Prerequisite(s): AE1200, ET2100

AE2301 Analog Electronics
This course is a continuation of Analog Electronics I AE2300 and introduces the student to analog applications of transistors beyond the amplifiers. Emphasis is placed on the analysis, design and troubleshooting.

Prerequisite(s): AE2300, ET2100

AE2320 Analog Electronics
This course will include the description, operation and application of simple electronic components with particular emphasis on semiconductor theory. Analysis techniques involving diode equivalent circuits will be introduced and expanded to bipolar transistor DC biasing; and amplifier systems.

Prerequisite(s): MP2140

AE2321 Analog Electronics
This course provides a study of analog applications of transistors beyond amplifiers, with emphasis on analysis, design and troubleshooting. Also included is a study of power supply regulators, as well as thyristors and power control circuits.

Prerequisite(s): AE2320

AE2400 Problem Solving & Trouble Shooting
This course acquaints the student with a model of the process of human problem solving. Students will be encouraged to analyze and improve their abilities by approaching new types of problems.

Prerequisite(s): AE2301, CI1100, DP2400

AE3100 Analog I.C.s
The purpose of this course is to provide the student with an understanding of the theory relating to differential and operational amplifiers, active filters and signal generators. The theory covered in class will be applied and validated during the laboratory periods.

Prerequisite(s): AE2301

AE3110 Analog I.C.s
The purpose of this course is to provide the student with an understanding of the theory relating to operational amplifier circuits, analog and other filters and advanced power supplies. The theory covered in class will be applied and validated during the laboratory periods.

Prerequisite(s): AE2321

AE3300 Industrial Electronics I
This course is designed to provide students with an introduction to the field of industrial electronics.

Prerequisite(s): AE3100, AE2210

AE3301 Industrial Electronics II
This course will introduce the student to process control and its applications in industrial settings.

Prerequisite(s): AE3300, MP2400

AF1110 Aircraft Structures and Materials
This course will provide the students with a knowledge of aircraft structural design and the materials and processes used in their construction. The student will be introduced to stresses acting on aircraft structures and will be able to determine the urgency of repair when damaged.

Prerequisite(s): AE1300, AE2210

AF1130 Aircraft Structures and Materials (M, E, S)
This M, E, and S course will provide the student with the knowledge of advanced composite materials, the design and fabrication techniques used to construct high strength light weight primary structural aircraft components. In this course students will also demonstrate fabrication techniques.

AF1210 Aircraft Structural Repair (M, E, S)
This M course will provide the student with the knowledge and skill in the principles of aircraft structural repair using different types of sheet metal forming processes, materials, fasteners, and equipment.

Prerequisite(s): AF1130

AF1220 Aircraft Structures- Wood, Tubular and Fabric
This course provides an introduction into inspection and repair procedures of aircraft wood, tubular and fabric structures. This includes their design, construction and the stresses affecting them.

AF1230 Advanced Composite Materials
This course will provide students with the knowledge of advanced composite materials, the design and fabrication techniques used to construct high strength light weight primary structural aircraft components. In this course students will also demonstrate fabrication techniques.

AF1240 Aircraft Structural Repair (M, E, S)
This M, E, and S course will provide the student with the knowledge and skill in the principles of aircraft structural repair using different types of sheet metal forming processes, materials, fasteners, and equipment.

Prerequisite(s): AF1130

AF1250 Aircraft Stress Skin Repair
This course will develop the students knowledge and skill to repair damaged stressed skin structures by patching and spot welding.

Prerequisite(s): AF1201

AF1270 Composite Materials (M, S)
This M and S course will provide the students with the knowledge to identify composite materials and the skill to inspect them for damage and perform7an effective repair when required.

AF1280 Stress Skin Repair or Modification (M, E)
This M and E course will provide the student with the skill to perform a stress skin repair or antenna installation on an aircraft. The course will involve damage assessment, designing and installing a stress skin repair or installing an antenna including an internal reinforcement doubler. The student will perform corrosion preventing processes and install the stress skin repair or antenna as per standard practices.

Prerequisite(s): AF1240 Co-requisite(s): GM1570

AF1290 Non Metallic Structures (M)
This M course will provide the student with the knowledge of aircraft windows and lenses and the required inspection, repair, maintenance and installation methods. The course will also provide an introduction into the construction, inspection and repair procedures for aircraft fabric and aircraft wood structures.

AF1330 Advanced Composite Repair
This course will provide students with the knowledge and skill to identify advanced composite structural damage, complete a full damage assessment, and perform an effective structural repair as per Canadian aviation regulatory or aircraft manufacturer’s standards.

Prerequisite(s): AF1230

● Available through @College Distributed Learning Service

® Available through correspondence
AF1400 Specialized Processes and Fixtures
This course will provide the students with the knowledge and skill to be able to select or make jigs and holding fixtures, perform special metal treatment processes and repair forgings and extrusions as per manufacturer’s specifications.

AF1500 Windshields, Windows and Lenses
This course will provide the students with the knowledge and skill to identify types of aircraft windshields, windows and lenses, inspect them for damage and evaluate whether repair or replacement is required, manufacture and install windows to fit aircraft structure and perform proper maintenance and repairs to windshields, windows and lenses.

AF2110 Aircraft Maintenance Fundamentals
This course will provide a student with a basic knowledge of aircraft maintenance fundamentals. 
Prerequisite(s): GM1150

AH1100 Aboriginal History
Aboriginal History will provide an Aboriginal perspective of the historical and cultural diversity of Canada’s Aboriginal peoples with special emphasis on Aboriginal peoples of Newfoundland and Labrador, from pre-contact to Confederation to contemporary challenges. This course is open to Aboriginal and non-Aboriginal students.

AJ1110 Carpentry Fundamentals
This course in carpentry fundamentals requires the use of basic tools and equipment and suitable facilities. It involves reading specifications and drawings, selecting materials, layout, building and clean up. It includes information on construction wood joints, and building equipment such as sawhorses, mitre boxes, ladders, straight edges and ollstone cases.

AJ1120 Rigging for Carpentry
This general studies course requires the use of rigging equipment, block and tackle, and safety equipment. It involves installing, testing and maintaining rigging, and tying knots and splicing rope. It includes information on safety requirements, types of ropes, types of knots and slings.

AJ1150 Basic Drawing and Sketching /DRAFTING
This drafting course requires the use of basic drawings, specifications, bills of materials, drawing instruments and facilities. It involves reading basic drawings and diagrams, sketching, and interpretation of specifications. It includes information on sketching techniques and types of drawings.

AJ1200 Layout and Footings
This course in site preparation and formwork requires the use of tools and equipment and materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints, layout, erecting batterboards, installing footing forms and cleaning up. It includes information on plot plans, foundation plans, layout and construction techniques, foundation drainage. 
Prerequisite(s): AJ1110, AJ1150

AJ1210 Wall Forms
This course in site preparation and formwork requires the use of basic tools and equipment, materials and supplies, a surveyor’s level and suitable facilities. It involves interpreting specifications and blueprints, layout, constructing foundation walls, installing access for pouring concrete, stripping forms and cleaning up. It includes information on layout techniques, types of wall forms and construction techniques.

Prerequisite(s): AJ1200

AJ1220 Floor and Wall Framing
This course in exterior framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints, layout, framing and installing, and cleaning up. It includes information on floor plans, types of beams and columns, types of sheathing and construction techniques. 
Prerequisite(s): AJ1110, AJ1150

AJ1230 Exterior Finish
This course in exterior framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of exterior finishes; and clean up... It includes information on blueprint sections, elevations and details; types of exterior frames and trim; and construction techniques. 
Prerequisite(s): AJ1110, AJ1150

AJ1300 Roof Framing Fundamentals
This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and construction of basic roof frames and covers; and clean up. It includes information on types of roof frames and covers, and construction and installation techniques. 
Prerequisite(s): AJ1220

AJ1400 Interior Walls and Ceilings
This course in interior finish requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of interior walls and ceilings; and clean up. It includes information on drywall systems and construction techniques.

Prerequisite(s): AJ1220

AJ1500 Interior Trim
This course in interior finish requires the use of tools and equipment; materials and supplies; and suitable facilities. It involves interpretation of specifications and blueprints; layout, construction and installation of interior trim; and clean up. It includes information on types of purposes of trim, and construction and installation techniques.

Prerequisite(s): AJ1110

AJ1600 Stair Fundamentals
This course in stair construction requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpretation of specifications and blueprints; layout, construction and installation of basic stairs; and clean up. It includes information on stair geometry. 
Prerequisite(s): AJ1110, AJ1150

AJ1700 Architectural Conservation
An overview of Canadian architectural tradition will be studied through the examination of building styles and traditional building techniques as practiced regionally across Canada. Students will explore conservation principles and their practical applications as dictated by international conservation charters. Major topics include: heritage carpentry terminology, regional development in the geographic areas, influence of changing building technology on Canadian architecture, architectural styles that evolved in Canada, international conservation principles, good conservation practices based on accepted principles.

AJ1710 Building Science
This course provides a study of heat loss and sound transference. Students’ understanding of theories and practice will be developed through instruction, demonstration, and project applications. Major topics include: safety measures, heat loss and insulation, sound transference.

AJ2200 Structural Formwork
This course in site preparation and formwork requires the use of basic tools and equipment, materials and supplies, a surveyor’s level and suitable facilities. It involves interpreting specifications and blueprints; layout, constructing and installing structural formwork, and cleaning up. It includes information on types of structural formwork; and designing, testing and placing formwork. 
Prerequisite(s): AJ1210, AJ1150, AJ1110

AJ2300 Hip and Valley Roof Framing
This course in roof framing requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and construction of hip and valley roofs; and clean up... It includes information on types of intersecting roofs and construction techniques. 
Prerequisite(s): AJ1300

AJ2310 Gambrel, Mansard and Unusual Roof Framing
This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and inspection of customized roofs; and clean up. It includes information on types of unusual roofs and customized roof construction techniques.

Prerequisite(s): AJ1300

AJ2330 Timber Trusses and Flat Roofs
This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of timber trusses and flat roofs and special roof coverings. It includes information on the design and construction of timber trusses and flat roofs. 
Prerequisite(s): AJ1310

AJ2400 Posts and Beams
This course in posts and beams requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of beams and posts; and clean up. It includes information on types of post and beam construction and installation. 
Prerequisite(s): AJ1220

AJ2410 Wood Scaffolds
This course in scaffolding requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of wood scaffolds; and clean up. It includes information on construction techniques and safety requirements for wood scaffolds. 
Prerequisite(s): AJ1110, AJ1150

AJ2500 Cabinets and Shelving
This course in interior finish requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of cabinets and shelving; and clean up. It includes information on internal elevations, and construction and installation techniques. 
Prerequisite(s): AJ1110, AJ1150
**A12600 Interior Finish Stairs**
This course in stair construction requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints; layout construction and installation of interior finish stairs; and clean up. It includes information on construction techniques for common finish stairs.
Prerequisite(s): AJ1600

**A2700 Restoration Joinery Techniques I**
This introductory course teaches students the theory and practice of repairing, reproducing and installing architectural millwork. Students will produce and install quality millwork, using traditional and contemporary techniques. Major topics include: safety measures, period moldings, trim carpentry techniques, reproducing wood moldings, moulding repair, baseboard installation, crown moulding installation, door trims, window trims.
Prerequisite(s): AJ1170

**A2710 Restoration Joinery Techniques II**
This second-level course continues to teach students the theory and practice of repairing, reproducing and installing architectural millwork. Students will produce and install quality millwork, using traditional and contemporary techniques. Emphasis will be placed upon traditional window and door construction. Major topics include: safety measures, traditional window construction, traditional door construction.
Prerequisite(s): AJ2700

**A2720 Restoration Joinery Techniques III**
This third-level course continues to teach students the theory and practice of repairing, reproducing and installing architectural millwork. Students will produce and install quality millwork, using traditional and contemporary techniques. Emphasis will be placed upon designing and building stairs and steps. Major topics include: stair casing theory, basement stairs and exterior steps.
Prerequisite(s): AJ2710

**A1100 Blueprint I (Basic)**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of construction drawings, specifications, regulations and codes. The material covered satisfies in whole or in part, the requirements of the National Occupational Analysis task 1.

**A1110 Blueprint II - Intermediate**
Upon successful completion of this course, the apprentice will be able to develop free hand sketches; develop shop drawings and layout for shop projects. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 1.
Prerequisite(s): A1100

**A1130 Construction Safety**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of safety regulations applied to industry, to the trade, to employers and employees; demonstrate knowledge of hazards, safe work practices and good housekeeping on the job site and in the workshop environment; demonstrate knowledge of personal protective safety equipment and fall arrest systems, and their care and use. The material covered satisfies in whole or in part, the requirements of the National Occupational Analysis tasks.
Prerequisite(s): IS1520, IS1530

**A1200 Hand Tools**
Upon successful completion of this course, the apprentice will be able to use hand tools. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 2.
Prerequisite(s): A1130

**A1210 Fasteners and Adhesives**
Upon successful completion of this course, the apprentice will be able to select and use fasteners and adhesives. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis.
Prerequisite(s): A1200

**A1220 Materials**
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the materials used in cabinetmaking. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis.
Prerequisite(s): A1210

**A1230 Portable Power Tools**
Upon successful completion of this course, the apprentice will be able to operate portable power tools. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 2, 3, 6, 7 and 12.
Prerequisite(s): A1220

**A1240 Common Stationary Equipment**
Upon successful completion of this course, the apprentice will be able to operate common stationary equipment. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 2, 3, 6, 7, and 12.
Prerequisite(s): A1230

**A1250 Joint Fabrication and Assembly**
Upon successful completion of this course, the apprentice will be able to fabricate and assemble joints. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 6, 7, 14, 15, and 16.
Prerequisite(s): A1240

**A1260 Laminating**
Upon successful completion of this course, the apprentice will be able to identify different types of laminates and perform laminating procedures. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 8, 9, 10, 11, 12, and 13.
Prerequisite(s): A1250

**A1270 Specialty Stationary Equipment**
Upon successful completion of this course, the apprentice will be able to operate specialty stationary equipment. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 2, 3, 6, 7 and 12.
Prerequisite(s): A1260

**A1280 High Production Equipment**
Upon successful completion of this course, the apprentice will be able to operate high production equipment. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 2, 3, 6, 7 and 12.
Prerequisite(s): A1270

**A1290 Basic Casework**
Upon successful completion of this course, the apprentice will be able to identify and install hardware used in basic casework; layout and assemble basic casework. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 6, 7, 14, 15 and 16.
Prerequisite(s): A1101, A1270

**A1300 Wood Finishing**
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of finishing products and wood preparation; apply finishing products using proper techniques. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 17 and 18.
Prerequisite(s): A1230

**A1310 Stairs**
Upon successful completion of this course, the apprentice will be able to construct and install stairs. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 8 and 9.
Prerequisite(s): A1101

**A1320 Industry Codes and Practices**
Upon successful completion of this course, the apprentice will be able to identify zoning regulations and permits; identify the roles of other construction trades. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 6.
Prerequisite(s): A1130

**A1330 Installation Procedures**
Upon successful completion of this course, the apprentice will be able to install specific shop casework to specifications and drawings. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 5 and 12.
Prerequisite(s): A1290; A1320

**A2100 Blueprint III (Advanced)**
Upon successful completion of this course, the apprentice will be able to produce sketches, shop drawings to specifications for commercial projects. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 1.
Prerequisite(s): A1101

**A2200 Blueprint IV (Computer Aided Drafting)**
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of computer aided drafting. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 1.
Prerequisite(s): A2100

**A2200 Advanced Casework and Furniture Design**
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of furniture design and layouts of architectural woodwork; design and construct casework and furniture using a variety of advanced machining techniques. The material in the course satisfies in whole or in part, the requirements for the National Occupational Analysis for the Cabinetmaker Occupation Task 6, 7, 14, 15 and 16.
Prerequisite(s): A1290; A2100
AP1100 Introduction to Apprenticeship
This course is designed to give participants the knowledge and skills necessary to understand and successfully navigate the apprenticeship/red seal program.
Prerequisite(s): None

AS2120 Aircraft Hydraulics and Pneumatics Systems (M)
This M course will enable students to perform inspections, troubleshooting principles, repair and maintenance on Aircraft Hydraulic and Pneumatic Systems. Aircraft Plumbing will also be covered.
Co-requisite(s): AS2125

AS2125 Aircraft Hydraulics and Pneumatics Systems (M, E)
This M and E course is to provide students with the basic knowledge of aircraft hydraulic and pneumatic systems design and function. Aircraft Plumbing systems will also be covered.
Co-requisite(s): AS2120

AS 2160 Aircraft Landing Gear Systems (M)
This is an M course to enable students to perform inspection, trouble shooting, repair and maintenance on Aircraft Landing Gear systems.
Prerequisite(s): AS2125
Co-requisite(s): AS2165

AS 2165 Aircraft Landing Gear Systems (M, E)
This is an M and E course to provide students with the knowledge of aircraft landing gear and associated systems, their design and operation.
Prerequisite(s): AS2125
Co-requisite(s): AS2160

AS2220 Aerodynamics and Flight Controls (M)
This M course is designed to provide the student with basic skills to inspect, install and adjust aircraft flight controls. Installation of float and ski systems will be covered in depth.
Prerequisite(s): GM1120, GM1130
Co-requisite(s): AS2225

AS2225 Aerodynamics and Flight Controls (M, E)
This M and E course is designed to provide the student with basic knowledge of aerodynamic forces, flight characteristics and aircraft design. Inspection and adjustments of flight controls is covered in depth.
Prerequisite(s): GM1120, GM1130
Co-requisite(s): AS2220

AS2330 (M) Aircraft Systems (M)
This M course is designed to provide the student with basic task utilizing the operation of aircraft support, environmental and safety systems.
Prerequisite(s): PE1200, GM1120, GM1130
Co-requisite(s): AS2335

AS2335 Aircraft Systems (M, E)
This M and E course is designed to provide the student with basic knowledge of the operation of aircraft support, environmental and safety systems.
Prerequisite(s): PE1200, GM1120, GM1130
Co-requisite(s): AS2330

AS2410 Propellers and Systems (M)
This M course will provide the basic knowledge of aircraft propeller systems and maintenance.
Prerequisite(s): PT1115
Co-requisite(s): AS2415

AS2415 Propellers and Systems (M, E)
This M and E course will provide the basic knowledge in design, construction, operation and maintenance of propellers and associated systems.
Prerequisite(s): PT1115
Co-requisite(s): AS2410

AS2520 Reciprocating Engine Fuel Metering (M)
This M course will provide the student with the knowledge of aircraft fuel systems, fuel metering systems, their design, components, function, operation, and maintenance.
Prerequisite(s): PT1115

AT1100 Adventure Tourism Industry
This course provides an in-depth study of the adventure tourism industry. Terminology will be defined, tourism motivators will be identified, the economic impact of tourism will be discussed and the present structure and organization of the industry will be examined. Newfoundland and Labrador's tourism marketing position, competition, potential consumer markets, and sales techniques will be identified and discussed.

AT1220 Interpreting the Environment
This course will provide an opportunity to develop a variety of visual, verbal and written interpretive techniques and skills enabling students to better describe the environment to visitors.
Prerequisite(s): CM1400

AT1221 Heritage Interpretation II
To further the student's knowledge, confidence and skill in all aspects of minimum impact travel, wilderness navigation and group leadership; lead a group safely and efficiently in a variety of wilderness environments, both on land and water, exhibit high personal competence and confidence in planning, developing and leading GROUP INTERPRETATIVE outings; identify, assess, and respond to wilderness hazards, further skills in group menu planning, food packaging, and food preparation in a wilderness environment; ability to select, use, care for and store personal and group wilderness travel equipment.
Prerequisite(s): AT1220, CS1600, CS1601. Any two of: BL2220, BL2230, BL2270, GE1120, BL1120

AT1300 Ethics for Sustainable Tourism
This course begins with a definition of sustainable development, its origin and its implementation home and abroad. The relationship of sustainable development and tourism will be examined and topics such as ecotourism's role in sustainable development, ecotourism guidelines for nature tour operators, and ecotourism pitfalls will be examined. To ensure tourism product, customer service is another key factor and this topic will be addressed in this course.

AT1500 Cross-country Skiing
Students will acquire theoretical knowledge and personal skill in classic and skating technique, and hill maneuvers. Equipment requirements and selection, sizing, care, and waxing will also be discussed. Students will have an opportunity to be tested for Level 1 - Canadian Association of Nordic Ski Instructors (CANSI) certification. A wilderness expedition will further develop backcountry ski technique; winter camping and wilderness survival skills, weather observation skills, avalanche awareness; route selection; map & compass use; and leadership skills.
Prerequisite(s): AT1510, CS1600

AT2500 Backcountry Skiing
Students will acquire theoretical knowledge and personal skill in Nordic (backcountry) skiing techniques. Hill maneuvers on backcountry equipment will be taught. Ski equipment and accessories will be discussed. Students will have an opportunity to be tested for Level 1 - Canadian Association of Nordic Ski Instructors (CANSI) certification. A wilderness expedition will further develop backcountry ski technique; winter camping and wilderness survival skills, weather observation skills, avalanche awareness; route selection; map & compass use; and leadership skills.
Prerequisite(s): AT1510, CS1600

AV1210 Basic Aircraft Instruments I (M, E)
This M and E course will give students an understanding of the requirements for, operation, and maintenance practices, of various types of mechanical and electrical transmitters, transducers, and instruments that are used to provide operational information for most common aircraft engine associated systems. Practical Projects will involve inspecting, testing, identifying various engine instrument system components.

AV1320 Aircraft Communications Equipment (M, E)
This is an M and E introductory course designed to give the learner the basic concepts of all communication systems used on aircraft. Emergency Locator Transmitters (ELT'S) will also be looked at. Basic radio theory will be studied to the block diagram level. Ramp testing, removal and replacement of various communication systems will take place.
Prerequisite(s): PE1140

⊗ Available through @College Distributed Learning Service
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AV1500 Basic Navigation 1 (M, E)
This M and E course provides students with information about basic navigation principles and terms used in aircraft systems. Installation practices regarding bonding, panel layouts, antenna installations and remote mounting equipment are discussed. The course will also include descriptions of some common navigation system types.

AV1510 Navigation Systems Installation (E)
This E course is designed to give the students practical experience in installing Avionic Navigation equipment on aircraft. Students will gain procedural knowledge of the steps involved in designing, and implementing systems installation procedures, including associated regulatory supporting documentation.
Prerequisite(s): PE1200, GM1320
Co-requisite(s): AV1500

AV2170 Pulse Navigation Systems (M, E)
This M and E course will provide the students with information relating to avionic systems that employ high power pulse transmitters for navigation information gathering and display. Microwave principles and properties of UHF frequencies as relating to aircraft installations are discussed.
Prerequisite(s): AV1500

AV2180 Integrated Navigation Systems Installation (E)
This E course is designed to give students practical experience in installing integrated avionics navigation equipment on aircraft. It involves designing a system that will share a navigation display. Students will gain procedural knowledge of the steps involved in designing and implementing systems installation procedures including associated regulatory supporting documentation. Students will inspect installations and report deficiencies if any.
Prerequisite(s): AV1220
Co-requisite(s): AV2170

AV2220 Aircraft Instruments II (M, E)
This M and E course is designed to give the students an understanding of flight instruments, the typical panel layouts and installation practices associated with them. It covers air pressure- sensitive and gyro-stabilized systems, including Air Data and Attitude Reference systems. The course also utilizes synchronous transmitter theory. Practical labs include direct hydraulic pressure testing, operation and inspections of Pneumatic gyro systems, pitot-static testing & troubleshooting, and performing a compass swing.
Prerequisite(s): AV1220

AV2310 Major Communications Radio Install (E)
This E course prepares the student to inspect, install, troubleshoot, repair and Maintain electronic communication radio equipment and their systems. A major installation will be completed including all of the required paperwork/technical records.
Prerequisite(s): AV1320

AV2510 Auto Flight Theory (M, E)
This M and E course of study will cover servo systems and components, aircraft dynamics, pitch, roll, yaw, speed commands, and the fundamental principles involved in the automatic flight of both fixed wing and rotary wing aircraft.
Prerequisite(s): AV2220
Co-requisite(s): AV2540

AV2540 Auto Flight Ramp Testing (M)
This M course only will have the students ramp test the auto pilot system in a fixed wing aircraft including the associated flight director modes.
Co-requisite(s): AV2510

AV2570 Auto Flight Troubleshooting (E)
This E only course will have the students troubleshoot various auto pilot defects on the Colleges aircraft.
Prerequisite(s): AV2510

AV3110 Monitoring and Digital Systems (E)
This E course provides information regarding the design of communication systems between individual avionic pieces of equipment. It describes Analogous synchronous transmitting and receiving principles, and explains how newer Data buss technology is used in modern aircraft. Topics also include systems that record and display data. Practical applications include testing and troubleshooting installed Avionic systems.

BL1020 Introductory Biology I
This is a Biology course designed for students who have not completed high school Biology or who require upgrading in Biology for College and College-University Transfer Biology courses. Students will learn the microscopic levels of Biology that will lead them into the macroscopic levels covered in Introductory Biology II. A combination of both Introductory Biology I and II will achieve better understanding of basic concepts that are required for success in various Biology courses in Health Sciences, Natural Resources and/or University programs. Students will be expected to complete assignments and labs to show their understanding of the concepts.

BL1021 Introductory Biology II
This is a Biology course designed for students who have successfully passed Introductory Biology I. Students will carry over their knowledge from Introductory Biology I to gain a thorough understanding of Biology at the macroscopic level. A combination of both Introductory Biology I and II will achieve better understanding of basic concepts that are required for success in various Biology courses in Health Sciences, Natural Resources and/or University programs. Students will be expected to complete assignments and labs to show their understanding of the concepts.
Prerequisite(s): 50% in BL1020

BL1100 Biology
This is an introductory course in the first semester of the Natural Resources cluster designed to prepare the student for further biology related studies. Emphasis in labs and field trips will be directed to gaining an appreciation of natural ecosystems and associated life processes.

BL1120 Biology 1
This is an introductory course in the first semester of the Natural Resources cluster designed to prepare the student for further biology related studies. Emphasis in labs and field trips will be directed to gaining an appreciation of natural ecosystems and associated life processes.

BL1130 Microbiology
This is an introductory microbiology course designed to introduce students to the diversity of micro organisms, their relationship to environmental technology and the basic lab techniques used to identify and enumerate them. This course prepares students to apply microbiological techniques to monitor water and air quality, domestic and industrial water and wastewater treatment systems and site remediation projects.

BL1170 Principles of Biology I
Transferable to MUN Biology 1001

This is the first of two introductory courses developed for credit transfer to Memorial University of Newfoundland. The course is intended to be equivalent to MUN’s Biology 1001. The course contains the following subject areas: biology as science, basic biochemistry, introduction to cells, an introduction to metabolism, enzymes, and homeostasis, plasma membrane structure and function (transport), origins of life, diversity classification, and taxonomy of life, and classification of the kingdoms; an introduction to Kingdom Monera, including the use of bacteria as the model for molecular genetics; viruses, introduction to Protists and autotrophic Protists; an introduction to plants including plant evolution, structure, growth, nutrition, transport, and reproduction.

BL1171 Principles of Biology II
Transferable to MUN Biology 1002
This is the second of two introductory courses developed for credit transfer to Memorial University of Newfoundland. The course is intended to be equivalent to MUN’s Biology 1002. This course continues the discussion of the five biological kingdoms and includes the following subject areas: eukaryotic cell division, heterotrophic Protists, fungi, and animals. The animal discussions include an introduction to animal structure, tissues, organs, and organ systems, bioenergetics, homeostasis, nutrition (digestive systems), circulatory systems, internal transport (circulatory systems), gas exchange systems, excretion and osmoregulatory systems, regulatory systems, nervous systems, support and movement, and reproductive systems.
Prerequisite(s): BL1170 or BL1500 or MUN Biology 1001

BL1260 Human Biology
This one semester course will provide an introduction to human biology, including a review of biochemistry, cellular biology, and human tissues. The primary emphasis will be an overview of the anatomy and physiology of the body systems, and is designed to provide a foundation to help the student understand the variety of medical tests and/or drugs available for diagnosis and treatment. This course will also include an introduction to microbiology.

BL1300 Anatomy & Physiology
This course is an introduction to the science of normal functions and phenomena of living things from the cellular to the whole body levels of organization. Emphasis will be placed on the principles of the functioning of the organisms and body systems in order to facilitate the understanding and relationship of biomedical instrumentation.
Prerequisite(s): CH1121

BL1320 Anatomy and Physiology
The focus of this course is on those systems related to movement such as the skeletal, skeletal muscular and nervous systems. The anatomy of these systems will be studied in a regional approach such as upper and lower limbs, head, neck and trunk. This course will also include an orientation to all the body systems.

BL1330 Anatomy
This course is an introduction to the science of normal functions of living things from the cellular to the whole body levels of organizations.

BL1400 Fish and Wildlife Biology I
This course requires the use of reference resources, laboratory equipment and a suitable environment. It involves the study of the natural history of birds, fish and mammals, and a theoretical and practical understanding of the anatomy of birds, fish and mammals. It includes informa-
tion on population biology, reproductive biology, feeding biology, ecology, behaviour of fish, birds and mammals; anatomical charts, species charts, storage of specimens and dissection procedures.

Prerequisite(s): BL1120

BL1401 Fish and Wildlife Biology II
This course requires the use of resource references. It involves the study of fish and wildlife behavior and nutrition. It includes information on population ecology, environmental physiology, feeding biology, physiology and ecology.

Prerequisite(s): BL1400

BL1500 Biology
This is an introductory biology course with emphasis placed on the following: a study of the cell, its structure and function; a comparison between animal and plant cells; a brief study of selected organisms of the Protista Kingdom and a comparison between eucaryotes and prokaryotes; a study of DNA and RNA and protein synthesis; an introductory study of gene regulation in procaryotes and eucaryotes; the principles of hereditary; and introductory study of biotechnology; a study of tissues; an introduction to anatomical and medical terminology, and a study of the skeletal system.

Prerequisite(s): BL1500

BL1501 Biology
This is a course in human anatomy and physiology with emphasis being placed on the following systems: cardiovascular, lymphatic, respiratory, endocrine, nervous and sensory organs, and related medical terminology.

Prerequisite(s): BL1500

BL1700 Ornithology
This is an introductory course in ornithology. The course will focus on species which inhabit insular Newfoundland. Students will learn to recognize by sight and sound songbirds, raptors, seabirds, waterfowl and others. The ecology and behaviour of selected species will be discussed, as well as introductory avian anatomy and physiology.

Prerequisite(s): BL1700

BL2100 Biology
This is a continuation of the second semester anatomy and physiology course with emphasis on the following systems: digestive, urinary, and reproductive, and related medical terminology.

Prerequisite(s): BL1501

BL2210 Biology Freshwater Ecosystems
This course will study streams, rivers, ponds, lakes and the various classifications of wetlands. The formation of bodies of water will be discussed. The various plants, mammals, birds, invertebrates and insects common to the ecosystem will be identified. The interrelationships among the inhabitants of these ecosystems will be investigated. Threats to these ecosystems will also be studied.

Prerequisite(s): BL1120

BL2220 Boreal Forest Ecosystems
This course will introduce Canadian forests and then focus on the boreal forest and barren areas and their characteristics. Students will learn to identify the various forest and barren plants, mammals, birds and insects that frequent these ecosystems, and their interrelationships will be discussed. Emphasis will be placed on interpretation in a field setting.

Prerequisite(s): BL1120

BL2230 Marine Ecosystems I
This course will introduce students to the North Atlantic coastal marine environment including the intertidal and subtidal environment; beaches and sand dunes; estuaries; islands and ledges; and deeper offshore waters. Field trips to representative environments will be undertaken. Emphasis will be placed on the identification of organisms and the ecology of the marine environment.

Prerequisite(s): BL1120

BL2231 Marine Ecosystems II
This course will study the marine mammals, fish and birds of the boreal North Atlantic Ocean with emphasis on identification, adaptation, life histories, and the basic physiological processes. The aspects of the boreal ocean environment which contribute to diversity, dispersal and adaptations will also be examined.

Prerequisite(s): BL2230

BL2330 Cardiopulmonary Physiology
This course is an in-depth study of the anatomy and physiology of the cardiopulmonary and other body systems, which have an impact on respiratory medicine. Included will be the analysis of various disease conditions which affect the human body, especially the cardiopulmonary components.

Prerequisite(s): Successful completion of Semester 3.

BL2340 Cardiopulmonary Pathophysiology
This course will enable the student to describe the pathophysiological manifestations, clinical signs, symptoms, and therapeutic management of the major cardiopulmonary diseases, in order to facilitate the development of treatment protocols.

Prerequisite(s): Successful completion of Semester 3.

BL2400 Microbiology
This course consists of an introduction to the principles and methods of microbiology. Selected topics include the classification, structure, staining and cultivation of bacteria, bacterial physiology and genetics, control of microorganisms, host-parasite relationships and diagnostic immunology.

Prerequisite(s): Completion of semester 3.

BL2410 Microbiology
An introductory course covering the basic aspects of microbiology with emphasis on the role of microorganisms in disease and methods of control utilized in respiratory care.

Prerequisite(s): Successful completion semester 3

BL2421 Clinical Microbiology
This course consists of a systematic study of the pathogenicity, epidemiology, morphology and laboratory identification of various microbes associated with infectious disease. Major emphasis will be on bacteria with a brief study of clinically important yeast-like fungi. Also included is an organ system approach to laboratory diagnosis of infectious diseases and an introduction to the Transportation of Dangerous Goods.

Prerequisite(s): BL2400

BL3410 Clinical Microbiology
This course is an Introduction to the isolation, identification and reporting of microorganisms isolated from clinical specimens originating from the head and neck, the genito-urinary system and other miscellaneous sources. It is as an intermediate level and is intended to introduce the process of standard techniques and methodologies used to identify common pathogens in a routine clinical microbiology laboratory. Standardization of laboratory techniques, terminology, methods, and reporting will be emphasized. Quality control is incorporated.

Prerequisite(s): BL2421

BL3411 Clinical Microbiology
This course involves laboratory isolation, identification and reporting of microorganisms from clinical specimens originating from the head and neck, the gastro-intestinal tract, and other miscellaneous sources. It is at an advanced level of understanding and interpretation. It is intended to introduce standard techniques and methodologies used to identify common pathogens in a routine clinical microbiology laboratory. Standardization of laboratory techniques, terminology, methods, and reporting will be emphasized. Quality control and quality assurance is incorporated.

Prerequisite(s): Successful completion of semester 7

BL4410 Clinical Microbiology
This course allows the student to develop technical competence while reviewing theoretical material from previous semesters. The three week hospital rotation will emphasize clinical procedures and acquaint the student with the hospital operation and administration.

Prerequisite(s): Successful completion of semester 8

BR1100 Laying Brick to the Line
This course in bricklaying and masonry fundamentals requires the use of tools and equipment and materials and supplies. It involves laying out a brick wall, constructing corners and filling in between corners to line. It includes information on safety, types of brick walls, building techniques and brick panels.

Prerequisite(s): BR1120

BR1110 Laying Block to the Line
This course in bricklaying and masonry fundamentals requires the use of tools and equipment and materials and supplies. It involves laying out block walls, constructing corners and filling in between corners to line. It includes information on types of block wall, special leads, block panels and construction techniques.

Prerequisite(s): BR1120

BR1120 Mortar
This course in bricklaying and masonry fundamentals requires the use of tools and equipment, cement, sand and water. It involves mixing sand, cement, water and additives in the correct proportions for different conditions. It includes information on types of mixes and preparation techniques.

Prerequisite(s): BR1100, BR1120

BR1140 Refractory Units
This course in fireplace construction requires the use of tools and equipment and materials. It involves layout wall; installation of masonry ties, accessories and insulation; preparing for temporary arch forms; laying out arches and laying brick to the line. It includes information on cavity walls, arches and building techniques.

Prerequisite(s): BR1100, BR1120

BR1500 Stone Facings
This course in fireplace construction requires the use of tools and equipment and materials. It involves layout, installing flashings and accessories, cutting stone, mixing mortar and laying stone. It includes information on types of stone, types of mortar, and instal-
BU2110 Building Systems and Codes
This course deals with the type of mechanical and electrical systems in buildings and how they are represented on the finished drawings. The purpose of this course is to introduce students the mechanical and electrical building systems and all related codes. It is also meant to support material to be covered in other courses such as estimating and construction planning. This course is designed to enable students to interpret and prepare AutoCad drawings of mechanical and electrical systems for a small commercial building. Prerequisite(s): DR1211 Co-requisite(s): DR1210

BU2200 Arch Building Services I
This course deals with the types of electrical services required for buildings. It is comprised of lectures and labs designed to introduce the student to building electrical systems. Design concepts and presentation procedures are studied, with direct applications in the preparation of detailed computerized electrical services drawings. Prerequisite(s): PH1101, ET1110 Co-requisite(s): DR3100

BU2201 Arch Building Services II
Building Services II is a course designed to introduce students to terminology and design methods used in the plumbing and fire protection aspects of building services. The course begins with an introduction to hydraulics, piping and the associated terminology, and advances to areas of water supply and distribution, storm drainage, fire protection, and plumbing. The course includes a detailed study of code requirements and the preparation of computerized working drawings. Prerequisite(s): PH1101, DR3100 Co-requisite(s): DR3101

BU2300 Arch Building Codes I
This is the first of two architectural building codes courses. The course gives a brief examination of the purpose and contents of building codes in general. It also gives an overview of how the National Building Code of Canada is formatted and how it is to be used. The course concentrates on the code requirements given in the National Building Code of Canada for houses and small buildings. Emphasis is placed on selecting and sizing building components. Co-requisite(s): DR3100

BU2301 Arch Building Codes II
This course is a continuation of Architectural Building Codes I and deals with the safety requirements of buildings given in the National Building Code of Canada. It is designed to help students interpret and apply regulations through a series of practical exercises. Prerequisite(s): BU2300

BU2400 Architectural Building Science I
This is the first of two building science courses. The course studies how heat and air/water flow through a building envelope particularly from the inside to the outside of the enclosure. It also investigates steps to reduce/prevent the negative results which may result from this movement. Emphasis is placed on the selection and arrangement of building components. Prerequisite(s): PH1101

BU2401 Architectural Building Science II
This is the second of two building science courses. The course deals with heat, air and water movement through the building envelope particularly from outside to inside. It examines the way different wall and roof assemblies perform. Students are required to solve technical problems based on building science theory. Emphasis is placed on the “barrier” concept of enclosure design. Special emphasis is placed on the barriers in roofs. Prerequisite(s): BU2400

BU3200 Arch Building Services III
This course is designed to introduce the student to building heating systems. The course begins with an introduction to historical and contemporary heating sources emphasizing current energy conservation. Climate, comfort, and design strategies are discussed, with a detailed study of building heat flow and total building heat loss. Heating systems studies include: electric, hydronic, warm air, and steam with design and detailed applications. Prerequisite(s): BU2201 Co-requisite(s): DR4100

BU3201 Arch Building Services IV
This course, the fourth in a series of services courses introduces students to air movement and conditioning through studies of building cooling requirements. Emphasis is placed on duct design, heat gain, psychrometrics and equipment selection. Technical design projects are integrated into the course to emphasize visualization and coordination in the preparation of HVAC working drawings. Prerequisite(s): PR2300, BU3200, DR4100 Co-requisite(s): DR4101

BU3300 Building Specifications
This course deals with the interpretation and writing of specifications for building projects. A study is made of specification writing theory and procedures. Students are expected to analyze specifications for form intent. Projects include identifying technical and legal requirements and translating them into written form. Subject material includes contracts, master format, specification types, and specification writing. Prerequisite(s): PR2300 Co-requisite(s): DR4100, CF3600

CA2100 Structural Design
This course will prepare the student to analyze and design basic concrete structures using the various design aids such as handbooks, software. The course generally deals with design and analysis of individual structural members such as beams, walls, slabs, and columns. Prerequisite(s): CF2501

CA2101 Structural Design
A study of the application of principles of mechanics to the solution of problems commonly met within the field of engineering practice. Procedures in problem solving, codes, specifications and standards, loads and structural systems, properties of materials, tension members, axially loaded compression members, effective length, design of beams and connections, use of steel handbook, and roof trusses are major topics to be covered. Prerequisite(s): CA2100

CA2300 Urban Services
This course will provide the student with an understanding of municipal water, storm, and sanitary systems. Students will acquire skills to design, construct, operate, and maintain necessary municipal services. Treatment
systems for water and sewerage will be discussed.
**Prerequisite(s):** WA1200

#### CA2500 Highway Design
This course covers the planning and design of a transportation system including traffic studies, route selection, and horizontal and vertical alignment. Students will design a road, prepare a plan including profiles and cross-sections, as well as calculate earth-work quantities.
**Prerequisite(s):** CF2420, FT1130, WA1100

#### CA2650 Marine Construction
This course is designed to give the student knowledge in the methods and operations related to topics in marine construction. Emphasis will be placed on the design requirements and methods of construction related to onshore marine structures. This will also involve a study of the typical marine structures used in Newfoundland. The importance of the design and construction of inshore marine structures is very relevant in connection to the Newfoundland situation. The student will be introduced to the design requirements for various marine structures such as: wharfs, piers, and breakwaters. The methods, equipment and materials used in the construction of inshore structures will be presented. Environmental requirements and their effects on design and construction will also be investigated.
**Prerequisite(s):** CB2420, WA1100

#### CA2800 Soil Mechanics I
This course will introduce the student to the fundamentals of soil mechanics. The origin and formation of soils will be addressed along with their classifications and uses in the construction environment. Emphasis will also be placed on basic design considerations and properties of soils and the relationship to foundations, retaining wall and slope stability. Basic theory will be supplemented by field and laboratory testing done to ASTM Standards.
**Prerequisite(s):** CF2700

#### CA2801 Soil Mechanics II
The study of soils should be an important component in the education of Civil Engineering Technologists. Most structures such as bridges, roads and buildings rest either directly or indirectly upon soils. Therefore, the proper analysis of the soil and their design requirements are necessary to ensure a safe structure free of undue settling and/or collapse. This course will give a student an introduction in the field of Geotechnical Design based on knowledge gained in Soil Mechanics II. This course will continue from Soil Mechanics I. The course will use the theoretical information given in Soil Mechanics I and apply it to the area of Geotechnical Design. Emphasis will be placed on basic design considerations and properties of soils and the relationship to foundations, retaining wall, and slope stability. Basic theory will be supplemented by field and laboratory testing done to ASTM Standards.
**Prerequisite(s):** CA2800

#### CA2900 Municipal Engineering
Introduction to zoning bylaws and zoning in general. Criteria for the design and construction of roads, curb and sidewalks, width or right of way, storm and sanitary sewer collecting systems, water distribution systems and layout of utilities (electrical, phone, cable TV). Lectures are supplemented by labs in which related problems, field trips, and the actual lot layout, design of roads, water mains, sanitary sewer and storm sewer for an urban subdivision is carried out.
**Prerequisite(s):** SU1311

#### CB2420 Construction Methods
Construction methods will help students to estimate construction costs and productivity rates of various types of equipment and apply previous knowledge from economics to Heavy Equipment. The course will deal with methods and operations utilized in heavy construction, with emphasis placed on specifying the best equipment or process for the situation.
**Prerequisite(s):** MA1101

#### CD2100 Community Development
This course is an introduction to the major concepts, principles, and issues in community development. It introduces students to the history of community development and to the major influences on current community development practice. The roles of community development workers and the various occupations in the field of community development are examined. The course also introduces some of the major skills necessary for successful community development practice.

#### CD2300 Community Economic Development
This is an introductory course to the field of community economic development. It covers the major concepts and essential elements used in the field of community economic development, and explains why a new approach to development is necessary. It introduces the history of community economic development in Newfoundland and Labrador, looks at successful examples elsewhere, and explores strategies and systems for facilitating community economic development. The course then introduces students to the process of strategic planning and how it may be applied to the community economic development process. Students will gain an understanding of community economic development concepts and processes.

#### CD2310 Managing in the Non-profit and Volunteer Sector
This course is an introduction to financing and managing in community economic development enterprises. It introduces the concept of social entrepreneurship, and approaches which Community Economic Development organizations may use in securing funds. It examines the challenges of managing and coordinating human and natural resources in not-for-profit organizations, in such a way as to build an entrepreneurial economy. The course also introduces the concept of strategic alliances and how they may be used to facilitate community economic development.

#### CE2250 Electronic Analog Communications
This is an intermediate level electronics course designed to provide students with an introduction to the area of analog communications.
**Prerequisite(s):** MA2100, AE2300

#### CE2270 Electronic Analog Communications
This is an intermediate level electronics course designed to provide students with an introduction to the signals and processes of analog communications.
**Prerequisite(s):** MA1101
**Co-requisite(s):** AE2320, MA2100

#### CE2700 Antennas, Transmission Lines and Propagation
This course provides a comprehensive study of transmission lines, waveguides, and antennas with application in radio systems. Topics covered include transmission line parameters; waveguides and components; antennas; antenna measurements; impedance matching with Smith Charts.
**Prerequisite(s):** MA1101 ET2100, AE1200

#### CE2730 Electromagnetics for Electronic Communications
This course provides a comprehensive study of the basic principles of electromagnetic wave propagation as they are applied to transmission lines, waveguides, and antennas with applications in wired and wireless communications systems.
**Prerequisite(s):** MA1101, MP2140

#### CE2800 Industrial Communication Systems
This specialized course introduces the student to industrial communication systems, fieldbus, and networks for monitoring data acquisition and control systems used in an industrial environment. The lab component is designed to enhance the theoretical lecture component by implementing communication methods, networks, and an introduction to Microsoft Windows NT installation and administration.
**Prerequisite(s):** CT2300, CP1150

#### CE2900 Human Machine Interface Development
This course provides students with a comprehensive analysis of Human Machine Interface software packages, such as Lookout, Wonderware and RSView, for monitoring and controlling automated machines and processes from custom designed graphical user interfaces.
**Prerequisite(s):** CE2800, DP3100

#### CE3100 Communication Systems
This is an advanced electronic communications course. It provides a solid background for understanding and analyzing the modern communications systems.
**Prerequisite(s):** CE2250, CE2700

#### CE3160 Layer 2 – Layer 4 Switching
The course will provide the student with the skills to design and configure new Layer 2 to Layer 4 hardware (ASIC) based campus switching and its applications which are poised to improve/replace CPU based routing. The course also supplies student with knowledge of Ethernet Over Sonet complementary technology to carry switched Layer 2 plus Ethernet Switching over omnipresent SONET WAN (Ethernet Over Sonet or EoS) carrier
**Prerequisite(s):** DP3410
**Co-requisite(s):** CR2430

#### CE3200 Digital Telephony And Digital Loop Carrier
This course provides a detailed and practical discussion of the system theory leading to the design and operation of the telecommunications networks. Emphasis is placed on the digital facilities currently in use by local telecommunications utilities. This course provides coverage of switched data technology used to provide voice data and video communications networks. Lectures are supplemented by projects, field trips and laboratory experiments.
**Prerequisite(s):** DP3410, AE2320

#### CE3400 Local Area Networks
The purpose of this course is to introduce the students to the skills required to manage and maintain Local Area Network.
**Prerequisite(s):** DP3430, CP2600

#### CE3430 Network Cabling Project
This course will provide the student with the necessary skills to design and implement high performance cabling systems. The performance level of the system determines the type of cabling and hardware to be used, the rules to be followed, i.e. TIA/EIA-568A standard, and the type of testing and documentation required to certify performance and trouble-shoot the installation. Focuses on the physical layer of the OSI Network Model and includes the electrical, and mechanical aspects of interfacing to
the transmission medium and impact on performance they may have. This includes analysis of copper cabling, fibre optics, connectors and interconnection hardware, electrical code requirements for installation, performance certification and documentation.

Prerequisite(s): CE3400

CE3510 Microwave Circuit Design
This course involves design and simulation of RF amplifier circuits. It provides the students with the analytical and modelling skills to analyze and assist in the development of RF microwave communications subsystems.

Prerequisite(s): AE2321, CE2270, CE2730

CE3600 Digital Communications I
This course provides a background in the mathematical theory and fundamentals of operation of digital and data communications.

Prerequisite(s): CE2250, DP2400

CE3601 Digital Communications II
This course focuses on the mathematical theory and fundamentals of operation of digital network communications.

Prerequisite(s): CE3600

CE3630 Voice Over Internet Protocol
The description, operation, configuration, deployment and application of Voice over IP networks using softswitch technologies. The review of current technologies for signaling, media transport and network engineering, including the design of basic Voice over IP telephony and multimedia solutions. This course includes the description, operation, configuration, deployment and application of Voice over IP networks using softswitch technologies. Students will also review current technologies for signaling, media transport and network engineering. The course includes a practical hands on component involving design of basic Voice over IP telephony and multimedia solutions that will meet the basic needs of Carriers, Internet Service Providers, Broadband Access Providers, and Customers

Prerequisite(s): CE3160, CR2430

CF1100 Materials & Processes I
The purpose of this course is to provide students with a knowledge of the behaviour and characteristics of common engineering materials and an understanding of basic industrial processes. This is to enable students to select suitable materials and fabrication methods for the design and manufacture of parts to ensure successful service.

Prerequisite(s): CH1121

CF1101 Materials & Processes II
The purpose of this course is to familiarize the student with production and fabrication processes and practices used in the industrial environment. The course provides an understanding of welding processes, non-destructive testing, corrosion, and casting processes. An introduction to plastics and other engineering materials is provided.

Prerequisite(s): CF1100

CF1120 Materials and Processes
The purpose of this course is to familiarize the student with production and fabrication processes and practices used in the industrial environment. A continuation of the CF1100 Materials and Processes, this course will give an overview of non-metal materials used in engineering processes and an understanding of surface treatments, coatings and corrosion. Manufacturing processes, including metal removal, joining processes, casting processes, forming and shaping processes.

Prerequisite(s): CF1100

CF2500 Strength of Materials I
This course has been included in the Civil Technology program curriculum as an engineering science. It is intended to be used as a basis for the study of design oriented course material to be presented in the second and third years of the program.

Prerequisite(s): MA1101, PH1101

CF2501 Strength of Materials II
This course is a continuation of CF2500 and will provide the student with basic skills for the design of building structural components. It gives students knowledge and understanding of structural members.

Prerequisite(s): CF2500

CF2510 Strength of Materials
This course is an introduction to the analysis of stresses in load bearing structural members. Concepts of stress, strain and elasticity are applied to elementary systems of normal, shear and bending stress in order to give students an understanding of one of the fundamental building blocks upon which all engineering designs are based.

Prerequisite(s): MA1101, PH1101

CF2511 Strength of Materials II
This second Strength of Materials course expands on previously studied concepts of simple stress, strain and elasticity, and provides a basic for elementary calculations in engineering design.

Prerequisite(s): CF2510

CF2540 Mechanics of Solids
This course is included in the Industrial, Mechanical, and Mechanical (Manufacturing) Engineering Technology program curriculum as an Engineering science. It forms part of the core of courses introducing students to the fundamentals of applied problem solving. It enables the economical and safe selection of materials for engineering components which are subjected to loads when in service. Theoretical work supplemented by problem sessions are carried out on the subjects of general force systems, reactions, free body diagrams; stresses and frames; centroids and second moments of area; shear and moments in beams, stresses in beams and beam design.

Prerequisite(s): PH1101, MA1101

CF2600 Building Materials I
This course examines the properties, limitations, and application of a number of different building materials. It is designed to help students assess and select suitable materials for a variety of situations found in buildings.

CF2601 Building Materials II
This course examines the properties, limitations, and applications of a number of different building materials. It is designed to help students assess and select suitable materials for a variety of situations found in buildings.

Prerequisite(s): CF2600

CF2700 Materials & Testing I
This course has been designed to provide the student enrolled in the Civil Technology program with a working knowledge of common building materials so that he/she will be better able to function as a technologist in the building and heavy construction field. This course will provide the student with a basic knowledge of the characteristics, uses and application of common construction materials and the general construction specifications associated with each material. Materials such as concrete, concrete masonry and aggregate, their properties, components, uses, production and construction methods, will be studied. Basic theory will be supplemented by laboratory testing of aggregate and concrete done to CSA standard. Emphasis will be placed on decision-making for the proper selection and use of the various components discussed in each material. Course work will be supplemented by field trips and in-shop demonstrations.

Prerequisite(s): CM1401, DR1211

CF2701 Materials & Testing II
This course has been designed to provide the student enrolled in the Civil Technology program with a working knowledge of common building materials so that he/she will be better able to function as a technologist in the building and heavy construction field. This course will be a continuation of CF2700, Materials and Testing I. It will provide the student with a hands on approach to the testing, selection, use and application of common construction materials such as concrete, concrete masonry, asphalt and aggregate will be tested under laboratory conditions. Where ever possible in lab work will be supplemented with field trips, videos and guest lectures.

Prerequisite(s): CF2700

CF3200 Materials and Corrosion
This course will introduce students to the physical and mechanical properties of materials commonly used in the chemical processing industries. It will examine the factors that promote the corrosion of these materials when used in industrial processes. Students will also examine a variety of means of controlling and monitoring corrosion and corrosion processes in chemical industries.

Prerequisite(s): CH1121

CF3420 Structural Design
This course is a continuation of Strength of Materials CF2500 and expands on previously studies concepts with major emphasis on structures and requirements based on building shapes. Emphasis is also placed on calculations leading to the selection of beams and columns based on shear forces, bending moments, and deflections produced by static loads. In addition, students are expected to have a thorough knowledge of the preparation of detailed steel shop drawings including connections and dimensioning, and to produce structural drawings as partial fulfillment of the requirements for the major technical project PR2210.

Prerequisite(s): CF2500

CF3600 Building Materials III
This course examines the properties, limitations, and application of a number of different building materials. It is designed to help students assess and select suitable materials for a variety of situations found.

Prerequisite(s): CF2601

CG1200 Health Care & Safety I
This course serves as an introduction to the hospital environment, its organization and management. Students will be familiarized with the health care system of Canada. The application of safety in the hospital environment, with a special emphasis on the concepts of electrical safety.

Prerequisite(s): CM2200

Co-requisite(s): CG3400

CG1201 Health Care & Safety II
This course is a continuation of CG1200 and serves to familiarize the student with equipment control systems and procedures utilized by Biomedical Engineering Departments. The concepts of quality assurance as well as standards involved in the safe use of electricity in health care institutions will be addressed. Students will also become familiar with fire, biological and environmental
safety issues as they relate to the hospital environment.

Prerequisite(s): CG1200, CM2200
Co-requisite(s): CJ1401

CG1500 Work Methods and Measurement
This course is designed to introduce the student to the basics of time and motion study. It will provide a student with a basic understanding of time study techniques. It comprises various topics in pre-determined motion time and work measurement systems. The intent is to develop in the student a full understanding of the elements of these systems and the capability to create and implement them.

Prerequisite(s): EG1110, EG1430

CG2100 Urban Planning
This course will provide the student with an opportunity to utilize learned theory and apply to an actual subdivision selection, planning, and service design. Students will design a residential subdivision for given lot sizes, dwelling standards, zoning, and other internal and external site factors.

Prerequisite(s): SU1210

CG2160 Lean Methods
This is an introductory course that provides the student with the basic tools used in a lean manufacturing enterprise. It lays the foundation for many of the topics that are done in detailed applications within the Industrial and Manufacturing disciplines. The course provides an overview of quality, production systems, operation designs and applications of the lean manufacturing philosophy of identifying and eliminating waste through continuous improvement of products and services.

Prerequisite(s): CG1500

CG2340 Construction Estimating & Planning I
This course is an introduction to the disciplines of cost estimating and planning for construction purposes. It brings together the accumulated knowledge the student has assimilated over two years to enable him/her to understand the principles of cost estimating and to develop basic skills in taking off and pricing construction materials.

Prerequisite(s): CB2420

CG2341 Construction Estimating & Planning II
This course is a continuation of Construction Cost Estimating and Planning I and is intended to enhance the skills of the student. Students will be required to use commercially available computer software to prepare cost estimates. This course will also provide the student with the opportunity to apply to the planning process much of the technical material studied in earlier courses of the Civil Engineering Technology program.

Prerequisite(s): CG2340

CG3100 Construction Management
This course is intended to provide the student with knowledge of the construction industry to better enable him/her, on attaining sufficient practical experience to function as an effective construction manager.

Prerequisite(s): CG2340
Co-requisite(s): LW1600

CG3200 Business & Project Administration
This course examines the fundamentals of economics, types of businesses, and the administrative process as it related to design construction projects. It is designed to help students understand their role in the economics and administration of the design and construction industry.

Prerequisite(s): LW1610, DR3101

CG3300 Architectural Cost Analysis
This course is an introductory course designed to provide students with a basic understanding of the various types of estimates commonly used in the design and construction industry. This course deals mainly with the elemental cost analysis method of estimating with computer applications where applicable.

Prerequisite(s): DR4100, BU3200, BU3300

CG3400 Engineering Management
This course is intended to familiarize the student with the role of management in industry. Topics covered include project representation and analysis using C.P.M. and P.E.R.T. as well several methods of management decision-making with a mathematical approach. The course provides the basic methods used for project management and control. It gives an appreciation of the role of management in industry, as well as providing management techniques used in various applications of decision-making. Students are instructed in the use of project management software and they are enabled to identify business opportunities and acquire the skills necessary to set up and operate their own business.

Prerequisite(s): MA1101

CG3500 Production Planning
This course analyzes the principles of production management by bringing together previous topics of planning and approaching them as an integrated production plan which interprets various components such as master scheduling, resource planning, manufacturing control and flexible manufacturing.

Prerequisite(s): CG1500

CH1030 Introductory Chemistry I
Introductory Chemistry I is a Comprehensive Arts and Science (CAS) College Transition course. It is the first of two Chemistry courses designed to prepare students for entry into a number of technical programs at the College level as well as CAS Transfer: College-University. The purpose of this course is to give students an introduction to basic chemical principles and laboratory procedures.

Prerequisite(s): CH1030

CH1031 Introductory Chemistry II
Introductory Chemistry II is a Comprehensive Arts and Science (CAS) College Transition course. It is the second of two Chemistry courses designed to prepare students for entry into a number of technical programs at the College level as well as CAS Transfer: College-University. Continuing the introduction to fundamentals of Chemistry started in Introductory Chemistry I, the main emphasis of this course is on solving mathematical chemical problems.

Prerequisite(s): CH1030

CH1120 Chemistry
This is an introductory course designed to give students a knowledge and understanding of the fundamental concepts which will form the basis for further studies in science and technology. Topics include: atomic structure, periodic table, chemical bonding and nomenclature, stoichiometry and measurement, chemical reactions, gas laws, solution and solubility.

Prerequisite(s): CH1120

CH1130 Introductory Chemistry I
Transferable to MUN Chemistry 1010
This is an introductory course in chemistry dealing with the fundamental laws of chemistry, the nature of the matter and the physical states of matter, the structure of the atom, electronic structure and the periodic table, significant figures and scientific notations, measurements and units, writing and balancing chemical equations, chemical reactions, stoichiometry and stoichiometric calculations, chemical bonding, gases and gas law calculations, and thermochemistry.

Prerequisite(s): High school chemistry is recommended. Mathematical skills are required, and students with low marks in high school level II academic mathematics (less than 70%) are strongly recommended to upgrade their mathematics background before undertaking this course.

Co-requisite(s): Mathematics course is strongly recommended.

CH1131 Introductory Chemistry II
Transferable to MUN Chemistry 1011
This is a continuation of CH1130. This course will further develop the fundamental concepts of chemistry, with emphasis on physical properties of matter, intermolecular forces, molecular geometry and chemical bonding theory, rate of reaction, gaseous chemical equilibrium, acid-base equilibria, precipitation equilibria and electrochemistry. Major topics include: physical properties of matter, molecular geometry, rate of reaction, gaseous chemical equilibrium, acid-base equilibria, precipitation equilibria and electrochemistry.

Prerequisite(s): CH1130 or MUN Chem 1010

CH1140 General Chemistry I
Transferable to MUN Chem 1050.
This course is designed for students who have previously studied Chemistry either in high school or university. It is designed to give students a knowledge and understanding of the fundamental chemical concepts which will form the basis for further studies in the field of science. Major topics are: matter—its properties and measurement, atoms and atomic theory, chemical compounds, chemical reactions, introduction of reactions in aqueous solution, gases and hydrogen, electrons in atom, the Periodic Table and some atomic properties, chemical bonding I: basic concepts, chemical bonding II: additional aspects, liquids, solids, and intermolecular forces, solutions and physical properties.

Prerequisite(s): At least 75% in high school Chemistry 3202 and a pass in high school advanced mathematics 3205.
Co-requisite(s): MA1130 or MUN Math 1000) or MA2100.

A physics course would be helpful, especially for students who did not take Physics in high school.

CH1141 General Chemistry II
Transferable to MUN Chem 1051.
This course is designed for students who may have career interests in chemistry or other fields of science. The course will develop the fundamental concepts of chemistry, with emphasis on practical applications. It is designed to identify and apply principles as well as provide visualization of their physical significance. Major topics are: chemical kinetics, principles of chemical equilibrium, acids and bases, addition aspects of acid-based equilibria, solubility and complex ion equilibria, spontaneous change; entrophy and free energy, electrochemistry, descriptive chemistry.

Prerequisite(s): CH1140, MA1130 or MA2100, or MUN Chem 1050, Math 1000 or 1081.
CH1150 Introductory Chemistry III
Transferable to MUN Chemistry 1031.
This course is designed to prepare students who have completed Chemistry 1131 (or MUN chemistry 1011) for second year Chemistry courses. It deals with the topics in greater depth with emphasis on problem solving, as in Chemistry 1141.
Prerequisite(s): CH1131 or MUN Chem 1010.

CH1200 Chemistry
This is an introductory course in chemistry dealing with the fundamental laws of chemistry, the nature of matter and structure of the atom, the periodic table, chemical bonding, stoichiometry, the physical states of matter and solutions. The quantitative aspects of chemistry are stressed.

CH1201 Chemistry
This is a continuation of CH1200. Major topics include: the gas laws, oxidation-reduction, electrochemistry, chemical nomenclature, chemical kinetics, nuclear chemistry and chemical equilibrium. The quantitative aspects of chemistry are stressed.
Prerequisite(s): CH1200

CH2200 Chemistry
This is a continuation of the second semester course. Major topics include various types of chemical equilibria such as gaseous equilibria, solubility equilibria, and acid/base equilibria. The quantitative aspects are stressed.
Prerequisite(s): CH1201

CH2250 Clinical Chemistry
This course will introduce laboratory safety, basic laboratory techniques and skills, laboratory instrumentation and quality control procedures. This is then applied to the study of the theoretical and practical aspects of the analysis of the body fluids. Major topics studied include: carbohydrates, lipids, proteins and non-protein nitrogen compounds.
Prerequisite(s): CH2240
Co-requisite(s): CH2340

CH2330 Petroleum Chemistry I
This is an advanced course in organic chemistry designed to give petroleum students a knowledge and understanding of the fundamental chemical concepts of organic products and derivatives which are prominent in the petroleum industry.
Prerequisite(s): CH1121

CH2331 Petroleum Chemistry II
This is a course designed to give petroleum students a knowledge and understanding of physical, inorganic and analytical chemistry as applied to the petroleum industry. Emphasis will be given to the development of analytical and laboratory skills.
Prerequisite(s): CH2330

CH2340 Biochemistry
This is an introductory course in organic chemistry and biochemistry for Medical Laboratory Science students. The organic chemistry framework includes the study of the carbon atom, chemical nomenclature and the structure of organic compounds. Major focus is on the structure, properties, and metabolism of carbohydrates, proteins, lipids, nucleic acids, non-protein nitrogen compounds, and acid-base balance, body water/electrolyte balance and enzymes.
Prerequisite(s): Completion of all third semester courses.

CH2400 Biochemistry
This course is designed to provide students with a foundation in the areas of organic and biochemistry. It also shows some of the useful contributions that chemistry has made in the area of health care. This is an introductory course in organic chemistry and biochemistry for biomedical students.
Prerequisite(s): CH1121

CH2450 Industrial Chemistry I
This course introduces students to industrial chemistry and concepts and terms used in industrial chemistry. The principal focus of this course is industrial chemistry as it applies to the use, analysis and treatment of water. Industrial chemical metallurgy is explored and students use pH, conductivity, dissolved oxygen and other analyzers – both laboratory and process.
Prerequisite(s): CH1121

CH2511 Clinical Chemistry
This course is a continuation of CH2250 Clinical Chemistry and consists of a study of the theoretical and practical aspects of the analysis of body fluids. Major topics studied include: liver function, enzymology, acid/base balance, electrolytes, kidney function and urinalysis, toxicology, thyroid function, and immunoaassays.
Prerequisite(s): CH2340, CH2250

CH2700 Environmental Chemistry I (Analytical)
This is an introductory course in chemical analysis. It consists of classical methods of quantitative chemical analysis such as gravimetry and titrimetry, as well as simple instrumental techniques used for field measurement (pH, colorimetry, conductivity, dissolved oxygen). Students are also exposed to Environmental Sampling and statistical treatment of data.
Prerequisite(s): CH1120

CH2720 Chemistry III (Analytical)
This is an introductory course in chemical analysis. It will introduce the students to the classical methods of quantitative chemical analysis such as gravimetry and titrimetry, as well as simple instrumental techniques used for field measurement (pH, colorimetry, conductivity, dissolved oxygen). Students are also exposed to Environmental Sampling and statistical treatment of data.
Prerequisite(s): CH1120

CH3450 Industrial Chemistry II
This course is designed to provide students with the basics of organic and inorganic chemistry as it is applied to the oil and gas industry. It also covers many of the standard chemical tests used in the oil and gas industry for analyzing crude oils and refinery products.
Prerequisite(s): CH2450

CH3510 Clinical Chemistry
This course builds upon previous topics in clinical chemistry. It requires students to apply their pre-requisite knowledge and skills in a simulated hospital laboratory setting. Emphasis is on safe work practices, automated analysis, quality control principles and result interpretation.
Prerequisite(s): CH2511

CH3511 Clinical Chemistry
This is a comprehensive course in clinical chemistry that requires students to apply their pre-requisite knowledge and skills in a simulated hospital laboratory setting. Using appropriate safety guidelines, students practice the pre-analytical, analytical and post-analytical phases of the testing process for clinical specimens. Emphasis is on development of technical competence, use of quality assurance principles and applications of critical thinking skills to data interpretation and instrument troubleshooting. It is designed to prepare students to enter the clinical phase of the program at an affiliated hospital.
Prerequisite(s): Successful completion of semester 7

CH3700 Environmental Chemistry III
This is the second of two courses dealing with the chemical interactions which occur in natural environments. The focus is on air and soil chemistry, and emphasis is placed on Organic Chemistry. The fundamental aspects of nomenclature, structure, properties, and reactions of organic compounds are discussed and applied to studying the sources and toxicity of environmentally important organic compounds.
Prerequisite(s): CH2700

CH4510 Clinical Chemistry
This course allows the student to develop technical competence while reviewing theoretical material from previous semesters. The three week hospital rotation will emphasize clinical procedures and acquaint the student with the hospital operation and administration.
Prerequisite(s): Successful completion of semester 8

C11100 Electronic Instrumentation
This is a practical course in which students become acquainted with the variety of laboratory and test equipment that could be encountered in a working environment. The course focuses on applications of the concepts learned.
Prerequisite(s): ET2100
Co-requisite(s): DP1100, AE2300

C11210 Instrumentation Controls & Automation
This course provides a comprehensive treatment of sensors and methods of measuring automated process variables. The student will be introduced to the underlying concepts and operation of industrial measurement devices and control systems.
Prerequisite(s): ET2100

C11211 Instrumentation, Controls and Automation
This is an introduction to process control systems, designed to provide the students with the basics of PID Control as well as an overview of more advanced systems.
Prerequisite(s): C11210

C11310 Electrical/Electronic Fabrication Techniques
This is a practical electrical/electronics course for students entering the primary electrical / electronics technical intersession. This course enables the student to obtain practical knowledge in soldering, wiring, fabrication and proper use of test equipment as related to accepted procedures found in industry.
Prerequisite(s): ET1101

C11400 Industrial Controls I
Manufacturing Operations Technology graduates are expected to understand how best to use automation and process control technologies to improve product quality and optimize processes. In order to do this, students must first have a basic understanding of the analog and digital electronic building blocks used in automation. Consequently, topics include; the basic operation and industrial applications for semiconductor devices, including the diode, BJt switch, power electronic devices (FET, IGBT, SCR), and operational amplifier; an explanation of digital fundamentals, including the binary number system, combinatorial logic, and sequential logic.
Prerequisite(s): ET1101
C11401 Industrial Controls II
As industrial process operators, graduates must understand how industrial controllers work (i.e., PLC, DCS, drives, etc.). While they are not expected to maintain the industrial controllers, it is important that the student receive enough hands-on programming experience such that they gain confidence in the systems and hardware. Learning the details about a specific control system, in this case Programmable Logic Controllers (PLC), is an effective way of gaining this confidence. Consequently, topics include PLC hardware, systems, applications, and programming. Also introduced are variable speed drive technologies, with an emphasis on variable frequency (AC) drives and applications. The student applies the concepts learned to specific systems, processes and equipment found in manufacturing operations.

Prerequisite(s): CI1400, PE2430

C11500 Introduction to Process Analysis
This course will introduce the student to process analysis. Methods of calibration, and applications of statistical methods (mean, standard deviation, control charts, tests and linear regression analysis) will be applied to measurements. Electrochemical principles will be applied to the study of corrosion, conductivity, ORP pH and other electrochemical analyzers. The course also introduces students to the use of statistics in monitoring quality control in industrial processes. The course reviews electrochemical principles as they apply to corrosion and corrosion control in industry. The student will learn how control of industrial processes by electrochemical methods is accomplished.

Prerequisite(s): CH1121

C12240 Instrumentation Hydraulics and Pneumatics
This introductory course is designed to acquaint the student with the design and operation of industrial hydraulic and pneumatic systems. It includes a review of the selection and integration of the components used to build and control hydraulic and pneumatic circuits. Operational control and troubleshooting of basic circuits is an integral component of the course.

C12520 Process Control Operations
Manufacturing operations personnel need a good understanding of process control methods in order to improve product quality, optimize the process, and reduce process operation costs. This course provides the students with the knowledge and skills relating to both basic and advanced process control techniques used in all industrial processes. Using this knowledge of process control technology, the student is introduced to process and instrumentation diagrams (P & ID) that explain the control systems for both processes common to all industries and industry specific processes. The common processes emphasized are "steam plant control" and "effluent/ wastewater treatment." Topics include P&ID control, controller tuning, and advanced control techniques (cascade control, ratio control, feed-forward control).

Prerequisite(s): C12120

C12610 Process Optimization
This course introduces the student to systems and techniques used for industrial process optimization and quality management. The tools and systems include process analyzers, adaptive controllers, distributed control systems, (DCS), real-time data historian, virtual sensors, asset management software, enterprise resource planning (ERP), and industrial networks. During this course, the student continues to develop knowledge and practical expertise in the application of process control technology to the specific systems, processes and equipment found in a variety of manufacturing operations.

Prerequisite(s): C12520

C12800 Process Measure I
The purpose of this course is to introduce students to the methods used by the processing industries to measure various physical properties such as pressure, level and temperature.

Prerequisite(s): AE1200

C12801 Process Measure II
This is a second course in industrial process measurement and its purpose is to familiarize students with various devices and systems used in the industrial environment to measure fluid flows, humidity, as well as an introduction to control valves. Students will study the various types of process transmitters used in the measurement and transmission of information on fluid flow rates.

Prerequisite(s): C12800, C12810

C12810 Process Control I
The purpose of this course is to familiarize the students with both pneumatic and electronic controllers as well as basic feedback control and frequency response analysis.

Prerequisite(s): AE2300

C12811 Process Control II
The purpose of this course is to familiarize the student with both pneumatic and electronic controllers as well as basic feedback control.

Prerequisite(s): C12800, C12810

C12820 Process Control I (Basic Control Systems and Terminology)
The course provides an introduction to process measurement and control terminology. Students will be given the opportunity to control single phase flows and control level in various process loops.

Prerequisite(s): PH1101, ET1101

C12821 Process Control II (Level and Flow Measurement and Control)
This course provides an introduction to process measurement and control. The principles and operation of a variety of level and flow devices used in process control are examined. Students measure and control single phase flows and control level in various process loops.

Prerequisite(s): C12820

C13100 Automatic Control Systems
The course is intended to show the application of classical control theory to actual industrial systems, including DC drives. Control system components will be studied in theory and in the lab. Instrumentation-related software (Control Station, PC-ControLab, MATLAB) will be used to analyze/design/modify industrial process control systems.

Prerequisite(s): MAA2101 & AE2301 or AE2321

C13200 Statistical Process Control
This course introduces students to the statistics concepts necessary for working in a chemical processing industry. The use of statistics and charts, to control and improve a process, is examined. Inferential statistics, as applied to chemical processing, is studied.

Prerequisite(s): MA1101

C13400 Biomedical Instrumentation I
This course will provide the students with the fundamental principles inherent in the collation of physiological phenomena. Students will be familiarized with all aspects of electrodes, filters, amplifiers and transducers. The subject material will incorporate considerable “hands-on” experience through the use of laboratory projects as well as exposure in hospital biomedical engineering departments.

Prerequisite(s): AE2201, C11100, AE2210, AE2400

C13401 Biomedical Instrumentation II
This course is intended to broaden the student’s knowledge of medical instrumentation by introducing more sophisticated systems such as multi-parameter patient monitoring systems, central station monitoring, hemodialysis systems, respiratory and pulmonary function instrumentation as well as operating room systems such as electrosurgery units and laser surgical tools.

Prerequisite(s): CI13420, CI1300

C13500 Medical Imaging
This course contains lectures, demonstrations, and hands-on training through which students will learn the proper operation, calibration and preventative maintenance and safety issues involved in the utilization of a basic x-ray imaging system as well as additional imaging modes such as ultrasonic imaging and magnetic resonance imaging.

Prerequisite(s): C13400

Co-requisite(s): C13401

C13600 Industrial Process Control
This is an introduction to Process Control Systems, designed to provide students with the basics of PID Control as well as an overview of more advanced systems.

Prerequisite(s): C12120

C13811 Process Control III (Pressure and Temperature Control)
This course develops further understanding of types of control strategies. It introduces students to the principles and operation of pressure and temperature control systems and advanced control systems.

Prerequisite(s): C12821

C13812 Process Control IV (Advanced Process Control Strategies)
This course covers advanced PID Control strategies with an emphasis on boiler control.

Prerequisite(s): C13811

C13820 Process Analysers
This course resumes study of process analyzers including electromagnetic analyzers, chromatographic analyzers, mass spectrometers and moisture and toxic gas analyzers. It provides students with the opportunity to calibrate and use for analysis purposes UV/VIS/IR, mass spectrometers, GC and HPLC as well as toxic gas analyzers. The students will develop an in depth understanding of the various components of the process sampling system and how they are inter-related.

Prerequisite(s): C12801, C12811, C1500

C13821 Process Analyzers
This course involves the study of spectroscopic, chromatographic and physical property analyzers that a chemical processing technologist would be expected to routinely manage in industry. The basic operating principles, and the most common problems associated with their use, will be studied. An overview of the sampling systems associated with process analyzers and the maintenance of these systems will be covered. Laboratory work will involve calibrating, using and troubleshooting a variety of laboratory and process analyzers.

Prerequisite(s): CH3811
CJ3830 Computer Control Systems
The purpose of this course is to familiarize the students with the various types of computerized control systems used by the processing industries.
Prerequisite(s): CE2800, DP3100

CJ2100 Canada’s Justice System ●
This course introduces the student to the various components and functions of the Canadian criminal justice system. The entire criminal process, from the origin of the law to conviction, sentencing and aftercare will be examined. The implication of the enactment of the Canadian Charter of Rights and Freedoms will be analysed.

CJ2101 Canadian Criminology
This course presents an overview of crime and criminal behaviour in Canadian society. Areas to be covered include a definition of crime, criminal law, crime topologies and theories. Response to crime also will be examined.
Prerequisite(s): CJ2100

CJ2200 Youth Justice in Canada
This course introduces the student to the specific components and functions of the youth justice system in Canada. Following a review of the intent of the Young Offender’s Act, the course will trace the movement of the young offender through the justice system from the commission of the offence through to the disposition and sentencing. Specific emphasis will be placed on the development of effective case management skills.
Prerequisite(s): CJ2100, PS5200, CS2200.
Co-requisite(s): CJ2400

CJ2400 Special Populations
This course examines inmate groups within the Correctional System. The purpose and practice of segregation procedures will be discussed. Issues related to accommodating sex offenders and persons suffering from psychiatric and behavioural disorders are explored.

CJ2410 Case Management
This course examines the principles of effective case management in a Correctional setting. The basic elements of inmate supervision and case management will be defined and practiced. The process of admission, orientation and assessment will be studied. Time also will be devoted to examining the operation of the National Parole Board.

CK1100 Kitchen Safety
Upon successful completion of this unit, the apprentice will be able to demonstrate safe work habits in a commercial kitchen.

CK1105 Hygiene and Sanitation
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of personal hygiene, kitchen sanitation and sanitation code.

CK1110 Kitchen Fundamentals
This course in shop fundamentals requires the use of tools and equipment, and materials and supplies. It involves demonstrating good safety and hygiene practices while operating kitchen tools and equipment. It includes information on types of equipment, operating techniques and safety and hygiene requirements.

CK1115 Kitchen Tools and Equipment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of selection, use and maintenance of kitchen tools and equipment.
Prerequisite(s): CK1100, CK1105

CK1120 Weights and Measures
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of weighing and measuring devices, their applications and procedures for use; demonstrate knowledge of increase and decrease recipe yields and portions to meet specific requirements.
Prerequisite(s): CK1115

CK1125 Basic Cooking Methods and Principles
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of cooking methods and their characteristics; demonstrate knowledge of cooking terminology and techniques; demonstrate knowledge of seasonings and flavorings, their purpose and use.
Prerequisite(s): CK1120

CK1130 Receiving and Storage
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of receiving and inspection procedures; demonstrate knowledge of storage methods and their application.
Prerequisite(s): CK1125

CK1135 Vegetables
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of vegetables, their selection, storage, rotation, preparation and availability.
Prerequisite(s): CK1125, CK1130

CK1136 Mushrooms
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the selection and preparation of mushrooms.
Prerequisite(s): CK1125, CK1130

CK1137 Vegetable Specialty Dishes
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of various vegetable specialty dishes.
Prerequisite(s): CK1135

CK1138 Fruits and Nuts
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of fruits and nuts, their selection, storage, preparation and availability.
Prerequisite(s): CK1125, CK1130

CK1139 Fruit Specialty Dishes
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of various specialty fruit preparations.
Prerequisite(s): CK1138

CK1140 Potatoes
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of potatoes, their selection, storage, preparation and availability.
Prerequisite(s): CK1125, CK1130

CK1141 Potato Specialty Dishes
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various specialty potato dishes and their preparation.
Prerequisite(s): CK1140

CK1145 Rices and Grains
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of various types of rices and grains, their selection, storage and preparation.
Prerequisite(s): CK1125, CK1130

CK1150 Pastas and Dumplings
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of pasta and dumplings and their preparation.
Prerequisite(s): CK1125, CK1130

CK1155 Stocks and Glazes
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of stocks, their preparation, storage and use; demonstrate knowledge of glazes, their preparation, storage and use.
Prerequisite(s): CK1125, CK1130

CK1160 Thickening Agents
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of thickening agents, their preparation and use.
Prerequisite(s): CK1125, CK1130

CK1165 Soups
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of soups, their storage and preparation.
Prerequisite(s): CK1125, CK1130

CK1166 Specialty and National Soups
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various specialty or national soups, their storage and preparation.
Prerequisite(s): CK1165

CK1170 Sauces
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of Mother sauces, their preparation and storage.
Prerequisite(s): CK1125, CK1130

CK1171 Specialty and Derivative Sauces
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of derivative sauces, their preparation and storage; demonstrate knowledge of specialty sauces, their preparation and storage.
Prerequisite(s): CK1170

CK1175 Meat (Cutting and Handling)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of procedures used to cut and handle meat.
Prerequisite(s): CK1125, CK1130

CK1176 Poultry (Cutting and Handling)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of procedures used to cut and handle poultry.
Prerequisite(s): CK1125, CK1130

CK1180 Poultry (Preparation and Cooking)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of procedures used to prepare poultry for a variety of dishes.
Prerequisite(s): CK1125, CK1130, CK1176

CK1181 Stuffings
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of stuffings and their ingredients.
Prerequisite(s): CK1125, CK1130
CK1182 Beef and Port (Preparation and Cooking)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of procedures used to prepare beef using a variety of recipes; demonstrate knowledge of procedures used to prepare pork using a variety of recipes.
Prerequisite(s): CK1125, CK1130, CK1175

CK1183 Veal and Lamb (Preparation and Cooking)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of procedures used to prepare veal using a variety of recipes; demonstrate knowledge of procedures used to prepare lamb using a variety of recipes.
Prerequisite(s): CK1125, CK1130, CK1175

CK1184 Specialty Meat, Game Birds and Venison
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of specialty meats, game birds and venison preparation.
Prerequisite(s): CK1175, CK1176

CK1185 Fish and Seafood
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the types of fish and seafood, their selection, storage and preparation.
Prerequisite(s): CK1125, CK1130

CK1186 Fish and Seafood Specialty Dishes
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the selection and preparation of fish and seafood for a variety of specialty dishes.
Prerequisite(s): CK1185

CK1190 Garnishing and Presentation
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of garnishing and presentation techniques.
Prerequisite(s): CK1125, CK1130

CK1195 Salads and Salad Dressings
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of basic types of salads and salad dressings, their storage and preparation.
Prerequisite(s): CK1125, CK1130

CK1196 Specialty Salads and Salad Dressings
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of specialty salads and salad dressings, their preparation and storage.
Prerequisite(s): CK1195

CK1201 Sandwiches
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of sandwiches and their preparation.
Prerequisite(s): CK1125, CK1130

CK1205 Appetizers
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of various types of appetizers, their storage and preparation.
Prerequisite(s): CK1165

CK1210 Dairy Products
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of dairy products, their selection, applications and quality indicators.
Prerequisite(s): CK1125, CK1130

CK1211 International and Specialty Cheese
Upon successful completion of this course, the apprentice will be able to identify and describe international specialty cheeses and their characteristics.
Prerequisite(s): CK1210

CK1215 Styles of Service (American and Cafeteria)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the American style of service, its associated procedures and techniques; demonstrate knowledge of the Cafeteria style of service, its associated procedures and techniques.

CK1220 Styles of Service (English and Buffet)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the English style of service, its associated procedures and techniques; demonstrate knowledge of the buffet planning, layout and preparation.

CK1221 Styles of Service (French and Russian)
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the French style of service, its associated procedures and techniques; demonstrate knowledge of the Russian style of service associated procedures and techniques.

CK1222 Terrines, Pates, Galantines and Mousse
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of terrines, pates, galantines and mousse, their ingredients and preparation.

CK1223 Chaud-Froid
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of chaud-froid and its preparation for center pieces; demonstrate knowledge of chaud-froid sauces and their use with a variety of food products for display purposes.

CK1225 Breakfast Cookery
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of breakfast foods, their selection, preparation and storage.
Prerequisite(s): CK1125, CK1130

CK1230 Baking Ingredients and Associated Convenience Products
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of baking ingredients and techniques; demonstrate knowledge of baking convenience products and their use.
Prerequisite(s): CK1125, CK1130, CK1235

CK1235 Yeast Products
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of yeast products and their preparation.
Prerequisite(s): CK1125, CK1130

CK1240 Dessert Pies, Fillings and Toppings
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of dessert pies, fillings and toppings and their preparation.
Prerequisite(s): CK1125, CK1130

CK1245 Quick Breads
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of quick breads and their preparation.
Prerequisite(s): CK1125, CK1130

CK1250 Basic Cakes, Icings and Meringues
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of basic cakes, icings and meringues, their preparation and finishing.
Prerequisite(s): CK1255, CK1130

CK1251 Specialty Icings and Meringues
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of specialty icings and meringues, their preparation and finishing.
Prerequisite(s): CK1125, CK1130, CK1250

CK1252 Specialty Cakes
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of specialty cakes and their preparation.
Prerequisite(s): CK1125, CK1130, CK1250

CK1255 Cookies and Squares
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of cookies and squares and their preparation.
Prerequisite(s): CK1125, CK1130

CK1260 Pastries
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of pastries and their preparation.
Prerequisite(s): CK1125, CK1130, CK1240

CK1270 Desserts
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of puddings, Bavarian and mousse and their preparation; demonstrate knowledge of cold desserts and their preparation; demonstrate knowledge of menu planning based on sound nutritional practices.

CK1280 Menu Planning
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of effective menu planning, demonstrate knowledge of the planning, preparation and presentation of a menu; demonstrate knowledge of menu planning based on sound nutritional practices.

CK1285 Menu Costing
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of inventory and costing procedures; demonstrate knowledge of planning and ordering process; demonstrate knowledge of food cost controls and their operation.

CK1540 Basic Desserts
This course is designed to help the apprentice select ingredients, storage and handling, piping, coordinating colours, mounting, portioning and patting baked products, and cleaning up. It includes information on cooking methods, temperatures, synthetic creams and types of basic desserts.
Prerequisite(s): CK1110

CK1800 Merchandising
This course in merchandising requires the use of baking utensils and equipment, and baking supplies. It involves identification and selection of ingredients, handling and storage, portioning, folding, whipping, blending and plating basic desserts, and cleaning up. It includes information on cooking methods, temperatures, synthetic creams and types of basic desserts.
Prerequisite(s): CK1110
CK1810 Basic Cakes
This course requires the use of baking utensils and equipment, and baking supplies. It involves identification and selection of ingredients, storage and handling, portioning, scaling, panning, baking, preparing filling, cooling, decorating and plating basic pastries, and cleaning up. It includes information on types of basic pastries and fillings and preparation techniques.
Prerequisite(s): CK1110

CK1820 Basic Pastries
This course in pastries requires the use of baking utensils and equipment, and supplies. It involves identification and selection, storage and handling, portioning, scaling, panning, baking, preparing filling, cooling, decorating and plating basic pastries, and cleaning up. It includes information on types of basic pastries and fillings and preparation techniques.
Prerequisite(s): CK1110

CK1830 Basic Cookies, Squares and Quick Breads
This course in yeast breads requires the use of baking utensils and baking supplies. It involves identification and selection of ingredients; storage and handling, proofing, panning, baking, docking, glazing, racking and serving basic yeast-raised products. It includes information on temperature guides, types of basic yeast-raised breads and preparation techniques.
Prerequisite(s): CK1110

CK1840 Basic Yeast-Raised Products
This course in yeast breads requires the use of baking utensils and baking supplies. It involves identification and selection of ingredients; storage and handling, proofing, panning, baking, docking, glazing, racking and serving basic yeast-raised products. It includes information on types of baking goods and preparation techniques.
Prerequisite(s): CK1110

CK1850 Speciality Pastries and Fillings
This course in pastries requires the use of baking utensils and equipment, and baking supplies. It involves identification and selection, storage and handling, portioning, scaling, panning, baking, preparing filling, cooling, decorating and plating basic pastries, and cleaning up. It includes information on types of specialty pastries and fillings and preparation techniques.
Prerequisite(s): CK1110

CK1860 Speciality Cookies, Squares and Quick Breads
This course in yeast breads requires the use of baking utensils and equipment and baking supplies. It involves the preparation of specialty cookies, squares and quick breads. It includes information on types of specialty pastries, squares and quick breads, and preparation techniques.
Prerequisite(s): CK1110

CK1870 Speciality Cakes
This course requires the use of baking utensils and equipment, and baking supplies. It involves preparing specialty cakes. It includes information on types of sponges and cakes, and preparation techniques.
Prerequisite(s): CK1110

CK1890 Speciality Cookies, Squares and Quick Breads
This course requires the use of baking utensils and equipment and baking supplies. It involves the preparation of specialty cookies, squares and quick breads. It includes information on types of specialty cookies, squares and quick breads, and preparation techniques.
Prerequisite(s): CK1110

CK1900 Speciality Yeast-Raised Products
This course in yeast breads requires the use of baking utensils and equipment, and baking supplies. It involves the preparation of specialty yeast-raised products. It includes information on temperature guides, types of specialty yeast-raised breads and preparation techniques.
Prerequisite(s): CK1110

CK1910 Speciality Cold Desserts
This course in desserts requires the use of baking utensils and equipment, and baking supplies. It involves the preparation of specialty cold desserts. It includes information on types of specialty cold desserts and cooking methods.
Prerequisite(s): CK1110

CL1100 Chemical Engineering Calculations
This course reviews the basic units used in chemical engineering and introduces American Engineering units. Emphasis is placed on converting between units and developing problems solving skills. The concept of material balance is introduced and students learn to solve material balance problems. Stoichiometry of industrial chemical reactions is examined and calculations associated with these are learned. Heat, heat transfer and heat balance are also examined as they apply to chemical processes. Students learn to solve energy balance problems.
Prerequisite(s): CH1121
Co-requisite(s): CL1500

CL1500 Chemical Reactors and Mixing
This course introduces students to the mixing processes which are fundamental to many chemical processes. The role of mixing and factors affecting mixing as well as different mixing devices are studied. In chemical engineering, chemical reactions take place in chemical reactors. A variety of chemical reactors will be examined and in-depth study of batch, and continuously stirred tank reactors will take place. Simulation and laboratory work will be used to teach students the fundamentals of safe and correct start-up, shut-down, and control and troubleshooting of mixing tanks and reactors.
Prerequisite(s): POT1200
Co-requisite(s): CL1100

CM1060 Essential English I
Essential English I is a Comprehensive Arts and Science (CAS) College Transition course. It is the first of two English courses designed to give students a solid foundation in writing skills and to prepare them for success in subsequent post-secondary studies. Through varied writing assignments and revisions, students will achieve a College level of proficiency in English. Students may also meet the admission requirements for CAS Transfer: College-University and other post-secondary programs through the successful completion of Essential English I and II.

CM1061 Essential English II
Essential English II is a Comprehensive Arts and Science (CAS) College Transition course. It is the second of two English courses designed to give students a solid foundation in writing skills and to prepare them for success in subsequent post-secondary studies. Through varied writing assignments, revisions and numerous grammar exercises, students will achieve a College level of proficiency in English. Students may also meet the admission requirements for CAS Transfer: College-University through the successful completion of this course.
Prerequisite(s): CM1060

CM1100 Communications-Writing Fundamentals
Writing Fundamentals is an introductory course designed to review writing fundamentals. It includes an introduction to writing tools and a review of grammar, punctuation, spelling, and usage. Students will apply principles of writing in sentence and paragraph construction.

CM1120 Critical Reading and Writing I
Transferable to MUN English 1080 or 1000. An introduction to critical reading, which will include such forms as poetry, short fiction, drama and the essay. Emphasis is placed on critical reading and writing: analyzing texts, framing and using questions, constructing essays, organizing paragraphs, quoting and documenting, revising and editing.
Prerequisite(s): Minimum of 60% in Language 3101 and a minimum of 60% in either Thematic Literature 3201 or Literary Heritage 3202 or English 3201 (minimum of 60%).
Transferable to MUN English 1080

CM1135 Critical Reading and Writing II (Fiction)
Transferable to MUN English 1101 or 1001. This course is an introduction to such prose narrative forms as the novel, the novella, the story sequence and the autobiography. This course continues the emphasis on critical reading and writing begun in CM1120. It also introduces the student to longer prose narrative, particularly the novel form and to the practices of conducting research.
Prerequisite(s): CM1120 or MUN English 1080.

CM1145 Critical Reading and Writing II (Context, Substance, Style)
Transferable to MUN English 1110 or 1001. This course is an introduction to the writing and analysis of prose. Students will analyze prose writing and practice a number of writing strategies that consider a variety of audiences and purposes. The course further develops the development of writing and analytical skills acquired in CM1120. English and introduces the student to writing intended to critique, persuade, and analyze.
Prerequisite(s): CM1120 or MUN English 1080.

CM1155 Critical Reading and Writing II (Drama)
Transferable to MUN English 1102 or 1001. This course is an introduction to the study of plays, primarily as written texts. Elements of theatre history and dramatic theory and of live performance production processes may be introduced to enhance students’ understanding of this uniquely hybrid literature. This course continues to develop the critical reading and writing skills introduced in CM1120.
Prerequisite(s): CM1120 or MUN English 1080.

CM1165 Critical Reading and Writing II (Poetry)
Transferable to MUN English 1103 or 1001. English CM1165 introduces the writing and analysis of poetry. This course continues to develop critical reading and writing skills introduced in CM1120. Students will also learn to develop library/research skills.
Prerequisite(s): CM1120 or MUN English 1080.

CM1180 College English I (Reading Across the College Curriculum)
This is an English course designed for Comprehensive Arts and Science students who need to improve their reading skills and strategies in order to successfully complete the reading requirements of their chosen post-secondary program. The course focuses on the common elements of successful reading across all curriculum areas, as well as the ways in which various areas require the use of different reading skills and strategies. The principal focus of this course is reading to learn. Students will strengthen reading skills and develop strategies appropriate to their areas of study through working with selected course materials and exercises in various curriculum areas (including math and laboratory sciences).
at the introductory level of their chosen post-secondary program.

**CM1200 Oral Communications**
This is a seminar course in public speaking which attempts to blend theory and practical skills. In addition to considering how oral communications affect group and interpersonal relationships, the student will analyze techniques in the preparation and delivery of oral communications and will practice these techniques in prepared and impromptu speeches.

**CM1230 Communications for Rehabilitation Assistants**
- This course is designed to teach students the fundamentals of communication in both oral and written forms. Emphasis is on strategies for writing, researching techniques and organizational skills. Topics include: characteristics of report writing, introduction to oral reporting, use of abstracts and correspondence.

**CM1240 Business Communications I**
- Business Communications I is designed to introduce students to the writing requirements of business environments. The course is intended to provide ample in-class opportunities to review writing fundamentals and improve writing skills using common business applications.

**CM1241 Business Communications II**
- Business Communications II is designed to further students’ knowledge and competence in preparing business documents for the workplace. The course is intended to provide opportunities to improve writing skills using various business applications. 

**Pre requisite(s):** CM1240

**CM1320 Workplace Writing**
This course is designed to introduce students to written communication in the workplace and provide considerable practice in constructing and editing effective sentences and paragraphs.

**CM1400 Technical Report Writing I**
- This course is designed to teach technology students the fundamentals of technical reporting in oral and written forms. Emphasis is on strategies of technical reporting, research techniques and organizational skills.

**CM1401 Technical Report Writing II**
- This course is designed to help students formulate criteria for structuring informal and semi-formal reports. Various report formats will be examined with emphasis on statistical data analysis, documentation and illustration methods. Oral reporting techniques will be enhanced through problem-solving reports and the technical sales presentation.

**Pre requisite(s):** CM1400 or equivalent

**CM1450 Writing Fundamentals for the Workplace**
This course is designed to introduce students to written communications in the workplace and provide considerable practice in constructing and editing effective sentences and paragraphs and writing clear, concise summaries that are properly documented.

**CM1470 Communications**
- This module will provide the student with the confidence and ability to effectively communicate to various audiences using a variety of mediums, whether it is verbal or non-verbal forms of communication. The module will cover both practical and theoretical information on oral and non-verbal communications, listening and questioning skills, preparing and conducting presentations, media relation skills and proper radio procedures.

**CM1500 Essay Writing**
This course is designed to teach the student fundamental writing skills. Emphasis is on acquiring strategies and techniques for developing effective essays. Students write essays to demonstrate their mastery of the various strategies and techniques.

**CM1520 Writing for the Arts**
This course will introduce students to the writing of artistic critiques, appreciations, and proposals. Emphasis will be placed on applied writing exercises that require philosophical reflection and that will extend students’ vocabulary and increase their effectiveness as communicators in their field.

**CM1530 Proposal Writing**
In this course students will learn the necessary skills to write successful proposals. Students will formally research funding sources, identify personal areas of interest, and complete an actual proposal for submission. Students will also be expected to present, defend, and critique their proposals.

**CM1550 Creative Writing**
This course provides an opportunity for students who are interested in writing poetry, short fiction, or drama to share ideas and innovations. Students will examine a variety of themes, styles, and techniques which can broaden their own creative explorations. The course encourages students to discover and develop styles appropriate to their own literary aspirations.

**CM1560 Writing from Original Sources**
Students in this course develop multimedia content from original sources such as recall, interviews, research, conversation and imagination. Students keep a personal journal, develop creative writing skills through various writing exercises and develop written content for multimedia applications.

**Pre requisite(s):** CM1400

**CM2100 Workplace Correspondence**
- Communications 2100 gives students the opportunity to study the principles of effective writing. Applications include letters, memos, and short report writing. This course also allows students to explore job search techniques.

**CM2150 Workplace Communications**
This course gives students the opportunity to study the principles of effective writing. Applications include letters, memos, and short report writing. This course also allows students to explore job search techniques.

**CM2200 Oral Communications**
- This course is designed to help students develop interpersonal, oral communication, and presentation skills in a team-based environment.

**CM2300 Report Writing**
- This process will stress skill development in planning, researching and documenting, preparing graphic aids, proofreading and editing, and completing formal reports.

**CM2450 Note-Taking & Report Writing**
- The notebook is one of the most important tools for the conservation enforcement officer. The practice of writing, using good grammatical style, sentence structure, punctuation, diction and spelling will be stressed throughout this module. The report writing component will deal with field and other sources of information obtained from diagrams, maps, and photographs.

**CM2800 Oral/Written Communication Skills**
This course will provide students with instruction in the areas of written technical reports and the delivery of oral presentations. Emphasis will be placed on the processes involved in effective writing and effective presentations as they pertain to specific technologies. Students will learn relevant skills for researching, organizing, writing and presenting technical information.

**Pre requisite(s):** CM1401

**CP1120 Fundamentals of Programming I**
This course is designed to give the student the logic involved in the computing process and the ability to develop an algorithm to describe the solution to a given problem. The student will analyze, design, choose an algorithm, code test and debug applications. Algorithms will be implemented using an object oriented programming language.

**Co-requisite(s):** MAT1150, MAT1900

**CP1130 Computer Programming**
To develop the ability to reduce an algorithm into linear component form usable by computer. The use of a computer programming language is explored to facilitate the solution of the algorithm.

**Pre requisite(s):** SU1310

**CP1150 Visual Basic**
- This course introduces students to WINDOWS programming using Visual Basic. Relational database concepts will be employed as attractive and useful applications are developed taking advantage of the Graphical User Interface.

**CP1160 Intro to the Internet**
- The Internet is today’s most powerful communication and information resource – providing to millions of people all over the world access to information archives and to each other via a variety of protocols. The Global Area Network (GAN) - Internet course is intended to teach students how to access the Internet as well as to understand the underlying concepts and strategies for finding and using resources. An assortment of tools and protocols will be explored including E-Mail, Listserv, Usenet, Gopher, Telnet, FTP, WAIS and Web Browsers - providing a solid foundation in Internet access to the student, invaluable in navigating the shifting landscape of the Internet.

**CP1250 Programming Fundamentals**
This course introduces the fundamental concepts of problem solving and procedural programming techniques used to design and implement computer solutions to problems in engineering and mathematics. Topics include algorithms and problem solving strategies, syntax, and semantics of a higher level programming language (Java), variables, types, arithmetic and logic expressions, assignment statement, decision making, iteration, methods, arrays, strings, I/O and elements of event driven programming (Java applets).

**CP1280 Windows Client**
This course is intended to provide the skills necessary to provide a stable, secure, and efficient desktop environ-
ment for Windows client operating systems. Topics include automated deployment, updates, network configuration, operating system optimization, and backup across multiple versions of Windows operating system.

**Prerequisite(s):** CR1100, CP1310

**CP1310 Windows Server Administration**
This course provides students with the knowledge and skills to perform post-installation and day-to-day administration in Windows domain.

**Prerequisite(s):** CR1100

**CP1320 Computer Troubleshooting**
This course is designed to introduce students to service and maintenance of computer peripheral equipment as well as advanced servicing procedures.

**Prerequisite(s):** CP2600 or CP1610

**CP1330 Windows Server Administration**
This course provides students with the knowledge and skills to perform post-installation and day-to-day administration tasks in Windows domain.

**Prerequisite(s):** CR1100

**CP1331 Advanced Windows Enterprise Server**
Building on the skills developed in CP1310 Windows Server Administration, this course enhances the student’s ability to administer a Microsoft Server. It focuses on the advanced features such as the implementation and management of forests, group policies, name resolution, remote access and security.

**Prerequisite(s):** CR1100, CP1330

**CP1340 Object Oriented Programming**
The course is designed to give the students a thorough grounding on the principles of object oriented programming and modeling with the unified modeling language (UML). Additional topics include exception handling, multithreading and networking in the Java programming environment.

**CP1360 Programming for Computer Systems Networking**
This course is designed to give the student the logic involved in the computing process and the ability to develop algorithms to describe the solution to a given problem, with implementation using a scripting language. This course uses object-oriented technologies to aid the student in developing solutions to computer support related problems. The intent of this course is for the student to become familiar with object-oriented techniques and programming logic and to practice that logic using scripting language.

**CP1400 Website Analysis and Design**
This course introduces students to the concepts of website analysis and design. Emphasis is placed on designing an effective website. Other components involve optimization of a website.

**CP1450 Operating Systems**
This course is an introduction to the fundamental concepts of the Windows Operating Environment. Students will apply these concepts through practical applications.

**CP1510 Windows Operating Systems**
This course exposes the student to the Windows operating system. It is anticipated that the student will have access to the most recent version of Windows. This course may include a CD-based learning tool. Important operating system concepts and capabilities will be included in the course. Emphasis is on understanding and utilizing the Windows operating system through a hands-on approach. An introduction to DOS will be introduced through the Windows environment. Emphasis in this course will be on file management in a Windows environment.

**CP1610 Introduction to Computer Components**
This course is designed to expose students to the basic components of a computer system. The focus will be towards having the students identify and describe computer components. Students will not be required to configure or install computer components. It will also introduce the topics of PC management such as Disk Fragmentation, Disk Compression, Virus Protection, Data Recovery, Disk Caching, Memory Management and the use of RAM Drives.

**CP1830 Programming I**
This course is designed to give the student the logic involved in the computing process and the ability to develop an algorithm to describe the solution to a given problem, with implementation using a programming language. This course uses object oriented technologies using the programming framework to aid the student in developing solutions to business problems. The intent of this course is for the student to become familiar with object oriented techniques and common programming logic and to practice that logic using an object oriented programming language. The student should also be able to develop a solution to a programming problem.

**CP1831 Programming II**
This course is designed to give the student intermediate skills in the computing process and the ability to develop an algorithm to describe the solution to a given problem, with implementation using a programming language. This course uses object oriented technologies using the .NET framework to aid the student in developing a windows GUI solution to business problems.

**CP1910 Internet Fundamentals**
The Internet is today's most powerful communication and information resource-providing to millions of people all over the world, access to information archives and to each other via a variety of protocols. The introduction to the Internet course is intended to teach students how to access the Internet as well as understand the underlying concepts and strategies for finding and using resources. An assortment of tools and protocols will be explored including E-mail, FTP, Web Browsers, and simple Web Page design providing a solid foundation in Internet access to the student, invaluable in navigating the shifting landscape of the Internet.

**CP1920 Computer Hardware and Troubleshooting I**
This course is designed to expose the students to the basic components of a computer system and methods of troubleshooting the components. The student will learn how to: evaluate, install, configure, troubleshoot and specify all basic components such as CPUs, Memory, and Storage Devices. It will also cover such topics as: PC repair fundamentals, chipsets, busses and expansion slots.

**CP1921 Computer Hardware and Troubleshooting II**
This course is designed to expose the students to another level of components of a computer system and methods of troubleshooting those components. It will teach the student how to evaluate, install, configure, troubleshoot and specify all basic components such as I/O Devices, Input Devices, Output Devices, Communication Devices. It will also cover such topics as: PC Management, Virus Protection, Software Troubleshooting, Preventative Maintenance and Documentation.

**Prerequisite(s):** CP1920

**CP1930 Introduction to Systems Analysis and Design**
This course is intended to introduce students to the concepts of systems analysis and design using both the traditional and object-oriented methodology. Its emphasis is on the methods and products of each phase of the SDLC rather than on a formalized methodology. Discussion of structured and Object Oriented methods is interwoven. All phases of the life cycle are dealt with emphasis on an object-oriented approach using UML.

**Prerequisite(s):** CP1830

**CP1940 Website and Web Server Development**
This course is designed to provide students with the skills required to develop, establish, configure, and maintain a web site. The student will develop and publish web pages using HTML and XML. They will configure a web server so that they will have an overview of this process only, and produce dynamic web pages.

**Prerequisite(s):** CP1100, CP1830

**CP1950 Object Oriented Development with UML**
This course is a second course in Systems Analysis and Design that focuses on object-oriented concepts. The aim is to provide the student with a practical, hands-on skill set of the latest object-oriented design method using Unified Modelling Language (UML) and the Unified Process. The course is laboratory oriented allowing the student to develop real design for use with Object Oriented and traditional programming languages.

**Prerequisite(s):** CP1930, CP1431

**CP1951 Systems Project III**
This course presents advanced topics in ensuring high quality testing and quality assurance. All levels of testing, standards and QA are explained and presented based on current industry standards. Various reporting methods are introduced to describe testing and quality assurance methods used to ensure that the application system produced meets standards. Students will be required to produce a system from start to finish as a part of a team.

**Prerequisite(s):** CP1930, CP1950

**CP1960 Microcomputer Database Programming**
This course will introduce the student to application development in an integrated development environment. The development environment is supported by relational database technology, is essentially object oriented, and involves visual programming using the appropriate code. The student will learn to develop typical commercial and production oriented applications.

**Prerequisite(s):** CP1150, MC1801

*Available through College Distributed Learning Service*
CP1970 Introduction to Java for Experienced O-O Programmers
This course is designed to give the student an introductory course in object oriented Java. The outline is developed based on the objectives for the Sun Java2 Certification objectives. The Java II course would have to be completed in order to cover all objectives for the certification exam. This is not a graphical user interface course. It is intended to give the student a good introduction to working with Java and Object-Oriented concepts.
Prerequisite(s): CP1971, CP1980

CP1971 Java II
This course is designed to give the student an advanced course in object oriented Java. The outline is developed based on the objectives for the Sun Java2 Certification objectives. This course is intended to give the student knowledge of the advanced concepts in Java Programming. The student will be able to produce multi-threaded programs which function as a stand alone Java application or secure, browser based applet.
Prerequisite(s): CP1970

CP1980 Website Scripting
This course is designed to provide students with the skills required to build Web Pages using Scripting. The student will develop and publish web pages using HTML and SML. The web pages will access a database. They will develop web pages using server-side and client-side scripts.
Prerequisite(s): CP1940, CP1830

CP2050 Using Windows 95/NT
This course is an introduction to the fundamental concepts of the Windows 95 operating environment and the Windows NT Workstation. The student will apply Windows 95 and Windows NT concepts throughout practical applications.

CP2120 Introduction to Programming II
This course is meant to take the students further in the problem solving, logic, and programming techniques introduced in the first programming course. This course must use the same programming language as the first programming course so that advanced concepts can be developed. The student will design and create interactive commercial and production-oriented applications.
Prerequisite(s): CP1120

CP2130 Fundamentals of Programming II
This course is designed to take the students further in the problem solving, logic, and programming techniques introduced in CP1120. This course uses the same programming language as the first programming course so that advanced concepts can be developed. The student will design and create interactive commercial and production-oriented applications.
Prerequisite(s): CP1120

CP2170 Windows Server
This course provides students with the knowledge and skills to install, configure, integrate, optimize, troubleshoot, and support Microsoft Windows Server
Prerequisite(s): GR1100

CP2190 Unix
This course is an introduction to the fundamental concepts of the Unix operating system. Students will apply these concepts through practical applications.

CP2260 Legacy Systems
This computer programming course will teach the students how to design COBOL programs. The emphasis of the course will be on how structured programs are best designed and organized as well as the rules for programming in COBOL.
Prerequisite(s): CP1120

CP2280 Object-Oriented Programming in Java
This course is an object-oriented programming for students with no experience with Java but some knowledge of a strongly typed language. Examples and assignments typify standard business applications. The course stresses key object-oriented design concepts and their implementation rather than exhaustive coverage of the Java language itself.
Prerequisite(s): CP1120

CP2310 Electronic Spreadsheet Applications
This course introduces students to the concepts and applications of electronic spreadsheets.
Prerequisite(s): One of: CP1450, MC1050, MC1100, MC1800 or MC1220

CP2320 Micro Database Applications
This course introduces the student to the concepts and applications of database.
Prerequisite(s): One of: CP1450, MC1050, MC1000, MC1800, MC1220

CP2340 Desktop Publishing
Using desktop publishing software, students will prepare newsletters, flyers, and other publications which require professional design elements such as columns, boxes, various type fonts and styles, rules, and graphic pictures.
Prerequisite(s): MC1000

CP2370 Multi-User Database Programming
This course is intended to illustrate how to develop and program in a multi-user database environment. This course also illustrates how to create, populate, and query databases in a relational database environment using SQL and SQL PLUS. In addition to this, it shows how to design interactive applications using a GUI-based form and report generator.
Prerequisite(s): CP3410

CP2440 Web Server
This course provides students with the knowledge and skills to install, configure and manage Microsoft Internet Information Server.

CP2450 Web Server II (Apache)
This course introduces students to the Apache Server. Emphasis is placed on maintaining and allowing interactions on an Apache Server. Other components involve the configuration and installation of the Apache Server.
Prerequisite(s): CP2510

CP2460 CGI Programming
This course introduces students to the concepts of Common Gateway Interface applications. Emphasis is placed on designing useful CGI applications. Other components involve dynamic content and its use.
Prerequisite(s): CP1120

CP2480 Microcomputer Database Programming
This course will introduce the student to application development in an integrated development environment. The development environment is supported by relational database technology, essentially object oriented, and involves visual programming using the appropriate code. The student will learn to develop typical commercial and production oriented applications.
Prerequisite(s): CP1120

CP2481 Microcomputer Database Programming
This course will introduce the student to application development in an integrated development environment. The development environment is supported by relational database technology, essentially object oriented, and involves visual programming using the appropriate code. The student will learn to develop typical commercial and production oriented applications.
Prerequisite(s): CP1120, MC1805

CP2510 Unix Management
This course will teach students how to install and configure a Linux PC based Unix system. It should also teach students the basics of the Unix operating environment. Topics to be covered include files and directory manipulation, configuring the user environment, multitasking, communications tools, via editor, batch programming, piping, and the Unix shell programming language.
Prerequisite(s): CP2190

CP2530 Data Structures and Algorithms
This course builds on the foundations provided by Programming Fundamentals CP1250, Object Oriented Programming CP1340, and Discrete Mathematics MA2710 sequence to introduce the fundamental concepts of data structures and the algorithms that proceed from them. Topics include the basics of analysis and design of algorithms and fundamental data structures including stacks, linked lists, queues, hash tables, trees and graphs.
Prerequisite(s): CP1340, MA2710

CP2560 Advanced J2SE Programming
This is a second course in Java for students who have already completed a one-semester course in object-oriented programming in Java. Examples and assignments typify standard business applications. The course stresses using object-oriented design concepts to develop relatively sophisticated graphical applications in Java. Topics include but are not limited to: String Processing; Graphics and Java2D components; Advanced Swing GUI Components and Event-handling; Exception Handling; Multithreading; File and Stream I/O; Internet Networking; Multimedia; Utilities Package and Bit Manipulation; Collections API.
Prerequisite(s): CP2280

CP2600 Computer Hardware Fundamentals
This course is designed to expose the student to the basic components of a computer system. It will teach the student how to evaluate, install, configure, and specify all basic computer components such as CPU, Memory, Hard & Floppy Drives, Power Supplies, Network Cards, Video Cards, Sound Cards, and Modems. It will also cover topics in PC management such as Disk Defragmentation, Disk Compression, Virus Protection, Data Recovery, Disk Caching, Memory Management, and the use of RAM Drives.
Prerequisite(s): ET1101

CP2610 Scripting Languages
This course is designed to introduce students to the fundamentals of client-side scripting languages.
Prerequisite(s): CP1120

CP2640 Desktop Publishing
Using desktop publishing software, students will prepare newsletters, flyers and other publications which require professional design elements such as columns, boxes, tables, various font faces and styles, rules, and graphic pictures.
Prerequisite(s): DM1200 or MC1221
This course is designed to help the student understand the workings of project management/analysis and understand its importance to improving the success of information technology projects. The student will complete a major project that concentrates on project management/analysis as it applies to the infrastructure support area.

**Prerequisite(s):** CR1100

### CP2830 Programming III
This course is designed to give the student advanced skills in the computer programming process. This course uses object oriented technologies using the .net framework to aid the student in developing solutions to business problems. It incorporates advanced skills required in the programming field such as multi-tier computing, multi-threading, and data access using ADO.net.

**Prerequisite(s):** CP1831  
**Co-requisite(s):** CP1940

### CP2831 Programming IV
This course is designed to give the student advanced skills in the computer programming process. It uses ASP.net for creating high-performance, high productivity web-based applications using server-side Visual Basic, C#, or JavaScript. The students will learn to use the Visual Studio.NET to create ASP.NET applications. They will create applications, using web forms that access server-side databases.

**Prerequisite(s):** CP2830, CP1940

### CP2920 Computer and Hardware Troubleshooting III
This course is designed as a continuation to Hardware I and II. Its main purpose is to provide the student with the hands on skills required to install, configure, and use, peripheral devices that are not covered in Hardware I and II. Examples of these devices are Video Capture Boards, Scanners, Printers, PC Cards, Tape Backup Systems and Cabling.

**Prerequisite(s):** CP1920, CP1921

### CP3110 MS-DOS
This course is intended to provide the student with a fundamental knowledge of personal computer (IBM compatible) hardware, operation and configuration. The MS-DOS operating system will be explored in detail and students will learn by hands-on application of concepts and procedures covered. The course will also involve setup and operation of MS-Windows.

**Prerequisite(s):** CP1120, CP1120

### CP3120 Command Line
Interacting with the operating system without using a GUI requires the use of text commands in a shell environment; this is called a command line. Navigating the command line is an essential skill for the computing professional. In this course the student learns to interact with, configure and troubleshoot the operating system using command line processes. The student will learn by the “hands-on” application of the commands and procedures.

**Prerequisite(s):** CP1120 or CT1120

### CP3200 Object-Oriented Programming
This course introduces students to the principles of object-oriented programming using the C++ language. Emphasis is placed on understanding key object-oriented concepts and how they are implemented in the C++ language.

**Prerequisite(s):** CP1120 or CT1120

### CP3410 Fundamentals of Database Design
This course introduces concepts common to all database management systems in such a way that the student can function in a meaningful and knowledgeable manner in any data processing environment where database concepts are implemented. Additionally, current theoretical concepts are put into practice using current database architectures and technology.

### CP3420 Systems Analysis & Design I
This course presents an overview of the system development life cycle. Its primary emphasis is on the methods and products of systems analysis geared towards system documentation rather than towards the formal strategies and techniques of systems analysis and system design. Analysis tools are employed to document an existing system from a physical and logical perspective. Discussion of classical and structured methodologies are interwoven as a foundation for advanced study of analysis and design. The analysis phase will be stressed most heavily but the concerns and products of the design phase are introduced. Considerable emphasis is placed on learning to use the tools of structured analysis. This course will also expose the students to the use of CASE tools for system analysis and design.

### CP3421 Fundamentals of Systems Analysis and Design
The first Systems Analysis and Design course presents an overview of the complete system development life cycle (SCLC). It gives a fundamental overview of the effective analysis, design and implementation of business-related problems. It also concentrates on requirements definition, system feasibility and design and implementation considerations utilizing the traditional SDL methodology. A case study approach is used to provide students with an opportunity to practice required skills and knowledge in a simulated real-world environment with a focus on teamwork. Typical business problems are dealt with at length. Analysis tools are employed to document an existing system from both a physical and logical perspective. The course will also utilize a CASE tool in the preparation of system documentation and diagrams.

**Prerequisite(s):** CP2130, EP1150

### CP3480 Introduction to Software Engineering
The course introduces students to the principles of software engineering, object oriented modelling and analysis of large software systems using unified modelling language (UML) and different phases of software life cycle requirements, analysis, design, implementation and testing. Development of significant software system is crucial part of the course.

**Prerequisite(s):** CP2530

### CP3520 Databases
The course introduces students to the principles of database design and implementation as well as administration of database management systems. Development of significant database system is crucial part of the course.

**Prerequisite(s):** CP2530

### CP3560 Java Web Component Development
This is a course in server-side Java programming using the Java Enterprise Edition (J2EE) API. Students must have a good understanding of object-oriented programming in Java and have some experience in using the major components of the Jave Standard Edition (J2SE) API. The course will enable students to develop server-client business applications using web components, servlets and Java Server Pages technologies. This is a third course in Java programming for students who have already completed 2 one-semester courses in object-oriented in J2SE programming in Java. Examples and assignments typify standard client-server business applications in an intra- or internet environment. The course stresses application of the MVC architecture using the J2EE API including both servlet and JSP technologies.

**Prerequisite(s):** CP2280, CP2560

### CP3561 Java Database and Web Component Development
This is the third course in the Java sequence. The student will learn techniques to manipulate databases using JDBC technology as well as create web components using JavaServer Faces components and AJAX enabled JavaServer Faces. The programs and services created will use Java data types and Swing controls that reinforce the Model-View-Controller architecture. Examples and assignments typify standard client-server business applications in an intra- or internet environment.

**Prerequisite(s):** CP2560, CP4411

### CP3620 Web Programming
This course is designed to give students a thorough understanding of web technologies. Topics include client-server architecture, protocols, server side includes, scripting languages, security and object request broker architecture.

**Prerequisite(s):** CP3480, CP3520, CE3400

### CP4411 SQL Using Oracle
This course is intended to illustrate how to develop and query databases and how to develop database programs using Oracle. This course also illustrates how to create, populate, and modify database tables. It illustrates how to create triggers, procedures and functions using PL/SQL programming constructs. Database administration functions such as the data dictionary querying, and creating users, roles and privileges, and granting, revoking and denying are also included.

**Prerequisite(s):** CP3410

### CP4420 Systems Analysis & Design II
This course is an advanced study of systems development. It is a course of problem solving, wherein the students apply strategies and techniques for dealing with complex systems. This course should employ major project(s) that concentrate on the structured analysis process, the transition from analysis to design, the characteristics of good design, and the techniques of structured design. This course will also expose the students to the use of CASE tools for systems analysis and design.

**Prerequisite(s):** CP3420

### CP4460 Client-Server Database Systems
This is a course in theory and application of client-server database concepts using current, industry-leading software. This course enables the student to develop simple, robust, efficient Client-Server database systems. Students learn about Client-Server theory and put it to practice using current industry-leading products to create and link the front-end (client) and back-end (server) components of a Client-Server system. Students learn about design issues and deal with them in practice, and examine current product offerings.

**Prerequisite(s):** CP1120, CP3410

### CP4461 Database Programming using ADO.NET
This course shows the students how to write programs that manipulate databases in stand alone programs using ADO.NET and in Web based programs using a combination of ADO.NET and ASP.NET.

**Prerequisite(s):** CP2130, CP4411  
**Co-requisite(s):** PR2460

### CP4470 Emerging Trends in Industry
This course covers a selected area(s) of computing with a unifying theme to be explored in-depth. The topics are

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selected to focus on a program that has not been fully explored in the student’s program to date. The aim of this course is to complement or supplement previous training or to augment training in response to current trends or an unseen deficiency in student knowledge of specific topics.

**Prerequisite(s):** Depends on topics selected.

### CP4471 Emerging Trends in Software Development

This course covers trends in software development that arise from the natural evolution of the field. Topics are selected with the aim of exposing the student to the new and/or evolving techniques and/or technologies used in software development.

**Prerequisite(s):** Depends upon the topic(s) selected.

### CR1100 Networking Fundamentals

This course introduces students to networking. Students will learn about the OSI model and explore devices, technologies, and protocols that operate at each layer. Students will gain practical experience working with cabling, design techniques and basic installation of networking devices. The focus of this course is Local Area Networks.

### CR1200 Computer Security

Not many years ago, most computers were carefully guarded mainframes, held tightly in the hands of skilled professionals. Today's computer world has adopted an entirely different paradigm which empowers users through distributed networks and stand-alone computers. The openness of wide area networks, such as the internet, has brought computer security to the forefront. This purpose of this course is to introduce students to the importance of protecting computer resources and aids the individual in setting up a secure computing environment.

### CR1240 Information Security

Not many years ago, most computers were carefully guarded mainframes. Today’s computer world has adopted an entirely different model that empowers users through distributed networks and stand-alone computers. The openness of wide area networks, such as the internet, has brought computer security to the forefront. This course offers the student an insight into the complete computer security picture and aids the individual in set up a secure computing environment.

### CR1260 Client Service for the Computer Industry

This course focuses on the role of an information technology employee in providing quality technical client service in any given situation. Students will develop the skills they need to interact effectively with clients, either face-to-face, on the telephone, in writing or on the web. Some of the topics covered will be Quality Client Service; Communicating with Clients; Handling Difficult Clients; Solving and Preventing Problems; Working as a Team; and Managing Stress and Burnout.

### CR1310 Network Troubleshooting

This course is designed to teach students how to troubleshoot, identify, isolate and cure LAN faults, by addressing problems related to cables, NICs, protocols and network operating systems.

**Prerequisite(s):** CP2600, CP1610

### CR1340 Computer Networking Operations

This course is intended to give Manufacturing Operations Technology students an overview of computer networking, data communications, and operating system applications found in processing industries. The student will be exposed to data communications standards and systems, network topologies, Communication Media, Communication Hardware, LAN Protocols, and Microsoft Operating Systems.

**Prerequisite(s):** CR1150

### CR1450 TCP/IP

This course is an in-dept introduction to the architecture of the TCP/IP protocol suite. It contains detailed descriptions of the major protocols and principles underlying their operation. It provides students with the knowledge and skills required to set up, configure, use and support Transmission Control Protocol/Internet Protocol (TCP/IP).

**Prerequisite(s):** CR1100

### CR1500 Website Development

This course is designed to provide students with the skills required to develop a comprehensive website. The course is targeted at a non-technical end-user who will not be involved in installing and configuring network applications. As such, this course emphasizes the creative use of the technologies.

### CR1510 Website Development

After completing this course the student will be trained in the essential concepts of XHTML and JavaScript. The student will begin with developing a basic web page and move on to developing a basic website. Then the student will create web page forms, and work with cascading style sheets. Next, the student will work with JavaScript to create dynamic web pages and websites.

### CR1520 Website Design

This course is designed to provide advanced graphic design students with the skills necessary to design and develop a web site. The course emphasizes design issues over programming skills. Students will be introduced to basic programming in HTML and will learn how to develop sophisticated page layouts and images for websites.

**Prerequisite(s):** All first year graphic design courses and all semester 3 graphic design courses.

### CR1521 Advanced Website Design

This course is designed to provide students with the skills required to develop visually rich and interactive web sites. Creating vector-based animations and interactive multimedia content will be an emphasis of this course. Students should already be familiar with how to design and program a web site.

**Prerequisite(s):** Successful completion of all core Graphic Design courses in semesters 1 through 4, and the first Intersession.

### CR1550 Website Trends

This course includes selected areas of computing with a unifying theme (instructor's choice) to be explored in depth. The topics may be selected from: Data Communications, WebSite Administration, WebSite Management, WebSite Design, WebSite Server, E-commerce, and/or other related areas. Course material will be selected in the semester prior to the semester in which the course will be delivered.

### CR2110 Novell Netware

The purpose of this course is to introduce students to the NetWare network operating system, its major features, the installation and configuration process, the principals and tools for effective network management, and troubleshooting techniques to keep the network running smoothly.

**Prerequisite(s):** CR1100

### CR2120 Network Management SMS-SNMP

The focus of this course is on network management. It covers network management principles such as virus protection, security, software management, disaster prevention, and hardware management. Software management is performed by providing the student with the knowledge and skills required to install, configure, administer, and troubleshoot Microsoft Systems Management Server (SMS). This includes collecting hardware and software inventory, distributing software to client computers, managing shared applications, querying the SMS database, and using remote control functions to diagnose and solve common problems. This course also teaches students how to manage and troubleshoot network hardware through the use of SNMP.

**Prerequisite(s):** CP2170, CR1100

### CR2130 Enterprise Management using SMS

This course provides the student with the knowledge and skills to management client and server systems using a centralized management suite to provide a stable and secure computing environment.

**Prerequisite(s):** CR1100, CP1330

### CR2220 Groupware

The focus of this course is on the planning, installation, configuration, and support of enterprise mail systems.

**Prerequisite(s):** CR1100

### CR2230 Microsoft Exchange Server

Since its inception as a text messaging service for locally-connected computers, email has evolved into a globally-connected information sharing and collaboration system. Understanding the interconnection between clients, servers, and other networked email systems is vital to maintaining business communications. This course focuses on the planning, installation, configuration, and support of a Microsoft Exchange Mail Server. This would include mail concepts, server installation, client configuration, server management and configuration, public folders in a multiple-site environment, troubleshooting, and security.

**Prerequisite(s):** CR1100, CP1330

### CR2240 Information Systems Security

This is an introductory course that will give the student a general understanding of the field of Information Security. Topics discussed will be taken from the domains defined by ComPTA, including general security concepts, communication security, infrastructure security, basics of cryptography and operational and organizational security.

**Prerequisite(s):** CR1100, CP1330, CR2510

### CR2310 Network Analysis & Design

This course is designed to teach the fundamental knowledge needed to design, configure, and implement local area networks. The course emphasizes the integration of available software and hardware elements, and provides a solid understanding of network architectures and protocols.

### CR2400 Internetworking

This course builds upon the knowledge gained in CR1100, Network Fundamentals, and introduces the student to advanced network devices and configuration. In addition to learning the operation of internetworks, the student will configure, design and implement a LAN/WAN environment and analyze, configure, verify, and troubleshoot the primary routing protocols.

**Prerequisite(s):** CR1100
CR2430 Transmission Control Protocol/ Internet Protocol TCP/IP
The teaching goal of TCP/IP is to build an interconnection of networks that provides universal communication services: an internet or internet. Each physical interface has its own technology-dependent communication interface in the form of programming interface that provides communication functions (primitives). Communication services are provided by software that runs between the physical network and the user applications, independent of the underlying physical network. The architecture of the physical networks is the way it is transparent to the user.
Prerequisite(s): DP3411
Co-requisite(s): CE3160

CR2510 Linux Server Administration I
This course is the first of two courses that deals with the use and administration of a Linux based system. In this course the student will learn design and architecture of a Linux operating system as well as how to use many of the commonly used Linux tools from the command line. Furthermore, the student will learn how to plan, install and configure a Linux system and how to perform normal system administration tasks.

CR2511 Linux Server Administration II
This course is the second course in Linux Server administration. The course focuses on the role of the system administrator and the tasks that she/he performs on a daily basis. The student will learn how to perform these tasks using the command line and a GUI. The student will install and configure a number of the standard services that run on a Linux server. Finally, the student will learn how to secure a Linux system.
Prerequisite(s): CR2510

CR2800 Security for Programmers
This course will provide the student with a general understanding of the field of Information Security. Topics discussed include, but are not limited to, General Security Concepts, Secure Coding. Basics of Cryptography and Operational and Organizational Security.
Prerequisite(s): CR1100, CP1120

CR2900 Switching and VoIP
This course builds upon the student’s understanding of local area networks and introduces the student to LAN switching concepts such as VLANs and spanning trees. As well, the student will also gain experience configuring wireless LAN devices and will be introduced to the Voice over Internet Protocol (VoIP).
Prerequisite(s): CR1100

CR2950 Emerging Trends in IT Infrastructure
This course covers new trends in IT infrastructure that arise from the natural evolution of the field. Topics are selected with the aim of exposing the student to the new and/or evolving techniques and/or technologies used in the design and maintenance of the IT infrastructure.
Prerequisite(s): Depends upon the topic(s) selected

CR2970 Capstone Project
The capstone project course enables students to demonstrate the application of knowledge and skills developed throughout their program of studies. Students taking this course will work in teams on a project, under the supervision of a faculty supervisor, and will perform the following: (1) an in-depth analysis of a case study that looks at setting up local and wide area networks including various server operating systems, desktop operating system, cabling plants, infrastructure equipment, addressing, network management, security and Internet, connectivity;
(2) the creation and presentation of a design document;
(3) the creation and presentation of a project plan; (4) the implementation of the solution; (5) a presentation of their solution.
Prerequisite(s): CP2730, CP1331, CR2511, CR2400, CP1280, CP1921

CS1110 Leadership Skills
This course introduces the concepts of group dynamics, team development, goals, group structures and communication. Conflict resolution and controversy skills are practiced, and formal theories of leadership are studied and applied. Through exercises and simulations, students integrate theoretical and practical aspects of leadership.

CS1300 Wilderness Medicine
This course will provide participants with a solid foundation in wilderness first aid, trip health care and expedition long term care. Topics are covered with an emphasis on leadership, practical skills, decision-making and dealing with environmental conditions. The program is designed to accommodate the specific needs of guides and group leaders who work in remote regions. Participants will receive wilderness medicine certification recognized across Canada, and which has become a standard of training for wilderness leaders and guides. The course is conducted in a one-week intensive format requiring some evening commitments as well as a number of outdoor simulations. Students who choose to be tested for certification will be charged a certification fee.
Prerequisite(s): CS1600

CS1600 Leadership 1 - Wilderness Travel Theory
Topics in this course will involve the theory and practical aspects of wilderness travel: basic human needs; clothing and insulation; basic equipment needs; and nutrition, food planning and preparation.

CS1601 Leadership II Guiding Principles
This course will study outdoor leadership. Topics include an overview of outdoor leadership, group dynamics, conflict resolution, leadership theories, judgement and decision making, guiding approaches, and instructional techniques.
Prerequisite(s): CS1600

CS1610 Wilderness Skills II
This course is the second of three leadership courses designed to help people work with groups. Decision making, meeting management, facilitation, recruitment, motivation, fund-raising, board development, supervision, mediation and planning are the major topics. Case studies, gaming, simulations, role play and formal exams are part of the instruction and evaluation process.
Prerequisite(s): CS1110

CS1711 Leadership Skills III
This course helps students practice and develop their leadership skills by working on a specific project, normally in conjunction with a community group. Together with the community group, students will develop a strategic plan, implement that plan, and evaluate the learning process.
Prerequisite(s): CS2110

CS2170 Leadership, Field Skills & Special Topics
This module will include policy and procedures, fire safety, emergency response, cultural diversity awareness, non-violent crisis intervention, documenting incidents of crisis intervention, decision-making, conflict management, meeting management and planning

CS2200 Interviewing Skills
This course is designed to develop the basic skills and knowledge necessary to conduct effective interviews in helping relationships. Using the micro skills training model, students will examine a framework within which interviewing takes place, identify practical interviewing and counseling strategies, and apply interviewing skills in a variety of situations through the extensive use of role-play, case studies, and report writing.
Prerequisite(s): HR1100, CS1110

CS2300 Research Methods
This course deals with the various methodologies of social research. It aims not only to present a concise understanding of research but also to provide the skills and techniques to conduct it.

CS2410 Crisis Intervention Skills
This course provides students with the knowledge and skills to identify and assess crisis development in human service agencies and to implement appropriate strategies for prevention and intervention. Students will also receive a St. John Ambulance Certificate in Standard First Aid and Level C-CPR.

CS2500 Project Management
This course focuses on planning projects and on acquiring and utilizing the resources necessary to complete these projects. Students use project management and budgeting software to apply planning and management principles to a particular project.

CS2510 Software Project Planning
This course will provide students with the methodologies for defining and planning the operating parameters of a multimedia software project. Development of time lines and project milestones are discussed as well as cost estimation for the overall project.

CS2600 Leadership III Wilderness Survival
This course is an advanced wilderness emergency response course which incorporates the St. John Ambulance Standard First Aid, Basic Rescuer CPR, and Wilderness First Aid courses. A leader’s response to an accident, casualty assessment, and caring for the casualty in a wilderness setting will be studied. Common wilderness injuries and the recognition of common illnesses will be identified and appropriate care will be discussed. Guides will be trained in hazard identification, avoidance, management, and emergency response techniques. The guide’s role in search and rescue will also be discussed. Practice sessions in a wilderness setting will provide opportunities for students to practice first aid techniques, lead groups, and coordinate rescue procedures in simulated emergency situations.
Prerequisite(s): CS1600, CS1601

CS2610 Wilderness Survival
This course is designed to teach the student the necessary skills required to travel and survive in a wilderness setting. It includes practical and theoretical information on map and compass, search and rescue techniques, and emergency survival skills. It includes information on trip preparation, maps, compasses, factors that affect survival, survival techniques, search and rescue procedures and rope handling.
Prerequisite(s): CPR and Standard First Aid

CS2620 Wilderness Survival
This course is designed to teach the student the necessary skills required to travel and survive in a wilderness setting. It includes practical and theoretical information

● Available through @College Distributed Learning Service
○ Available through correspondence
on search and rescue techniques, and emergency survival skills. It includes information on trip preparation, maps, compasses, factors that affect survival, survival techniques, search and rescue procedures and rope handling. **Prerequisite(s):** Standard First Aid

**CS2700 Self Directed Learning Project**
This course is normally taken in the fourth semester of a student's program. It is designed to help students integrate and build upon previous courses in their program of studies. Based upon independent study, and structured around a learning contract between the student and the instructor, the course consists of students focusing on a specific issue within their field of specialization.

**CT1100 COBOL Language**
This course is designed to introduce students to the principles of business programming in COBOL Language. **Prerequisite(s):** EP1120, CT1120, ET2100, AE2300 or DPT1100

**CT1120 Procedural Programming in C++**
This is an introductory course which will introduce the students to the basic problem-solving and structured-programming techniques used to design computer solutions to problems.

**CT1150 Introduction to Computers in Technology**
This course is designed to provide technology students with a working knowledge of computers, file management, file design, productivity tools, database logic, and basic programming concepts. The student will use selected productivity software for Databases, Word Processors, Spreadsheets, and Web Browsers.

**CT2300 Applied Programming**
A course designed to introduce the technology student to the concepts of problem solving using computer programming. The course will be taught using a high level language such as C or C++. Students will write programs to solve problems within their related disciplines and will learn the concepts of troubleshooting and problem solving. Structured programming concepts using C++; Data Types; Decision Statements; Loop and Iteration Procedures; Input and Output Procedures; Pointers; Structures and Files. **Prerequisite(s):** AE1200, ET2100

**CT2520 Operating Systems**
The course introduces students to the fundamentals of operating systems. The course will survey techniques used by the various subsystems of a modern operating system. Examples will be taken from UNIX. **Prerequisite(s):** EP2530, CE3400

**CT3110 Windows Programming in C++**
Windows 3.0 and 3.1 by Microsoft have become the dominant Graphical User Interface for the IBM and IBM clone personal computer. This is an advanced programming course which deals with the increased complexity of working with a GUI in a multitasking environment by training the student to use improved software tools based on C++. C++ is an object-oriented programming language which tends to reduce the amount of coding by the reuse of existing software. **Prerequisite(s):** CT1125 (or equivalent)

**CT3120 PC Configuration**
This course is designed to expose the students to the basic components of a computer system. It will enable the student to evaluate, install, configure, and specify all basic computer components. This course will also give the students an overview of various network operating systems and network management techniques.

**DB2100 Introduction to Disabilities**
This course is designed to provide students with an overview of the history of disability, as well as an understanding of current human rights legislation which provides a context and a value base for students to explore the field and refine a personal value system. The course also provides a general understanding of various types of disabilities, and allows students to explore the types of support that may be needed by individuals and families, as well as the various roles they may choose to take in order to facilitate inclusion and citizenship of persons with disabilities.

**DB2110 Issues in Disabilities**
This course explores many of the issues and challenges which are faced by persons with disabilities and their families as they attempt to participate in their communities as equal citizens. Students will analyze the issues, explore alternatives, and develop a vision of the changes needed for full participation. Furthermore, students will examine strategies which can be used in building inclusive communities. **Prerequisite(s):** DB2100

**DB2300 Program Planning**
This course familiarizes students with processes which can be useful in supporting individuals and families to plan for their future. Students gain the skills required to coordinate and evaluate an individualized and value-based approach to planning with persons who have disabilities.

**DE1110 Applied Research**
The course is designed to provide a good understanding of a model for definition, analysis, and solution of technical problems; and to develop the student’s ability to (i) apply diverse methods and strategies in project analysis, (ii) prepare and deliver effective oral technical presentations, and (iii) define and plan a major applied research project. **Prerequisite(s):** CM1400 and CM1401

**DE1200 Operations Research**
This introductory course is designed to provide basic understanding of certain concepts of operations research and the role that these analyses play in decision making. It complements the course Engineering Management CG3400. **Prerequisite(s):** MA1101

**DE2350 Logistics and Project Management**
This is an introductory course that provides the student with a basic foundation in the concepts, tools and techniques of formal project management. **Prerequisite(s):** CG1500

**DE3300 Information Systems Design**
This course covers the application of computer information systems to industrial engineering problems, with particular emphasis on computer network resource management, database management and application software. **Prerequisite(s):** CT1150

**DE3410 Computer Integrated Manufacturing**
This is an advanced course for students having some background in technology. Graduating students will possess a good understanding of computer hardware integration, automation, and PLC (programmable logic control) as well as the necessary technical expertise to be able to meet the current needs of the industry. **Prerequisite(s):** EG1430, SP1700, FM3100

**DM1100 Document Production Fundamentals**
This course provides mastery of the keyboard by the touch method at a minimum rate of twenty (20) net words per minute for three minutes. As well, basic word processing applications are introduced and reinforced through the production and revision of short business documents.

**DM1200 Document Production I**
This course includes keyboarding and basic document formatting. Keyboarding speed on straight copy material is developed to 30 to 40 net words per minute for three minutes. The following documents are produced using word processing software: notices and announcements, basic correspondence, basic tables, and basic reports.

**DM1201 Document Production II**
This course further develops keyboarding speed and accuracy and increases proficiency in document production using intermediate word processing applications. Keyboarding speed on straight copy material is developed to 40 to 50 net words per minute for five minutes. Topics covered include file management, advanced print functions, and further reinforcement of skills in the production of business correspondence, tables, reports, and forms. **Prerequisite(s):** DM1200

**DM1300 Transcription I**
This course develops skill in machine transcription and/or skill in using transcription software. Emphasis is placed on improving proofreading and language skills: grammar, punctuation, and spelling. Decision-making skills are introduced through the transcription of basic business documents. **Prerequisite(s):** DM1200

**DM1301 Transcription II**
This course is designed to further develop skills in machine transcription. Emphasis is being placed on accuracy and speed of transcription as well as grammar, punctuation, and spelling competency. Documents will be transcribed from various business environments such as tourism, legal and small business enterprise. Decision-making skills are improved in the transcription of complex unarranged material. **Prerequisite(s):** DM1300

**DM1310 Legal Transcription I**
This course increases competency in machine transcription. Emphasis is placed on accuracy and speed of transcription as well as on grammar, punctuation, and word usage competency. Decision-making skills are honed through the transcription of legal documents for general legal procedure, civil litigation and incorporation. **Prerequisite(s):** DM1300 **Co-requisite(s):** DM2210, OF2500

**DM1400 Medical Transcription I**
This course provides the student with a basic understanding of medical transcription equipment, and the guidelines and rules of medical transcription. The students will also develop skills in transcribing medical correspondence and reports. **Prerequisite(s):** DM1300, DM1201 **Co-requisite(s):** TM1100
DM1401 Medical Transcription II ●
This course further develops the ability of students to transcribe with accuracy and speed medical correspondence and more specialized reports for various medical specialties. Medical typing drills will be used to enhance proficiency in transcribing the medical cassettes with speed and accuracy.
Prerequisite(s): DM1400, DM1201, TM1100
Co-requisite(s): TM1200

DM2200 Document Production III ●
This course combines keyboarding development, document processing, and word processing to improve proficiency in document production using a new word processing software program. Keyboarding speed on straight copy material is developed to a minimum of 45 wpm for five minutes. Topics covered include transfer of word processing skills to a new software, file management, efficient use of fonts and attributes, editing documents, using special features of the word processing software, and further reinforcement of skills in the production of business correspondence, tables, and specialized business documents.
Prerequisite(s): DM1201

DM2201 Document Production IV ●
This course combines keyboarding development and document formatting using a project/simulation approach. Keyboarding speed is developed to a minimum of 50 wpm for five minutes. Students will be expected to develop and use decision-making skills to process and produce documents at an advanced level. Using an integrated software package, students will format documents such as letters, memos, reports, tables, and news releases; composition and critical thinking skills will also be developed. Students will use presentation software to prepare presentations. They will perform tasks that will require the integration of various software packages. i.e; word processing, database, and spreadsheet.
Prerequisite(s): DM2200

DM2210 Legal Document Production I
This course combines keyboarding development, word processing concepts, and legal document processing. Keyboarding skills will be reviewed and developed in the range of 45 to 55 words per minute for five minutes with an emphasis on accuracy. This advanced course is designed to teach students the setup and function of various legal and non-legal documents including correspondence, reports, memoranda, accounts, contracts, court documents and corporate papers. These documents will be produced with speed and efficiency using state-of-the-art equipment and software to create a precedent file from which students will merge text from the keyboard. In addition, word processing concepts introduced in Document Production II will be further enhanced.
Prerequisite(s): DM1201
Co-requisite(s): OF2500

DM2410 Legal Transcription II
This course continues to increase competency in machine transcription. Emphasis is placed on accuracy and speed of transcription of business correspondence and legal documents presented in an unarranged, off-style manner. Decision-making skills are further honed through transcription of legal documents for real estate, wills and estates, and family law.
Throughout dictation of the material, the dictator makes editing decisions, phones may ring, and other interruptions may occur.
Prerequisite(s): DM1310
Co-requisite(s): DM3220 and OF2510

DM3220 Legal Document Production II (Wills and Estates Law and Family Law)
This course further develops keyboarding, word processing, and legal document processing skills for wills and estates law and family law. Through further emphasis on accuracy and speed development, the student is given the opportunity to develop straight-copy keyboarding speed in a range of 50 to 60 net words per minute for five minutes.
This course is a continuation of Legal Document Production I and incorporates many of the basic legal formats learned. Students will produce, with speed and efficiency, correspondence and legal precedents required in wills and estates law and family law using appropriate software. Students will further develop a precedent file on disk using state-of-the-art equipment and software. More word processing concepts will be reinforced through practical applications.
Prerequisite(s): DM2210
Co-requisite(s): OF2520

DM3230 Legal Document Production III (Real Estate)
This course will introduce students to documents required by a legal practice when handling real estate transactions for both the vendor and the purchaser. Students will produce with, speed and efficiency, correspondence and legal precedents used in current real estate practice. Using a case approach students will follow and interpret verbal and handwritten instructions and handwritten or edited copy to produce documents, at the same time, they will use check lists to assess priorities and manage time. Students will add to their precedent file using state-of-the-art equipment and software.
Prerequisite(s): DM2210
Co-requisite(s): OF2520

DP1100 Digital Electronics
This course introduces students to the field of digital electronics. They will be taught design and diagnosis techniques applicable to digital electronics.
Prerequisite(s): ET1101

DP1110 Digital Electronics
This course introduces students to the field of digital electronics. They will be taught design and diagnosis techniques applicable to digital electronics.
Prerequisite(s): ET1101

DP1300 Digital Fundamentals
Introduction to Programmable Logic Controllers with Digital Fundamentals introduces the student to the fundamental building blocks and design techniques associated with digital components and circuits. The student will also gain construction and troubleshooting skills through practical laboratory sessions. This will lead into a comprehensive coverage of general programmable logic controller concepts. In addition the student will have the opportunity to apply their digital abilities and programmable logic controller knowledge to develop and program basic control circuits on a particular PLC.
Prerequisite(s): ET1101

DP1310 Introduction to Programmable Logic Controllers
This is an introductory course in programmable logic controllers (PLC) covering the fundamental concepts of digital, numbering systems, logic, gates, circuits, simplification, arithmetic elements, latches, flip-flops, counters, the components in a typical PLC system, configuring, addressing and programming. The laboratory component will develop understanding and skills related to circuit construction and operation and ladder logic programming and troubleshooting.
Prerequisite(s): ET1210, AE1240

DP1840 Motors Generators and Starting Systems (M, E)
The M and E course will give the student an overview of the principles of all AC and DC motors. The student will be able to differentiate between AC/DC motors. Also cover all aspects of AC/DC generators and alternators theory, including construction and maintenance of engine starters, electrical starters. The inspection and servicing procedures for the starting systems will be covered in this course.
Prerequisite(s): PE1140

DP2150 Interfacing & Microcontrollers
This course provides students with an understanding of microcontroller circuits through hands-on experience with the Intel 8051 family of microcontrollers. The microcontroller, its use as a control device in embedded systems, and the hardware requirements associated with interfacing with the environment will be covered. Students will further develop the skills required to troubleshoot, analyze and design complex, automated digital circuits and systems.
Prerequisite(s): DP1100; DP2400; ET1120

DP2340 Robotics & Computer-Aided Manufacturing
This course introduces students to robotics fundamentals; operations; programming; interfacing to other components and systems; and application of robotic technology to computer numerical control (CNC) and computer integrated manufacturing (CIM). Course activities will be concentrated on both pneumatic and electronic robots, CNC’s theory and machine tool control practice and the integrations of engineering manufacturing by using computers and micro-controllers.
Prerequisite(s): FM2201; FM3100, DP2400, XD2500, ET2100
Co-requisite(s): XD2900, DP2150

DP2400 Digital Microprocessors
This course introduces the student to the Intel microprocessor programming techniques using assemblers and debuggers and provides training in the MS-DOS operating system.
Prerequisite(s): DP1100

DP2410 Digital/Microprocessors
This course introduces the student to the Intel microprocessor programming techniques using assemblers and debuggers and provides training in computer interfacing techniques.
Prerequisite(s): DP1100

DP2500 Programmable Controllers
Advanced programmable controllers with communication concepts introduce the student to advanced PLC programming with communications between PLC using industrial Ethernet. This will lead into Network-wide and worldwide data communication based on TCP/IP field and cell level communications with profibus DP/FMS and ASI.
Prerequisite(s): DP1300

DP2540 Advanced Programmable Logic Controllers
This is an advanced course in programmable logic controllers (PLC) covering timers, counters, data manipulation, comparison, conversion, arithmetic instructions, word logic instructions, shift registers, rotate registers, sequencers, analog inputs and outputs, communications protocols and an introduction to human machine interface concepts. The laboratory component will further develop
and strengthen the understanding and skills related to circuit construction and operation and ladder logic program- ming and troubleshooting.

Prerequisite(s): DP3130

DP3100 Programmable Logic Controllers
This course introduces the student to the general con- cepts and programming techniques for digital, analog and peer to peer communications associated with pro- grammable logic controllers used in the instrumentation applications.

Prerequisite(s): MP3130, CP1150

DP3200 Embedded Controller Applications
The course will reveal why microcontrollers exist in so many products today. It explains the basics in micro- controller design through actual applications and will describe the differences between microcontrollers and microprocessors. Instruction is given in different tech- niques for making the best use of the microcontroller’s limited resources. Hands-on experience is provided for the Motorola 6811 Series of microcontrollers.

Prerequisite(s): CT2300 or CP1250, DP2410

DP3300 Microprocessors
This course provides the student with a knowledge of the hardware associated with a microprocessor system and the interface requirements for communication with the environment.

Prerequisite(s): CT2300, DP2400

DP3310 Microprocessor Interfacing
This course provides the student with a knowledge of the hardware associated with a microprocessor system and the interfacing requirements for communication with the environment.

Prerequisite(s): DP3410, CT2300

DP3410 Digital Communications
This course is designed to provide the fundamental concepts physical layer, data link layer and network and data models in CAPE and LAN environment as well as reuse of these models in DSL and CAF Internet Access.

Prerequisite(s): DP3410, CT2300

DP3430 Data Communications
This is an intermediate level data communications course that introduces the fundamental concepts such as trans- mission media, analog and digital signals, data transmis- sion and multiplexing.

Prerequisite(s): ET2100

DR1110 Drafting - Basic Drawing and Sketching
This drafting course requires the use of drawings, specifications, bills of materials, drawing instruments and facilities, and CAD software and hardware. It involves reading basic drawings and diagrams, sketching, interpre- tation of specifications, and operating the CAD system. It includes information on sketching techniques, types of drawings, and CAD commands.

DR1120 Blueprint Reading for Welders
This course requires the use of drawings, views, joint con- figuration, abbreviations, and weld symbols. It includes information on joint and welding symbols for weldment fabrication.

Prerequisite(s): DR1110

DR1210 CADD Drawings
Computer Aided Drawing is a which consists of a com- bination of Engineering drawing practice and Autocad procedures. The course will follow a hands-on approach to the acquisition of drawing skills using AutoCad.

Prerequisite(s): DR1211

DR1211 Engineering Drawing
This course will be presented during the first intersession of the Civil Engineering Technology program. Its purpose is to impart to the student a working knowledge of the requirements of Engineering drawings as applied to buildings so as to meet the requirements of the national building code.

This course is designed to enable students to interpret and prepare, by free hand sketch, Engineering drawings required for medium sized houses and or small commer- cial buildings.

Prerequisite(s): EG1430

Co-requisite(s): DR1210, SU1200

DR1700 Basic Drawing and Sketching
This course provides training in blueprint reading and sketching.

DR2100 Architectural Drawings
An introduction to Architectural Drawing with emphasis on applying architectural drawing conventions to actual architectural drawings.

Prerequisite(s): EG1110

DR2300 CADD (Adv. AutoCAD)
This course follows the engineering graphics course completed in primary year. It covers the more advanced commands used in the AutoCad drafting package. The use of AutoCad with electrical design software will be investigated.

Prerequisite(s): EG1110

DR2320 Engineering Graphics for Electrical
This course follows the Engineering Graphics course com- pleted in the first year of Engineering Technology. It cov- ers the more advanced commands used in the AutoCAD drafting package, with application examples from across the electrical engineering technology curriculum that require the use of AutoCAD.

Prerequisite(s): EG1430

DR2410 Electronic Computer Aided Design I
This course is designed to give the student a basic knowl- edge of Printed Circuit Board design techniques required in the electronics industry through the use of AutoCAD, Circuit Maker 2000 and Isoplo software. It introduces the student to specific types of drawings required in the electronics industry to include: Block Diagrams, Logic Diagrams and Schematic Diagrams. The Electronic Specific drawings will be done using Circuit Maker 2000 or equivalent Schematic Capture software. A PCB design will be created using the T-Tech Quick Circuit CNC machine and Isoplo software.

Prerequisite(s): EG1110 and either ET2100 or MP2140

DR2411 Electronic CADD II
This course utilizes the latest in computer-aided design software to provide the student with skills necessary to completely analyze any analog or digital circuit prior to construction or implementation. It provides the student with a working knowledge of the latest in computer- ized design tools used for Digital Simulation, Analog Simulation, and PLA/PAL Construction and Programming. This course makes extensive use of three Computer Aided Design Packages: and the techniques used in this course will be used extensively in future electronic courses.

Prerequisite(s): AE2301, DP1100, DR2410

DR3100 Architectural Working Drawings I
This course is an introduction to building construction techniques, architectural working drawings and detailing. It is designed to enable the student to become involved in the creation and proper use of working drawings. Course material takes the form of lectures, group projects, and analysis of such projects.

Prerequisite(s): EG1200, DR2100

Co-requisite(s): BU2200, BU2400, CF2600

DR3101 Architectural Working Drawings II
This is a course dealing with larger buildings of masonry construction. It is designed to enable the student to become a functional part of a group involved in the cre- ation and proper use of working drawings. Course mate- rial takes the form of lectures, group projects, and group analysis of such projects.

Prerequisite(s): DR3100, BU2200, BU2400, CF2600

Co-requisite(s): BU2201, BU2401, CF2601, EG2200

DR3200 Advanced CAD
This course is designed to give the student an exposure to programming logic and data linking between graph- ics information and text/numerical data. After a general introduction to basic programming and LISP the students are expected to make extensive use of CAD customization concepts. Data linking through attributes and SQL is used in the development of data tracking with emphasis on Facilities Management. Also included are the concepts and procedures in the presentation of animated drawing and virtual images, which are used in the preparation of the major technical project.

Prerequisite(s): EG2200, PR2300

Co-requisite(s): DR4101

DR3300 Manufacturing Technology
This is introductory course in manufacturing technology. In this course, students are introduced to fundamentals of computer-aided drafting, design and manufacturing (CADD/CAM). Emphasis is placed on theory and practice in the metal fabrication industry through computerized numerical control (CNC) shape cutting.

Prerequisite(s): MC1100 or equivalent

DR3710 Tool Design
This course is an introduction to Tool Design and tool making practices. It will provide the students with the basic knowledge to understand and design simple types of tooling required within the manufacturing industry.

Prerequisite(s): Cf1120

Co-requisite(s): EG2110

DR3810 Advanced Processes
This is an advanced course using equipment available at the manufacturing Technology Centre. The course is designed to be a CAD/CAM approach to a hands-on proj- ect based delivery using the CNC mill, lathe, WireEDM and Laser machines. Completion of the project will require a team approach from all members of the class creating a working environment similar to industry.

Prerequisite(s): SP1701
Available through correspondence
development as well as health impairments. The causes, strategies for supporting all children in an inclusive early childhood education. This course will discuss variations in developmental abilities, and culturally sensitive early childhood education.

**Prerequisite(s):** EE1300

### EE1450 Creative Activities I – Art

This course is designed to provide students with an understanding of how to promote creative expression in young children through a variety of art media. This first-hand experience will provide opportunity for students to explore and experiment with art media as well as prepare students to offer art experiences which are developmentally appropriate, focusing on developing children’s imagination, creativity, and representational abilities. Particular attention will be given throughout the course to the sensory and expressive qualities of each medium, the student’s individual creative response to the material, and the developmental nature of children’s art.

### EE1451 Creative Activities II – Literature

This course will focus on children’s literature and its significance for emerging language, literacy, imagination, and creativity. Students will examine a variety of book types available for children and learn to choose appropriate quality literature. The use of poetry, puppets, and drama will be highlighted to emphasize the various types of activities suitable for children. Students will learn to choose materials and apply methods that meet a variety of developmental needs.

### EE1720 Professional Development

This is a professional development course in early childhood education. The focus is on developing a basic knowledge of the foundation of the early childhood education field and working knowledge of the components of the field which contribute to its professionalism. The goal of the course is to increase a student’s capacity to be a professional early childhood educator through self-reflection and practical application of acquired knowledge and skills.

### EE1800 Inclusion I

This is an introductory course on the philosophy, principles, and appropriate practices of inclusion in early childhood programs. The characteristics of inclusive environments, the roles of those involved, and the use of ISSPs as an inclusive support will be discussed.

**Prerequisite(s):** EE1150, EE1160

### EE1801 Inclusion II

This course will discuss variations in developmental ability as a foundation for developing and implementing strategies for supporting all children in an inclusive early learning environment. Students will have an opportunity to learn about atypical or delayed cognitive, speech/language, physical/motor, sensory, and social/emotional development as well as health impairments. The causes, red flags and developmental impact of developmental deviations will be explored. There is a focus on identifying strategies that the early childhood educator can use to create developmentally appropriate learning environments, activities and materials.

**Prerequisite(s):** EE1000, EE1171

### EE1840 Understanding Child Maltreatment

This course provides a comprehensive overview of the four primary categories of child maltreatment: physical abuse; emotional abuse; sexual abuse; and neglect. Students will study the behavioural, emotional, and physical indicators of abuse and discuss implications for early childhood educators who recognize these indicators. The legalities surrounding the duty to report will be emphasized. The emotional and behavioural consequences for children who experience maltreatment, and the impact on group care and the overall safety needs within the early childhood setting, will be explored. Throughout the course, students will be encouraged to examine their own emotional responses to the subject of child maltreatment and consider how it will impact their practice as an early childhood educator.

### EE2160 Child Development III

This course in child development focuses on the development of children in early childhood. The focus is on increasing students’ understanding of developmental milestones and growth patterns of children as they move out of toddlerhood until they reach school age.

**Prerequisite(s):** EE1161

### EE2255 Advanced Behaviour Guidance Strategies

This course offers a more in-depth exploration of guidance theory and its application to the study of children with emotional and behavioural challenges. The possible causes and resulting challenges for children will be explored. There is an emphasis on developing practical skill in the prevention and management of challenging behaviour in a team approach. The goal is to develop the skills and an inventory of resources such that educators are able to effectively support children with behavioural challenges.

**Prerequisite(s):** EE1270

### EE2260 Introduction to Child Care Administration

This is an introductory course in early childhood education program administration. The aim of this course is to provide an overview of administrative principles and procedures needed to successfully operate high quality inclusive early childhood education programs. Knowledge of provincial legislation and regulations, and factors which contribute to quality provide the foundation for developing practical skills related to governance, development and evaluation of quality programs, financial and staff management, and working in partnership with parents and the community.

**Prerequisite(s):** EE2270

### EE2270 Curriculum III

This advanced curriculum course provides students with the opportunity to plan in three specific curriculum areas – math, science and language – and will provide them with the opportunity to relate this knowledge to the construction of learning webs.

**Prerequisite(s):** EE1171

### EE2310 Family Studies III

Effective responses to families’ needs require an understanding of the demands and stresses on families. This course provides information on a number of family stressors, methods families use to cope, and supports that may be provided for children and families.

**Prerequisite(s):** EE1301

### EE2360 Adult Development

This course provides a comprehensive overview of adult development. Students will explore developmental progression from middle adolescence through to late adulthood. There is an emphasis on exploring the primary developmental issues within each life stage and highlighting patterns. Students will have an opportunity to apply this knowledge when reflecting on their own personal/career development and analyzing their interactions with parents, colleagues, and the community.

### EE2450 Creative Activities III – Music

This course provides the student with an introduction to the role of music in the social, physical, emotional, imaginative, and cognitive development of children. Emphasis will be given to a large repertoire of songs and rhymes, basic music literacy, methodology, instruments, resource books and recordings.

### EE2451 Creative Activities IV – Movement

This course is designed to teach students how to plan and provide movement experiences for all children. Such planning requires an understanding of the significance of large muscle development in children and the importance of physical activities in a child’s growth. Both indoor and outdoor environments are considered in relation to the provision of movement activities.

**Prerequisite(s):** EE1171

### EE2500 School-Age Development and Care

This is an introductory course in school-age care. The goal is to provide the early childhood education student with a foundation of knowledge and skill of working with children ages five through twelve. The course focuses on the unique needs of school-age children and how these needs are met through a developmentally appropriate approach to programming. Students learn about child development patterns and milestones in middle childhood and early adolescence as a foundation for understanding the principles of inclusive school-age care. Particular attention is paid to the various roles of the early childhood educator in the design, planning, implementation, and evaluation of developmentally appropriate physical, social-emotional, and cognitive environments of school-age children.

**Prerequisite(s):** EE1160, EE1171

### EG1100 Engineering Graphics

This is an introductory level course in Engineering Graphics which uses CAD as a tool to produce engineering drawings. Engineering Graphics provides visually oriented data that is usable by technical, engineering, and manufacturing personnel to assist in the production of goods and services. Topics covered include an introduction to CAD, geometric terminology and constructions, orthographic projection, pictorial sketching, dimensioning conventions, and sectional views.

### EG1110 Engineering Graphics II

This course focuses on basic engineering graphics principles and standards to effectively communicate technical graphical design and also provides the foundation for more advanced engineering graphics concepts. Engineering graphics is the predominant means by which accurate information is communicated within industries pertinent to all engineering technology disciplines. From the simplest in-the-field sketch, to the most advanced 3-D model, each may constitute a legal document.
EG1160 Technical Graphics
This course focuses on basic engineering graphics principles and standards to effectively communicate technical graphical design and also provides the foundation for more advanced engineering graphics concepts. Engineering graphics is the predominant means by which accurate information is communicated within industries pertinent to all engineering technology disciplines. From the simplest in-the-field sketch, to the most advanced 3-D model, each may constitute a legal document.

EG1200 Engineering Graphics
This course is a continuation of Engineering Graphics EG1110 and EG1430. It is designed to provide students with a greater knowledge of advanced engineering graphics and CAD. Topics include auxiliary views, geometric applications, developments, intersections, and isometric drawing using AutoCAD and Pline and Pedit commands.
Prerequisite(s): EG1430

EG1210 Engineering Graphics
This course is a continuation of Engineering Graphics EG1110 and EG1430. It is designed to provide students with a greater knowledge of advanced engineering graphics and CAD. Topics include auxiliary views, geometric applications, developments, intersections, and isometric drawing using AutoCAD and Pline and Pedit commands.
Prerequisite(s): EG1430

EG1300 Engineering Graphics
This is an intermediate CAD-based drafting course designed to provide students with the ability to interpret and prepare mechanical and structural drawings which extend the principles presented in Engineering Graphics 1100. Also, prepares the student hands-on practice in reading and interpreting blueprints.
Prerequisite(s): EG1110

EG1430 AutoCAD Essentials
Computer Aided Drafting Software is a tool that enables you to produce engineering drawings more accurately and with greater efficiency. It also facilitates the ability to share files with other software programs. This course is an intermediate CAD-based drafting course designed to provide students with the ability to interpret and prepare mechanical and structural drawings which extend the principles presented in Engineering Graphics 1100. Also, prepares the student hands-on practice in reading and interpreting blueprints.
Prerequisite(s): EG1110

EG1520 Engineering Graphics
This is an advanced course in computer aided drafting and design for students enrolled in Mechanical Engineering Technology. Emphasis is placed on using CAD as a tool for both development of working drawings and virtual prototyping of mechanical systems. Manufacturing related 3D solid modelling tools available within both AutoCAD 2000 and AutoCAD Mechanical Desktop are introduced, and alternative software tools including Solidworks, Pro Engineer, IDEAS, and Unigraphics are overviewed.
Prerequisite(s): EG1430

EG2200 Engineering Graphics
This course is taken concurrently with Architectural Working Drawings II and Building Services II and is designed to develop student's presentation skills through the use of 3D CAD techniques. Students are exposed to building drawings using the interactive model format, with various 2D and 3D drawings extracted from a building database. Students are expected to produce photorealistic images incorporating shadowing, diffusion, and reflection.
A course designed to develop student's presentation skills by using 3D CAD software. Projects are developed in an interactive format with the various drawings extracted from a 3D database. A variety of techniques including shadowing, light diffusion, and reflection are used to produce photorealistic images.
Prerequisite(s): DR3100 Co-requisite(s): DR3101, BU2201

EH1100 Earth Systems
Transferable to MUN Earth Sciences 1000.
A survey of major earth systems, including the interior of the earth, lithosphere, hydrosphere, atmosphere, and biosphere – their structure, composition and interaction.

EH1101 Evolution of Earth Systems
Transferable to MUN Earth Sciences 1001
The evolution of the earth’s structure and environment through eological time are explored from the rock and fossil record. Particular emphasis is given to the geological history of North America, especially Newfoundland and Labrador.
Prerequisite(s): EH1100 or MUN ES1000

EH1102 Concepts and Methods in Earth Sciences
Introduction to a broad range of concepts concerning the development of the geological record sand the Earth; practical methods for collection and field based data; topics in map interpretation and geographic analysis, stratigraphy, paleontology, structure and petrology. To develop the skills necessary to understand and prepare geologic maps and other general skills needed to pursue a career in Earth Sciences.
Prerequisite(s): EH1101

EL1120 Folklore
This course is an introduction to folklore. It deals with the role that tradition plays in society. The student is given an opportunity to investigate his/her own culture by partaking in field work in the different genres of folklore.

EL1130 Introductory Business French I
This course is designed as an introduction to French for Anglophone adults. It will focus on both oral and written communication and will introduce students to vocabulary and basic grammatical structures necessary to communicate in French. There will be an emphasis on helping students understand and communicate (at an introductory level) with French-speaking people in the business world.

EL1131 Introductory Business French II
This course is a continuation of Business French I and is intended to provide further practice in basic oral and written communication. It builds on the vocabulary, expressions and grammatical structures acquired in Business French I and focuses on improving a student’s ability to communicate (at an introductory level) in French in the business world.

EL1150 Introduction to Folklore
Transferable to MUN Folklore 1000
The role that tradition plays in communication, art and society will be discussed through an examination of folklore materials from Newfoundland and Labrador and the English-speaking world. Through assignments, students will identify and reflect on folklore in their own lives and the lives of others.

EL1270 International Issues
This course introduces students to many of the concepts, issues, and organizations related to international development. It explores some of the politics of international development and encourages students to examine their role in Canada and the world. The course is intended for students who wish to improve their knowledge of international development issues and politics, develop their international perspectives, and consider their role in the struggle for world development. Some students may wish to take the course prior to traveling internationally for further study, work, or leisure. The course begins by introducing students to internet-based research, and then uses that medium together with class discussions, presentations, round-table discussions and a research project, to explore a variety of current major international issues. The course concludes with an exploration of how students can prepare for international travel for work, study or leisure. Some flexibility is built into the course as students may choose the focus of their research papers and presentations.

EL1320 Folklore Studies
Transferable to MUN Folklore 2401
This course is an examination of the traditional cultures of Europe and North America with special reference to Newfoundland and Labrador. A selection of the following areas will be covered: settlement patterns, architecture, work and leisure patterns in the folk community, calendar customs, rites of passage, folk religion, folk medicine, language and folk culture, folk costume, foodways and folk art.
Prerequisite(s): Normally Folklore 1000: Introduction to Folklore is the prerequisite for this course; this can be waived with special permission of the head of the Folklore Department.

EL1420 Introductory French I
Transferable to MUN French 1500
This is an introductory course for students with little or no previous knowledge of French and for students who wish to review basic vocabulary and structure. The course covers the present tense, and basic vocabulary and covers the most common situations of daily life.

EL1430 Introductory French II
Transferable to MUN French 1501
This is a course which teaches the past tenses and more advanced structures. Students begin to read texts, to write longer compositions, and to explore more complex situations.
Prerequisite(s): French EL1420 (MUN French 1500) OR High School French 3200

EL1440 Introductory French III
Transferable to MUN French 1502.
This course introduces ways of dealing with future and hypothetical situations, and cases where emotion and personal feelings color the issue. The work of composition and intensive vocabulary building continues, and students are expected to engage in more advanced oral practice.

**Prerequisite(s):** EL1430 or MUN French 1501.

**EN1100 Environmental Science**

This is an introductory course in environmental science for Geomatics Engineering Technology. Since Environmental Science is the study of the interactions between humans, other living organisms, and the environment, this course gives the student knowledge of how humans can live, develop, and properly use the earth’s resources while understanding the many environmental issues. The solving of various environmental problems, as well as improving and conserving our natural and urban environments, will form the basis for further studies in the science of Geomatics. The topics covered in this course are: introduction to environmental science, the inter-relationships of animals with the environment, air and water pollution, environmental management, toxins and the environment, and the role of the people within the environment.

**EN1300 Environmental Technology**

This course presents an overview of environmental concerns in the oil and gas industry. Both the effect of the industry on the environment and vice versa. This is a seminar course. All students will be expected to complete a minimum of five seminars.

**Prerequisite(s):** CM2200, CM2300

**EN1520 Environmental Sampling Techniques**

This course provides the student with the fundamentals of environmental sampling techniques pertaining to procedures, protocol, equipment, and standardized procedures. “Fate and Effects” monitoring will be used as a practical approach to determine the effects of pollution impacts on our environment.

**EN1530 Water Quality**

This course will introduce students to aspects of water quality as it is related to the local scene and an in-depth review of the Canadian Water Quality Guidelines. Students will study the processes involved in the treatment of water by various end users. The course also covers the issue of water supply for various users and the ways and means to meet those demands.

**Prerequisite(s):** EN1520

**EN1540 Air Pollution: Interpretation, Analysis and Control**

This course enables the student to make practical assessments of air pollution problems. Meteorology and its importance with respect to the formation, transportation, and dispersal of air pollutants are examined. Examination of the techniques and equipment necessary for the collection and analysis of airborne pollutants are discussed and reviewed.

**Prerequisite(s):** EN1520

**EN1600 Environmental Site Assessment I**

This course, oriented to the needs of the environment industry, introduces the student to the local, provincial and federal environmental legislation, regulations, guidelines and policies that apply to environmental site assessment. The site assessment process is introduced with emphasis on case studies involving a range of projects. It will focus on the CSA/CCME phased approach with projects including a Phase I assessment of a local facility.

**EN1601 Environmental Site Assessment II**

This course will introduce students to the concepts, principles, methods and techniques involved in reclamation of a site that has been abandoned, accidentally contaminated or required to clean up to conform to environmental standards. This comprehensive course will allow students to make use of course work previously completed in other courses to execute a site remediation plan and supervise contractors performing work, ensuring they complete the project according to the specifications in the contract.

**Prerequisite(s):** EN1600, EN2300, EN2700, GE1300

**EN2120 Environmental Citizenship**

This course is designed to foster environmental ethics and sustainable development. It provides an opportunity for students to discuss, debate, analyse and study current controversial issues related to the use and management of natural resources. Students will be encouraged to consider various perspectives, and offer potential solutions to local, national and global environmental challenges.

**EN2220 Solid Waste Management**

This course in the waste management field will introduce the issues of solid non-hazardous waste material. Students will be introduced to major topics including: sources, transportation, processing, and disposal of non-hazardous and hazardous waste material. The course will also introduce the student to the topic of solid waste disposal sites. Students will focus on the design, maintenance and operation of waste disposal sites. Hazardous wastes will include sewage sludges, drilling fluids, medical, industrial, and radioactive wastes.

**EN2300 Environmental Law**

This course, oriented to the needs of the environment industry, introduces the students to the local, provincial, and federal environmental legislation, regulations, guidelines and policies. The Canadian system of law and justice is introduced with emphasis on case studies involving environmental law. The legislative framework, court process, role of the prosecutor will be reviewed. An appreciation of the need for environmental protection, due diligence, personal and corporate liability, and liability will be addressed.

**EN2320 Occupational Health & Safety**

This course enables students to demonstrate knowledge of basic environmental principles and legislation and/or regulations governing the protection of the environment and workplace, together with understanding hazardous materials, how to control them, and learning the necessary skills to work safely.

**Co-requisite(s):** CM1401

**EN2420 Environmental Management**

This course is designed to prepare the student to analyze potential environmental difficulties associated primarily, but not restricted to the construction industry. In addition, the student will be prepared to recommend, design and implement solutions to eliminate or minimize the effects of construction or associated activities.

**EN2500 Water Resources: Hydrology and Hydrogeology**

This course provides the fundamental concepts required to understand hydrology. This course will address hydrologic principles, flood analysis, urban hydrology, and groundwater hydrology. The course also gives the student an overview of well construction, maintenance, rehabilitation, and monitoring techniques.

**Prerequisite(s):** EN1520

**EN2540 Wastewater Management and Treatment**

This second course in the water resources field will cover the issue of wastewater. Students will be introduced to the topic of wastewater by covering the following areas: flow, characteristics, collection systems, processing, operation of systems and treatment. This course will also consider storm water management.

**Prerequisite(s):** EN1520, BL1130

**EN2600 Environmental Abatement I (Air)**

This course is designed to provide the student with basic knowledge of the nature of air pollution in general, and specific technical knowledge and skills in the management and abatement of gaseous waste streams arising from manufacturing industries such as pulp and paper. The course begins with overviews of the impact of air pollution on human health, a discussion of global air quality trends, and a brief look at indoor air pollution. Students are then introduced to concepts of criteria and hazardous air pollutants, especially particulates, gases and odours. Current and innovative air pollution abatement processes are studied in detail. Special attention is focused on provincial and federal Environmental Acts, in particular how these relate to employer and employee responsibilities.

**EN2601 Environmental Abatement II (Water)**

This is a combined theory/laboratory course dealing with water quality and wastewater treatment. The first part of the course focuses briefly on water quality: acidity, alkalinity, pH, dissolved oxygen, biological oxygen demand, chemical oxygen demand, and hardness. Other parameters are explored; such as physical characteristics, dissolved gases, metals, organics and radionuclides. The second emphasis of the course is an introduction to knowledge and practices, theories and applications relevant to in-plant abatements, followed by the treatment of wastewater flowing from industrial settings. The characteristics of primary and secondary treatment processes, and plant operations will be studied. Sampling techniques, monitoring procedures and instrumental methods of analysis are covered in theory and laboratory sessions. The lab work includes testing for total solids, BOD, suspended solids, settling, and oxygen uptake. Current and innovative waste treatment processes are covered. Special attention is focused on provincial and federal Environmental Acts, in particular how these relate to economics and to employer and employee responsibilities.

**Prerequisite(s):** CM2720, FM2320

**EN2700 Environmental Project Management**

This course will enable the technician to effectively plan and implement a project based on environmental engineering principles. Practical applications will assist this goal through techniques and methods studied in this course.

**EN3100 Environmental Engineering**

This course is designed to acquaint the student with the major areas of pollution and control and mitigation. Students will gain an appreciation of the issues concerning sustainable development and acquire skills in the analysis and design of waste treatment systems. Basic issues in Environmental Engineering are examined. Pollution control, sustainable development and mitigation of the effects of pollution in air, on land and in the water.

**EN3200 Environmental Impact Assessment**

This course, oriented to the needs of the environment industry, teaches the students the basics of the environmental assessment procedure. The course carries from...
the Environmental Law course where a broad overview of the legislation is presented. We review the assessment legislation in detail and develop the tools needed to perform an environmental impact assessment. We conclude the course by performing a case study to assess a small local project.

Prerequisite(s): EN1600, EN2300, EN2700

Co-requisite(s): EN3300

**EN3300 Environmental Auditing**

This course will enable the student to assure compliance with relevant Federal, Provincial, and Municipal requirements; identify, evaluate and reduce environmental risks and liabilities; and conduct an environmental audit of a local industrial operation.

Prerequisite(s): EN1600, EN2300, EN2700

**EN3400 Environmental Management and Protection**

This course introduces students to the fundamentals of resource management. It examines common pollutants found in industries in Newfoundland and Labrador. It explores the various pieces of legislation that apply to industrial pollutants in the province. Pollution reduction and treatment are also studied.

Prerequisite(s): CH3450

**EO1001 Beginner Listening**

This learner-centered ESL course focuses on developing listening skills similar to Canadian Language Benchmark 4. While special emphasis will be placed on listening, all language skills will be integrated. Listening objectives are presented in a culturally meaningful and thematic context to enable aural comprehension for a variety of tasks.

**EO1002 Beginner Speaking**

This learner-centered ESL course focuses on developing speaking skills similar to Canadian Language Benchmark 4. While special emphasis will be placed on speaking, all language skills will be integrated. Speaking objectives are presented in a culturally meaningful and thematic context to enable speaking for a variety of tasks.

**EO1003 Beginner Reading**

This learner-centered ESL course focuses on developing reading skills similar to Canadian Language Benchmark 4. While special emphasis will be placed on reading, all language skills will be integrated. Reading objectives are presented in a culturally meaningful and thematic context to enable the comprehension of uncomplicated texts on a variety of topics.

**EO1004 Beginner Writing**

This learner-centered ESL course focuses on developing writing skills similar to Canadian Language Benchmark 4. While special emphasis will be placed on writing, all language skills will be integrated. Writing objectives are presented in a culturally meaningful and thematic context to enable the production of uncomplicated writing for a variety of tasks.

**EO2001 Intermediate Listening I**

This learner-centered ESL course focuses on developing listening skills similar to Canadian Language Benchmark 6. While special emphasis will be placed on listening, all language skills will be integrated. Listening objectives are presented in a culturally meaningful and thematic context to enable speaking for a variety of tasks.

Prerequisite(s): EO1002

**EO2003 Intermediate Reading I**

This learner-centered ESL course focuses on developing reading skills similar to Canadian Language Benchmark 6. While special emphasis will be placed on reading, all language skills will be integrated. Reading objectives are presented in a culturally meaningful and thematic context to enable reading for a variety of tasks.

Prerequisite(s): EO1003

**EO2004 Intermediate Writing I**

This learner-centered ESL course focuses on developing writing skills similar to Canadian Language Benchmark 6. While special emphasis will be placed on writing, all language skills will be integrated. Writing objectives are presented in a culturally meaningful and thematic context to enable the production of writing for a variety of tasks.

Prerequisite(s): EO1004

**EO3001 Intermediate Listening II**

This learner-centered ESL course focuses on developing listening skills similar to Canadian Language Benchmark 7. While special emphasis will be placed on listening, all language skills will be integrated. Listening objectives are presented in a culturally meaningful and thematic context to enable proficiency in a variety of tasks.

Prerequisite(s): EO2001

**EO3002 Intermediate Speaking II**

This learner-centered ESL course focuses on developing speaking skills similar to Canadian Language Benchmark 7. While special emphasis will be placed on speaking, all language skills will be integrated. Speaking objectives are presented in a culturally meaningful and thematic context to enable proficiency in a variety of tasks.

Prerequisite(s): EO2002

**EO3003 Intermediate Reading II**

This learner-centered ESL course focuses on developing reading skills similar to Canadian Language Benchmark 7. While special emphasis will be placed on reading, all language skills will be integrated. Reading objectives are presented in a culturally meaningful and thematic context to enable reading for a variety of tasks.

Prerequisite(s): EO2003

**EO3004 Intermediate Writing II**

This learner-centered ESL course focuses on developing writing skills similar to Canadian Language Benchmark 7. While special emphasis will be placed on writing, all language skills will be integrated. Objectives are presented in a culturally meaningful and thematic context to enable the production of uncomplicated writing for a variety of tasks.

Prerequisite(s): EO2004

**EO4001 Advanced Listening I**

This learner-centered ESL course focuses on developing listening skills similar to Canadian Language Benchmark 8. While special emphasis will be placed on listening, all language skills will be integrated. Listening objectives are presented in a culturally meaningful and thematic context to enable aural comprehension in a variety of tasks. Objectives in this course may be supported or attained through enrollment in a College credit course.

Prerequisite(s): EO2004

**EO4002 Advanced Speaking I**

This learner-centered ESL course focuses on developing speaking skills similar to Canadian Language Benchmark 8. While special emphasis will be placed on speaking, all language skills will be integrated. Speaking objectives are presented in a culturally meaningful and thematic context to enable speaking proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in a College credit course.

Prerequisite(s): EO3002

**EO4003 Advanced Reading I**

This learner-centered ESL course focuses on developing reading skills similar to Canadian Language Benchmark 8. While special emphasis will be placed on reading, all language skills will be integrated. Reading objectives are presented in a culturally meaningful and thematic context to enable reading proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in a College credit course.

Prerequisite(s): EO3003

**EO4004 Advanced Writing I**

This learner-centered ESL course focuses on developing writing skills similar to Canadian Language Benchmark 8. While special emphasis will be placed on writing, all language skills will be integrated. Writing objectives are presented in a culturally meaningful and thematic context to enable writing proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in a College credit course.

Prerequisite(s): EO3004

**EO5001 Advanced Listening II**

This learner-centered ESL course focuses on developing listening skills similar to Canadian Language Benchmark 9. While special emphasis will be placed on listening, all language skills will be integrated. Listening objectives are presented in a culturally meaningful and thematic context to enable aural comprehension in a variety of tasks. Objectives in this course may be supported or attained through enrollment in College credit courses.

Prerequisite(s): EO4001

**EO5002 Advanced Speaking II**

This learner-centered ESL course focuses on developing speaking skills similar to Canadian Language Benchmark 9. While special emphasis will be placed on speaking, all language skills will be integrated. Speaking objectives are presented in a culturally meaningful and thematic context to enable speaking proficiency for a variety of tasks. Objectives in this course may be supported or attained through enrollment in College credit courses.

Prerequisite(s): EO4002

**EO5003 Advanced Reading II**

This learner-centered ESL course focuses on developing reading skills similar to Canadian Language Benchmark 9. While special emphasis will be placed on reading, all language skills will be integrated. Reading objectives are presented in a culturally meaningful and thematic context to enable reading proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in College credit courses.

Prerequisite(s): EO4003

**EO5004 Advanced Writing II**

This learner-centered ESL course focuses on developing writing skills similar to Canadian Language Benchmark 9. While special emphasis will be placed on writing, all language skills will be integrated. Writing objectives are presented in a culturally meaningful and thematic context to enable writing proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in College credit courses.

Prerequisite(s): EO4004
context to enable writing proficiency in a variety of tasks. Objectives in this course may be supported or attained through enrollment in College credit courses

**Prerequisite(s):** EO4004

**EP1100 Entrepreneurial Studies**

This course is designed to develop an appreciation of small business, particularly as it relates to understanding the entrepreneurial process. The student will acquire the necessary skills and techniques to develop a sound business plan. Areas covered will include: market assessment, financing alternatives, organizational structuring, and planning techniques. In addition, a feasibility study will be required to establish the demand for a particular growth sector in the economy.

**EP1110 Introduction to Business**

This course is an introduction to Canadian Business. The areas covered include: Canada’s business system, forms of business ownership, production, marketing, finance, personnel and labour relations, international business and small business ownership.

**EP1130 Business for Information Systems**

This course will provide students with an overview of business principles and practices relevant to the IT industry. Students will be introduced to the functional areas of business and the processes within each function. Emphasis will be placed upon awareness and literacy of each functional area as they apply to the local and national markets.

**EP1140 Business Operations in Information Technology**

This course will introduce students to the ways that organizations improve their business practices through the use of computer technology. The course emphasizes systems technologies, enterprise integration, business applications, and critical analysis of organizational change through information systems.

**Prerequisite(s):** EP1130, EP1150

**EP1150 Business for Information Technology**

This course will provide students with an overview of business principles and practices relevant to the IT industry. Students will be introduced to the functional areas of business and the processes within each function. Emphasis will be placed upon awareness and literacy of each functional area as they apply to the national and local business market.

**EP1160 Introduction to Business Functions**

This is an introductory course to identify and describe the basic line functions of business, and introduce students to small business ownership and entrepreneurship. It will emphasize a basic knowledge of common business functions. Students will be introduced to the functional areas of business and the processes within each function. Emphasis will be placed upon awareness and literacy of each functional area. Students will also be introduced to the importance of the small business sector of the economy and the issues involved in owning your own business.

**EP1170 Business Information Fundamentals**

This is an introductory course in business information. It will build upon a basic knowledge of common business practices, processes and systems with emphasis placed upon the data and information needs of each functional area and how data is inter-related across business functions. This discussion will be extended to include electronic commerce.

**EP1180 Business Management**

This is an introductory course that presents a fundamental approach to planning and operating a small firm. It incorporates basic steps in planning and operating a small business and explains how each step can best be accomplished.

**EP2200 Business Planning**

In this course students will complete a comprehensive business plan. This includes choosing a hypothetical business, determining its product or service, preparing a market survey, finding a source of funding, and deciding a marketing strategy. The students will apply knowledge from previous terms in a practical manner.

**Prerequisite(s):** EP2250

**EP2250 Small Business Development**

This course is designed to prepare the student to own and operate a small business and deals with secondary and primary research techniques and analysis. Students will be required to produce a research report establishing the demand feasibility for a particular growth sector in the economy. Topics for this report will be based on personal selection or on a mentoring process with a potential or current business owner. This plan is developed based on two prior years of Business Administration/Management education and is not an introductory level course.

**Prerequisite(s):** CM2300, EC1100, EC1200, MA1670

**ER1100 Rigging**

Upon successful completion of this course, the apprentice will be able to use lifting and rigging procedures and equipment.

**Prerequisite(s):** ER1410

**ER1110 Hand Tools**

Upon successful completion of this unit, the apprentice will be able to select, use and care for basic hand tools.

**Prerequisite(s):** ER1110

**ER1120 Power Tools**

Upon successful completion of this unit, the apprentice will be able to select, use and service power tools.

**Prerequisite(s):** ER1120

**ER1130 Fasteners and Adhesives**

Upon successful completion of this unit, the apprentice will be able to select and install fasteners.

**Prerequisite(s):** ER1130

**ER1140 DC Theory**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of direct current circuit theory and the selection and use of measuring instruments.

**Prerequisite(s):** ER1140

**ER1150 Series and Parallel Circuits**

Upon successful completion of this unit, the apprentice will be able to determine absolute values of devices connected in series, parallel or any combination of these two.

**Prerequisite(s):** ER1150

**ER1160 Codes**

Upon successful completion of this unit, the apprentice will be able to use the Canadian Electrical Code and the National Building Code to find various rules and regulations required to work safely.

**ER1170 Voltage Drop & Power Loss**

Upon successful completion of this unit, the apprentice will be able to calculate voltage drop and power loss.

**Prerequisite(s):** ER1160, ER1150

**ER1180 Single-Phase Theory**

Upon successful completion of this unit, the apprentice will demonstrate knowledge of the basic concepts of alternating current (AC) and perform calculations.

**Prerequisite(s):** ER1170

**ER1190 Three-Phase Theory**

Upon successful completion of this unit, the apprentice will be able to perform three-phase voltage, current and power calculations.

**Prerequisite(s):** ER1180

**ER1200 Blueprint (Generic)**

Upon successful completion of this unit, the apprentice will be able to interpret basic blueprints and specifications.

**Prerequisite(s):** ER1160

**ER1210 Electrical Blueprints**

Upon successful completion of this unit the apprentice will be able to interpret electrical blueprints, specifications and drawings and compile information from relevant documents.

**Prerequisite(s):** ER1200

**ER1220 Conduit, Tubing, and Fittings**

Upon successful completion of this unit the apprentice will be able to install various types of conduit and associated fittings as per CEC requirements.

**Prerequisite(s):** ER1130, ER1210

**ER1225 Conduit, Tubing and Fittings**

Upon successful completion of this course, the apprentice will be able to install various types of conduits and fittings.

**Prerequisite(s):** ER1130, ER1160

**ER1230 Conductors and Cables**

Upon successful completion of this unit the apprentice will be able to install and terminate conductors and cables.

**Prerequisite(s):** ER1130

**ER1240 Residential Wiring**

Upon successful completion of this unit the apprentice will be able to install fundamental wiring systems according to code requirements.

**Prerequisite(s):** ER1230

**ER1250 Protective Devices**

Upon successful completion of this unit the apprentice will be able to select and install appropriate protective devices as per CEC requirements.

**Prerequisite(s):** ER1230

**ER1260 Principles of Operation of Transformers**

Upon successful completion of this unit the apprentice will be able to install transformers.

**Prerequisite(s):** ER1190, ER1250

**ER1270 Single-phase Service Entrance**

Upon successful completion of this unit the apprentice will be able to install an overhead or underground single-phase service entrance.

**Prerequisite(s):** ER1260
Upon successful completion of this unit the apprentice will be able to calculate service demand and install a three-phase service entrance.

**Prerequisite(s):** ER1270

### ER1290 Distribution Equipment
Upon successful completion of this unit the apprentice will be able to install various types of distribution equipment as per CEC requirements.

**Prerequisite(s):** ER1280

### ER1300 DC Motors and Controls
Upon successful completion of this unit the apprentice will be able to install and maintain DC motors and controls as per CEC requirements.

**Prerequisite(s):** Completion of all entry level courses

### ER1340 Fire Alarms
Upon successful completion of this unit the apprentice will be able to install and troubleshoot fire alarm systems.

**Prerequisite(s):** ER1290

### ER1360 Electric Heating Systems and Controls
Upon successful completion of this unit the apprentice will be able to select and install electric heaters and controls and install wiring for electric heating systems.

**Prerequisite(s):** ER1290

### ER1410 Safety Practices
Upon successful completion of this unit the apprentice will be able to understand the requirements and rights of Regulation 91-191 under the Occupational Health and Safety Act as applicable to the construction trades.

### ER1710 Signal Transmission
Upon successful completion of this course, the apprentice will be able to (1) install signal wiring, (2) install, calibrate and maintain transducers and related equipment.

**Prerequisite(s):** ER2156

### ER1732 Electronics
Upon successful completion of this course, the apprentice will be able to (1) understand basic problems with power supply and rectifiers, (2) troubleshoot basic problems with power circuits.

**Prerequisite(s):** ER1190

### ER1740 On-Off Control
Upon successful completion of this course, the apprentice will be able to: (1) demonstrate knowledge of the installation and maintenance of discrete control devices, (2) demonstrate knowledge of the installation and maintenance of on-off control systems, (3) demonstrate knowledge of the installation and maintenance of annunciator panels.

**Prerequisite(s):** ER1760

### ER1760 Motors
Upon successful completion of this course, the apprentice will be able to maintain DC and AC motors.

**Prerequisite(s):** ER1190

### ER1770 Process Analyzers
Upon successful completion of this course, the apprentice will be able to: (1) describe selection, operation and application of different types of process analyzers; (2) describe the maintenance and installation procedures applicable to process analyzers; (3) demonstrate how process analyzers are calibrated.

**Prerequisite(s):** ER2156

### ER1780 Distributed Control System (DCS) Process Applications
Upon successful completion of this course, the apprentice will be able to: (1) configure control loops, (2) tune control loops, (3) interpret DCS programs, (4) troubleshoot system problems, (5) describe fibre optic applications.

**Prerequisite(s):** ER1770

### ER1790 PLC Process Applications
Upon successful completion of this course, the apprentice will be able to: (1) configure analog modules, (2) configure PID loops, (3) troubleshoot process applications, (4) interface a PLC with an HMI system, (5) troubleshoot PLC networks.

**Prerequisite(s):** ER2180

### ER2000 Raceways, Wireways, and Busways
Upon successful completion of this unit the apprentice will be able to install raceways, wireways and busways as per CEC requirements.

**Prerequisite(s):** ER1220

### ER2010 Lighting and Controls
Upon successful completion of this the apprentice will be able to install, maintain and troubleshoot various types of lighting systems as per CEC requirements.

**Prerequisite(s):** Completion of all entry level courses

### ER2020 Single-Phase AC Motors
Upon successful completion of this the apprentice will be able to install and maintain single-phase AC motors as per CEC requirements.

**Prerequisite(s):** ER1270

### ER2030 Three-Phase Motors
Upon successful completion of this unit the apprentice will be able to install, test and maintain three-phase motors as per CEC requirements.

**Prerequisite(s):** Completion of all entry level courses

### ER2040 Control Devices
Upon successful completion of this the apprentice will be able to select, install and maintain control devices as per CEC requirements.

**Prerequisite(s):** ER2030

### ER2050 Motor Starters and Controllers
Upon successful completion of this the apprentice will be able to install, maintain and troubleshoot motor starters and controllers.

**Prerequisite(s):** ER2040

### ER2060 Central Heating Units
Upon successful completion of this unit the apprentice will be able to install central heating systems and their wiring.

**Prerequisite(s):** Completion of all entry level courses

### ER2072 Power Supply and Rectifiers
Upon successful completion of this unit the apprentice will be able to install and troubleshoot power supply and rectifiers.

**Prerequisite(s):** Completion of all entry level courses

### ER2082 Transistors
Upon successful completion of this unit the apprentice will be able to troubleshoot transistor circuits.

**Prerequisite(s):** ER2072

### ER2092 Digital Electronics
Upon successful completion of this unit the apprentice will be able to troubleshoot logic devices.

**Prerequisite(s):** ER2100

### ER2100 Operational Amplifiers
Upon successful completion of this unit the apprentice will troubleshoot operational amplifiers.

**Prerequisite(s):** ER2082

### ER2116 Troubleshooting Techniques
Upon successful completion of this unit the apprentice will be able to apply diagnostic and troubleshooting techniques.

**Prerequisite(s):** ER1410

### ER2122 Application of Troubleshooting Techniques
Upon successful completion of this unit the apprentice will be able to select and apply troubleshooting techniques and equipment.

**Prerequisite(s):** ER2030

### ER2132 Intercom Systems
Upon successful completion of this unit the apprentice will be able to install and troubleshoot intercom systems as per CEC requirements.

**Prerequisite(s):** ER1290

### ER2140 Security Systems
Upon successful completion of this unit the apprentice will be able to install and troubleshoot security systems.

**Prerequisite(s):** ER1290

### ER2152 Analog Devices
Upon successful completion of this unit of instruction, the apprentice will be able to install and maintain analog devices.

**Prerequisite(s):** ER2092

### ER2156 Process Measurement
Upon successful completion of this course, the apprentice will be able to: (1) calibrate instruments and devices, (2) install instruments and devices, (3) maintain instruments and devices, (4) configure smart instruments, (5) maintain calibration standards.

**Prerequisite(s):** ER1150

### ER2160 Solid State Drives
Upon successful completion of this unit, the apprentice will be able to install and troubleshoot solid state controls for motors.

**Prerequisite(s):** ER1732, ER2072

### ER2170 PLC Fundamentals
Upon successful completion of this unit, the apprentice will be able to install, maintain and troubleshoot PLC’s as well as identify basic programming instructions.

**Prerequisite(s):** ER1732, ER2072

### ER2180 Programming PLC’s
Upon successful completion of this unit, the apprentice will be able to program a PLC and work with PLC’s connected to a network.

**Prerequisite(s):** ER2170

### ER2192 Process Control
Upon successful completion of this unit the apprentice will be able to install and maintain control loops.

**Prerequisite(s):** ER2152
ER2196 Process Control
Upon successful completion of this course, the apprentice will be able to: (1) understand the basic concept of automatic process control, (2) inspect and calibrate control equipment, (3) perform tuning procedures in control systems, (4) troubleshoot control systems.
Prerequisite(s): ER2156

ER2200 Distributed Control Systems
Upon successful completion of this course, the apprentice will be able to: (1) demonstrate knowledge of the procedures to configure and install DCS systems and their peripheral devices.
Prerequisite(s): ER2180

ER2202 Distributed Control Systems (DCS)
Upon the successful completion of this unit the apprentice will be able to install and maintain Distributed Control Systems.
Prerequisite(s): ER2192

ER2210 Pneumatic Control Systems
Upon the successful completion of this unit the apprentice will be able to install and maintain electrical pneumatic control system components.
Prerequisite(s): Completion of all Entry Level Courses.

ER2215 Pneumatic Systems (Instrument Air Supply)
Upon successful completion of this course, the apprentice will be able to: (1) install instrument air supply systems and equipment, (2) maintain instrument air supply systems and equipment, (3) troubleshoot instrument air supply systems and equipment.

ER2220 Servomechanism
Upon the successful completion of this unit the apprentice will be able to install and maintain servomechanisms.
Prerequisite(s): ER2230

ER2226 Control Valves
Upon successful completion of this course, the apprentice will be able to: (1) demonstrate knowledge of installation and maintenance of control valves, (2) demonstrate knowledge of installation and maintenance of pneumatic, hydraulic and electric actuators.
Prerequisite(s): ER2156

ER2230 Hydraulic Circuits and Control
Upon the successful completion of this unit of instruction the apprentice will be able to install and maintain electrical hydraulic circuits and controls.
Prerequisite(s): ER2210

ER2235 Hydraulic Systems
Upon successful completion of this course, the apprentice will be able to: (1) demonstrate knowledge of hydraulic systems, their components and applications, (2) demonstrate knowledge of the procedure used to troubleshoot and maintain hydraulic systems.

ER2240 DC Generators
Upon successful completion of this unit the apprentice will be able to install, maintain and troubleshoot DC generators.
Prerequisite(s): ER1230, ER1300

ER2250 AC Generators
Upon successful completion of this unit the apprentice will be able to install, maintain and troubleshoot AC generators and identify alternative power systems.
Prerequisite(s): ER2030

ER2260 Emergency Stand-By Units
Upon successful completion of this the apprentice will be able to install, maintain and troubleshoot emergency stand-by systems and their associated devices as per code requirements.
Prerequisite(s): Completion of all entry level courses

ER2270 Emergency Lighting Systems
Upon successful completion of this the apprentice will be able to install, maintain and troubleshoot emergency lighting systems.
Prerequisite(s): Completion of all entry level courses

ER2300 Distributed System Conditioning
Upon successful completion of this the apprentice will be able to describe the procedures to improve power quality.
Prerequisite(s): ER2160

ER2310 Furnace Control
Upon successful completion of this unit the apprentice will be able to install wiring and controls for fossil-fuel residential central heating units.
Prerequisite(s): ER2050

ER2320 Boiler Control
Upon the successful completion of this unit, the apprentice will be able to install and maintain boiler controls.
Prerequisite(s): ER2192

ER2325 Boiler Control
Upon successful completion of this course, the apprentice will be able to: (1) interpret boiler control Process and Instrument Diagram (P&ID) drawings, (2) interpret boiler control Scientific American Manufacturers Association (SAMA) control drawings.
Prerequisite(s): ER2196

ER2332 Heat Pumps
Upon successful completion of this the apprentice will be able to install and maintain heat pumps and their associated devices and controls.
Prerequisite(s): ER2362

ER2342 Energy Management
Upon the successful completion of this unit the apprentice will be able to install and maintain energy management systems.
Prerequisite(s): ER2092

ER2350 Electric Surface Heating Units
Upon successful completion of this the apprentice will be able to install various types of electric surface heating units.
Prerequisite(s): Completion of all entry level courses

ER2362 Refrigeration and Air Conditioning Controls
Upon successful completion of this the apprentice will be able to maintain and troubleshoot electrical components and controls for refrigeration and air conditioning systems.
Prerequisite(s): ER2050

ER2372 Precipitators and Dust Collection Systems
Upon the successful completion of this unit the apprentice will be able to install and maintain precipitators and dust collection systems.
Prerequisite(s): ER2320

ER2380 Vibration Analysis
Upon successful completion of this course, the apprentice will be able to install and calibrate vibration measurement devices.

ER2382 Vibration
Upon the successful completion of this unit the apprentice will be able to install, maintain and calibrate vibration devices as well as perform various tests using this equipment.
Prerequisite(s): ER2152

ER2390 Fibre Optics
Upon successful completion of this unit the apprentice will be able to install and terminate fibre optic cables.
Prerequisite(s): Completion of all entry level courses

ER2420 HVAC Electrical Systems
Upon successful completion of this unit the apprentice will be able to install and maintain HVAC electrical systems.
Prerequisite(s): ER2332

ER2440 High Voltage Wiring
Upon the successful completion of this unit the apprentice will be able to install, maintain, splice and terminate high voltage cables and their breakers and starters.
Prerequisite(s): Completion of all entry level courses

ES1300 Manufacturing Processes I
This course is designed to give the beginning student a broad understanding of the scope of industrial manufacturing processes, with an emphasis on pulp and paper, mineral processing, petroleum production, and petroleum refining. The size, socioeconomic value and product range of each industry specific terminology, manufacturing methods, and the technologies used in product manufacture. Attention is given to the economics of each industry, challenges facing each industry, and future direction. Finally, students discuss the environmental abatement initiatives associated with the different industries and processes.

ES1301 Manufacturing Processes II
In this course students are introduced to the series of processes that convert wood to pulp. Before going into the details of preparing wood for pulping, a brief study is made of the storage of pulpwood, wood handling, cleaning and debarking procedures, chip quality, chipping, and bark/wood waste disposal. After an introduction to the physical and chemical properties of wood, the processes associated with high-yield pulping methodologies are studied. Topics include groundwood techniques, chemical pulping methods and thermomechanical pulping. Additional processes covered are pulp cleaning and washing, screening, bleaching, and pulp testing procedures.

ES2300 Manufacturing Processes III
The purpose of this course is to present the students with an opportunity to follow the logical progression in the paper making process, starting with the wet-end processes and progressing to the finished product. Wet-end topics include pulp selection, stock preparation, stock proportioning, use of additives, approach systems, forming fabrics, sheet formation, stock dewatering, and wet-end chemical processes. Press section topics include press configurations, press roll designs and materials, and press felt design. Aspects of dryer operation encompass condensate removal, steam control, dryer ventilation, heat economy, hood designs and breaker stacks. After the dryer section, the student investigates unit processes and product qualities related to calendering, super-calendering, winding, coating, sheeting, wrapping and storage. This course also deals with the recovery and recycling of secondary fibres such as waste corrugated containers, newsprint and high quality papers. Finally, sampling and testing methods are covered. Measurements include basis
weight, burst, tensile and tearing strengths, smoothness, porosity, stiffness, brightness, opacity, and colour measurements.

**Prerequisite(s):** ET1301

**ES2301 Manufacturing Processes IV**

In this course, the students are introduced to petroleum refining. The course begins with a history and overview of the oil and gas industry, including oil and gas production, petroleum refining, and the petrochemical industry. The focus of the course is on petroleum refining processes. Topics include identifying the products produced, types of feed stock, physical and chemical properties of the petroleum produces, distillation, conversion, enhancement and blending. Distillation process topics cover fractionation principles as it applies to atmospheric and vacuum distillation. Conversion processes include fluid catalytic cracking, visbreaking and hydrocracking. Enhancement processes focus on catalytic reforming, isomerization, sweetening (Merex system), and alkylation. Students also investigate the blending processes required to produce finished products (i.e. unleaded gasoline). All processes explored will include basic concepts, an overview of the applicable process chemistry, equipment, process and instrumentation diagram, process flow diagram, feed and product characteristics, and emergency procedures.

**ET1100 Electrotechnology**

This is an introductory course in electrical theory covering the basic concepts of electricity, circuit analysis and magnetism. The laboratory work is designed to develop skills in the construction of electrical circuits, and the use of electrical measuring instruments to reinforce theoretical concepts.

**ET1101 Electrotechnology**

This is a continuation of the Electrotechnology course taken in the first semester. It covers the basics of A.C. theory and the application of this to solve circuits containing resistance, capacitance and inductance. An introduction to transformers and polyphase A.C. circuits is also included.

**Prerequisite(s):** ET1100

**ET2100 Electrotechnology**

This course covers advanced topics in A.C. and D.C. circuit analysis as well as an introduction to D.C. machines and transformers. It will provide the necessary background for students to enter second year Electrical and Electronics programs.

**Prerequisite(s):** ET1101, MA1101

**EY1200 Ecosystem Ecology**

This course investigates the ecological relationship of a variety of ecosystems that occur in Newfoundland and Labrador. This course will examine the ecological components and focus on identification of these components and the structure, function and adaptations of specific organisms.

**Prerequisite(s):** BI1400

**EY2110 Basic Ecology**

This course focuses on basic ecological principles and concepts, ecological sampling techniques and field and laboratory exercises carried out in an appropriate environment. It involves significant and relevant field work, as well as the preparation of a report on terrestrial and aquatic ecosystems, populations, species interactions and ecological communities.

**Fh1100 Principles of Physical Fitness**

This course provides an introduction to principles of physical activity. Students will study the human anatomy with particular reference to skeletal and muscular systems of the human body, principles of training, exercise and weight control, fitness theory and active living and use of pedometers in physical activity. The course is designed for potential fitness leaders and active living programmers.

**FH1200 Therapeutic Nutrition I**

A study of diet as it pertains to modification of normal nutrition according to particular disease conditions. Practice in diet writing and marking menus for specific diets is emphasized as it relates to the treatment of illness.

**Prerequisite(s):** FH1100

**FH2100 Therapeutic Nutrition II**

This course is a continuation of Therapeutic Nutrition I. The student, through diet therapy, will study disease conditions and the treatment of illness.

**Prerequisite(s):** FH2100

**FM2100 Fluid Mechanics I**

This is an introductory fluid mechanics course designed to develop both the knowledge of the laws and principles governing fluid mechanics and the ability to apply this knowledge in analyzing related engineering applications. The course also provides a base for advanced courses in piping design, ducting design, and fluid power systems.

**Prerequisite(s):** PH1100

**FM2200 Mechanics**

This is a foundation course that provides the fundamental concepts required for the understanding and development of basic engineering sciences, and builds on the principles developed in Physics PH1100. This first course in mechanics concentrates on the all important concepts of statics.

**Prerequisite(s):** MA1700, PH1100
FM2201 Mechanics (Dynamics)
This course in mechanics introduces the fundamental concepts of dynamics and builds on the basic principles of statics presented in Mechanics of Solids. This course is a basic requirement for the analysis of engineering problems, and for understanding the design principles of various machines and mechanisms. The topics studied include kinematics and kinetics of particles, impulse and momentum, kinematics of rigid bodies, forces and acceleration, work and energy, mechanical vibrations.
Prerequisite(s): EF2540, FM2200

FM2320 Fluid Mechanics
The student will learn the theory and solve problems pertaining to hydrostatic pressure, manometers, the Bernoulli Equation, fluid flow, and head loss. The student will apply this knowledge in the laboratory and in the selection of pipes, piping systems, and pumps. After obtaining an understanding of fluid mechanics fundamentals, the student uses this knowledge to investigate closed hydraulic systems and pneumatics. The associated hydraulic equipment and industrial applications are explored. Pneumatic principles, and pneumatic systems, as used in an industrial plant are introduced.
Prerequisite(s): MA1101, PH1101

FM3100 Fluids (Hyd./Pneu.)
This is an intermediate level course designed primarily for students in the Electromechanical Technician Program.
Prerequisite(s): PH1101

FM3200 Machine Design
This course is an introduction to the primary considerations in the design of machines as they relate to each other, to their operators and to the environment. Machines will be seen as converters of energy and as the extension of human power. The composition and characteristics of machines will be presented and the underlying principles of mechanics and strength of materials demonstrated, thus enabling the student to pursue the goal of the design of machinery supplemented by practical manufacturing exposure and experience.
Prerequisite(s): CF2540

FM3220 Machine Design
This course extends generic machine design concepts presented in FM3200 by introducing students to typical industrial application components used for machine design. Emphasis is placed on students being able to follow accepted industry practice in the design, specification and selection of standard machine design components.
Prerequisite(s): FM3200

FN1100 Personal Finance
This course is an introduction to the basic principles and concepts of personal finance. The course is organized into three parts; financial planning, financial security, and credit. In Part 1, financial planning, the student learns how to make financial plans for saving and spending, the functions of wills, and the basics of the taxation system. In Part 2, financial security, the student examines economic risks and ways to minimize them. In Part 3, credit, the student explores the complexities of consumer credit.

FN2110 Business Finance
This course is an introduction to the complexities of business financial management. Specific topics will include financial analysis and planning, working capital management, capital budgeting, and long-term financing. Financial considerations will be both short term and long term and will integrate concepts from Accounting, Statistics, and Economics.
Prerequisite(s): AC2260

FR1230 Forest Fire Management
This course is an introductory course and will provide the student with basic information on activities concerned with the protection of forests from fire.
Co-requisite(s): FT1400

FR1330 Natural Resource Measurements I
This course is designed to introduce basic principles, skills and techniques in the sampling and measurement of natural resources with emphasis on forests and wildlife. Students will become competent in the use of the various tools and equipment used in the measurement and evaluation of natural resources. The application of map and compass, GPS, and aerial photographs through field exercises, in the evaluation of natural resources, is a key component of the course.
Prerequisite(s): SU1150, MA1100
Co-requisite(s): SU1150

FR1331 Natural Resources Measurements II
This advanced level course in the principles of natural resource measurements places emphasis on the design, conduct and application of a variety of survey methods to access forest characteristics. The application of statistical analysis to timber cruises, forest inventories, growth prediction and site classification is the central focus. The measurement of forest products is addressed, as is the assessment of non-timber values of the forest ecosystem.
Prerequisite(s): FR1330, MA1670, FT1400
Co-requisite(s): FR1360

FR1400 Wood Products
This course deals with the importance of the wood products industry in our society. The identification characteristics and uses of Canadian woods are studied. As well, the fundamental wood properties and the technical requirements for various wood products are studied.
FR1560 Timber Harvesting I - Roads
This second year course uses skills learned in Forest Surveying for the collection of field notes for various labs, especially road location. Students are introduced to forest road construction terms, environmental guidelines, and planning and operating practices. Students plan, do reconnaissance, and layout a forest road.
Prerequisite(s): SU1170, FT1400
Co-requisite(s): FR1331, FT1401

FR1561 Timber Harvesting II
This course is a follow-up to Timber Harvesting I that covers road construction in the woods. This course deals mostly with harvesting and trucking forest products. Emphasis is on environmental management of woodlands operations as well as logging system productivities and costs.
Prerequisite(s): FR1560

FR2340 Hydrology
This course has been designed to provide students with principles and application methods related to water resources. The content extends from a review of hydrological processes and principles in general, through detailed analysis of the water cycle in particular, and finally to linking of theory to practical applications. The applied aspects of this course center on field and office methodology use to assess water resources from the perspective of input, storage and output at the watershed level. The relationship between water, forests and humans is a central theme.
Prerequisite(s): FR1330

FR2350 Forest Entomology - Pathology
The study of the major forest enemies (excluding fire) of North America. Emphasis will be placed on insects which damage or benefit the forest and on biotic and biotoxic causes of forest disease. Prevention and protection measures of the above are covered. Field collection and diagnosis are emphasized, stressing the importance of signs leading to early detection.
Prerequisite(s): EV2211, FT1401

FR2360 Silviculture
A study of a wide range of silvicultural practices as applied to the establishment and tending of forest stands. This includes the design, conduct and monitoring of operational programs in planting, seeding, site preparation, tree seed procurement and improvements and nursery production as well as stand manipulation (i.e. thinning, pruning, and chemical tools). The identification of problem sites, budget preparation etc., are prepared.
Prerequisite(s): FR1330
Co-requisite(s): EV2211, FT1401

FR2430 Wildlife Management
An introduction to the basic wildlife management principles, concepts and techniques as they relate to big game, fur bearers, small game, waterfowl, inland fishing, non-game and endangered species. Lectures concentrate on principles and concepts while labs are designed to apply techniques and learn identification and life history.
Prerequisite(s): FR1330

FS1100 Family Services I – Family Structure
Family Services I is the first in a three course series designed to introduce the student to Family Services. The series will teach students about Family Structure, Family Needs, and Family Supports. The initial course, Family Services I will focus on Family Structure by looking at the Family, Marriage, and Parenting. Upon completion of this course students will understand the various family structures, the diversity of families in today’s society, trends concerning families in the 21st. century, the meaning of marriage and other forms of partnering, and the responsibilities of parenting.
Prerequisite(s): SC1120, PS1100, HR1200

FS1101 Family Services II – Family Needs
Family Services II is the second course in the three course series. Family Services II will focus on Family Needs by looking at the challenges families face in today’s society. Some of these challenges include balancing paid and unpaid work, poverty, racism, second generation challenges, stress, violence, abuse, divorce, blended families, and even dealing with empty nests and aging parents. Often these challenges create needs for families. Families may require intervention or help in dealing with these needs. The purpose of this course is to provide students with the knowledge and practical skills to assist families in coping. They will learn how violence and abuse are often present in families who are not coping effectively. On completion of this course students should be able to understand how often people’s attitudes, values, and beliefs support violence in our society. Students will learn appropriate strategies for dealing with dysfunctional families while gaining an understanding of the diversity of challenges and the diversity of solutions.
Prerequisite(s): FS1100

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FS2100 Family Services III – Family Supports

Family Services III is the third and final course in the Family Services series. Family Services III will focus on Family Supports by introducing students to social welfare policies and programs. Students will learn about the programs and services that are available to meet the needs of families. These programs and services effectively support and guide persons who need assistance from government departments such as Health and Community Services, or other agencies and nonprofit organizations whose mandate may include providing services to the community. The purpose of this course is to provide students with the knowledge and practical skills to assist families in being functional by providing emotional support, listening, understanding and demonstrating empathy for the situations that many families are dealing with. Students will learn the roles associated with providing support to families.

Prerequisite(s): FS1101

FT1240 Surveying Field Camp

This is a one week field camp to immerse the student in the field applications of Geomatics data gathering, mensuration and presentation. The work is done in a group setting where team play is essential for successful completion of assigned projects. The planning, execution, checking and successful completion of the group projects is emphasized.

Prerequisite(s): SU1310, SU1500
Co-requisite(s): SU1311

FT1250 Hydrographic Camp

This camp is a hands-on session where the data gathering skills learned in Hydrographic Surveying are reinforced by practical field work. A Hydrographic survey is undertaken for a project area. The project is designed, the data gathered and the final project compiled to Canadian Hydrographic Service standards.

Prerequisite(s): SU1500; SU1311; SU1540; SU2320
Co-requisite(s): SU1541; SU3300; SU3500

FT1320 Surveying Camp (Interim)

This course has been designed to provide the student enroled in the Civil Technology program with the opportunity to further their skills in construction surveying. Since surveying is an important job entry skill, students who have a high degree of competency in this area will have a greater chance of obtaining that all important first job.

This course will be a further application of the previous two courses in surveying. Actual work in the field will give the student greater experience in the area of construction surveying. The student will be exposed to the skills required to become competent in the area of building and highway layout. They will work in the area of building grades, location and layout; road grades, super-elevations, and horizontal and vertical curves.

Prerequisite(s): SU1210, DR1200

FT1320 Construction Camp

This course has been included in the second technical intersession of the Civil Technology program to introduce the student, in a hands-on environment to various construction processes. In addition the course will provide the student with an insight into on-site supervision of construction.

FT1400 Forestry Field Camp

A two week field camp is conducted at the end of the intersession semester. This camp is designed to enable students to take part in major practical exercises using standard practices of measurement and data collection in an operational setting. Throughout the two week period, the proper care of equipment, safety practices, and basic skills such as map interpretation, compassing, vegetation identification, ecosystem analysis, etc. are emphasized. Major topics reinforce prior learning from the second semester and intersession.

Prerequisite(s): FR1330, SU1550 I, SU1710
Co-requisite(s): FR1230

FT1401 Forestry Camp/Tour

This five day field tour is designed to insure that students have an opportunity to visit and investigate a number of special forestry facilities and operations across the Province. Visits include such unique operations as the Provincial Nursery at Wooddale, Newfoundland’s largest sawmill in Glenwood, and the Fire Center and Thomas Howe Demonstration Forest in Gander.

Prerequisite(s): FY2211, FR2360, FR1560

FT1410 Fish and Wildlife Field Camp

A two-week field camp conducted at the end of the intersession semester. This camp is designed to enable students to take part in major practical exercises using standard practices of measurement and data collection in an operational setting. Throughout the two-week period the proper care of equipment, safety practices, and basic skills such as map interpretation, compassing, vegetation identification, trapping, and other wildlife techniques are emphasized. Major topics reinforce prior learning from the second semester and intersession.

Prerequisite(s): FR1330, SU1550
Co-requisite(s): RM1400, RM1500

FT1430 Fish & Wildlife Field Camp II

A one-week camp conducted during the third semester. This camp is designed to enable students to participate in research/project being undertaken by a major external agency (National parks, Canadian Forest Service, Provincial Wildlife and DFO). Students are involved in the accumulation of data for these projects.

Prerequisite(s): RM2200

FT1610 Petroleum Field Camp

This course is designed to provide students with practical knowledge in the area of drill rig operation. This training is provided on a land-based drill rig at Seal Cove Campus. Safety training is also provided in sour gas handling (H2S), Workplace Hazardous Materials Information (WHMIS), First Aid and Transportation of Dangerous Goods (TDG).

Prerequisite(s): SP2410, PM2110

FV1100 History of Cinema

An examination of the history of cinema from its beginnings to the present. Through lecture, observation, and critical examination, students will be exposed to the evolution of styles, cinematic techniques, and the institutional culture of film. This will provide the student with a background in the general history and development of the medium.

FV1200 Film Production Basics

This course will expose the student to the inner workings of the world of making motion pictures. The fundamental processes, personnel, job descriptions, and role responsibilities will be covered in depth.

FV1220 Short Film Production

This inter-essional workshop will constitute an advanced practicum in the course work covered in the first semester. Students will apply acquired technical skills and theoretical knowledge to plan and shoot a short silent film.

Prerequisite(s): Semester One

FV1240 Rigging and Grip

Rigging and Grip will provide instruction in the practical skills associated with hardware rigging, scaffolds, and the maintenance, placement and movement of lighting stands and equipment.

Prerequisite(s): FY1200
Co-requisite(s): FY1250

FV1250 Lighting and Electrics

Lighting and Electrics will cover the practical skills associated with light operation in the motion picture environment. Topics include: the function and maintenance of lights, cables, electrical connections. Reading layouts, schematics, testing, troubleshooting, and practical set up and light “gags”.

Prerequisite(s): FY1200
Co-requisite(s): FY1240

FV1300 Language of Cinema

This course will introduce students to the grammar of cinematic language. Through lecture, discussion, historical survey and practical analysis student will gain an understanding of the way films are planned and assembled to present a coherent narrative.

Prerequisite(s): FY1100
Co-requisite(s): CM1550

FV1320 Advanced Digital Video

In Advanced Digital Video students will become familiar with professional standard video cameras and camera accessories associated with cinematic production techniques. Through practical exercises students will gain a working knowledge of the capabilities, limitations and technical issues of modern digital video production.

Prerequisite(s): MM2300
Co-requisite(s): FY1300

FV1400 Avid Editing

This course will introduce students to the practical exploration of editing options and theoretical knowledge required when using an avid suite to edit raw footage.

FV1500 Certifications

Certifications will be a collection of short form courses that will supply a battery of sanctioned certificates required for film production union referral status.

FV2200 Documentary Film Production

This “project oriented” course will introduce students to the demands of development, funding, distribution and small unit / field crew film making normally associated with documentary film production.

Prerequisite(s): FY1320
Co-requisite(s): FY1400

FV2220 Final Film Production

In Final Film Production students will finalize a show reel illustrating their acquired skills.

Prerequisite(s): FY1220

FV2300 Cinematography

This course will cover the theoretical issues and practical application of the craft of cinematic photography and lighting.

Prerequisite(s): FY1300
Co-requisite(s): VA1400

FV1150 Introduction to Field Placement

This course is a pre-service orientation to field placement. Students will learn basic knowledge and skills necessary for a successful field placement experience. Field placement guidelines will be reviewed in depth. Students will
participate in field placement under the supervision of an experienced early childhood educator. The weekly seminar will provide an opportunity to discuss and evaluate field placement experiences with fellow students and college faculty. There will be a focus on identifying and clarifying questions and concerns regarding practical experiences.

FW1290 Journalism Field Work
Journalism students work for four weeks at a professional news organization, applying and building upon the training they received in their first two semesters. Students pursue learning objectives related to their individual career goals while receiving on-the-job training. In conjunction with a field supervisor (who is an employee in the placement agency), the instructor supervises and evaluates the student’s progress.

Prerequisite(s): JL1827, JL1511, JL1430

FW1310 Field Placement I
Students will experience an early childhood education placement which allows them to begin to link theory to practice. In this first supervised placement, the focus will be on students becoming familiar with the role of the early childhood educator and the program itself. Students will practice observing, interacting and responding in positive ways to children. As the placement proceeds, students will be expected to determine individual children’s interests and begin to plan developmentally appropriate activities that relate to specific courses. Students will also participate in a weekly seminar.

Prerequisite(s): Successful completion of all Semester 1 courses

FW1311 Field Placement II
During the second supervised placement in an early childhood program, the focus is on students participating fully and assisting with all aspects of the program as it relates to children and families. The focus throughout is making connections between theory and practice. It is expected that confidence is interacting with and guiding children’s behaviour is increasing. Students will begin to plan and implement a variety of developmentally appropriate activities and materials for individual children with the guidance of faculty and program staff. The importance of a quality environment and inclusive practices will be reinforced. Students are also expected to demonstrate more competence in working with staff and family/community members.

Prerequisite(s): Successful completion of all Semester 2 courses

FW1390 Journalism Field Work (Post)
Post diploma journalism students work for four weeks at a professional news organization, applying and building upon the training they received in their first two semesters. Students pursue learning objectives related to their individual career goals while receiving field work training. In conjunction with a field supervisor (an employee in the placement agency), the instructor supervises and evaluates the student’s progress. Post diploma students will produce a major piece of public service journalism during the placement.

Prerequisite(s): JL1381; JL1511

FW1440 Field Placement I
This course consists of a four-week placement with a community agency in a voluntary capacity. The instructor will assist each student in securing a placement with an agency which can meet student’s personal interests and goals. In conjunction with a field supervisor (who is normally an employee in the placement agency) the instructor supervises and evaluates the student’s progress.

Prerequisite(s): One Communication Skills course, SD1130, four of the seven courses in Semester 2 including CS1110, and in clear academic standing

FW1441 Field Placement II
This course consists of a seven-week placement with a community-based agency in a voluntary capacity. The instructor will assist each student in securing a placement with an agency which can meet student’s personal interests and goals. In conjunction with a field supervisor (who is normally an employee in the placement agency) the instructor supervises and evaluates the student’s progress.

Prerequisite(s): FW1440 and clear academic standing

FW1710 Supervised Field Placement Experience I
Supervised field placement is an integral part of the total curriculum and constitutes a basic preparation for a wide range of professional practice. Students review field placement requirements and documentation, types of placements, and professional conduct. Students select field placement sites based on personal interests, goals, and placement availability. The instructor supervises and evaluates the student’s progress in conjunction with a field supervisor (who is normally an employee in the placement agency).

Prerequisite(s): Valid First Aid/CPR Certificate, Certificate of Conduct, Updated Immunization Record

FW1711 Supervised Field Placement Experience II
This course is the second of four supervised field placement experience courses. It is an integral part of the total curriculum and constitutes a basic preparation for a wide range of professional practice. Students review previous placement experiences, types of placement, and placement documentation issues and concerns. Students select field placement sites based on personal interests, goals, and placement availability. The instructor supervises and evaluates the student’s progress in conjunction with a field supervisor (who is normally an employee in the placement agency).

Prerequisite(s): FW1700, Valid First Aid/CPR Certificate, Certificate of Conduct, Updated Immunization Record.

FW2310 Field Placement III
During the third supervised placement in an early childhood program the focus is on students working in teams along with staff to implement the program. Students will continue to link theory to practice as they plan inclusive activities for children in small groups and based on the interests of the individual child. Students are expected to demonstrate initiative with regards to independently facilitating the play of individual children and small groups.

Prerequisite(s): Successful completion of all courses in Semesters 3 and 4 except EE1280 – Infant and Toddler Care

FW2311 Field Placement IV
During the fourth supervised placement the focus is on students working in teams to take responsibility for all aspects of the day to day operation of the early childhood program. Students will continue to link theory to practice as they plan and implement the routines, schedule, program, and interact with parents and community service providers. They will collaborate with staff to prepare and implement plans that meet the needs of all children. Students are expected to demonstrate competence with regards to independently facilitating the play of individual children and small groups. With the guidance and assistance of the program supervisor, students will modify and adapt materials to include all children in activities and routines. It is also expected that students will collaborate with the program staff to implement specific plans for individual children, including those with challenging behaviours.

Prerequisite(s): Successful completion of FW2310 – Field Placement III and all Semester 5 courses except EE2500 – School-Age Development and Care

FW2710 Supervised Field Placement Experience III
The purpose of this supervised field placement experience is to provide experience in administration practices and procedures through placement in a community based agency/organization. Students review previous placement experiences, types of placement, and placement documentation issues and concerns. Students select field placement sites based on personal interests, goals, and placement availability. The instructor supervises and evaluates the student’s progress in conjunction with a field supervisor (who is normally an employee in the placement agency).

Prerequisite(s): FW2710, Valid First Aid/CPR Certificate, Certificate of Conduct, Updated Immunization Record, Current Resume.

FW2711 Supervised Field Placement Experience IV
The purpose of this supervised field placement experience is to provide experience in administration practices and procedures through placement in a community based agency/organization. Students review previous placement experiences, types of placement, and placement documentation issues and concerns. The instructor supervises and evaluates the student’s progress in conjunction with a field supervisor (who is normally an employee in the placement agency).

Prerequisite(s): FW2710, Valid First Aid/CPR Certificate, Certificate of Conduct, Updated Immunization Record, Current Resume

GA1110 Graphic Arts History/Typography
This introductory course provides a clear understanding of the history of the Graphic Arts industry. The historical evolution of typography is studied from its beginning to its application in today's industry.

Co-requisite(s): MC1180

GA1160 Graphic Arts Problem Solving
A practical relevant mathematics course for Graphic Arts Technology, with direct application of relevant mathematics concepts. Topics emphasize problem solving skills with practical application to printing and design.

GA1200 Post Press Operations I
This is an introductory course that provides the student with an understanding of the background and methods used for finishing and related activities that apply to graphic arts.

GA1201 Post Press Operations II
This course provides the student with an understanding of the background and methods used for related activities that apply to graphic arts.

Prerequisite(s): GA1200

GA1340 Film Imposition I
This is a basic film assembly course that will introduce the student to methods and procedures used plus the use of the required tools.

GA1410 Page Layout I
This is an assembly course that provides the student with the basic technique of assembling visual elements. It is primarily a manual course that provides a foundation for
This course will further develop students’ illustration skills. Observation and experimentation with various digital devices and techniques will help students develop their traditional and digital illustration abilities as it is used in the Graphic Arts industry, and an emphasis is placed on the scanner image manipulation software as it is used on MacIntosh and PC/Windows Computers.

**Prerequisite(s):** GA1510; GA1610; GA1110

**GA1510 Digital Imaging I**
This is a preparatory course in digital imaging that will give the student the foundational skills required to use equipment and software to record, store and manipulate digital images. The emphasis will be placed on an applied knowledge and understanding of both hardware and skills required for graphic arts.

**Prerequisite(s):** MC1180; GA1610; GA1110

**GA1511 Digital Imaging II**
This course is designed to teach the student fundamentals of scanning and image manipulation. A strong emphasis is placed on both the scanner image manipulation software as it is used on MacIntosh and PC/Windows Computers.

**Prerequisite(s):** GA1510; GA1820

**GA1560 Publication Design**
This advanced course is designed to further develop students’ abilities in publication design. Students will learn how to use industry standard illustration, digital imaging and page layout software to develop long, full colour publications. Emphasis will be placed on developing industry standard skills in design, layout, illustration and typography, as well as developing efficient production skills, students may elect to design and produce a publication on one of several topics.

**Prerequisite(s):** Successful completion of all first-year graphic design courses, as well as VA2240 Graphic Design I.

**GA1600 Lithography I**
This is an introductory course in the basic operation of small offset duplicators.

**GA1611 Lithography II**
This is an intermediate course in the application of the principles and practices of the offset press.

**Prerequisite(s):** GA1600

**GA1630 Illustration I**
This course is designed to introduce students to the basics of illustration as it is used in the Graphic Arts industry, and to help students develop their traditional and digital illustration skills. Observation and experimentation with current traditional and digital graphic arts drawing materials, and an emphasis on graphic arts projects are the focus of this course.

**Prerequisite(s):** MC1180

**GA1631 Illustration II**
This course will further develop students’ illustration skills using vector-based drawing software current in the Graphic Arts industry. An emphasis will be placed on complex projects that incorporate illustration, typographic and layout skills.

**Prerequisite(s):** GA1160; VA1230; GA1110; GA1410; MC1180; GA1630

**GA1800 Multimedia**
This course is designed to develop students understanding of and ability in developing multimedia presentations at an introductory level. Students will develop an interactive multimedia presentation incorporating visuals, audio and text elements using image editing and multimedia presentation software. Students may elect to develop a multimedia presentation for a number of possible clients, including those that specialize in the marketing of products, services or ideas.

**Prerequisite(s):** Successful completion of first-year Graphic Design courses.

**GA1820 Colour Theory for Graphic Arts**
This introductory course provides students with the skills necessary to effectively manage and use colour in a digital graphic arts environment. It introduces students to effective colour management principles on both Apple Macintosh and PC platforms, and covers colour systems and translations between colour gamuts in detail. The course also provides the student with a clear understanding of the elements and principles of colour theory, and how colour can be used to create more effective images in graphic arts projects.

**Prerequisite(s):** MC1180

**GA1840 Digital Output & Calibration**
This course teaches the skills necessary for the student to output files to various digital devices such as: computer to film recorder, computer to polyester plate, and various digital printers. For optimum output conditions, each device requires maintenance and calibration.

**Prerequisite(s):** GA1510; GA1611 and completion of year one.

**GA1870 Business Practices for Graphic Design**
This course is designed to develop students’ understanding of common business practices in the Graphic Design industry. A specific focus of the course is to introduce students to the business requirements of freelance graphic design work, including pricing, estimating, specification writing, subcontracting, contract and copyright law, time management, taxation and self-promotion.

**Prerequisite(s):** Successful completion of all first year Graphic Design courses.

**GA1875 Business Practices for Graphic Production**
This course is designed to introduce the students to common business used in Graphic Production. Students will be introduced to all aspects of competitive job pricing as it applies to a variety of different types of work.

**Prerequisite(s):** Successful completion of all first year courses.

**GA1930 Introduction to Darkroom**
This course will introduce the student to basic principles and procedures of the darkroom.

**GA2230 Digital Printing**
This course will give the student hands on skills in printing to digital devices. The demand for short run, full colour documents and on-demand printing requires the student to be proficient in these skill areas.

**Prerequisite(s):** Successful completion of semesters 1 through 4.

**GA2360 Production for Graphic Designers**
This course is designed to provide students with the skills necessary to prepare digital files for graphic design projects for production. Students will learn how to prepare electronic files for delivery to printers or service bureaus. An emphasis of the course is teaching students how to design work to avoid problems in the production process.

**Prerequisite(s):** Successful completion of all core Graphic Design courses in semesters 1 through 4, and the first Intersession.

**GA2410 Page Layout III**
This is an advanced electronic page assembly course that provides the student with the techniques of page layout software on the computer. The emphasis will be on advanced features of the software plus the exploration of different types of software for page layout.

**Prerequisite(s):** GA1410; GA1411; MC1180 and successful completion of year one.

**GA2460 Pre-Press Production Practicum**
This is an advanced practical course that will help the student gain experience by combining all of their skills and applying them to practical jobs. An emphasis will be placed on production speed quality. It is intended that this course will bridge the gap between the work term and entry to the job market.

**Prerequisite(s):** GA1511; GA1611; GA2410; GA1840; GA2610; GA1201; WT1360 and successful completion of year 1

**GA2470 Offset Press Production Practicum**
This is an advanced practical course that will help the student gain experience by combining all of their skills and applying them to practical jobs. An emphasis will be placed on production speed quality. It is intended that this course will bridge the gap between the work term and entry to the job market.

**Prerequisite(s):** GA1511; GA1611; GA2410; GA1840; GA2610; GA1201; WT1360 and successful completion of year 1

**GA2560 Production Workflow & Quality Control**
This is an advanced course that delivers the skills required to develop workflow methods while maintaining quality control. These methods will be achieved with the help of computer software and workflow devices developed by the student. Students will develop estimate sheets, quotation sheets, job dockets, and tracking system.

**Prerequisite(s):** GA1611; GA2610; GA1840 and successful completion of year one.

**GA2610 Lithography III**
This is an advanced course in the application of principles and practices of the offset press.

**Prerequisite(s):** GA1611

**GE1120 Geology**
This is an introductory geology course designed to give the student a solid foundation on which to pursue the fundamentals of the science of geology. Topics covered include mineralogy, mineral identification, rock classification, and the economics of mineral resources. Class lectures are supplemented by extensive lab work where students study and examine minerals, igneous, metamorphic, and sedimentary rocks.

**GE1200 Geology**
This is an introductory course in physical geology designed for students in the Geomatics program. It covers origin, distribution and deformation of igneous, metamorphic, and sedimentary rocks; plate tectonics; structure; weathering and erosion. Laboratory work includes the study of minerals and rocks with emphasis on identification and classification, topographic maps and profiles.
GE1300 Soil Fundamentals
This course is designed to expose students to the basic concepts of soil science, soil sampling and analysis, and soil classification.

GE1420 Physical Environments
This is an introductory course designed to provide students with basic knowledge in both terrestrial and aquatic environments.

GE1500 Petroleum Geology I
This is an introductory course in physical geology designed for students in the Petroleum Program. It covers origin, distribution and deformation of igneous, metamorphic, and sedimentary rocks. Laboratory work includes the study of minerals and rocks with emphasis on identification and classification.

GE1501 Petroleum Geology II
Continuation of Geology I. Geologic processes occurring in and on the earth; structural geology, plate tectonics. Laboratory work; topographic maps and profiles; introduction to construction of sub-surface geology maps and sections. Field trips to places of geologic interest on the Avalon Peninsula.
Prerequisite(s): GE1500

GE2400 Physical Geology (Geomorphology)
This course emphasizes the external and internal processes of the earth. The external processes of geomorphology involve erosion and landscape development. The internal processes involve: earthquakes, the earth's interior, plate tectonics, and mountain building. The lab work involves detailed analysis of topographic maps and is supplemented with field trips. Local geology will be emphasized throughout the course.
Prerequisite(s): GE1120

GE2500 Petroleum Geology III
This course is concerned with the formation, movement and accumulation of oil and gas. Geologic exploration for and world distribution of oil and gas will be covered.
Prerequisite(s): GN2330, GE1501
Co-requisite(s): PM2110

GI1100 Historical Geography
This course begins with an overview of the geographic location, climatic conditions of the island of Newfoundland and the mainland Labrador, since the last glaciation. A study of the indigenous peoples of our province beginning with the 7,500 year old Maritime Archaic tradition, followed by the Paleo-Eskimo tradition, the Beothucks, the Naskapi-Montagnais, the Thule Eskimos, the Labrador Eskimos, and the Micmac tradition. The lifestyle, the environmental factors affecting settlements patterns and location of settlement, the food sources, and the religious beliefs of each culture will be discussed.

GM1140 Standard Work Shop Practices (M, E, S)
This M, E, and S course is designed for students entering into the Aviation Programs. This course enables the student to obtain the knowledge and skills required to select and use hand and power tools, precision measuring instruments, shop equipment and the knowledge to be able to identify different types of aircraft hardware.

GM1150 Basic Maintenance Practices
The purpose of this course is to enable the students to work safely and efficiently in a structural repair environment. This is to enable students to select materials and instructions that will provide for the safe completion of a maintenance task.

GM1200 Standard Workshop Practices
This course is a designed for students entering into the Aviation Maintenance Engineering Programs. This course enables the student to obtain the knowledge and skills required to select and use hand and power tools, precision measuring instruments, shop equipment and the knowledge to be able to identify different types of aircraft hardware.

GM1320 Aircraft Weight and Balance (M, E)
This M and E course is designed to provide a student with an in depth knowledge of Aircraft Weight and Balance. Students will be required to differentiate between fixed wing and rotary wing weight and balance, as well as longitudinal and lateral center of gravity. Students will interpret manufacturers’ specifications and procedures for weighing aircraft and compute a weight and balance report.
Prerequisite(s): GM1120, GM1130

GM1420 Non-Destructive Testing (M)
This M course is designed to provide a student with an in depth knowledge of Nondestructive testing techniques. Materials and equipment will be discussed.

GM1500 Maintenance Regulations
This course will provide the student with the regulatory guidelines to be followed while performing maintenance on aircraft or aeronautical products as a requirement of the Canadian Aviation Regulations (CARs).

GM1510 Corrosion Control
This course will provide the students with the knowledge and skill to identify various types of corrosion, the causes of corrosion and the susceptible locations of corrosion on aircraft structures. This course is also designed to provide the knowledge and develop the skills needed to inspect aircraft structures for corrosion, assessment of damage, removal of corrosion, treatment of corroded areas and protection methods used to prevent or retard further deterioration of aircraft structural components.

GM1520 Sheet Metal Fabrication
This is an advanced course in aircraft structural fabrication where the students will utilize the knowledge and skills learned in previous aircraft structural repair courses to produce aircraft technical drawings, follow guidelines and specifications to fabricate aircraft structural components and produce the certification as required by the Canadian Aviation Regulations.
Prerequisite(s): AF1201

GM1550 Maintenance Regulations (M, E, S)
This M, E, S course will provide the student with the regulatory guidelines to be followed while performing maintenance on aircraft or aeronautical products as a requirement of the Canadian Aviation Regulations (CARs).

GM1570 Corrosion Control (M, E, S)
This is an M, E and S course that will provide the student with the knowledge to identify various types of corrosion, the causes of corrosion and the susceptible locations of corrosion on aircraft structures. This course is designed to provide the knowledge to inspect aircraft structures for corrosion, assessment of damage, removal of corrosion, treatment of corroded areas and protection methods used to prevent or retard further deterioration of aircraft structural components.

GM1600 Structural Damages/Repair & Assembly
This is an advanced course in aircraft sheet metal repair that will develop the student’s knowledge and skill to assess damaged structures, procure and repair scheme them embody a certified repair that meets airworthiness requirements.
Prerequisite(s): AF1201

GS1110 Cartographic Concepts
This course will engage students in the exploration of the cartographic communication process and the need for positional accuracy using various geospatial referencing techniques. By introducing concepts and processes that are central to cartography, the course will enable the student to build a broad cartographic foundation for subsequent courses. Additionally, the student will understand how positional data is collected, and will be able to accurately construct a flat map representing portions of the earth. Through a series of lectures, seminars, exercises, and reports the students will compute and maintain geographic accuracy while encoding real world phenomena using specific cartographic communication concepts.

GS1210 GIS Database Principles
This course presents principles of database processing in GIS environment lab; exercises and project work provide opportunities for students to develop skills in implementing and managing databases. Students will use Microsoft Access to create database tables, queries, forms, reports, and macros to satisfy specific requirements. Structured Query Language will be used to build databases and manipulate data using industry standard language in preparation for future work in data processing and GIS analysis.

GS1310 Principles of GIS
This course will enable students to explore the principles and fundamental concepts and types of Geographic Information Systems (GIS) and apply them in simple projects. Students will be introduced to the five main technical components of a GIS, namely, input, storage, pre-processing, analysis and output using both the raster and vector spatial data models. Hands-on experience, using current software applications is provided through a series of laboratory exercises.

GS1410 Problem Solving and Programming
Geomatics software systems include programming capabilities to enable technical users to build specialized applications to process data and automate repetitive tasks. Using these facilities, a few well placed lines of code can save days of tedious or can accomplish tasks that would otherwise not be feasible. In this course students will prepare to utilize these capabilities by: (1) developing problem solving and algorithm design skills, (2) implementing solutions in a high level programming language, and (3) working with spatial data. This course also serves as a foundation to the other programming and technical courses covered later in the GIS specialist programs.
GS1510 Remote Sensing and Image Analysis
This course provides an introduction to the basic interpretation and measurement of physical, biological and cultural features on remotely sensed imagery. Basic photogrammetry concepts will be examined and practiced in scale determination, height, and measurement. Students will acquire an understanding of basic remote sensing techniques and their application in natural resource disciplines. In lab and field work students will gather control points, register the image to the ground, and compile data from industry standard software. Lab software: PCI Geomatica.

GS1610 Surveying and Mapping
This course emphasizes Geomatics principles as they apply to spatial databases. Building on the skill sets associated with measuring for maps and land type surveys, students will develop expertise in the use of equipment such as: total stations, GPS receivers, and data loggers to locate features and attach the attribute information. Through project work in the lab and field, students will gain practical experience in equipment use, maintenance and troubleshooting. Once collected, features will be placed in a GIS/Land Information System and appended to existing digital maps and plans. The resulting maps and GIS databases will be used to solve spatial queries related to land parcels.

GS1710 Web Programming
The course builds a Problem Solving and Programming in the previous semester to extend programming to the Internet and web-based applications. Various technologies for building dynamic web site in a client-server environment will be introduced, including client-side and server-side programming languages. Web programming and design will be explored through lectures and lab exercises. This course prepares students for the creation and customization of web GIS sites in the Web GIS Development course in semester 3.

GS2110 Customization of GIS Applications
As GIS software packages become more sophisticated, there is a greater need for GIS specialists who not only perform GIS analyses, but also are highly skilled in customizing GIS applications, thereby facilitating the use of GIS applications to end-users. Customization may be done within the application itself, or by developing stand alone programs that integrate GIS capabilities. This course introduces students to the basics of designing graphic user interfaces in object-oriented and event-driven environments. Students will also learn how to develop customized GIS applications to meet specific user needs and how to link these applications to other programs.

GS2210 Database Design and Development
This course builds on GIS Database Principles to introduce advanced relational database topics that are increasingly important for GIS and mapping professionals. Through application of the basic principles of relational database design, students will learn how to design a model of the users’ view of their data and express it as an entity-relationship model. Core concepts of database development will also be explored, including normalizing tables, establishing appropriate relationships between data, establishing metadata, determining domains, and capturing business rules. The course includes topics in data processing with SQL and procedural extensions in industry-standard client server environments.

GS2310 Project Planning and Management
The skills developed in this course will help students select, design, build, and implement a complex GIS application in response to an industry defined problem, using a business project management model. The course will assist students in negotiating the complexities of project management unique to this sector, as well as issues such as client relations, time management and scheduling, costing and budgeting, data acquisition, negotiating intellectual property rights and copyrights and managing team work and interactions. Project design principles and cartographic standards, together with guest lectures, will provide a foundation for the iterative process of planning, establishing schedules, and writing a GIS project proposal. Project Planning and Management precedes the major GIS project in the final semester, and develops a skill set critical to its success.

GS2410 Spatial Analysis and Applications
This course will provide the conceptual background to more advanced GIS analysis applications. The course is designed to provide an understanding of spatial analysis techniques available within a GIS environment, and within the context of a variety of application areas. In addition, this course will apply methods for determining appropriate use of GIS within organizations. Conceptual material presented in lectures will be placed in an applied context through laboratory exercises designed to strengthen practical understanding and awareness of GIS methodology. Prerequisite(s): GS1310

GS2510 Spatial Statistics
Following a review of basic statistics, this course introduces the student to the fundamentals of statistical methods relevant to geographic data and spatial analysis. The course begins with a review of descriptive and inferential statistics and their application to geographic data and processes. Other course topics include: Spatial Distribution of Points, Trend Analysis, Measures of Spatial Dependence and Error Estimation of Geographic Data.

GS2710 Web GIS Development
This course introduces GIS students to the broad possibilities of the single greatest impetus for change in the GIS industry – the Internet. Building on Web Programming in the previous semester, Web GIS Development provides an overview, and develops a conceptual understanding of, existing Web-based applications for GIS and the innovations that will affect the shape of the industry’s future. Students will create web GIS sites using the built-in capabilities of several of the leading commercial web GIS applications, and will later customize these sites using scripts and programming. Planning and development stages for a GIS website will also be covered, with practical work in accessing, displaying, querying, and analyzing GIS data over the Internet. Prerequisite(s): GS1710

GS2910 Advanced Remote Sensing
The goals of this advanced course are three-fold. First, today’s professional airborne digital mapping systems will be reviewed. In so doing, students will be able to use current imaging and GIS software to compile a 3-D map. Second, a thorough analysis of the applications of synthetic aperture radar (SAR – both airborne and from space) will be completed. In understanding that process students will be involved in measuring ground subsidence by means of SAR data densification achieved through SAR imagery and interferometry. Third, the ever increasing utility of the data from space-borne sensors will be reviewed, and in parallel, students will perform advanced fully-automated (as well as semi-automated) data extraction. Prerequisite(s): GS1510

GS3110 Advanced Topics in Geomatics
Advanced Topics in Geomatics is designed to ensure that students are exposed to emerging issues and trends in the field as well as the most current technologies. Course topics will be selected through the input of advisory committee members, departmental faculty and students as well as through assessment of the professional literature and publications. Activities will include guest lectures, demonstrations of new technologies, applications and software, workshops, student presentations, field trips and, where possible, attendance at an external conference or workshop. The course is an important transition for students as they move from program graduates to entry level practitioners, helping them to begin professional networking, develop a career path and explore avenues for future professional development and areas of specialization. Prerequisite(s): GS2110

GS3210 Major GIS Project
This course introduces GIS students to the broad possibilities of the single greatest impetus for change in the GIS industry – the Internet. Building on Web Programming in the previous semester, Web GIS Development provides an overview, and develops a conceptual understanding of, existing Web-based applications for GIS and the innovations that will affect the shape of the industry’s future.

GS3310 Geospatial Data Management
This course introduces students to the fundamentals of statistical methods relevant to geographic data and spatial analysis. The course begins with a review of descriptive and inferential statistics and their application to geographic data and processes. Other course topics include: Spatial Distribution of Points, Trend Analysis, Measures of Spatial Dependence and Error Estimation of Geographic Data.

GS3410 Spatial Database Applications
Object-oriented programming (OOP) is characterized by the notion of objects closely related to their real world counterparts by encapsulating their properties and behaviours. With OOP, objects can also inherit characteristics and behaviours from other objects. These two characteristics have led designers of database systems to consider the object paradigm as a better way of building and managing databases. At the same time, the relational data model has shown strengths in many aspects of database design, such as the simplicity of its data organization and conceptual model. To take advantage of the benefits of both models, database management system designers have come up with the Object-Relational model whereby relational database tables can be built using objects. This course will teach participants how to take advantage of this new database development model in the design and management of spatial databases. The course will be based on Oracle and ESRI Geodatabase Object-Relational models. Integration between Oracle and ArcGIS through ArcSDE will also be introduced. Prerequisite(s): GS1310

HET100 Equipment Operation Safety
This course in heavy equipment operation fundamentals requires environment, equipment, operator, education, engineering and enforcement. It involves following safety regulations, assessing variable conditions (road, vehicle, driver, light weather and traffic), planning strategies,
HE1120 Grades and Stakes
This course in Grades and Stakes involves knowledge of the use of basic survey equipment. It includes equipment setup and layout of survey stakes. It requires some reference to planning design fundamentals, construction terminology, building materials and road building.

HE1200 Equipment Maintenance
This course in heavy equipment operation fundamentals requires the use of tools and equipment, and materials and supplies. It involves following manufacturers recommendations for the maintenance of equipment and adjustment of components. It includes information on types and operation of equipment and component parts. "Prerequisite(s): HE1100"

HE1300 Regulations and Emergency Procedures
This course in heavy equipment operation fundamentals requires the use of an appropriate environment and equipment. It involves becoming aware of, accessing, interpreting, integrating and gaining experience with the implementation of regulations and emergency procedures. It includes information on regulations and emergency procedures, national safety code and fuel conservation (pro trucker).

HE1500 Bulldozers
This course in off-road equipment requires the use of an appropriate environment and equipment. It involves inspection, start up, maneuvering, planning strategies, cutting and spreading, winching, ripping, pushing, sloping and benching, excavating and stripping and shut down. It includes information on bulldozer operation and maintenance. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1510 Graders
This course in off-road equipment requires the use of heavy equipment and an appropriate environment. It involves inspecting, start-up/shut-down, maneuvering, planning strategies, grading scarifying, spreading, ditching, shouldering, finishing and removing snow. It includes information on operations, techniques, attachments road systems and construction drawings. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1520 Backhoe/Excavator
This course in off-road equipment requires the use of machinery and a suitable environment. It involves inspection, start-up/shut-down, maneuvering, setting-up, planning strategies, ditching, excavating, loading trucks, lifting, sloping and benching, and stripping. It includes information on operations, techniques, attachments, road systems and construction drawings. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1530 Front End Loaders
This course in off-road equipment requires the use of machinery and a suitable environment. It involves inspection, start-up/shut-down, maneuvering, planning strategies, digging and dumping, excavating, loading trucks, dozing, lifting, sloping and benching, stockpiling and removing snow. It includes information on operations, techniques, attachments, road systems and construction drawings. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1540 Tandem Trucks
This course in tandem equipment requires the use of machinery and a suitable environment. It involves inspection, start-up/shut-down, changing gears, maneuvering, positioning, hauling and dumping, and driving. It includes information on operations and techniques. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1550 Off-Highway Trucks
This course in off-highway equipment requires the use of machinery and a suitable environment. It involves inspection, start-up/shut-down, changing gears, maneuvering, positioning, hauling and dumping, and driving. It includes information on operations and techniques. "Prerequisite(s): HE1100, HE1200, HE1300"

HE1560 Excavators
This course in off-road equipment requires the use of machinery and a suitable environment. It involves inspection, start-up/shut-down, maneuvering, setting-up, planning strategies, ditching, excavating, loading trucks, lifting, sloping and benching, and stripping. It includes information on operations, techniques, attachments, road systems and construction drawings. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1100 Hand and Power Tools
Upon successful completion of this course, the apprentice will be able to identify basic hand and power tools (heat and frost) and use hand and power tools. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1110 Shop Tools and Equipment
Upon successful completion of this unit, the apprentice will be able to identify shop tools and equipment, use shop tools and equipment, and maintain shop tools and equipment. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1150 Insulation Principles
Upon successful completion of this unit, the apprentice will be able to demonstrate general knowledge of insulating principles and identify systems requiring insulation. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1200 Insulation Materials
Upon successful completion of this unit, the apprentice will be able to identify insulation materials and accessories and describe procedures for use of insulator materials and accessories. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1210 Insulation Practices
Upon successful completion of this unit, the apprentice will be able to describe basic procedures for insulating at various temperature ranges. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1220 Introduction to Pipe and Piping Systems
Upon successful completion of this unit, the apprentice will be able to identify and describe piping systems that require insulating. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1230 Installing Pipe Insulation
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures to install pipe insulation and select material for pipe insulation. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1240 Hot Work Practices
Upon successful completion of this unit, the apprentice will be able to identify hot work environments and describe procedures to work safely in hot work environments. "Prerequisite(s): HE1100, HE1200, HE1300"

HF1250 Introduction to Asbestos
Upon successful completion of this unit, the apprentice will be able to identify asbestos types and describe procedures to work safely with asbestos. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1260 Asbestos Removal Procedures
Upon successful completion of this unit, the apprentice will be able to describe procedures used to remove asbestos and use Personal Protection Equipment. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1270 Blueprint Reading-Part I
Upon successful completion of this unit, the apprentice will be able to identify basic information from blueprints or drawings, interpret basic information from blueprints or drawings, and prepare basic drawings and diagrams. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1280 Introduction to Foam Insulation
Upon successful completion of this unit, the apprentice will be able to identify characteristics of foam insulation and identify applications of foam insulation. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1290 Installation of Flexible Foam Insulation
Upon successful completion of this unit, the apprentice will be able to describe procedures used to install flexible foam insulation and its accessories and use flexible foam insulation. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1300 Air Handling System Components
Upon successful completion of this unit, the apprentice will be able to identify air handling systems and components related to the Insulator occupation, and describe air handling systems and components related to the insulator occupation. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1310 Blanket Insulation
Upon successful completion of this unit, the apprentice will be able to describe the procedures for installing blanket insulation, and use blanket insulation. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1320 Fibrous Board Insulation
Upon successful completion of this unit, the apprentice will be able to describe the procedures for installing fibrous board insulation on ductwork, and use the procedures for installing fibrous board insulation on ductwork. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1330 Insulating Breachings, Flues and Precipitators
Upon successful completion of this unit, the apprentice will be able to describe the procedures used to insulate breachings and the use of associated equipment and use insulation on breachings. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1340 Insulating Methods (Cylinders and Heads)
Upon successful completion of this unit, the apprentice will be able to describe the procedures used to insulate tank heads and cylinders with rigid insulation, describe the procedures used to insulate tank heads and cylinders insulation flexible insulators, use rigid insulation and use flexible insulators. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1350 Finishing Methods
Upon successful completion of this unit, the apprentice will be able to describe the procedures used to apply finishes to tank heads and cylinders and use finishing materials on tank heads. "Prerequisite(s): HE1120, HE1200, HE1300"

HF1360 Introduction to Cryogenic Work
Upon successful completion of this unit, the apprentice will be able to describe the properties of cryogenic work,
Upon successful completion of this unit, the apprentice will be able to describe the procedures used to insulate, seal, and finish underground piping, and use insulation for underground piping.

HF1400 Parallel Line Development
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of parallel line development, identify types of applicable layouts, and describe procedures used to perform parallel line development.

HF1410 Radial Line Development
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of radial line development, identify types of applicable layouts, and describe procedures used to perform radial line development.

HF1420 Triangulation
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of triangulation, identify types of applicable layouts, and describe procedures used to perform triangulation.

HF1500 Tees, Valves and Elbows
Upon successful completion of this unit, the apprentice will be able to describe procedures used to develop patterns for tees, valves, and elbows, and construct patterns for tees, valves, and elbows.

HF1510 Flanges and End-Caps
Upon successful completion of this unit, the apprentice will be able to describe procedures used to develop patterns for flanges and end-caps, and construct patterns for flanges and end-caps.

HF1520 Cones, Bevels and Transitions
Upon successful completion of this unit, the apprentice will be able to describe procedures used to layout and develop patterns for cones, bevels, and transitions, and construct patterns for cones, bevels, and transitions.

HF1540 Tank Heads
Upon successful completion of this unit, the apprentice will be able to describe procedures used to layout patterns for tank heads.

HF1550 Firestopping
Upon successful completion of this unit, the apprentice will be able to identify and explain the characteristics of firestopping materials, describe the procedures to install firestopping, and use firestopping materials.

HF2270 Blueprint Reading-Part II
Upon successful completion of this unit, the apprentice will be able to read and interpret information from related construction drawings.

Prerequisite(s): HF1270

HM1500 Quality Management in Food Service
Introduction to quality management principles and supervision in the food service industry. Establishment of standards and application of quality assurance techniques in food service administration. Students will gain a knowledge of strategic planning, disaster planning and management information systems, as it applies to food service administration.

HM1650 Professional Certification for the Tourism Industry
The intent of the Professional Certifications course is to recognize competence rather than regulate or control practices. The success of Canada’s tourism industry depends on the quality of service guests receive when they visit our hotels, parks, restaurants, museums and numerous other attractions and events. This quality of service is enhanced through training and certification. This course will encompass industry-recognized credentials granted to a candidate upon successful demonstration of competence as outlined in a series of workshops and seminars. Certification is one of the most important ways of promoting and recognizing a highly skilled workforce.

HM2100 Cost Controls I
This is an introductory course in the concepts of cost controls. The course deals specifically with the food control skills and techniques that are practised in the hospitality industry.

Prerequisite(s): MA1110

HM2101 Cost Controls II
This is the second course in the concepts of cost controls. The course deals specifically with the skills and techniques of beverage cost management, labour cost controls, and staff scheduling as they are practised in the hospitality industry.

Prerequisite(s): HM2100

HM2110 Hospitality Menu Management I
This course addresses the full spectrum of food service menus and styles of food service appropriate to the hospitality industry. Students are introduced to the fundamentals of menu planning, layout, and design. Waiter/Waitress training and the principles of customer service are introduced.

HM2111 Management of Institutional Menus II
This course emphasises menu planning for health care institutions. The focus is placed on identifying menu patterns and planning standard and therapeutic menus. The menu is examined in terms of its influences on procurement practices. The principles of food purchasing, receiving, and storage are examined.

Prerequisite(s): HM2110

HM2140 Food & Beverage Management
This course introduces the student to the management functions necessary to successfully operate a food and/or beverage facility in the hospitality industry.

HM2210 Hospitality Marketing
This course is an introduction to the concepts and techniques of hospitality advertising and marketing. Students study the history of marketing and advertising in the hospitality industry, government regulations, segmentation of the industry, marketing and advertising methodologies, travel marketing, sales goals, packaging, pricing, successful promotions and public relations.

HM2240 Supervision
This course explores practical and effective management skills for the hospitality workplace. Emphasis is placed on the technical and human relations skills considered essential for today’s managers.

HM2500 Hospitality Events Management
The course provides the student with an introductory approach to planning and executing meetings, special events and conferences for the hospitality industry. The course examines practical advice on every aspect of organizing and managing events, such as how to choose the best venue; preparing and managing the budget; scheduling; coordinating food and beverages, selecting decor, themes, and entertainment; media; and staffing.

HM3110 Restaurant Menu Management III
This course is directed towards the restaurant industry. Students will be introduced to restaurant development from conception through to operating and running a food service establishment. Emphasis is placed on creating a menu that will meet market demands.

Prerequisite(s): HM2110

HN1100 Introduction to Industrial Relations
This is an introductory course in the theory and practice of industrial relations in Canada. Practical examples will be explored to reinforce the theoretical concepts and to highlight important industrial relations issues. The course will examine the collective bargaining process, the grievance procedure, the related laws and regulations, and the administration of collective agreements.

HN1200 Human Resource Management
This is an introductory course in the theory and practice of human resource management. The following topics will be explored in this course: human resource planning, recruitment, selection, orientation, training, and development, performance appraisals, compensation, employee rights and labour relations. Specific attention will be directed to Newfoundland Labour Legislation, particularly as it relates to industry.

HN1230 Human Resource Management I
This is an introductory course in the major functions within the areas of human resource management. The following topics will be explored in this course: Strategic Human Resource Management, The Law and Human Resource Management, Human Resource Planning, Job Analysis and Job Design, Recruitment, Selection, Socialization and Orientation, Training, Development and Career Planning.

HN1240 Human Resource Management II
This is an introductory course in the major functions within the areas of human resource management. The following topics will be explored in this course: performance appraisals, compensation, indirect compensation/employee benefits, communication and motivation, workplace safety and health, industrial relations frame-
work, collective bargaining and collective agreements, international Human Resource management, and Human Resource auditing/evaluation.

**Prerequisite(s):** HN1230

### HN1400 Occupational Health & Safety
- This program provides an overview of the Occupational Health and Safety field and related provincial and federal legislation. This course also discusses how health and safety relates to an organization’s overall management system.

**Prerequisite(s):** HN1240

### HN2100 Collective Agreement Administration
- This course will examine in detail the issues involved in both interpreting and administering a collective agreement. Students will be introduced to the process of public sector collective bargaining as well as the various issues involved in understanding, interpreting and administering a collective agreement. Practical simulations will be used to reinforce the theoretical material.

**Prerequisite(s):** HN1240

### HN2110 Dispute Settlement
- This course will explore the various types of third-party assistance available to both management and union in resolving disputes. A variety of dispute resolution procedures commonly used in Canada will be examined including conciliation, mediation, fact-finding, and arbitration. Practical simulations will be used to reinforce the theoretical material.

**Prerequisite(s):** HN1100

### HN2130 Recruitment/Selection
- The primary objective of this course is to provide an understanding of process, issues and techniques involved in developing and administering the recruitment and selection functions. Attention is given to the importance of each of these areas within the Human Resource Management field.

**Prerequisite(s):** HN1240

### HN2140 Attendance and Disability Management
- The primary objective of this course is to provide an understanding of the functional areas of attendance and disability management within the field of Human Resource Management, giving due consideration to areas in the field that are affected by Federal and Provincial law and regulations.

**Prerequisite(s):** HN1240 and HN1400

### HN2150 Training and Development
- The primary objective of this course is to provide an understanding of process, issues and techniques involved in training and development functions within the Human Resource Management field.

**Prerequisite(s):** HN1240

### HN2200 Compensation and Benefits
- The objective of this course is to provide an understanding of the process, issues and techniques involved in developing and administering a compensation system. Attention is given to a compensation system that rewards the development and administering of a compensation system.

**Prerequisite(s):** HN1240

### HN2210 Human Resource Planning
- The primary objective of this course is to provide an understanding of the essential elements of the human resource planning process. Quantitative as well as qualitative concepts, approaches, and techniques are emphasized.

**Prerequisite(s):** HN1240

### HN3110 Current Topics in Human Resource Management
- This course will examine issues, topics and trends in the areas of human resource Management and Industrial Relations that are of recent and current concern to professionals in the field.

**Prerequisite(s):** HN1240; HN1100

### HR100 Human Relations
- This course is designed to create an awareness of the importance of effective interpersonal skills in an employment environment and to provide an opportunity for the student to learn and practice these skills. The student will examine the basic elements of interpersonal communication and practice effective communication skills in personal and professional relationships. The course emphasizes interpersonal skill development through the process of experiential learning.

### HR1200 Introduction to Human Services
- This course introduces the human service field as a profession. The principles which underlie the delivery of human services will be examined; and the knowledge, skills, and values relevant to human service work will be identified and analysed. A systems theory approach will be used to explore the environment in which human services are delivered.

### HR1300 Communications and Human Relations I
- The study of communication as it relates to effective human relations involving staff, children and parents. This course will include effective listening, oral and written skills as well as non-verbal communication.

### HR2120 Public Relations
- This course concentrates on the skills necessary to develop public relations for business purposes. A combination of theories/concepts and practical illustrations are used to explain the application of public relations.

### HR2130 Industrial Relations
- This course is designed to provide the student with an introduction to the complexities of human interaction with respect to the workplace. It is also the intent that the course material will contribute to a better understanding of subject matter studied in other courses such as, construction law and construction management. A basic course in Human/Labour relations with emphasis on the role of the individual within an organization. Topics to be covered include but are not limited to; self-analysis, including attitudes, self-concept, communication style, motivations and organizational values; improving Human Relations; constructive self-disclosure; emotional control, positive reinforcement and first impressions; leadership and supervision, considering conflict management, prejudice, discrimination, and sexism. Students will be required to submit a term paper on a suitable topic as partial fulfillment of requirements of the course.

### HR2200 Human Relations
- This course is a study of the basic principles of human relations, and the behaviour of the people in organizations as they strive to achieve both personal and organizational goals.

### HR2400 Professional Development
- This course is designed to prepare the students for the workplace. The focus is on acquiring the skills of a successful professional employee. The students will learn how to assess and refine their own skills and to match these skills with employment opportunities.

### HS1120 Introduction to Food Preparation I
- This course is an introduction to the basic principles and techniques of food preparation as they relate to the food industry. The theory taught in the classroom is followed up by actual food preparation in a commercial operation – production size kitchen.

### HS1121 Food Preparation II
- This course is a continuation of Food Preparation I. The students will be able to understand, recognize and have a knowledge of food preparation and production with reference to yeast breads, dairy products, meats, poultry, seafood, appetizers, soups, cookies and cakes.

**Prerequisite(s):** HN1240

### HS1130 Dining Room Operations
- This course provides the student with a basic program in Dining Room Service. It stresses the practical application of food and beverage service skills. The student receives training of a practical nature in the College's training dining room.

### HS1340 Bar and Beverage Operations
- This course introduces the student to the basic principals and techniques of bartending. Theory is combined with practical labs to ensure the student is given the opportunity to practice the skills learned. Responsible service of alcohol and guest contact techniques are stressed.

### HS1520 Hospitality Sales
- This course is designed to emphasize the skills and techniques necessary to sell products and services in the competitive environment of the hospitality industry. Students will study the selling process, meeting the client’s needs, developing customer trust and rapport, sales closing, follow-up techniques, and professionalism in the industry.

### HS1540 Emerging Trends in Hospitality Tourism Industry
- The aim of this course is to complement or supplement previous training, or to augment training in response to current trends or an unseen deficiency in student knowledge of specific topics. Topics are selected each time this course is offered. Campuses that are instructing the same course are offered. Campuses that are instructing the same program should try to coordinate the topic(s) covered in this course. The course may be delivered through lectures or self-directed research or a combination of methods. The course will contain practical projects and applications.

### HS1720 Rooms Division Systems
- This course introduces the student to the operations, procedures, and responsibilities of rooms division systems within the accommodation sector. This course has been designed to include the National Occupational Standards for the Canadian Tourism Industry. Students will acquire the skills and knowledge that will enable them to effectively work as Housekeeping personnel and Front Office Personnel.

### HS2120 Food Preparation III—Quantity Food Production
- This course is designed to give practical experience on how to plan, produce and serve in quantity, nutritious meals suitable for institutional operations without deterioration in quality and with minimum waste. Students will learn how to purchase foods; evaluate, test and standardize recipes; develop and use portion control and calculate...
portion costs. Each student will be placed in a supervisory role in order to practice the skills of planning, organizing, directing and controlling staff and equipment during quantity food production. Throughout the course, through assignments, students will also receive practical experience in preparing and serving high quality meals suitable for restaurant meal service in a dining room setting.

**HS2121 Food Preparation IV**
This course is designed to give advanced practical experience in the operation of a cafeteria. The course builds upon fundamental concepts from previous courses and provides the student with supervisory experience of cafeteria management and small cafe service.

**HT1110 Salon Fundamentals**
This course in salon management requires the use of basic tools and equipment, and materials and supplies. It involves sanitizing tools and equipment, doing laundry, receiving clients, interpersonal communication, preparing clients for services, keeping record cards, adhering to work schedules and practicing safety. It includes information on salon management techniques and requirements, interpersonal relations, and equipment quality.

**HT1210 Styling I**
This course in styling requires the use of curling irons and hot rollers, brushes and combs, blow dryers and applicators. It involves personal consultation, client preparation, hair analysis, shampooing, treating and styling hair. It includes information on types of shampoos and rinses, and scalp and hair analysis and treatment.

**Prerequisite(s):** HT1110

**HT1211 Styling II**
This course in styling requires the use of basic implements and rollers. It involves personal consultation, client preparation, hair analysis, shampooing, treating and styling hair. It includes information on hair styles and types of hair pieces.

**Prerequisite(s):** HT1210

**HT1300 Cutting I**
This course in cutting requires the use of a straight razor, a clipper/edger, a shaper/razor, scissors and shears, and applications. It involves personal consultation, client preparation, hair analysis, shampooing, cutting and styling. It includes information on cutting techniques for various types of haircuts.

**Prerequisite(s):** HT1211

**HT1301 Cutting II (Barbering)**
This course in cutting requires the use of a lather, straight razors, clipper/edgers, shaper/razors, scissors, shears and mannequins. It involves client consultation and preparation, determining type of haircut, cutting and finishing. It includes information on cutting techniques for various types of haircuts.

**Prerequisite(s):** HT1300

**HT1400 Basic Perming**
This course in basic perming techniques requires the use of basic perms, perm rods, applicators and materials and supplies. It involves client consultation and preparation, hair analysis, perm and perm rod selection, winding, processing, neutralizing, rinsing and finishing. It includes information on hair analysis, types of perm rods, processing techniques, and neutralization.

**Prerequisite(s):** HT1300

**HT1410 Chemical Relaxing/Straightening**
This course in specialty perming techniques requires the use of specialty perms, perm rods, applicators and materials and supplies. It involves client consultation and preparation, hair analysis, perm and perm rod selection, winding techniques, processing, neutralizing, rinsing and finishing. It includes information on hair analysis, types of perm rods, processing techniques, neutralization and chemical relaxing.

**Prerequisite(s):** HT1400

**HT1510 Colour Fundamentals**
This course in hair colouring requires the use of applicators, implements and supplies. It involves client consultation and preparation; patch testing, strand testing and removal of residue. It includes information on hair analysis, types of colors, mixing, developing and semi-permanent and temporary colouring.

**Prerequisite(s):** HT1210

**HT1511 Hair Colour**
This course in hair colouring requires the use of applicators, implements and supplies. It involves client consultation and preparation, application of colour solutions and removal of residue. It includes information on hair analysis, types of colors, mixing, developing and permanent colouring.

**Prerequisite(s):** HT1510

**HT1600 Introduction to Aesthetics**
This course in aesthetics requires the use of applicators, implements and supplies. It involves client consultation and preparation for the aesthetic service and performing the required procedures. It includes information on types of aesthetics products and their uses.

**Prerequisite(s):** HT1110

**HT2300 Advanced Cutting**
This course in advanced cutting requires the use of a variety of tools necessary for current hair styles. The course is specifically aimed at those who have achieved proficiency in the rudimentary aspects of hair cutting with emphasis on the creation of individualistic hair styles. It includes information on communication skills necessary for client consultations, hair analysis, hair cut adjustment and finishing techniques necessary to enhance the design lines of the hair shaping.

**Prerequisite(s):** HT1301

**HT2400 Advanced Perming Techniques**
This course in advanced perming techniques requires the use of a variety of implements, materials and manufacturer products necessary for waving and straightening of hair. The course is specifically aimed at those who have achieved proficiency in the rudimentary techniques of all aspects of hair perming. It involves client consultation, hair analysis to determine desired effects, use of appropriate tools and equipment, wrapping and winding hair, application of processing solution, rinsing and neutralizing, performing finishing techniques and advising client on home maintenance.

**Prerequisite(s):** HT1400

**HT2500 Lightening and Toning**
This course in hair colouring requires the use of applicators, implements and supplies. It involves client consultation and preparation, patch testing, strand testing, applying bleaching solutions and removal of residue. It includes information on hair analysis and effects of bleaching and toning.

**Prerequisite(s):** HT1511

**HT2501 Advanced Coloring**
This course in advanced coloring requires the use of a variety of implement and supplies required for the application of hair coloring. The course is specifically aimed at those who have achieved proficiency in the rudimentary techniques of all aspects of hair coloring. It includes information on communication skills necessary for client consultations, hair analysis, color options, corrective coloring, mixing and the application of colors and advising on home care maintenance.

**Prerequisite(s):** HT2500

**HY1100 Art History I**
This course covers Western Art History to the twentieth century. The course is designed to introduce students to the basic art-historical concepts. Topics include major art movements and artists, the cultural and social meanings and relevance of art, and discussion of crucial terminology such as quality and beauty.

**HY1101 Art History II**
This is a survey course covering Western Art History of the twentieth century. The course is designed to introduce students to the basic art-historical concepts. This introduction includes major art movements and artists, the cultural and social meanings and relevance of art, and discussion of crucial terminology such as quality and beauty.

**HY1200 Craft History**
This course is designed to introduce students to crafts of the past while also exposing them to contemporary craft. Topics covered include concept, functions and origins of craft; techniques, technologies, and culture of craft; major craft movements; and historic craft works. Students will develop an appreciation of craft through participation in field trips and attending lectures from visiting artists.

**Prerequisite(s):** HY1100

**HY1300 Newfoundland History**
This course is a general survey of the history of Newfoundland and Labrador. It begins with a brief look at how geographical factors influence history, and then focuses on early native people and European settlers. The course then concentrates on major events and developments, including those related to the founding and emergence of major political and social movements and institutions.

**HY1320 Newfoundland History**
This course is a general survey of Newfoundland and Labrador in the twentieth century. The course begins with an examination of the major economic and political issues around the turn of the century, including construction of the railway, the First World War, political corruption and economic deprivation. It then focuses on major issues such as the Commission of Government, Confederation, and on the policies of subsequent governments. The course also examines the history of major industries and the emergence of major political and social movements and institutions.

**HY1400 Architectural History**
A brief architectural history course covering the period from ancient Egypt to modern day. Emphasis is placed on the factors which shape and influence architectural styles. The course discusses the impact of political, religious, climatic, economic, line of progression, and other factors on the thinking of designers. The relationship of design in related fields is also discussed. Students are expected

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to analyze present day buildings and identify the factors which influence their design.

**HY2100 Art History III**
This survey examines the roots of modern art and the artists who broke new ground in visual explorations of the work around them. This survey will emphasize several significant landmark periods such as the Renaissance, the Rococo, Neo-Classicism, Romanticism and Impressionism.

**Prerequisite(s):** HY1101

**HY2101 Art History IV**
This fourth semester art history course examines well-known movements associated with the 60’s, 70’s and early 80’s. The course is designed to introduce students to the basic art historical concepts. This course includes major art movements and artists, the cultural and social meanings and relevance of art, and helps clarify the theoretical basis for these major developments.

**Prerequisite(s):** HY2100

**JL1110 Reporting and News Writing I**
This course is an introduction to the theory and practices of professional journalism. Its main purpose is to give students a solid foundation in reporting and news writing skills. These skills include the basics of research, interviews and news article writing. This course stresses the importance of accuracy and meeting deadlines. Students learn how to conceive newsworthy story ideas and develop them. The role of journalism and the journalist in society is examined through lectures, group discussions and written assignments.

**JL1120 Reporting and News Writing II**
This course is designed to help the journalism students build upon the fundamentals learned in Reporting and News Writing I. It contains intermediate reporting, interviewing and writing skills. It includes training in general assignment reporting, which introduces the students to many of the kinds of stories they will encounter as entry-level reporters. As well, the course develops relevant critical thinking, math and editing skills.

**Prerequisite(s):** JL1110

**JL1350 Layout and Design**
Students will learn how to lay out and design newspaper pages using industry-standard software. They will also learn how to import photos and graphics into newspaper pages. As well, they will learn how to communicate effectively with print production staff and learn how to use file transfer protocol (FTP) to transmit and acquire files.

**JL1410 Journalism, Ethics and The Law**
This course serves as an introduction for Journalism students to the Canadian legal system. Emphasis is placed on areas of the law encountered in journalism.

**JL1430 Workplace Professionalism for Journalists**
This course is designed to provide students with the skills and knowledge necessary to prepare for the professional journalism workplace and to effectively work in a team environment. Students will prepare for their Intersession field work training placements by preparing résumés, writing cover letters, compiling portfolios and preparing learning contracts. Under supervision of the instructor, students will arrange their own field work placements.

**JL1510 Broadcast I**
This course emphasizes basics of professional radio and television news formatting and presentation. Students will also learn how to use various broadcast tools: video cameras; digital audio recorders; digital audio editing equipment and software; digital video editing equipment and software; and radio sound boards. This course will lay the technical foundation students will need as broadcast journalists.

**JL1511 Broadcast II**
In this course, students learn principles and practices of broadcast journalism, including; writing for television and radio; producing video and radio news clips; producing radio news programs, producing TV programs, and speaking on radio and television. The students will apply the technical knowledge they acquired in Broadcast I to a journalism setting.

**Prerequisite(s):** JL1510

**JL1580 Internet Journalism**
This course enables students to combine print, radio and video journalism techniques into one product. Once they have successfully completed this course, students will be able to write articles specifically for the Internet; prepare video and audio clips for streaming; prepare graphics and pictures for the Internet, and produce their own journalism website with the aid of user-friendly software.

**JL1820 Newsroom I**
Newsroom I is primarily a practical course in which students apply the journalistic principles they have learned in theory. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and deadlines. The students help produce a youth website, a provincial youth newspaper, a weekly radio show and various video projects. Emphasis is placed on establishing good journalistic habits such as meeting deadlines and meeting editors’ expectations. Students are expected to apply the principles they are learning in Reporting and News Writing I, Photojournalism I and Broadcast I.

**JL1821 Newsroom II**
Newsroom II is primarily a practical course in which students apply the journalistic principles they have learned in theory. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and deadlines. The students help produce a youth website, a provincial youth newspaper, a weekly radio show and various video projects. Emphasis is placed on establishing good journalistic habits such as meeting deadlines and meeting editors’ expectations. Students are expected to apply the principles they are learning in Reporting and News Writing I, Photojournalism I, Broadcast II, and Layout and Design.

**Prerequisite(s):** JL1820

**JL1830 Newsroom I (Post Diploma)**
This is an accelerated version of the Newsroom I & II courses in the diploma program. The purpose of the course is to give students an opportunity to apply the journalistic principles and practices they are learning elsewhere in the journalism program. The students also learn how to conduct themselves in the newsroom and in the journalism industry as a whole. The students work as part of a team in producing a provincial youth newspaper, a weekly youth news website, a weekly radio show and various video projects.

**Prerequisite(s):** JL1830

**JL2120 Reporting and News Writing I**
Journalism students learn how to cover major journalism beats such as politics, business, sports, entertainment, and lifestyles. The course also covers advanced principles of reporting and feature writing.

**Prerequisite(s):** JL1120

**JL2270 Special Project(s)**
Students will produce a major piece of public service journalism in either print, broadcast or internet media. The resulting product must meet professional standards and be suitable for publication, broadcast or website posting. The project may be completed with an outside agency or as an independent project, subject to the instructor’s approval.

**Prerequisite(s):** JL1210; JL1511; JL1580

**JL2820 Newsroom III**
In this course, students will apply their photojournalism, news writing, layout, broadcasting and internet skills. Second-year students will edit each other’s stories as well as those of the first-year students. They will work as part of a team in producing a weekly news website for Newfoundland and Labrador youth, a provincial youth newspaper, a weekly radio show and various video projects.

**Prerequisite(s):** JL1821

**JL2821 Newsroom IV**
Students will apply print, broadcast, photojournalism and internet techniques. They will produce a provincial youth newspaper, a weekly online youth news website, a weekly radio show and various video projects as part of a team. Students will become more accustomed to daily deadlines.

**Prerequisite(s):** JL2820

**LW1100 Business Law**
This course is an introduction to the legal system, the Canadian and provincial judicial system; civil law, tort law; and introduction to contract law (types of contracts, offer and acceptance, breach of contract, discharge of contract, and capacity to contract).

**LW1130 Tourism Law**
This course explores the legal responsibilities, obligations, and liabilities which may be encountered in the tourism industry. Students will gain valuable and practical insights into the nature of the relationships between innkeeper and guest, restaurateur and diner, and private host and guest. Pertinent legislative acts relevant to the hospitality industry on both federal and Provincial levels will be examined. The focus of this course is preventive in nature as emphasis is placed on building the students awareness of the legal issues in the tourism industry.

**LW1200 Business Law**
This course is an introduction to the legal system, including civil law, the Canadian and provincial judicial system; tort law, contract law, legislation affecting contracts, law of agency; and current issues.

**LW1210 Labour and Employment Law**
This course is designed to give students an understanding of the Canadian system of labour law. Students will examine the law governing the collective bargaining relationship and the common law and statute law regulating the
relationship between the employee and the employer. The Labour Relations Act (NF), The Labour Standards Act (NF), and The NF Human Rights Code will be examined in detail.

Prerequisite(s): HN1100, HN1240

LW1300 Legal Liability and Risk Management
This course will discuss the various forms of business and the legal issues concerning adventure tourism operators and guides (owner liability/guide liability). The Canadian legal system will be discussed. Risk management techniques will be examined. Insurance coverage, training and certification issues, and legal releases will be discussed. Studies of Canadian and United States litigation cases involving outdoor recreation pursuits will be discussed. A practical component of this program will involve completing a risk management plan for an adventure tourism operation.

LW1500 Law & Ethics
This course comprises various aspects of law and ethics as they apply in an industrial/business setting. The intent is to develop in the student an understanding of fundamental concepts and a frame of reference guiding the application of these principles.

LW1530 Law Enforcement Ethics
This course will address and introduce principles of professional and ethical conduct in the law enforcement community. Emphasis is placed on dress, deportment, and conduct requirements, to aid participants in coming to terms with the possible conflicts between training, the law, and personal feelings and to provide support for officers in answering to the public on issues of ethics and behaviour.

LW1600 Construction Law
This course has been designed to provide the student with a background in the tort law and contract laws of Canada. Its purpose is to familiarize the student with the responsibilities required of them under the law. Also, to relate to students how the law applied to the construction industry. Students will be given the opportunity to analyze the various documentation required for the legal operations of a construction project.

An introductory course dealing with the application of tort and contract law as applied to the construction environment. Topics to be covered include but are not limited to a study of various acts, provincial, federal and municipal that affect the construction phase of project development; the law of contract, insurance and bonding, the law of torts, construction claims, CCDC documents, ethics, etc. Lecture material will, as far as possible illustrate the application of the law using selected Newfoundland and Canadian court decisions.

LW1610 Management Construction Law
This is a course dealing with management principles and various laws applicable to the design and construction industry. It is designed to enable the student to become familiar with a number of generic management systems and the specific laws and codes of ethics which govern this industry.

LW1740 Natural Resource Legislation
This module will introduce and familiarize students with the various provincial and federal natural resources acts, legislation, and regulations. Case studies and assignments/projects will include topics such as the Environmental Assessment Act.

LW2210 Natural Resources Policy and Law
This course is designed to address the principles and processes related to the establishment and implementation of policies and laws for the management and protection of natural resources. Topics critical to the understanding of Canadian law, including the Charter of Rights and Freedoms, the criminal code, resource policies, regulations and relevant acts will be addressed.

LW2211 Law Enforcement
This course requires the use of legal documentation and enforcement equipment. It involves the role of a peace officer and the proper investigation, recording and reporting of natural resource infractions. It includes information patrolling, covert operations, use of decoys, powers of arrest, search and seizure, and interviewing techniques, as well as preparation for court proceedings and sentencing.

Prerequisite(s): LW2210

LW2300 Officer Safety
The student will be able to defend against most attacks, control and arrested person, search vehicles safely and use intermediate weapons such as the collapsible baton and mini-mag. Students will perform pressure point control techniques, take-downs, minimal and maximum force applications and the implications of using same.

Prerequisite(s): HN1250

LW2320 Officer Safety
This module will introduce the history of officer safety training, the care and control of an arrested person, techniques for searching vehicles safely, how to defend against most attacks and the use of intermediate weapons. Candidates will perform pressure point control techniques, take-downs, minimal and maximum force applications and explore use implications.

LW2400 E-Business Law & Regulations
This course will focus on the legal, security and privacy issues pertaining to doing business on the Internet. Students will gain knowledge of various legal and regulatory issues including: copyright, intellectual property, trademarks, confidential information encryption and privacy. Business contract appropriate for the Internet will also be addressed. Guest speakers from the legal community with expertise in the areas identified will be invited to share their experience with students.

LW2500 Criminal Law
This module will introduce the student to the various components and functions of the Canadian Criminal Justice System. Topics critical to the understanding of Criminal Law will include basic rights and freedoms guaranteed by the Charter of Rights, the Origin of Law, Issues in Policing, the Structure and Operation of Canadian Criminal Courts, Sentencing, and the Operation of the Correctional System.

LW2520 Patrol Techniques & Procedures
Students completing this module will become familiar with patrol procedures including the purpose and types of patrols, equipment verification, checking and communications. Enforcement Patrol Techniques will include the gathering of information through patrols, processing and analyzing information through the senses and powers of observation and following up with the recommended course of action. Actual field trips will involve simulating routine patrols, surveillance and special co-operative enforcement activities.

LW2540 Arrest, Search & Seizure
During this module, the authority, responsibilities and the legislation governing peace officers will be covered. Special emphasis will be placed on the powers of a peace officer regarding arrest, search and seizure.

LW2560 Interviews and Interrogations
This module is designed to develop the basic skills and knowledge necessary to take statements and conduct effective interviews within the confines of the law. Candidates will examine the framework within which interviewing takes place, develop practical interviewing, interrogation and statement taking skills in a variety of situations while performing enforcement duties, through the extensive use of role-playing, case studies and report writing.

LW2600 Courtroom Terminology and Proceedings
This module will focus on legal procedures and documentation: summons, subpoenas, summary offence tickets, statements, information(s), the young offenders act and the presentation of evidence. Candidates will be able to lay a charge, complete the required documentation and act as a credible witness in court. The module will involve case studies in relation to the natural resources, actually attending court to observe proceedings and in-class mock trials.

LW2620 Enforcement Operations
This module will examine the art of crime scene examination and the collection of exhibits with emphasis on the importance of preservation and continuity of exhibits. Often the apprehension of violators will involve more than routine patrols and the enforcement officer will have to pursue violators through other means. Students will be instructed on the use of more specialized forms of enforcement initiatives and innovations.

MA1040 Math Fundamentals I
Math Fundamentals I is a Comprehensive Arts and Science (CAS) College Transition course. It is the first of two Math courses designed to prepare students for entry into a number of technical programs at the College level as well as CAS Transfer: College-University. A calculator is not to be used in units 1 and 2. Word problems will be done throughout the course at the end of each unit.

MA1041 Math Fundamentals II
Math Fundamentals II is a Comprehensive Arts and Science (CAS) College Transition course. It is the second of two Mathematics courses designed to prepare students for entry into a number of technical programs at the College level as well as CAS Transfer: College-University. This is a course in pre-calculus mathematics designed to help alleviate specific weaknesses and to lay the foundation for success in other College courses.

Prerequisite(s): MA1040; or a mark of at least 40 on the Mathematics Placement Test.

MA1060 Mathematics
This course in Basic Math requires knowledge of general mathematical concepts and processes to enable trades persons to function in the institutional setting by developing numeracy skills required for technical courses. This math course should also provide a foundation for experiential learning through a knowledge of math relating to on-the-job skills and practices.

MA1070 Structural Repair Shop Mathematics
This is an introductory course providing practical exercises in mathematics. The course begins with a review of basic
MA1072 Mathematics for Aircraft Maintenance
This is a course designed to support the mathematical needs related to the field of Aircraft Maintenance Engineering. This course is to be used in conjunction with MA1070 to fulfill the math requirements for AME.
Prerequisite(s): MA1070

MA1100 Mathematics ●
This is a course in pre-calculus mathematics designed to help alleviate specific weaknesses in students' mathematical skills and thereby increase their chances for success in other technical courses.

MA1101 Mathematics
This is a course designed to prepare students for the study of calculus as well as to familiarize them with the concepts of differentiation necessary for a better understanding of a variety of technology courses.
Prerequisite(s): MA1700; or 70% or more in High School Advanced Mathematics; or High School Advanced Mathematics or Academic Mathematics plus successful completion of a diagnostic testing procedure.

MA1104 Algebra and Trigonometry
Transferable to MUN Math 1090. This pre-calculus course is designed to strengthen the students’ skills in basic algebra, review and develop a deeper understanding of the concept of a function and make students aware of the importance of trigonometry. The course also uses technology to enhance the student understanding. After completing this course students will have the essential prerequisite elements to complete an introductory calculus course.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test.

MA1110 Business Mathematics
This course includes the fundamentals of business mathematics with applications.

MA1120 Finite Mathematics I
Transferable to MUN Mathematics 1050. This course is designed to satisfy part of the first year mathematics requirement for prospective teachers in primary and elementary education programs. This course is also suitable for students headed into a non-science area of study.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test.

MA1121 Finite Mathematics II ●
Transferable to MUN Mathematics 1051. This course is designed to satisfy part of the first year mathematics requirement for prospective teachers in primary and elementary education. This course is also suitable for students headed into a non-science area of study.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test.

MA1130 Calculus I
Transferable to MUN Mathematics 1000. This is an introduction to differential calculus including logarithmic, exponential, and trigonometric functions with applications. This course also includes a brief introduction to integration.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test.

MA1131 Calculus II
Transferable to MUN Mathematics 1001. An introduction to integral calculus with applications.
Prerequisite(s): MA1130 or MUN Math 1000. or MA2100

MA1140 Applied Mathematics
To provide students with an understanding of the concepts of elementary differential and integral calculus in preparation for technology courses. Throughout the course, students will have the opportunity to develop their analytical reasoning and problem solving skills.
Prerequisite(s): MA1100

MA1230 Mathematics for Mining Technicians
This is a course in fundamental mathematics and data management designed to improve general mathematical skills, and to introduce statistical-type calculations required for further study in Surface Mining and Mineral Processing courses.

MA1400 Mathematics of Finance I ●
This is an introductory course designed to provide a basic understanding of business mathematics. Its primary objective is to increase a student's knowledge and skills in the solution of practical financial and mathematical problems encountered in the business community. It also provides a support base for material in more advanced courses in the business field.

MA1500 Mathematics for Computer Studies ●
A practical mathematical background is provided in this course as it applies to business data processing. A review of basic algebra and computer-related mathematical topics is covered.

MA1520 Applied Mathematics for Computer Support
This course provides a practical mathematical background for Computer Systems Networking. The course covers topics in number systems, set theory and statistics in the context of support computer systems. The examples used in this course have a direct application to network and operating system analysis.

MA1670 Statistics I ●
This course is designed to introduce students to the basic principles of probability and statistics.

MA1700 Mathematics
This is a course in pre-calculus mathematics designed to help alleviate specific weaknesses in student's mathematical skills and thereby increase their chances for success in other technical courses.

MA1900 Problem Solving for Information Technology
The course is intended to illustrate how to develop logic for computer programs. To aid in the development of the students use of problem solving techniques necessary for Information Technology, a practical mathematical background is provided in this course as it applies to business data processing. A review of basic algebra and computer-related mathematical topics is covered.

MA1910 Introduction to Numerical Problem Solving
A practical mathematical background is provided in this course as it applies to business data processing. This course deals with various approaches to problem solving and decision-making using management science techniques (quantitative analysis). The student will investigate the following business oriented problem and decision making topics: optimization, transportation schedules, assignment problems, waiting line (Queueing) model analysis, and deterministic inventory models.
Prerequisite(s): MC1800, MA1900

MA2100 Mathematics
In this course students will extend their study of topics in differential calculus and will also be introduced to integral calculus. Topics covered will assist students to better understand concepts encountered in other courses.
Prerequisite(s): MA1101

MA2101 Applied Electrical / Electronics Mathematics
This is an advanced calculus course designed to meet specific requirements of the Electrical/Electronics Engineering Programs.
Prerequisite(s): MA2100

MA2120 Applied Geometrics Mathematics
This course consists of introduction to probability and statistics, partial differentiation, theory of errors, complex functions, conformal mapping and general transformation, complex differentiation and integration.
Prerequisite(s): MA2100

MA2130 Applied Mathematics
This is primarily an applied calculus course designed to meet the specific requirements of the following technology programs: Mechanical Engineering Technology (HVAC, Power and Manufacturing), Industrial Engineering Technology.
Prerequisite(s): MA2100

MA2150 Linear Algebra I
Transferable to MUN Mathematics 2050. Linear algebra is the branch of mathematics dealing with solutions of linear equations, and related ideas of vector space and linear transformations. This is a practical, non-calculus course where students learn how to solve systems of linear equations, perform matrix algebra, find eigenvalues, diagonalize matrices, and perform vector geometry.
Prerequisite(s): Math 1130 or ten credit hours in first-year mathematics courses (two first year math courses)

MA2400 Mathematics of Finance II ●
This is an advanced course designed to provide a more in-depth study of the mathematics of finance in such areas as interest, annuities, amortization, sinking funds and bonds.
Prerequisite(s): MA1400

MA2710 Discrete Mathematics
This course introduces the foundations of discrete mathematics as they apply to computing science. Topics include propositional calculus, predicate calculus, proof techniques, induction, recursion, sets, relations, functions, graphs and trees.
Prerequisite(s): MA1101

MA3120 Advanced Geometrics Mathematics
Review of differentiation including partial differentiation and integration. Topics included in the course are spherical trigonometry, matrix algebra, least-squares method and complex integration.
Prerequisite(s): MA2120

MB1040 Shop Fundamentals for Mobile Crane Operators
Upon successful completion of this course the student will be able to identify various shop tools and equipment and their applications; identify and apply safety regulations in
the operation and maintenance of shop tools; to use tools in a safe and competent manner.

**MB1100 Mobile Crane Operation Safety**
Upon successful completion of this course the student will be able to demonstrate the skills and knowledge required for safe operation of mobile cranes with respect to various codes and regulations; practice safety in mobile crane operations; obtain the following certificates: Professional Driver’s Improvement Course, Transportation of Dangerous Goods, Powerline Hazards Course, Air Brake Endorsement, Flagperson Certificate.

**MB1110 Mobile Crane Maintenance**
Upon successful completion of this course the student will be able to demonstrate the skills and knowledge required for inspecting and maintaining mobile cranes with respect to various codes and regulations; practice safety when maintaining mobile cranes; demonstrate an awareness of conservation and environmental issues when maintaining mobile cranes.

**MB1130 Mobile Crane Operation**
Upon successful completion of this course the student will be able to demonstrate the skills and knowledge required for operating cranes with respect to various codes and regulations; practice safety in canopy crane operation; demonstrate knowledge of conservation and environmental issues related to crane operation.

**MB1140 Mobile Lattice Boom Cranes**
Upon successful completion of this course the student will be able to demonstrate the skills and knowledge required for operating mobile lattice boom cranes with respect to various codes and regulations; practice safety in mobile lattice boom crane operations; demonstrate a knowledge of conservation and environmental issues.

**MB1150 Mobile Hydraulic Boom Cranes**
Upon successful completion of this course the student will be able to demonstrate the skills and knowledge required for operating mobile hydraulic boom cranes with respect to various codes and regulations; practice safety in mobile hydraulic crane operations; demonstrate knowledge of conservation and environmental issues.

**MB1200 Hydraulics and Applications to Crane Control**
Upon successful completion of this course the student will be able to demonstrate an understanding of the principles of hydraulics systems; demonstrate the skills and knowledge required for inspecting and maintaining mobile crane hydraulic systems; practice safety when inspecting and maintaining hydraulic systems; demonstrate an awareness of conservation and environmental issues.

**MB1230 Class 3 Driver’s License for Mobile Crane Operations**
Upon successful completion of this course the student will be able to inspect vehicles and perform maintenance to ensure safe operation; operate a truck competently and safely; operate a truck with a load competently and safely.

**MB1260 Rigging for Mobile Crane Operators**
Upon successful completion of this course the student will be able to use safety harnesses; perform rigging operations.

**MB1300 Introduction to New Cranes**
Upon successful completion of this course the student will be able to identify and describe various types of cranes and their capacities; interpret new control technology; use computer assisted safety devices, LMI/Load Indicators.

**MC1050 Introduction to Computers**
This course is designed to give the student an introduction to computer systems. Particular emphasis is given to word processing, spreadsheet, e-mail and the Internet and security issues. Upon completion of this course, students will have a basic understanding of computer systems and their operation; popular software packages and their applications; security issues of computers.

**MC1080 Introduction to Computers**
This course is designed to give the student an introduction to computer systems. Particular emphasis is given to word processing, spreadsheet, e-mail and the Internet and security issues. Upon completion of this course, students will have a basic understanding of computer systems and their operation; popular software packages and their applications; security issues of computers.

**MC1130 Computer Studies**
This course is an introduction to microcomputers, their operations, hardware, and popular software applications including the laboratory information system (Meditech). The student will develop the basic skills to use an operating system, a word processor, and a spreadsheet.

**MC1150 Productivity Tools**
This course is designed to give the student a working knowledge of a software suite. Particular emphasis is given to the word processing, spreadsheet, database or presentation components of the suite, e-mail and internet.

**MC1170 Introduction to Computers and Applications**
This course will introduce students to the basic operation of the Apple/Macintosh operating system. Students will learn basic document development and Internet skills. The course will provide students with the knowledge to work independently on basic creative tasks using digital tools.

**MC1180 Computer Systems for Graphic Arts**
The introduction to basic computer operating systems and its various versions, and Apple/Macintosh with its icon operating system of graphical interface. A comparison will include the PC operating with Windows as compared to the Macintosh operating system. Students receive exposure to a cross platform networked environment with a variety of printers and peripherals.

**MC1220 Productivity Tools I**
This course is designed to teach students the fundamental concepts of the Windows operating environment, keyboarding by the touch method, basic word processing procedures, the use of e-mail and the Internet. Students will apply concepts through practical application.

**MC1221 Productivity Tools II**
This course is designed to teach students more advanced word processing features building on the fundamentals of Productivity Tools I, to introduce students to the basic concepts and applications of electronic spreadsheets, and to introduce students to the basic components of presentation software. Students will apply concepts through practical application.

**MC1570 Creative Technologies**
This course is designed to enable students to use computers to access software and hardware in order to enhance musical creativity and performance. A range of contemporary applications will be used and students will be required to produce music-based assignments using this technology. Main areas will include synthesizers, sequences and drum machines, music notation software, digital audio, MIDI technology, and current and future trends.

**MC1800 Software Applications I**
This course is designed to give the student a working knowledge of a Windows operating system, and office automation tools. Particular attention is given to the operating system, word processing, spreadsheet, and presentation.

**MC1801 Software Applications II**
This course is designed as a continuation of Software Applications I. It will explore such topics as Database Software, Diagramming Software, and Project Management Software. Students will be proficient in the fundamental competencies necessary to use a database package. Students will be able to create diagrams with diagramming software for exporting to other applications and planning applications. Project management software features will be explored to prepare students for the use of this software when planning projects.

**MC2220 Productivity Tools III**
This course introduces students to the concepts and applications of database, teaches students advanced features of electronic spreadsheets (building on the concepts presented in Spreadsheets I), and provides practice in integrating the features of word processing, database and spreadsheet software programs.

**ME1110 Media and Applications & Public Relations**
This is an applied media and public relations course for students intending to work in the human service field. It gives students a basic knowledge of the major forms of media and how they may be used in public relations. It will also help students acquire practical skills in using media to assist community organizations for fostering positive community relations.

**MH1110 Mechanical Systems**
This course is designed to assist students in becoming fully familiar with the principles of design, operation and maintenance of small high pressure boilers such as those found in fish plants, heating plants and office buildings and H.V.A.C.

**MH1200 Mechanical Systems I**
This course provides the student with an introduction to Power Engineering and the certification and legislation of Power Engineering. Students examine how boilers are designed. Safety procedures regarding boilers are also studied and applied.
MH1210 Mechanical Systems II
In this course, the student is introduced to various heating systems including steam, hot water, hot air, infrared and electrical systems. The operation of air conditioning systems is also examined.

MH2330 Power Plant Components
This course is designed to develop knowledge about the design and construction of various types of boilers. The function of heat transfer, draft and flue systems is studied. Combustion is examined and techniques for analyzing combustion gas products are learned. Students will learn to perform routine boiler procedures.
Prerequisite(s): MH1200

MH2801 HVAC Systems
This course will introduce the fundamentals of H.V.A.C. It will provide students with an understanding of the methods of recognition and evaluation of various aspects related to H.V.A.C.
Prerequisite(s): MH1110

MH2820 Power Plant Systems
This course provides the student with the background information on what treatment of water is necessary for boilers. It also covers all the necessary treatments of water for use in boilers as well as treatment of waste water from plants. The course also covers the various types of pumps, their operation and calculations required to determine the choice of the appropriate pump for an operation.
Prerequisite(s): MH2330

MH3320 Building Systems
This course will introduce the student with the understanding and application of various codes and standards related to HVAC. It will provide the student with the knowledge of industrial ventilation and applications of industrial ventilation for specific operations. It will provide the student with the knowledge and understanding of various components associated with the various systems in HVAC.
Prerequisite(s): MH2801

MH4301 Power Plant Design Calculations
In this course the students will apply the Legislation and Codes necessary for Power Engineers. The course also covers welding procedures, as well as the choice and design of piping and steam traps needed for the operation of a power plant.
Prerequisite(s): MH2330

MH4401 Refrigeration Systems
This course provides the student with the necessary theory, knowledge and practical experience to understand the operation of refrigeration systems. The operation of heat exchanges and fired heaters is studied and the students learn to apply knowledge of preventative maintenance procedures.
Prerequisite(s): MH1200

MH4500 Prime Movers
This is a course designed to develop the basic skills needed to operate and maintain a power plant system.
Prerequisite(s): MH1110

MH4501 Prime Movers
This course provides the student with the necessary theory, knowledge and practical experiences to understand the operation of turbines, and internal combustion engines.
Prerequisite(s): MH1200, MH1210

MH4600 Plant System Design
This course will provide the student with understanding and knowledge of acoustic, automatic control, adjustment and balancing of ventilation air, energy audit equipment and ancillary schedule and cost estimation.
Prerequisite(s): MH2801

ML1000 General Laboratory Knowledge
Students will apply basic principles of mathematics, chemistry and physics to prepare reagents, to perform simple laboratory procedures, and to properly use and maintain basic laboratory equipment.

ML1010 Orientation and Medical Laboratory Skills
This course provides an orientation to the role and responsibilities of the Medical Laboratory Assistant in the health care field. Students will define the term professional and examine the desired characteristics of a health care worker. Ethics and liabilities of this career will be explored. Students will be introduced to accepted safety procedures for handling specimens, reagents, and equipment (includes WHMIS training). The laboratory sessions will introduce students to selected manual skills that are an integral part of medical technology.

ML1020 Basic Laboratory Calculations
This course will provide students with the mathematical skills required to prepare solutions, to read and record laboratory results, and to monitor quality control and quality assurance testing in the laboratory.

ML1030 Practical Clinical Chemistry
Students will collect, store and prepare samples for chemical analysis and will perform simple and automated chemical tests under the supervision of a registered medical laboratory technologist.

ML1040 Practical Hematology
This course provides the theoretical and applied knowledge required to collect, store and prepare samples by routine hematology procedures; prepare and stain peripheral smears; and load calibrated and automated equipment under the supervision of a registered medical laboratory technologist.

ML1050 Practical Microbiology
Students will process specimens including planting, streaking and incubating; prepare stool concentrates for parasitology investigation; make and stain slides for parasitology investigation and plant mycology specimens, under the supervision of a registered medical laboratory technologist. Students will also learn to prepare, sterilize, store and perform quality control checks on various types of microbiological media.

ML1060 Practical Histotechnology/Cytology
Students will perform routine cytology and histotechnology techniques including paraffin processing, smear preparation of body fluids, and simple stains and cover slipping of slides under the supervision of a medical laboratory technologist.

ML1070 Specimen Collection
Students will collect, store, and prepare blood samples for analysis and learn collection and handling methods for other types of body fluids and tissue samples.

ML1080 Clinical Practicum
This course allows the student to gain practical experience in a clinical laboratory collection centre including the application of office skills, client communication and specimen collection. It also permits the student to gain practical experience in the clinical laboratory under the supervision of a registered medical laboratory technologist. Pre-analytical procedures performed include basic hematological techniques, macroscopic uranalysis, simple solution preparation, data entry and loading of automated analyzers, preparation and processing of tissue and body fluids, and preparation, inoculation, streaking and culturing of microbiological media.
Prerequisite(s): Successful completion of 2nd Semester

ML1120 Hematology
This course will provide students with a fundamental knowledge of the erythrocytes and leukocytes, including: origin, characteristics, functions, routine laboratory procedures, normal and abnormal morphology, and abnormal conditions with emphasis on the anemias.
Prerequisite(s): Successful completion of all third semester courses.

ML1211 Hematology
This course is a continuation of the study of leukocytes with emphasis on leukemias, myeloproliferative disorders and lymphomas. It also introduces the student to the theory of blood coagulation including the functions of platelets, blood vessels and plasma factors and the laboratory investigation of abnormal bleeding and thrombosis. Additionally, procedures and devices for the collection of diagnostic blood specimens by skin puncture are introduced.
Prerequisite(s): ML1200

ML1221 Hematology
This course is a continuation of the study of leukocytes with emphasis on leukemias, myeloproliferative disorders and lymphomas. It also introduces the student to the theory of blood coagulation including the functions of platelets, blood vessels and plasma factors and the laboratory investigation of abnormal bleeding and thrombosis. Additionally, procedures and devices for the collection of diagnostic blood specimens by skin puncture are introduced.
Prerequisite(s): ML1200

ML1300 Introduction to Histological Techniques
This course will introduce the student to the workings of a clinical Histology laboratory. Topics include: tissue fixation, processing, embedding and decalcification, laboratory instrumentation, preparation of microscopic slides of tissue using a micrometre and study of the structure of various human tissues.
Prerequisite(s): Successful completion of all third semester courses.

ML1320 Introduction to Biological Staining
This course is provided to further instruct the student in the theoretical and practical aspects of histology, concentrating on the use of biological staining techniques. Topics include: principles of microscopy, principles of staining including immunohistochemistry, uses of various staining techniques and the identification of pigments and artefacts. Microscopic identification of tissue sections is practiced to aid in the evaluation of staining results.
Prerequisite(s): ML1300
ML1500 Introduction to Transfusion Science
The course of study will provide students with a fundamental knowledge of transfusion from both the donor and patient perspective. Using the knowledge and skills obtained in ML2400, blood donation, blood component preparation composition and uses, donor and patient testing, adverse effects of transfusion, haemolytic disease of the fetus and newborn as well as autoimmune haemolytic diseases will be examined. Associated laboratory testing will be introduced in laboratory sessions.
Prerequisite(s): ML2400
ML2210 Hematology
In a simulated hospital laboratory setting, this course requires students to apply their pre-requisite knowledge of Hematology. Emphasis is on routine Hematology tests, procedures and venipuncture as well as interpretation, documentation and reporting of laboratory results. Additionally, safe work practices and quality control principles are reinforced. It also introduces students to automated hematology analysis.
Prerequisite(s): Successful completion of semester 5.
ML2211 Hematology
This is a comprehensive course in Hematology, encompassing the fundamentals and application of information acquired to date in this discipline. Emphasis is on normal and abnormal blood cell morphology, routine coagulation testing as well as interpretation, documentation and reporting of laboratory results. It also introduces the student to a working theory of special hematology stains.
Prerequisite(s): Successful completion of semester 7
ML2310 Histology
The student will be engaged in a laboratory simulation that will require them to apply all the knowledge they have gained in the previous two courses. This course concentrates on the improvement of laboratory skills through practice.
Prerequisite(s): Successful completion of semester 5
ML2311 Histology
Students who successfully complete this course will perform processing, embedding, decalcification, section cutting biological staining and coverslipping working independently and as part of the laboratory team. The student will critically evaluate the blocks and slides produced and repeat those which are not of diagnostic quality.
Prerequisite(s): Successful completion of semester 7
ML2400 Introduction to Blood Group Systems
The course of study will provide students with a fundamental knowledge of the common human blood group systems. The implications of the immune system, human genetics, class of antibodies, and antigens will be examined. Common testing methodology will be introduced in laboratory sessions.
Prerequisite(s): Successful completion of all third semester courses
ML2510 Transfusion Science
This course will introduce students to a simulated clinical experience in a Transfusion Science laboratory. The knowledge and skills obtained in ML2400 and ML1500 are applied to "real-life" situations. Prenatal and pre-transfusion testing is performed along with associated investigations of atypical human blood group antibodies.
Prerequisite(s): ML1510
ML2511 Transfusion Science
The course is a continuation of the simulated clinical experience of ML2510. More in depth investigations of prenatal and pre-transfusion testing are performed, along with post natal, post transfusion, and cord blood testing. Following completion of this course, students will possess the knowledge, skills and attitudes to enter the hospital clinical phase of the program.
Prerequisite(s): Successful completion of semester 7
ML3210 Hematology
This course allows the student to develop technical competence while reviewing theoretical material from previous semesters. The three week hospital rotation will emphasize clinical procedures and acquaint the student with the hospital operation and administration.
Prerequisite(s): Successful completion of all semester 8
ML3310 Histology
This course allows the student to develop technical competence while reviewing theoretical material from previous semesters. The three week hospital rotation will emphasize clinical procedures and acquaint the student with the hospital operation and administration.
Prerequisite(s): Successful completion of all semester 8
ML3510 Transfusion Science
This course allows the student to develop technical competence while reviewing theoretical material from previous semesters. The three week hospital rotation will emphasize clinical procedures and acquaint the student with the hospital operation and administration.
Prerequisite(s): Successful completion of all semester 8
MM1100 Authoring Systems
This course is designed to introduce students to the various authoring tools available for creating multimedia applications. Icon based systems, scripting and screen design utilities will be among the topics discussed.
Co-prerequisite(s): MC1050
MM1200 Instructional Design I
This course will provide students with the methodologies associated with the design of instructional material. Procedures for the identification of concepts in instructional material will be covered. Analysis of tasks and related competencies and development of learning units and learning objectives are also among the topics discussed.
MM1201 Instructional Design II
This course will show students how to apply the principles covered in Instructional Design I to produce a multimedia instructional package. Topics to be covered include creative development, content design, technical design, and visual design.
Prerequisite(s): MM1200
MM1300 Media Acquisition, Digitizing, and Editing
This course will give the student practical exposure to the various equipment used in the acquisition of media for a multimedia production. Topics to be covered include sound, video, still photograph, text and graphics acquisition and editing.
MM1710 Multimedia Design Project
The multimedia project course is offered during inter- session. During this course the students will research and design a multimedia CBT course for a skill set that meets the approval of the instructor. The students will be expected to carry this design through to production in the following seminar.
Prerequisite(s): MM1201
MM1810 Story Telling and Animatic Design
Story Telling and Animatic Design is an introduction to the process of developing a project scenario and the skills required to realize and present a story in a visual format.
Co-prerequisite(s): VN100
MM1950 Workplace Professionalism
This course is designed to provide students with the skills and knowledge necessary to effectively work in a team environment.
MM2100 Multimedia Authoring I
This is an introductory course to coursework design and authoring which will introduce students to the basic concepts and methodologies of applying design principles and authoring a multimedia application.
Prerequisite(s): MC1050
MM2101 Multimedia Authoring II
This is an intermediate course in coursework authoring designed to provide students with concepts and methodologies for authoring a multimedia application. Topics to be covered include animation, sound, video, setting up user interactions, functions and variables, and reusing content and logic.
Prerequisite(s): MM2100
MM2300 Digital Audio Techniques
This course will provide students with an in-depth look at digital audio techniques. Topics to be covered include MIDI audio files, digital audio files, audio file formats, Red Book standards and audio recording.
Prerequisite(s): MM1300
MM2310 Digital Video Techniques
This course will provide students with an in-depth knowledge of digital video techniques. Topics to be covered include how video works, broadcast video standards, integrating computer and television, shooting and editing video, recording formats, video tips, and video compression.
Prerequisite(s): MM1300
MM2350 Multimedia Production
This course will expose the student to the actual preparation of a project for delivery, packaging, physical production, and follow-up of a multimedia product. Students will have the opportunity to actually master a CD-ROM, prepare applications for delivery on diskette, and explore the delivery of an application on the net.
Prerequisite(s): MM2101
MM2500 Computer Graphics I (2D)
This course provides students with an introduction to two-dimensional graphics. Experience in the generation of 2D graphics will be explored through the use of several commercial 2D drawing programs. Topics to be covered include 2D primitives, transformations, fonts, colour balancing and palette matching, bitmaps and scanned image editing.
MM2501 Computer Graphics II
This course provides students with an introduction to three dimensional graphics. Experience in the generation of 3D graphics will be explored through the use of several commercial 3D drawing programs. Topics to be covered include 3D primitives, transformations, surfaces, and rendering.
Prerequisite(s): MM2500
MM2550 3D Texture and Digital Paint
Using standard image processing programs, 3D Texture and Digital Paint will introduce students to the artistic approach and technical aspects of custom texture generation, digital painting and application techniques for 3D.
Prerequisite(s): MM2500
Co-requisite(s): MM2660

MM2600 Computer Animation I
Computer Animation I introduces students to the concepts and methodologies of two-dimensional computer animation. Concepts such as sprite animation, frame animation, and incorporating 2D animation into a multimedia presentation will be discussed.

Co-requisite(s): MM2500

MM2601 Computer Animation II
Computer Animation II introduces students to the concepts and methodologies of three-dimensional computer animation. 3D animation techniques and virtual reality will be among the topics discussed.

Co-requisite(s): MM2500

MM2610 Introduction to 3D Animation
Introduction to 3D Animation will introduce students to the fundamentals of 3D animation. The course will include a general knowledge of the history, and potential applications of the medium, the basics of workflow organization and specific tool use.

MM2660 3D Character Modelling
3D Character Modelling will expand on the fundamentals of digital modelling presented in Introduction to 3D Animation and will introduce the concepts and practical applications of model optimization, animation rigging and weighting.
Prerequisite(s): MM2610
Co-requisite(s): MM2500

MM2680 3D Character Animation
3D Character Animation will expand on the fundamentals of digital character animation covered in Introduction to 3D Animation. Practical exercises in a variety of animation scenarios, and essential editing and control features will be explored.
Prerequisite(s): MM2550

MM2700 Multimedia Lab I
This lab course will provide students with the opportunity to work on their multimedia applications with formal lab assistance and supervision. In this course students will apply principles and practices covered in the program to practical applications.
Prerequisite(s): MM2100

MM2701 Multimedia Lab II
This lab course will provide students with the opportunity to work on their multimedia applications with formal lab assistance and supervision. In this course, students will apply principles and practices covered in the program to practical applications.
Prerequisite(s): MM2101

MM2710 Multimedia Lab II
This lab course will provide students with the opportunity to work on their multimedia applications with formal lab assistance and supervision. In this course, students will apply principles and practices covered in the program to practical applications.
Prerequisite(s): MM2101

MM2750 Special Topics
The Digital Animation field is characterized by frequent changes in software and hardware applications. The pace of progress is accelerating and new applications offer exciting potential for students in this field. This course was designed to enable students to select a contemporary leading edge software application and to refine their animation skills within the context of that application.
Co-requisite(s): MM2601; MM2501

MM2760 Animation Design Project
Animation Design Project is offered during the intersession.
This course will expose students to the rigors of the 3D production design environment. Through research and design assignments the students will be expected to produce a fully developed dossier of production documentation, subject to the instructor’s approval.
Prerequisite(s): MM2500

MM2830 3D Post-Production and Visual FX
Using an industry standard animation package 3D Post-Production and Visual FX will explore the concepts and techniques used to digitally create realistic simulations of various environmental conditions and natural phenomenon.
Prerequisite(s): MM2660

MM2850 Digital Compositing
In Digital Compositing students will learn the concepts, language and fundamental skill sets required for advanced digital image processing and assembling visual effects for film and video.

MM2900 Portfolio Development
Portfolio Development will establish the skills of objective, critical self assessment, required to select, collate, and present a body of work that best represents core strengths with a view to identifying and achieving career objectives.

MM3100 Multimedia Design and Authoring III
This is an advanced course in coursework authoring designed to provide students with advanced concepts and methodologies for authoring multimedia applications.
Topics to be covered include more on animation, sound, video, functions and variables, using external functions and application distribution.
Prerequisite(s): MM2101

MM3200 Production and Visual FX
Production and Visual FX will explore the concepts and practices of film and video. This course is designed to provide students with advanced concepts and apply principles and concepts to analyze and solve advanced electrical circuits.
Prerequisite(s): MM2600

MM3410 Special Events Management
This course is designed to give students an understanding of the purposes of holding special events as well as the details involved in planning, implementing and following up of special event activities. Topics covered will include event selection, planning, organizing, marketing, budgeting, as well as overall management. Terminology will be defined and the economic impact of events will be discussed. Examples of actual "special events" will be studied to ensure students develop a realistic appreciation of this subject.

MM3500 Integrated Management
This course is designed to provide a working knowledge of sustainable forest management principles, procedures and concepts. Technical, esthetic, environmental, hydrological, wildlife, and financial considerations of forest management practices are reviewed. Emphasis is placed on forest management practices with emphasis on the role of public involvement.
Prerequisite(s): MM2101

MM3510 Strategic Management
This course will enable students to understand the interrelationship of the functional areas of business. The focus will be on strategy development for business management enabling students to apply organizational, financial, human resource, and marketing decisions to business applications.
Prerequisite(s): Successful completion of all First Year Business Management courses.

MP1440 Electrical & Electronic Basic Principles
Upon successful completion of this unit, the apprentice will be able to apply basic electrical and electronic principles.
Prerequisite(s): TS1190, SR1120

MP1700 Control Engineering
Use Laplace Transforms in the design and optimization of industrial control systems. The practical lab component will support the student’s understanding and application of the theory.
Prerequisite(s): MA2100

MP2100 Electrical Machines and Devices
This is an intermediate level electrotechnology course designed for industrial instrumentation technology students. It is intended to familiarize the student with the construction, connection, operation and maintenance of rotating electric machines. Additionally, this course should expand the student’s understanding of electro-mechanical conversion principles. The laboratory work is included to reinforce theoretical concepts and enhance skills in the use of measuring instruments.
Prerequisite(s): ET2100

MP2140 Circuit Analysis I
This course covers advanced topics in A.C. and D.C. circuit analysis as well as an introduction to Two Port Networks. It will provide the necessary background for students to enter second year Electrical and Electronics programs.
Prerequisite(s): ET1101, MA1101

MP2141 Circuit Analysis II
Techniques of Differential Equations - First order and second order; Integral Combinations; Growth and Decay Problems. The analysis and solution of source free RL and RC circuits; driven RL and RC circuits using differential integral calculus; sinusoidal analysis; the concept of phasors, and steady state response. The student will learn mathematical techniques and apply these to analyze and solve advanced electrical circuits.
Prerequisite(s): MP2140, MA2100

MP2300 AC Circuits
This course is designed to be a continuation of the electrotechnology courses. It is designed to strengthen the student’s ability to analyze single and three phase AC circuits as well as reinforce the student's understanding of magnetic circuits. The laboratory work is included as an application of the theoretical concepts and is intended to
This is an introductory course in electrical machine theory. It covers the basics of DC machine theory and provides the necessary background for subsequent courses in electrical machines. It will give the student an appreciation of rotating machinery and through labs, an idea of the type and operating characteristics of the various DC machines.

Prerequisite(s): ET2100

MP2901 EMD 2 (AC Machines)
This course follows Electrical Machines MP2900 and covers topics in AC machines. AC generators are studied as well as three-phase and single-phase motors. The theory learned in this course will be applied in future courses in Power Systems and Motor Controls.

Prerequisite(s): MP2300, MP2900

MP3100 Motor Control Systems
This is an advanced level course designed for electrical engineering technology students. It introduces the student to relay control systems, motor controllers, and variable speed motor drives. Upon successful completion, the student should be able to design and analyze typical relay control systems. Also the student should be able to select and analyze typical motor controllers and variable speed drives. Relay Control Systems; Full Voltage Starters; Reduced Voltage controllers; Multi-speed Controllers; Wound Rotor Controllers; Synchronous Controllers; Direct Current Controllers; Direct Current Drives; Alternating Current Drives.

Prerequisite(s): MP2900, MP2901, MP2350

MP3110 Motor Control Systems
This is an advanced level course designed for Electrical Engineering Technology students. It provides the student with a solid background in designing, installing, and troubleshooting various motor control systems. Upon successful completion, the student should be able to interpret typical control drawings, design automated control systems for typical industrial applications, install and troubleshoot various control strategies, as well as select and configure protection methods for motor circuits.

Prerequisite(s): MP2920, MP2350, DP2540

MP3130 Industrial Electronic & Power Systems
This course is a study of motor controls starting from relay logic to PLC control and electronic variable speed motor drives. Power electronic device theory is covered as background for drive electronics. A.C. and D.C. drives, with application in the instrumentation field.

Prerequisite(s): ET2100, MP2100

MP3140 Circuit Analysis III
Topics include waveform analysis and synthesis, time domain analysis. Solution of differential equations using LaPlace transforms. Application of LaPlace Transforms to solve electric circuit. and derivation of Transfer Functions. Fourier expansion of periodic function; even and odd. Fourier analysis of waveforms and their application to electrical signals. Impulse Response, Convolution and Transfer Function.

Prerequisite(s): MP2141

MP3150 Power Devices & Motor Drives
This course is a study of electronic variable speed motor drives. Power electronic device theory is covered as background for drive electronics. A.C. and D.C. drives are studied as well as installation, commissioning and troubleshooting.

Prerequisite(s): AE2260, MP3110

MP3201 Power Transmission & Distribution
This is the follow-up course to AC Circuits MP3100 (Power Transmission and Distribution) and covers further topics in power system analysis. Short circuit calculations for symmetrical and unsymmetrical faults are covered. Students will get hands on usage of a commercial power system analysis computer simulation program (Electrocon 2000). Students will be introduced to the principles of protection and co-ordination.

Prerequisite(s): MP3210

MP3215 Power Systems: Analysis
This is an introductory course which exposes the student to fundamental design aspects of utility bulk power transmission systems. The student is first introduced to the overall layout and function of each component of typical utility systems. Types and characteristics of overhead line conductors and related hardware are also covered. Sub-transmission and distribution system calculations are introduced, followed by exact and approximate system analysis used in analysis of medium and long transmission lines. The student is also introduced to basic structural design aspects of high voltage transmission lines. Other major electrical design aspects of high voltage transmission lines are introduced. The course concludes with an overview of the design and construction of high voltage cables for both underground and submarine applications.

Prerequisite(s): MP2920, MP2350

MP3220 Power Systems: Analysis and Operation
This course covers advanced topics related to electric energy systems, from both system analysis and system operation perspectives. Major topics include unit and plant scheduling, fault calculations, stability analysis, power flow calculations, as well as principles of protection and control. The student is also introduced to high voltage direct current (HVDC) transmission technology.

Prerequisite(s): MP3210

MP3250 Emergency Standby Systems and Alternative Energy Sources
This course is designed to study emergency standby systems and alternative energy sources. Emergency standby systems will include diesel generator sets, gas turbine driven generators and uninterruptible power supplies. Alternative energy sources covered include gas engines, turbines, waste heat, the sun, the wind, thermoelectric generators, fuel cells and heat pumps.

Prerequisite(s): MP2300, MP2920

MR1100 Marketing I
This course is an introduction to the concept of marketing. Students will learn the origins, evolution, and principles of modern marketing management including marketing information systems, marketing research, consumer behaviour, and marketing strategies. In addition, international marketing will be studied.

MR1210 Customer Service
This course focuses on the role of the employee in providing quality customer service. It is important that employees have a positive attitude and the necessary skills to effectively listen and interpret customer concerns about a product, resolve customer problems, and determine customers’ wants and needs. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistently high level of service to the customer.

MR1220 Customer Service
This course focuses on the role of providing quality customer service. It is important to have a positive attitude and the necessary skill to effectively listen and interpret customer concerns about a product, resolve customer problems, and determine customer wants and needs. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistently high level of service to the customer. Upon successful completion of this course, the student will be able to define customer service; explain why service is important; describe the relationship between “service” and “sales”; demonstrate an understanding of the importance of a positive attitude; demonstrate methods of resolving customer complaints.

MR1230 Customer Service in the Food Service Industry
This course focuses on the role of quality customer service in the hospitality industry. It stresses the importance of a positive attitude; skills for effective listening
and interpreting; skills for problem solving, and skills for determining customer wants, needs and concerns. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistent high level of service to customers in the hospitality industry.

MR1260 Customer Service for the Computer Industry
This course focuses on the role of an information technology employee in providing quality technical customer service in any given situation. Students will develop the skills they need to interact effectively with customers, either face-to-face, on the telephone, in writing or on the web. Students will also be exposed to Help Desk software.

MR1270 Customer Service in the Hospitality Industry
This course focuses on the role of quality customer service in the hospitality industry. It stresses the importance of a positive attitude; skills for effective listening and interpreting; skills for problem solving, and skills for determining customer wants, needs and concerns. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistent, high level of service to customers in the hospitality industry.

MR1340 Marketing for Graphic Design
This course is designed to develop students’ understanding of the relationship between marketing and graphic design. A specific focus of the course is to introduce students to the process of applying marketing principles when translating clients’ needs to specific target audiences. 
Prerequisite(s): Successful completion of core graphic design courses in Semesters 1 and 2.

MR1500 Consumer Behaviour
This course is designed as an introduction to the concepts, theories and techniques of consumer behaviour. It illustrates how models of consumer behaviour are developed and used in marketing strategies. Discussion will take place on such topics as environmental influences, individual differences, and psychological processes. 
Prerequisite(s): MR2100

MR1600 Professional Selling
This course outlines the basic concepts of professional selling. It provides an overview of the selling environment and sales career paths. The course will assist in the preparation and making of a successful sales presentation and show techniques for closing a sale. Also, the functions of the sales manager will be discussed. 
Prerequisite(s): CM1241, MR2100 Co-requisite(s): CM2200

MR2100 Marketing II
This course builds on the concepts and techniques introduced in Marketing I. Students will examine in detail the elements of the marketing mix. Students will focus on planning, implementation and evaluation of the marketing management process. International marketing and service marketing are also studied. 
Prerequisite(s): MR1100

MR2110 Marketing Methods & Promotional Media
This course introduces the concepts and techniques of marketing. Students will learn the principles of modern marketing management and the resources required to successfully promote and market a product. A major aspect of the course is the development of a marketing plan related to the student’s program of studies. 

MR2200 Retailing
This course is an introduction to modern retailing management techniques with a comprehensive view of principles and practices. 
Prerequisite(s): MR2100

MR2300 Business Research
This course will bring together all the various techniques and principles, skills and activities that are required to conduct an effective survey project. It will familiarize students with the many ways that marketing information can be obtained or produced and how it is used. 
Prerequisite(s): MR2100, MA1670

MR2350 Introduction to Electronic Commerce
This course is designed to introduce students to the managerial and technical aspects of electronic commerce. Students will gain a knowledge of the competitive electronic commerce field and will be equipped to help businesses assess possible business opportunities through this rapidly evolving technology. 
Prerequisite(s): MR2100

MR2400 Marketing Communications
This course is an introduction to marketing communications - the development of advertising; the advertising business; marketing and advertising planning; communications media characteristics; the development of creativity in copywriting and art direction; production concepts for print and electronic media; local advertising and promotion practices; strategies for effective management of public relations and non-commercial communications; and other topics of interest. 
Prerequisite(s): MR2100, CM1241

MR2450 Services Marketing
This course is designed to enable students to apply the concepts of marketing to the services sector to services organizations. Topics covered will include Consumer Behaviour in Services, Service Productivity, Service Design, Delivery, Pricing and Promotion, and Service Demand Management. 
Prerequisite(s): MR2100

MR2600 Advanced Professional Selling
This course will examine the impact of the key elements of the sales call and explore the practical realities of the professional sales career. The student will have a greater appreciation of the demands of a sales career and understand the concept of sales in the global market environment. 
Prerequisite(s): MR2100

MR2630 E-Commerce Trends
This course includes selected areas of emerging e-commerce trends to be explored in depth. The topics may be selected from: emerging technology applications, government e-commerce policies, e-commerce growth trends, changing shape of e-commerce market sector, on-line auctions, wireless e-commerce tools, emerging security threats and strategies, globalization impacts, and/or other related areas. Guest speakers from industry will be featured throughout the course. Topics will be determined in the semester prior to the semester in which the course will be delivered. 

MR2700 International Marketing
This course is designed to enable students to apply the concepts of marketing in an international context. The course will enable students to research and understand foreign markets, and to apply marketing concepts relevant to strategy development in foreign markets identified by exporting and transnational organizations. 
Prerequisite(s): MR2100

MR2800 Business-to-Business Marketing
This course is designed to enable students to apply the concepts of marketing in a business customer context. The course will enable students to research and understand business markets, and to apply marketing concepts relevant to strategy development in manufacturing, trade, institutional, and not-for-profit organizations. 
Prerequisite(s): MR2100

MT1230 Hand Tools
Upon successful completion of this unit, the apprentice will be able to develop safety practices in the use and care of hand tools; select, operate and maintain hand tools properly. 
Prerequisite(s): TS1510, TS1520, TS1530

MT1100 Introduction to Mining
This is a general introduction to mineral deposits, types of ore, mining machinery, units of operations in mining, and mine engineering analysis techniques used in these operations, from discovery, through development and to extraction underground and on surface. 

MT1200 Equipment Reliability Concepts
The purpose of the course Equipment Reliability Concepts is to provide an in-depth understanding of the importance of equipment reliability to the efficiency of mining operations. Operators, maintenance and service providers all need to realize that they each play a necessary role and can make a significant contribution to the wellness of equipment and production processes. Reliable equipment enables mining operations to minimize spare parts inventories, plan and schedule services and major repairs, optimize resource usage, establish safe working procedures and deliver products dependable to customers. 

MT2100 Surface Mining
The course is designed to train the student to function efficiently in surface mining operations. The subject matter consists of: Evaluation of Surface Mine Prospects, Ore Reserve Calculations, Economic Evaluation, De-watering and Flood Control, Open Pit Planning and Layout, Selection of Mining-Striping, Equipment and Methods, Fragmentation and Drilling Principles. 
Prerequisite(s): MA1100

MT2400 Mineral Processing I
This course is designed to train the student to function efficiently in an ore concentration facility. The subject matter consists of sampling methods and procedures, flow-sheeting, screens and screen analysis, pulp density, calculations, grinding-crushing equipment and size reduction calculations, classification, concentration and tailings disposal. 
Prerequisite(s): MA1100

MT2410 Mineral Processing II
This course is a continuation of MT2400. It introduces students to theory in areas of flow sheeting, methods of analyzing and recovering ore while controlling environmental impacts. 
Prerequisite(s): MT2400

MT2650 Hydrometallurgical Refining
This course will focus on the flow, feed preparation, and operation of the hydrometallurgical process as it applies to the Voisey Bay nickel operation. Emphasis will be placed on the preparation and handling of the metal ore
MT3400 Mineral Processing III
This course provides information and skills in flotation plant operation and palletizing.
Prerequisite(s): MT2410

MU110 Introduction to Music
This is an introductory course which explores basic theory and terminology of music. The intent is to provide students with the skills to read music and to write a simple composition while learning the vocabulary of the industry.

MU1140 Performance I
Spread across four semesters, with a final performance jury at the end of semester four, this course is designed to examine all areas of musical performance, in both public and controlled environments, while the student builds a strong portfolio and enhances his or her performance skills. Students will be graded through peer evaluation of classroom performances, instructor evaluation of both college and public performances, and portfolio evaluation, which will take place as part of the final jury. At the core of this course will be current performance trends in the music industry, professionalism, and performance career planning.

MU1110 Music and Culture
This course is designed to trace the history of music and to explore the reciprocal relationship between music and culture. The course traces the development of distinct musical genres and illustrates that these genres serve as mirrors of their respective societies.
Prerequisite(s): MU1100

MU1120 Musical Theatre
This course explores the role of music in theatre arts. The primary focus is upon the role of music, and the musical director, within theatre.

MU1200 Songwriting
This course provides an overview of effective songwriting principles. Students will review these principles and will listen critically to a wide range of selections from a variety of genres. By the end of the course, students will be composing their own pieces.

MU1411 Performance II
Spread across four semesters, with a final performance jury at the end of semester four, this course is designed to examine all areas of musical performance, in both public and controlled environments, while the student builds a strong portfolio and enhances his or her performance skills. Students will be graded through peer evaluation of classroom performances, instructor evaluation of both college and public performances, and portfolio evaluation, which will take place as part of the final jury. At the core of this course will be current performance trends in the music industry, professionalism, and performance career planning.

MU2100 Music Genres: Popular
This course explores the origins of popular music, the evolution of media and mass distribution, and traces the impact of popular music upon society.

MU2130 Music Genres: Classic
This course provides a more detailed analysis of musical genres introduced in the Music and Culture course. Specifically, this course will address traditional genres that have greatly influenced the development of the traditional Newfoundland genre.
Prerequisite(s): MU1110

MU2140 Performance III
Spread across four semesters, with a final performance jury at the end of semester four, this course is designed to examine all areas of musical performance, in both public and controlled environments, while the student builds a strong portfolio and enhances his or her performance skills. Students will be graded through peer evaluation of classroom performances, instructor evaluation of both college and public performances, and portfolio evaluation, which will take place as part of the final jury. At the core of this course will be current performance trends in the music industry, professionalism, and performance career planning.

MU2411 Performance IV
Spread across four semesters, with a final performance jury at the end of semester four, this course is designed to examine all areas of musical performance, in both public and controlled environments, while the student builds a strong portfolio and enhances his or her performance skills. Students will be graded through peer evaluation of classroom performances, instructor evaluation of both college and public performances, and portfolio evaluation, which will take place as part of the final jury. At the core of this course will be current performance trends in the music industry, professionalism, and performance career planning.

MW1230 Blueprint Reading and Sketching
Upon successful completion of this course, the apprentice will be able to use mechanical drawings to determine the location, position and elevation of trade related pieces of equipment or one of its components.
Prerequisite(s): MW1260

MW1270 Mechanical Installation Blueprints
Upon successful completion of this course, the apprentice will be able to use mechanical drawings to determine the location, position and elevation of trade related pieces of equipment or one of its components.
Prerequisite(s): MW1260

MW1450 Drills, Taps, and Reamers
Upon successful completion of this course, the apprentice will be able to safely use different rigging apparatus to lift and move equipment and machinery; erect ladders and scaffolding; use safety harnesses.
Prerequisite(s): MW1240

MW1470 Piping Components
Upon successful completion of this course, the apprentice will be able to operate drilling machines and reamers in a safe and efficient manner; maintain drilling machines and reamers; sharpen twist drills; identify proper speed and feed while using drilling machines and reamers; properly use dies; drill, ream, counterbore, countersink and tap hole.
Prerequisite(s): MW1240

MW1460 Measuring and Layout
Upon successful completion of this unit, the apprentice will be able to make accurate measurements with precision and semi-precision measuring tools.
Prerequisite(s): MS1230

MW1510 Power Metal Saws
Upon successful completion of this course, the apprentice will be able to cut metal with band and reciprocating saws; cut metal with abrasive wheel cut off saws; maintain power metal saws.
Prerequisite(s): MW1460

MW1520 Pedestal Grinders
Upon successful completion of this course, the apprentice will be able to operate pedestal grinders in a safe, efficient and responsible manner; maintain pedestal grinders.
Prerequisite(s): MW1510

MW1530 Bearings
Upon successful completion of this course, the apprentice will be able to select, install, remove and maintain bearings; identify the purpose of different types of bearings and identify their proper use; determine the proper clearance and fits for bearings.
Prerequisite(s): MW1580

MW1540 Fasteners
Upon successful completion of this course, the apprentice will be able to select and install fastening devices.
Prerequisite(s): MS1230
MW1550 Metallurgy
Upon successful completion of this course, the apprentice will be able to understand basic metallurgy principles.
Prerequisite(s): MW1530

MW1560 Coupling Alignment
Upon successful completion of this course, the apprentice will be able to align couplings using standard alignment methods; align couplings using the reverse dial alignment method; align couplings using the laser alignment method.
Prerequisite(s): MW1590

MW1580 Static and Dynamic Seals
Upon successful completion of this course, the apprentice will be able to select, install, remove and maintain gaskets, seals and packing; identify the purpose of different types of gaskets; seals and packing and identify their proper use.
Prerequisite(s): MW1650

MW1590 Couplings and Clutches
Upon successful completion of this course, the apprentice will be able to remove, install and maintain couplings and clutches; identify the purpose of different types of couplings and clutches and identify their proper use.
Prerequisite(s): MW1640

MW1600 Vibration Analysis & Machine Alignment
This course provides information and training in vibration analysis, balancing and alignment procedures for machines.
Prerequisite(s): TS1210, MW1400

MW1610 Belt and Chain Drive Systems
Upon successful completion of this course, the apprentice will be able to demonstrate understanding of the operation of belt and chain drive systems; install belt and chain drive systems; maintain belt and chain drive systems.
Prerequisite(s): MW1530

MW1620 Metal Lathe
Upon successful completion of this course, the apprentice will be able to identify parts and accessories; calculate correct speeds and feeds; calculate thread depth; perform turning, facing, boring and threading operations.
Prerequisite(s): MW1450

MW1630 Milling Machines
Upon successful completion of this course, the apprentice will be able to calculate correct speeds and feeds; perform set up and safely execute basic milling operations.
Prerequisite(s): MW1620

MW1640 Gear Drive Systems
Upon successful completion of this course, the apprentice will be able to calculate correct speeds and feeds; perform repair and maintenance on gear drive units; operate gear drive units.
Prerequisite(s): MW1610

MW1650 Lubrication Practices
Upon successful completion of this course, the apprentice will be able to select the proper lubricant and lubrication methods; apply proper lubricants where required.
Prerequisite(s): MS1230

MW1660 Material Handling Systems
Upon successful completion of this course, the apprentice will be able to assemble conveyors; install conveyors; operate conveyors; repair conveyors; maintain conveyors.
Prerequisite(s): MW1590

MW1670 Non-Positive Displacement Pumps
Upon successful completion of this course, the apprentice will be able to inspect, maintain, repair and assemble non-positive displacement pumps.
Prerequisite(s): MW1590

MW1680 Dynamic Balancing
Upon successful completion of this course, the apprentice will be able to collect data; use computer to execute balancing calculations; use balancing techniques to correct vibration problems.
Prerequisite(s): MW2230

MW1690 Positive Displacement Pumps
Upon successful completion of this course, the apprentice will be able to inspect, maintain, repair, and assemble positive displacement pumps.
Prerequisite(s): MW1670

MW1730 Electrical Fundamentals
Upon successful completion of this course, the apprentice will be able to demonstrate an understanding of basic electrical principles; demonstrate an understanding of basic PLC’s (Programmable Logic Controllers); demonstrate an understanding of the Provincial Public Safety Act as it relates to electrical work.
Prerequisite(s): MW2150

MW1740 Preventative and Predictive Maintenance
Upon successful completion of this course, the apprentice will be able to perform preventative maintenance and maintain proper records.
Prerequisite(s): MW2180

MW1750 Hand Tools and Basic Layout
Upon successful completion of this unit, the apprentice will be able to select, operate and maintain hand and power tools, equipment and facilities and demonstrate knowledge of the responsibilities of the machinist for the care and use of tools.

MW1760 Machine Shop Measuring I (Basic Measurement)
Upon successful completion of this unit, the apprentice will be able to read and interpret engineering drawings, produce freehand sketches, and perform accurate transfer of sizes.

MW1770 Mechanical Drawing I (Basic)
Upon successful completion of this unit, the apprentice will be able to read and interpret basic engineering drawings, produce freehand sketches, perform accurate transfer of sizes.

MW1780 Cutting Fluids and Coolants
Upon successful completion of this unit, the apprentice will be able to select and apply lubricants for machining operations, select and use coolants and cutting fluids and select and use solvents.
Prerequisite(s): TS1520

MW1790 Material Selection
Upon successful completion of this unit, the apprentice will be able to select work piece materials and demonstrate knowledge of metal properties.

MW1800 Machine Shop Measuring II (Gauge Blocks and Angular Measurement)
Upon successful completion of the unit, the apprentice will be able to select, use, maintain and store gauge blocks.
Prerequisite(s): MW1760

MW1810 Mechanical Drawings II (Intermediate)
Upon successful completion of this unit, the apprentice will be able to read and interpret intermediate engineering drawings, produce intermediate freehand sketches, and perform accurate transfer of sizes using intermediate engineering drawings.
Prerequisite(s): MW1770

MW1820 Power Tools / Grinding
Upon successful completion of this unit, the apprentice will be able to select, use and care for pneumatic and hydraulic tools; set up, operate and maintain power saws; set up, operate and maintain hand grinding machines.
Prerequisite(s): MW1750

MW1830 Heat Treatment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of basic heat treatment processes and their associated procedures.
Prerequisite(s): MW1790

MW1840 Rigging
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of slings, cables and cranes; select and use rigging equipment; use rigging charts and manuals, rules of thumb.

MW1850 Drilling Machines
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the operating principles, parts and applications of various types of drilling machines; set up, operate and maintain drilling machines.
Prerequisite(s): MW1750, MW1760, MW1800, MW1780

MW1860 Lathes and Lathe Accessories
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the operating principles of lathe machines; demonstrate knowledge of operator maintenance procedures; select cutting tools.
Prerequisite(s): MW1850

MW1870 Lathe Operations
Upon successful completion of this unit, the apprentice will be able to plan and perform basic lathe operations; select tooling for associated applications; troubleshoot lathe operations.
Prerequisite(s): MW1860

MW1880 Lathe Drilling, Boring, Reaming and Tapping
Upon successful completion of this unit, the apprentice will be able to plan drilling, boring, reaming and tapping operations; select tooling; perform and troubleshoot drilling, boring, reaming and tapping operations.
Prerequisite(s): MW1870

MW1890 Planning and Measuring / Precision Layout
Upon successful completion of this unit, the apprentice will be able to read and interpret mechanical drawings; plan machining operations; measure work pieces accurately using measuring tools and precision instruments; lay out work accurately.
Prerequisite(s): MW1810

MW1900 Taper Turning
Upon successful completion of this course, the apprentice will be able to calculate tapers; select attachments; check and measure tapers.
Prerequisite(s): MW1880
MW1910 Basic Threading
Upon successful completion of this unit, the apprentice will be able to set up lathes to machine threads, measure and gauge threads; cut internal and external threads according to classification.
Prerequisite(s): MW1900

MW1920 Horizontal / Vertical Milling Machines
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the operating principles and parts of milling machines; select tooling and accessories; calculate speeds and feeds; set up milling machines; secure work pieces.
Prerequisite(s): MW1870

MW1930 Horizontal Milling Machine Operation
Upon successful completion of this unit, the apprentice will be able to perform milling operations; use sawing and slitting cutters.
Prerequisite(s): MW1920

MW1940 Advanced Lathe Operation
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of advanced thread forms; cut advanced thread forms; measure threads; cut contours and forms.
Prerequisite(s): MW1910

MW1950 Reciprocating Machines
Upon successful completion of this unit, the apprentice will be able to set up and operate shapers, slotters and broaching machines.
Prerequisite(s): MW1880

MM1960 Carbide Tooling
Upon successful completion of this unit, the apprentice will be able to select and use carbide tooling for a variety of applications.
Prerequisite(s): MW1910

MW1970 Specialty Machinable Materials
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the characteristics of plastics with reference to machining operations; demonstrate knowledge of the characteristics of specialty steels with reference to machining operations; machine various plastics and specialty steels.
Prerequisite(s): MW1790

MW1980 Spur Gears
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the different types of gears and their applications; identify and select gear cutters; mill gears; measure gear teeth.
Prerequisite(s): MW1920

MW1990 Testing and Inspecting
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of precision measurement systems, instruments and their associated techniques.
Prerequisite(s): MW1810

MW2000 Vertical Milling Machine Operation
Upon successful completion of this unit, the apprentice will be able to calculate gear formula; demonstrate knowledge of the vertical milling machine; perform a variety of milling operations on a vertical mill.
Prerequisite(s): MW1920

MW2010 Boring Mills
Upon successful completion of this unit, the apprentice will be able to set up and operate boring mills.
Prerequisite(s): MW2000

MW2020 Abrasives
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of abrasives, grinding wheels and their characteristics.
Prerequisite(s): MW1820

MW2030 Cylindrical Grinders
Upon successful completion of this unit, the apprentice will be able to set up and perform a variety of operations on a cylindrical grinder.
Prerequisite(s): MW1940

MW2040 Universal Cutter and Tool Grinder
Upon successful completion of this unit, the apprentice will be able to set up and operate a universal cutter and tool grinder.
Prerequisite(s): MW2030

MW2050 Electrical Discharge Machines
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of electrical discharge machines, their set up and operation.
Prerequisite(s): MW2060

MW2060 NC / CNC of Machine Tools
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of NC/CNC machine tools, their operating principles and applications; create simple part program.
Prerequisite(s): MW1920

MW2070 CNC Programming
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of control unit functions; demonstrate knowledge of access units and codes; prepare a manual part program.
Prerequisite(s): MW2060

MW2080 Mechanical Fasteners
Upon successful completion of this unit, the apprentice will be able to select and use fasteners; drill and tap screw locations.
Prerequisite(s): MW1750

MW2090 Bevel, Helical and Worm Gears
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the various types of gears; set up and perform gear milling operations.
Prerequisite(s): MW1980

MW2100 Surface Grinders
Upon successful completion of this unit, the apprentice will be able to set up and perform a variety of grinding operations.
Prerequisite(s): MW1930

MW2110 Electrical Arc Welding
Upon successful completion of this unit, the apprentice will be able to set up and use electric welding equipment; locate and use information contained in drawings.
Prerequisite(s): MW1750, MW1790

MW2120 Oxy-Fuel Cutting and Welding
Upon successful completion of this unit, the apprentice will be able to set up and use oxy fuel welding equipment.
Prerequisite(s): MW2150

MW2130 Electro-Chemical Machining and Electrolytic Grinding
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the process and applications of electrochemical grinding; demonstrate knowledge of the process and applications of electrolytic grinding.
Prerequisite(s): MW2060

MW2140 Advance CNC Operation (NL Only)
Upon successful completion of this unit, the apprentice will be able to describe and perform the procedures used in performing advanced machining operations on a CNC lathe and mill; Plan a sequence of operations to produce a part using multiple tools.
Prerequisite(s): MW2070

MW2150 Hydraulics I
Upon successful completion of this course, the apprentice will be able to understand basic hydraulic principles of operation; use hydraulic formulas; identify components, parts and accessories.
Prerequisite(s): MW1690

MW2160 Hydraulics II
Upon successful completion of this course, the apprentice will be able to use hydraulic controls; use schematics to identify components of hydraulic systems; test hydraulic system faults; identify parts, components and accessories.
Prerequisite(s): WD1380

MW2170 Pneumatics
Upon successful completion of this course, the apprentice will be able to install pneumatic systems; troubleshoot pneumatic systems; maintain and repair pneumatic systems; identify components, parts and accessories; identify the main components, parts and accessories in vacuum systems; maintain and repair vacuum systems.
Prerequisite(s): MW2160

MW2180 Compressors
Upon successful completion of this unit, the apprentice will be able to understand the principles of operation of compressors; maintain compressors and their assembly.
Prerequisite(s): MW2170

MW2190 Machinery Installation and Alignment
Upon successful completion of this course, the apprentice will be able to perform machinery set up procedures; locate and lay out machinery.
Prerequisite(s): MW1560

MW2200 Boilers
Upon successful completion of this course, the apprentice will be able to maintain boilers and their components and accessories.
Prerequisite(s): MW1690

MW2210 Prime Movers (Internal Combustion Engines)
Upon successful completion of this course, the apprentice will be able to install internal combustion engines; maintain internal combustion engines.
Prerequisite(s): MW1580

MW2220 Prime Movers II (Turbines)
Upon successful completion of this course, the apprentice will be able to maintain steam and gas turbines.
Prerequisite(s): MW2210
MW2230 Vibration Analysis
Upon successful completion of this course, the apprentice will have the knowledge and skills to understand how to collect data used in vibration analysis; analyze causes of unbalances; detect and diagnose vibration levels.
Prerequisite(s): MWT1740

MX1510 Clinical Radiography Orientation
The in-depth clinical orientation during Semester 6 is designed to reinforce in a practical manner the theoretical knowledge the students have acquired during the didactic segment of their program. For 18 weeks, under the direction and supervision of a clinical instructor or designate, students will participate in a variety of basic routine radiographic procedures. Students will become familiar with various basic and specialized radiographic equipment used in today’s modern diagnostic imaging departments. Throughout this semester, students will learn to apply their understanding of the concepts and techniques used in providing quality diagnostic radiographic imaging, patient care and radiation protection in a “real life” setting.
Prerequisite(s): Successful completion of semester 5

MX2102 Radiographic Anatomy & Pathology
In order for a technologist to competently perform any diagnostic radiographic examination, a complete and thorough knowledge of human anatomy is required. It is also essential that he/she be able to identify anatomical structures on the radiograph; differentiate between the normal and abnormal radiographic images; use his/her knowledge of tissue densities, either normal or pathological, be able to accurately locate hidden structures by relating to surface landmarks. In addition, the pathologies relevant to the skeletal, circulatory and lymphatic systems and their radiological significance will be discussed.
Prerequisite(s): Successful completion of semester 3

MX2103 Radiographic Anatomy & Pathology
This course is a continuation of MX2101, where the student will continue to learn a complete and thorough knowledge of human anatomy. Anatomical structures will be located by relating to surface landmarks. Identification of anatomical structures on the radiographic image as well as the ability to differentiate between normal and abnormal radiographic images; use his/her knowledge of tissue densities, either normal or pathological, be able to accurately locate hidden structures by relating to surface landmarks is required. The student will become knowledgeable of the structure, function, location and radiographic appearance of structures in the skull, as well as the following anatomical systems: Digestive, Respiratory, Urinary, Reproductive, Nervous and Endocrine Systems. Associated pathologies, in particular those which may be demonstrated radiographically, are studied, as well as cross-sectional anatomy of the skull, chest, abdomen and spine as related to CT imaging.
Prerequisite(s): MX2102

MX2110 Radiographic Technique
This course is designed to introduce the student to the fundamental practices involved in the performance of radiographic imaging. Instructional areas include: terminology, IR identification, patient/technologist relationship, examination protocol, radiation protection and technologist responsibility. Emphasis will be placed on basic, alternate, and specialized imaging of the appendicular and axial skeleton, angiography, and lymphangiography.
Prerequisite(s): BL2100
Co-requisite(s): MX2102, MX2410, MX2310, MX2200

MX2120 Radiographic Technique
This course will consist of instruction in the basic, alternate and special positioning required to radiographically demonstrate the skull and facial bones, as well as body organs and structures of the following systems: Respiratory, Digestive, Urinary, and Reproductive Systems. Discussion, demonstration and clinical application will include such areas as foreign body localization, mobile, operating room, trauma radiography, bone mineral densitometry, interventional radiograph and C.T. imaging.
Prerequisite(s): MX2110

MX2200 Image Recording
This course is designed to give the student a comprehensive knowledge of the process involved in the formation of a diagnostic x-ray image generated through the use of radiant energy. Students will learn photographic as well as digital methods of image capture and will become familiar with the many factors that affect the quality of the radiographic image. Image manipulation, display and archiving will be discussed, as well as methods of reducing image artifact, ensuring the production of optimum diagnostic images.
Prerequisite(s): Successful completion of semester 3
Co-requisite(s): MX2310, PH2200

MX2201 Image Recording
This course is a continuation of MX2200. It is designed to provide the student with a comprehensive knowledge of quality assurance processes associated with image quality management. Performance of specific quality control procedures is necessary to maintain a high standard of image quality using both digital and analogue image processing systems will be studied. Quality control tests for general radiographic units as well those used in fluoroscopy, CT, mammography, and dental radiography will be studied. The importance of adhering to quality control procedures and processes as part of a diagnostic imaging department’s overall risk management strategy will be discussed. Students will learn to perform inspection procedures and reject-image analysis as part of the overall quality assurance program.
Prerequisite(s): MX2200, MX2310
Co-requisite(s): MX2301

MX2301 Apparatus and Accessories
This course is developed to allow the student to gain a comprehensive knowledge of a wide variety of x-ray generating units. They will acquire the knowledge and skills necessary to operate basic and present day sophisticated equipment safely, effectively and efficiently. The student will be taught the physics of operation of advanced imaging modalities such as computed tomography and digital fluorographic units, as well as mammographic and bone mineral densitometry units.
Prerequisite(s): MX2200, MX2310

MX2310 Apparatus and Accessories
This course has been developed so that the student will have a comprehensive knowledge of the production of x-radiation that will be useful for medical purposes. The student will understand the use of the x-ray tube, its components, and characteristics that will allow the proper control of the x-ray beam. The student will have a basic knowledge of the electrical circuits that are essential for the production of the type of x-radiation that will result in high quality radiographic imaging. The student will learn about the effective use of grids and collimators to reduce patient dose and improve image quality. The student will have knowledge of methods employed to facilitate heat dissipation during the production of x-radiation, as well as practical skills employed to conserve tube life. The student will be able to identify signs of tube failure.
Prerequisite(s): Successful completion of semester 3
Co-requisite(s): MX2200, PH2200

MX2410 Patient Care & Safety
This course is designed to provide the student radiographer with the necessary knowledge to provide good care to the patient in a variety of situations which he/she might encounter in the hospital environment. This course emphasizes basic concepts in general patient care, body mechanics, basic nursing skills, use of common drugs, as well as caring for patients with special needs. During this semester students will also receive instruction in the fundamentals of first aid and basic life support.
Prerequisite(s): Successful completion of semester 3
Co-requisite(s): MX2110, MX2102

MX2500 Radiation Protection and Radiobiology
Combined with their knowledge of radiobiology, students will learn how to utilize radiation to provide maximum diagnostic information with minimal biological damage to the patient. Students will become familiar with international, national and provincial standards. They will learn how to maintain these standards by the correct use of equipment, accessories and other relevant factors. They will learn how to provide maximum protection from ionizing radiation to the patient, general public, co-workers and themselves.
Prerequisite(s): BL2100, PH2200, MX2102, MX2310
Co-requisite(s): MX2103

MX3250 Clinical Radiography
This course is designed to provide extensive clinical experience to students. Applied knowledge of anatomy and physiology, radiographic technique, pathology, radiation protection and patient care will be reinforced. Emphasis will be placed on intensive clinical demonstrations and application of skills necessary for the student to become competent in performing radiographic examinations in the following areas: Vertebral Column, Pelvic Girdle/Upper Femora, Shoulder Girdle, Upper and Lower Extremities, and Operating Room/Mobile Radiography. The student will also acquire clinical experience in Mammography and Pediatrics. This course will take place over 15 weeks under the direction and supervision of a clinical instructor or designate.
Prerequisite(s): Successful completion of Semester 5

MX3260 Clinical Radiography
This course is designed to provide extensive clinical experience to students. Applied knowledge of anatomy and physiology, radiographic technique, pathology, radiation protection and patient care will be reinforced. Emphasis will be placed on intensive clinical demonstrations and application of skills necessary for the student to become competent in performing radiographic examinations in the following areas: Vertebral Column, Pelvic Girdle/Upper Femora, Shoulder Girdle, Upper and Lower Extremities, and Operating Room/Mobile Radiography. The student will also acquire clinical experience in Mammography and Pediatrics. This course will take place over 15 weeks under the direction and supervision of a clinical instructor or designate.
Prerequisite(s): Successful completion of Semester 5

OF1100 Office Management I
This course is designed to acquaint students with the significant role of the office employee in business, the importance of effective communication and the various communications methods used, and to enhance desirable personality traits and attitudes.

OF1101 Office Management II
This course examines filing systems and procedures used by office workers, manual and electronic methods of

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is also placed on office management skills and further personal development in areas such as human relations, current issues at work, and poise. The student is also exposed to a legal or quasi-legal work environment through a four-week work exposure program.

Prerequisite(s): OF2500

OF2520 Legal Office Procedures III (Real Estate)
The course is informed of the legal procedures in Newfoundland and Labrador regarding the purchase and sale of real property, beginning with the Agreement of Purchase and Sale and ending with the Closing at the Registry of Deeds. Students are also exposed to mortgagors for purchasing and refinancing real property and to procedures for the purchase and sale of condominiums.

Prerequisite(s): OF2500

OJ1020 Work Exposure – Welding Technician
This one week unpaid workplace exposure program is designed to provide Welding Technician students with an opportunity to experience a real world employment setting before graduation. Students are placed with one of the many agencies that provide welding related services. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

Prerequisite(s): Successful completion of all program-related courses prior to the one week workplace exposure.

OJ1190 Work Exposure (required for Certificate level)
Students gain an appreciation of the real work environment in a business or industry directly related to the area of training. This two-week period will be required in addition to academic content covered thus requiring students to attend intersession.

OJ1110 Work Exposure (required for Certificate only)
(Under Development)

OJ1160 On The Job Training
This six week unpaid workplace exposure program is designed to inscribe that a graduating student has an opportunity of functioning with a real world employment setting. Students are placed with the program related agency.

Prerequisite(s): Successful completion of all courses within the academic program. (Must be eligible to graduate.)

OJ1250 Work Exposure
The work exposure is a required portion of the program. It provides a unique learning experience in a real workplace setting. Work exposures must be program relevant, and 6 weeks in duration. Participation in this work exposure follows the successful completion of the preceding academic term. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. During the work exposure, students develop their employability and technical skills further enhancing their personal growth. They are learning from the new network of contacts and widening their perception of life and career choices.

Prerequisite(s): Successful completion of all courses in the previous academic terms

OJ1300 On-The-Job Training
This three-week unpaid workplace exposure program is designed to insure that a graduating student has an opportunity of functioning with a real world employment setting. Students are placed with the forest industry or a forestry related agency.

Prerequisite(s): Successful completion of all courses within the Forestry program (must be eligible to graduate).

OJ1301 On-The-Job Training
This three-week unpaid workplace exposure program is designed to inscribe that a graduating student has an opportunity of functioning with a real world employment setting. Students are placed with a Fish and Wildlife related agency.

Prerequisite(s): Successful completion of all courses within the Fish and Wildlife program (must be eligible to graduate).

OJ1480 Field Work I - Hospitality Tourism Management
This field related course is designed to assist students in obtaining occupational experience. This course is a six week workplace experience for students pursuing a Hospitality Service Certificate or a Tourism Hospitality Management Diploma. The purpose is to provide students the opportunity to apply the knowledge and skills acquired in class to a position in the tourism industry. This course will be completed the scheduled intersession. Program instructors will assist students in securing a placement within the tourism industry. The instructors will supervise and evaluate the student’s progress in conjunction with the field supervisor. Arrangements and expenses for transportation, lodging, and meals are the sole responsibility of the student.

Prerequisite(s): Successful completion of all courses in semesters one and two.

OJ1520 Work Exposure
Students are expected to complete four weeks of work exposure for completion of the diploma requirements.

Prerequisite(s): Successful completion of all courses in the previous academic terms.

OJ1530 Work Exposure
Students are expected to complete four weeks of work exposure for completion of the diploma requirements.

Prerequisite(s): Successful completion of all courses in the previous academic terms.

OJ1540 Work Exposure
Students are expected to complete four weeks of work exposure for completion of the diploma requirements.

Prerequisite(s): Successful completion of all courses in the previous academic terms

OL1600 Traffic Control Person
Upon successful completion of this course, the apprentice will be able to: explain the importance of traffic control; apply the methods and techniques of stopping, slowing and directing traffic; obtain a certificate of completion (TCP)

OL1610 Defensive Driving
Upon successful completion of this course, the apprentice will be able to: develop the skills and knowledge required for the safe operation and maintenance of a motorized vehicle.

Prerequisite(s): OL1640

OL1620 Environmental Awareness
Upon successful completion of this course, the apprentice will be able to: become familiar with environmental issues related to the utility trade.
OL1630 Orientation to the Trade
Upon successful completion of this course, the apprentice will be able to: be familiar with the duties, responsibilities and requirements of a Powerline Technician.

OL1640 Vehicle Familiarization
Upon successful completion of this course, the apprentice will be able to: identify line vehicles required for the lineman’s work; perform daily pre-operational checks on these vehicles.

OL1650 Powerline Technician Equipment
Upon successful completion of this course, the apprentice will be able to: explain the key elements of Occupational Health and Safety as it relates to Powerline Technician; maintain and use personal equipment tools.

OL1660 Basic Hand and Specialty Tools
Upon successful completion of this course, the apprentice will be able to: identify and use basic hand tools and specialty tools required by Powerline Technicians.

OL1670 Basic Power Tools
Upon successful completion of this course, the apprentice will be able to: identify and use basic power tools specific to the Powerline Technician.

OL1680 Chain Saw Familiarization
Upon successful completion of this course, the apprentice will be able to: use and maintain a chain saw.

OL1690 Pole Safety
Upon successful completion of this course, the apprentice will be able to: conduct pole inspections and install grounds.

OL1700 Interpret Drawings, Specifications, and Standards
Upon successful completion of this course, the apprentice will be able to: interpret information from electrical drawings and standards.

OL1710 Distribution Line Construction and Design I
Upon successful completion of this course and Design I, the apprentice will be able to: install supporting structures; install supporting apparatus.
Prerequisite(s): OL1700

OL1711 Distribution Line Construction and Design II
Upon successful completion of this course, the apprentice will be able to: design primary distribution lines.
Prerequisite(s): OL1710

OL1712 Distribution Line Construction and Design III
Upon successful completion of this course, the apprentice will be able to: design and construct a basic secondary distribution line.
Prerequisite(s): OL1710

OL1720 Conductors
Upon successful completion of this course, the apprentice will be able to: identify and describe conductors, conductor connections, conductor splicing and the tools required.

OL1730 Conductor Sizes and Measurements
Upon successful completion of this course, the apprentice will be able to: identify and select conductors (in relation to sizing) when designing and constructing distribution and transmission facilities.
Prerequisite(s): OL1720

OL1740 Sagging Conductors
Upon successful completion of this course, the apprentice will be able to: sag conductors according to industry specifications.
Prerequisite(s): OL1730

OL1750 Tree Pruning
Upon successful completion of this course, the apprentice will be able to: explain the importance of “tree pruning”.
Prerequisite(s): OL1680

OL1760 Rescue at Heights
Upon successful completion of this course, the apprentice will be able to: perform a successful rescue.
Prerequisite(s): OL1640, OL1650

OL1770 Mobile Hydraulic Training
Upon successful completion of this course, the apprentice will be able to: operate hydraulic equipment.

OL1780 Transmission Structures
Upon successful completion of this course, the apprentice will be able to: identify different transmission lines by design and voltage level.

OL1790 Grounds (Personal Structures and Vehicles)
Upon successful completion of this course, the apprentice will be able to: explain the theory and install “permanent system grounds” and “temporary safety grounds”.
Prerequisite(s): ER1180

OL1810 Transformers
Upon successful completion of this course, the apprentice will be able to: identify and describe transformer types and their basic operating principles.
Prerequisite(s): ER1180

OL1820 Street Lighting
Upon successful completion of this course, the apprentice will be able to: perform street lighting repair.

OL1830 Service Connections
Upon successful completion of this course, the apprentice will be able to: describe service connections in terms of conductors, service entrance and energy costs; install and connect a residential service.
Prerequisite(s): OL1810

OL1840 Single Phase Revenue Metering
Upon successful completion of this course, the apprentice will be able to: describe various types of single-phase watt hour meters, install, read, disconnect and reconnect meters.
Prerequisite(s): ER1180

OL1850 Rigging
Upon successful completion of this course, the apprentice will be able to: maintain synthetic and wire ropes; explain and apply the principle of mechanical advantage; install safe rigging.

OL2510 System Operating Practices
Upon successful completion of this course, the apprentice will be able to: prepare switching orders on transmission and distribution systems.
Prerequisite(s): Completion of first year courses

OL2520 Three-Phase Theory
Upon successful completion of this course, the apprentice will be able to: perform three-phase voltage, current and power calculations.
Prerequisite(s): ER1180

OL2530 Transformer Banking
Upon successful completion of this course, the apprentice will be able to: describe the various connections available for the application of single-phase distribution transformers to three-phase systems and the implications of each connection; connect and test various transformer connections; install and connect various transformer banks; use various measuring instruments; select proper transformer fusing.
Prerequisite(s): OL2520

OL2540 Power Transformers
Upon successful completion of this course, the apprentice will be able to: identify and describe stationary power transformers and mobile substations.
Prerequisite(s): OL2530

OL2550 Paralleling Three-Phase Circuits
Upon successful completion of this course, the apprentice will be able to: describe phases of a three-phase system; perform rotation checks; perform tests required for three-phase circuits.
Prerequisite(s): OL2520

OL2560 Single-Phase and Three-Phase Revenue Metering
Upon successful completion of this course, the apprentice will be able to: explain how instrument transformers are used in both single and three-phase metering installations; explain the procedures for application and operation of these installations.
Prerequisite(s): OL2520

OL2570 Substations, Switching Stations and Terminals
Upon successful completion of this course, the apprentice will be able to: describe substations and switching stations, their operation and required inspections.
Prerequisite(s): Completion of first year courses

OL2610 Switches and Protective Devices
Upon successful completion of this course, the apprentice will be able to: describe the basic types of switches and protective devices and demonstrate their application to the electrical system.
Prerequisite(s): Completion of Block 2 courses

OL2620 Voltage Regulation
Upon successful completion of this course, the apprentice will be able to: describe the purpose, basic construction, operating principles and use of “voltage regulators” and “auto boosters”.
Prerequisite(s): Completion of Block 2 courses

OL2630 Underground Construction
Upon successful completion of this course, the apprentice will be able to: describe underground facilities including methods of installation and policies and practices governing its use; identify and describe safety procedures associated with underground construction and confined spaces.
Prerequisite(s): Completion of Block 2 courses

OL2640 Underground System Operation
Upon successful completion of this course, the apprentice will be able to: describe the methods and apparatus associated with operating an underground system.
Prerequisite(s): OL2630

OL2650 Line Capacitors
Upon successful completion of this course, the apprentice will be able to: describe the various arrangements of capacitor banks and their basic operating principles;
Upon successful completion of this course, the apprentice will be able to: be familiar with the “Electronic Oil-filled Re-closer” (EOR) and perform operating procedures.

**Prerequisite(s):** OM1180

**OL2660 Electronic Re-closers**
Upon successful completion of this course, the apprentice will be able to: demonstrate understanding of appropriate codes and regulations.

**Prerequisite(s):** Completion of Block 2 courses

**OL2710 Live Line Work (Hot Stick)**
Upon successful completion of this course, the apprentice will be able to: perform basic live line hot stick work.

**OL2720 Live Line Work (Rubber Glove)**
Upon successful completion of this course, the apprentice will be able to: perform basic live line rubber glove work.

**OM1120 Print Reading & Sketching**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of blueprints and drawings and demonstrate knowledge of single line sketches.

**Co-requisite(s):** MC1050

**OM1130 Tools & Equipment**
Upon successful completion of this course the apprentice will be able to: demonstrate knowledge of safety practices in the use and care of tools and equipment, demonstrate knowledge in the selection, operation and maintenance of hand and power tools, equipment and facilities, without damage to equipment, operator or others, Demonstrate understanding of the responsibilities of the Oil Burner Mechanic toward the employer for the care and proper use of tools.

**OM1141 House as a System**
Upon successful completion of this course, the apprentice will be able to: Demonstrate knowledge of building science as it relates to climate control systems; demonstrate knowledge of climate control systems.

**OM1151 Trade Practice**
Upon successful completion of this course, the apprentice will be able to; Demonstrate knowledge of the scope and limitations of the trade, Demonstrate knowledge of professional standards of customer service; Identify and demonstrate understanding of appropriate codes and regulations.

**OM1230 Soldering, Flaring & Threading Pipes**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the equipment and procedures used to flare and joint copper tubing; demonstrate knowledge of the equipment and procedures used to solder fittings; demonstrate knowledge of the applications, tools and procedures used for threading pipe.

**Prerequisite(s):** OM1130

**OM1241 Fuel Storage Tanks**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of fuel storage and supply systems to oil burning equipment; demonstrate knowledge of oil tank installation; identify and demonstrate understanding of appropriate codes and regulations

**Prerequisite(s):** OM1130

**OM1251 Fuel Delivery Systems**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of fuel units, their installation and adjustment; demonstrate knowledge of fuel pumps, auxiliary fuel pumps and their installation; demonstrate knowledge of nozzles and fuel filters, their applications and installation.

**Prerequisite(s):** OM1130

**OM1320 Combustion & Burner Air Handling Devices**
Upon successful completion of the course, the apprentice will be able to: demonstrate understanding of oil as a fuel; demonstrate knowledge of the combustion process; demonstrate knowledge of selection, maintenance, and use of appropriate test equipment; identify and demonstrate understanding of appropriate codes and regulations.

**Prerequisite(s):** OM1251

**OM1330 Electricity I (Principles of Electricity)**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of basic electrical theory, systems and components; demonstrate knowledge of selection and use of appropriate electrical test equipment.

**Prerequisite(s):** OM1130

**OM1340 Electricity II (Electrical Devices & Ignition Systems)**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of electrical devices and their operation; demonstrate knowledge of the installation, diagnosis, repair and replacement of ignition systems.

**Prerequisite(s):** OM1330

**OM1351 Electricity III (Solid State & Programmable Controls)**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of basic electronic theory, systems and components; demonstrate knowledge of programming controls; demonstrate knowledge of troubleshooting problems with electronic and solid state components.

**Prerequisite(s):** OM1340, OM1440

**OM1440 Controls & Wiring**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the procedures used to install, service and maintain limit controls and thermostats; demonstrate knowledge of the procedures used to install, service and maintain limit primary controls.

**Prerequisite(s):** OM1340

**OM1450 Motors**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the operation, installation and repair of motors, fans and couplings.

**Prerequisite(s):** OM1340

**OM1461 Combustion Chambers**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the construction and operation of a combustion chamber.

**Prerequisite(s):** OM1320

**OM1470 Chimneys, Venting and Draft Control**
Upon successful completion of the course, the apprentice will be able to: evaluate and plan the draft and venting requirements of systems; demonstrate knowledge of venting systems and their installation.

**Prerequisite(s):** OM1320, OM1450

**OM1601 Hydronic Heating Systems**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of hydronic heating systems and their characteristics; demonstrate knowledge of installation and maintenance procedures related to hot water boilers.

**Prerequisite(s):** OM1120, OM1230, OM1251, OM1151, OM1340

**OM1611 Warm Air Furnaces**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of warm air heating systems, their installation codes and regulations, demonstrate knowledge of troubleshooting and servicing procedures for warm air heating systems; demonstrate knowledge of the installation and servicing of humidifiers and electrostatic air cleaners.

**Prerequisite(s):** OM1120, OM1230, OM1251, OM1151, OM1340, OM1120

**OM1620 Low Pressure Steam Systems**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of steam heating systems and their components; demonstrate knowledge of installation, servicing and maintenance of steam heating systems.

**Prerequisite(s):** OM1601

**OM1630 Domestic Hot Water Heaters**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of domestic hot water heaters, their components and operation; demonstrate knowledge of the installation procedures for domestic hot water heaters.

**Prerequisite(s):** OM1601

**OM1640 Specialized Systems**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of vaporizing oil burners, their components, operation and installation; demonstrate knowledge of waste oil burners, their components and operation; demonstrate knowledge of hot water systems, their components and operation.

**Prerequisite(s):** OM1130, OM1141

**OM1651 Zoning I (Hot Water System)**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the purpose, design and operation of zoned systems; demonstrate knowledge of the installation of zoned systems.

**Prerequisite(s):** OM1141, OM1151, OM1230, OM1320, OM1440, OM1601

**OM1660 Retrofit Systems**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge to plan appropriate climate control systems; demonstrate knowledge of the removal and installation of retrofit systems and components; demonstrate knowledge of installation procedures of humidifiers; identify and apply code requirements for air exchangers and humidifiers.

**Prerequisite(s):** OM1120, OM1141, OM1151, OM1241, OM1320, OM1440, OM1461, OM1470, OM1620, OM1630, OM1640, OM1651

**OM1670 Service & Troubleshooting**
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of troubleshooting techniques and diagnostic procedures; demonstrate knowledge of servicing procedures; demonstrate knowledge of selecting appropriate test equipment.

**Prerequisite(s):** OM1660
OM1680 Planned Maintenance
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of regular maintenance requirements and practices; provide a professional standard of customer service; identify and demonstrate understanding of appropriate codes and regulations.
Prerequisite(s): OM1670

OM1691 Zoning II (Warm Air Systems)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the purpose, design and operation of zoned systems; demonstrate knowledge of the installation of zoned systems.
Prerequisite(s): OM1141, OM1151, OM1230, OM1320, OM1440, OM1611

PA1110 Anatomy and Physiology
This course is designed to enable the student to acquire a comprehensive knowledge of gross anatomy and physiology of the major systems of the human body. The didactic content of the course will include instruction in the key medical terms and related structures of the following body systems: integumentary, skeletal, muscular, nervous, the senses, endocrine, cardiovascular, respiratory, digestive and genitourinary (including reproductive organs). Emphasis will be placed on the appropriate medical terms related to each of these systems and their organs and structures. The student will be instructed in the essentials of medical terminology including word roots, prefixes and suffixes of select medical terms pertinent to paramedics. In addition to the above information on anatomy and physiology, the student will be instructed on the general principles of pathophysiology to prepare in understanding the body’s reaction to trauma and illness.
Prerequisite(s): None
Co-requisite(s): None

PA1130 EMS Operations/Communications
The student will be instructed in the elements of Emergency Medical Services (EMS), how EMS services the public in North America, specifically across Canada, and particularly in Newfoundland and Labrador. This course will provide the student with the information needed to maintain physical and emotional health in this demanding and stressful occupation. The student will learn relevant non-technical concepts pertaining to prehospital care, and to the practice of the paramedic. In addition, the student will learn techniques of therapeutic communication, and develop an awareness of the ethical issues of providing care in the prehospital setting. The student will also learn about the role of the paramedic in EMS, and how the paramedic functions as a team member in the primary health model. Concepts of medical control, accountability and written and verbal documentation are introduced in this course. The student will learn their role in the development of personal and career professionalism.

The student will be instructed in the theory related to safe defensive driving of an ambulance and the legalities related to operation of an emergency vehicle. A hands-on practical component of this training will introduce the student to safe defensive driving techniques and avoidance maneuvers on a controlled road surface with a simulated patient and caregiver on board a functional ambulance. The student will develop an understanding of the conditions that qualify for removing an ambulance from service, and will learn the standard equipment and vehicle check that should be performed prior to putting an ambulance in service. The student will learn techniques for effectively communicating with a patient for general interactions and gathering history from the patient, bystanders, or significant others in the prehospital setting. The student will also learn effective methods and language used to interact with EMS personnel, and will develop a working knowledge of common communications systems and devices used in EMS. In addition, the student will develop skills in verbal and written documentation of prehospital patient care on both the student Patient Care Report (PCR) form and the provincial PCR. The student will be introduced to electronic documentation during their field and clinical practicum. In addition, the student will be provided written exercises to practice documentation, and perform verbal reports in the simulated and clinical setting.
Prerequisite(s): None
Co-requisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600

PA1150 Pathology of Disease/Injury
The student will learn the pathophysiology and signs and symptoms of common medical emergencies including: pulmonary (asthma, acute and chronic lung diseases, anaphylaxis, ARDS, hyperventilation syndrome, respiratory infections, carcinoma, and others), cardiac (atherosclerosis, angina, myocardial infarction, cardiac arrest, aneurysms, deep vein thrombosis, thrombotic emboli, hypertension and others), endocrine (diabetes mellitus), neurologic (brain attack, seizures, menigitis and others), gastrointestinal, urogenital, gynecologic and obstetric (including neonatal resuscitation). Simulated patient assessments and skills labs will reinforce theoretical concepts related to these conditions. Interaction, and communication with patients with the above described medical emergencies or conditions will be introduced in this course. The student will apply the basic life support skills learned in PA1310 related to assessment and management of the medical patient, including the neonate and mother. The student will learn techniques for assessment and management of common trauma emergencies for the pediatric age group. The student will learn assessment and management strategies for common toxicologic emergencies, and theory related to common communicable diseases, including appropriate application of precaution and prevention of contamination or infection. The student will be instructed in assessment and management strategies for the trauma patient. Laboratory sessions will provide hands-on teaching and practice of wound care, splinting and immobilization, utilization of rigid spinal immobilization and extrication devices, and management of patients in shock. The didactic content of the course will include instruction in the key concepts of trauma injury to various body organs, and body systems including musculoskeletal, head, neck, spine and nervous system, and soft tissue injuries.
Prerequisite(s): None
Co-requisite(s): PA1110, PA1130, PA1150, PA1170, PA1600

PA1170 Management of Disease/Injury
The student will develop competency in systematic methods of patient assessment including history taking, techniques of physical examination, vital signs assessment, chest auscultation, the appropriate field use of pulse oximetry devices and blood glucose monitoring. The student will be introduced to non-invasive monitoring devices used in prehospital care. This course includes theory and skills labs to provide practical assessments on health subjects in simulated situations, in preparation for applying these methodologies to patients in the clinical and ambulance practicums scheduled later in the training program. The student will learn the components of clinical decision making, the student will develop competency in skills to provide appropriate interventions to minimize or reduce further injury or worsening of various patient conditions in the simulated setting. These skills will be interwoven with the relevant theory throughout the program. Skills included are: Simulated and clinical patient assessment, vital signs assessment, pulse oximetry, blood glucose monitoring, non-invasive airway management, chest auscultation and percussion, prehospital oxygen therapy, splinting and spinal immobilization, simple wound care, patient positioning, lifting and transferring, use of wheeled ambulance stretchers, Cardiopulmonary Resuscitation (CPR), and Automated External Defibrillation (AED).
Prerequisite(s): None
Co-requisite(s): PA1110, PA1130, PA1150, PA1310, PA1600

PA1310 Introductory Pharmacology
This course introduces the student to the fundamentals of pharmacology as an introduction to drug administration. This course will provide the student with the foundation of drug terminology and actions for further studies in drug administration in the second semester. The student will learn the concepts of Medical Control, Delegated Medical Acts, ethical behavior, protocols, scope of practice, and accountability related to administration of medications.
Prerequisite(s): None
Co-requisite(s): PA1110, PA1130, PA1150, PA1170, PA1600

PA1330 Cardiology
This course will review the electrical conduction system of the heart covered in PA1110 and PA1150. The student will learn the basic pathophysiology of cardiac conduction disturbances that contribute to dysrhythmias. This course will enable the student to interpret cardiac rhythms via Lead II EKG tracings, using a systematic five step methodology. The student will learn how an EKG tracing reflects the electrical function of the heart, and will learn what the waveforms on the EKG represent in relation to the cardiac electrical conduction system. The student will learn to differentiate between non-life threatening, potentially life threatening, and life threatening cardiac rhythms and integrate the EKG interpretation as a tool to use during patient assessment. Although the didactic exercises in this course will focus on simulated situations, the student will be expected to apply the skill of Lead II EKG interpretation in the clinical and field practicum during the second semester.
Prerequisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600
Co-requisite(s): PA1350, PA1510, PA1390, PA1500, PA1410, PA1610

PA1350 Special Considerations
The student will learn special considerations that are required for assessment and treatment of patients who have suffered an environmental emergency, or an emergency related to water, diving, or high altitude. This course will also provide the students the opportunity to enhance their skills in trauma management. The student will learn theory and simulated practice in advanced airway management, according to International Trauma Life Support – Advanced standards.
Prerequisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600
Co-requisite(s): PA1510, PA1390, PA1330, PA1500, PA1410, PA1610

PA1390 Advanced Therapeutics
This course is designed to enable the student to acquire knowledge of theory related to peripheral intravenous access and intravenous therapy in preparation for applying
the skill in the clinical and field settings. The student will learn about intravenous solutions commonly used in the field, as well as those solutions that are usually relegated to in-hospital care. The student will learn about crystalloids and colloids are used in fluid resuscitation. The student will develop an understanding of the rationale for intravenous therapy in the prehospital setting, and will learn guiding principles in the appropriate circumstances for starting I.V.s for select patient conditions, and for various patient age groups. In addition, the student will learn the theory behind intravenous medication administration, and key formulae for determining flow rates and how to calculate medication concentrations in intravenous fluid admixtures. Patient safety and the safety of the paramedic are paramount when invasive procedures such as intravenous therapy are used. The student will learn accepted methods of body substance isolation, and safe techniques for initiating intravenous and intraosseous therapy, as well as accepted safe practice for disposal of sharps. In addition, the student is introduced to common drugs either used by patients or administered by the PCP. The student will learn the indications, complications, and appropriate administration of a select number of these drugs encountered in EMS, using various routes of administration including oral, subcutaneous, intramuscular, intraosseous, and intravenous. The scope of practice of the PCP for the province of Newfoundland and Labrador supports the administration of seven drugs at the discretion of the paramedic, following protocols set down by medical control officers for ambulance services, or provincial medical control officers, in a skill set commonly referred to as the Symptom Relief Program (SRP). The student will learn, in detail, the indications and contraindications for administration of these medications. The student will learn the concepts of Medical Control, Delegated Medical Acts, ethical behavior, protocols, scope of practice, and accountability related to administration of medications. In addition, the student will learn the appropriate techniques for administering drugs through injection, inhalation, and oral routes. The student will learn methods for calculating drug dosages, quantities and amounts based on prescribed orders. In the Feeding and Drainage Tube Lab, the student will be introduced to various tubes that the patient may have in situ, including in body orifices, or through surgical openings. The scope of practice of the PCP at the University of Avalon is the responsibility of the student to ensure all competencies stated in the NOCP are included as mandatory competencies. Students will not enter first semester placements until all prerequisite courses (noted below) are successfully completed.

Prerequisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600
Co-requisite(s): PA1350, PA1510, PA1330, PA1500, PA1390, PA1610

PA1410 Interagency Relations
This course focuses on interagency relations in field operations. In this regard, the student will develop an understanding of the responsibility of the paramedic in interacting with police, fire, air transport teams, rescue specialists, and experts in managing dangerous goods incidents. The student will learn the special considerations to be given when paramedics are involved with patients being transferred to or from air medical transport, including the practical skills of packaging a patient in preparation for transfer to air transport. The student will participate in a practical workshop to learn about the safety issues related to providing patient care while extrication tools are being used. The students will learn the responsibilities of the paramedic at crime scenes and accident scenes, and their role in collaborating with law enforcement agents.

Prerequisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600
Co-requisite(s): PA1350, PA1510, PA1330, PA1500, PA1390, PA1610

PA1500 Mental Health Interventions
The student will learn to: provide care to a patient experiencing a psychiatric crisis, identify potential causes for behavioral and psychiatric illnesses, describe effective techniques for interviewing a patient during a behavioral emergency; distinguish between key symptoms and management techniques for selected behavioral or psychiatric disorders; and in role playing situations, will demonstrate measures that may be used to safely diffuse a potentially violent patient situation. The student will be introduced to the concept of normalcy related to the psychological aspect of patient assessment in the general population. The student will develop an understanding of various healthy and unhealthy responses to stress. In this course, the student will develop skills in relating to and dealing with the suicidal patient, and will learn therapeutic interventions for patients in crisis in the two-day Therapeutic Crisis Intervention Workshop. Mental Health Assessment applies to all patients, and is particularly valuable to those patients who demonstrate emotional instability or disrupted thought processes characterized by some mental illnesses. The student will learn to differentiate between the patient displaying neuroses and psychoses.

PA1510 Special Populations
The student will learn special considerations that are required for assessment and treatment of patients of specific age groups; patients with physical and/or emotional disabilities; patients with chronic diseases; patients with genetic anomalies; oncology patients; and patients with terminal illness or in palliative care. In this course, the student will gain an understanding of special circumstances, or existing patient conditions which may influence how the paramedic is required to alter patient care. The student will learn the pathophysiology of these conditions, age groups, mental illnesses, hereditary conditions, or chronic diseases and disabilities to better understand the limitations of these patients, and how the paramedic may be required to adjust his or her expectations of the patient’s ability to communicate, or perform activities. The student will also learn signs and symptoms indicative of abuse and neglect of the person who depends on others for care.

Prerequisite(s): PA1110, PA1130, PA1150, PA1170, PA1310, PA1600
Co-requisite(s): PA1350, PA1510, PA1330, PA1500, PA1390, PA1610

PA1600 Clinical and Field Practicum I
The clinical practicums for the Primary Care Paramedicine program are integrated into the first two semesters of the program, and comprise the entire third semester. The first semester involves rotations on ambulance and in hospital that are scheduled over the last 4 weeks of the first semester. The second semester involves rotations on ambulance and in hospital, scheduled over the final 6 weeks of the second semester. The learning objectives for field (ambulance) and clinical (hospital) practicums are based on the National Occupational Competencies Profile for paramedicine, which was developed by the Paramedic Association of Canada, and is used by the Canadian Medical Association Subcommittee on Accreditation of programs. Additional competencies beyond the minimum competencies stated in the NOCP are included as learning objectives to meet the needs of the provincial ambulance industry. The purpose of the second semester practicums is to provide the student the opportunity to apply all skills learned in the first and second semesters within the milieu of the hospital and on ambulance. The student will develop communication skills while interacting with patients and staff, take vital signs, assist with initial assessment, and provide basic care to patients at the Basic Life Support level. In the second semester, students will be placed with preceptors in a pediatric setting, such as E.R. or pediatric unit, for a minimum 36 hours, Labor and delivery for an equivalent 24 hours, and on ambulance for about 165 hours. In all three semesters, the preceptors will assist the student to apply theory and didactic content to the real world. Students will be provided a competency checklist for their Clinical (hospital) practicum. The competencies for the Field (ambulance) practicum are recorded on Palm pilots. The student will be provided these devices, and trained on the use of the electronic tracking system during the training program. It is the responsibility of the student to ensure all compe-
tencies are met by the end of the respective semesters. Faculty will review competency checklists on a frequent basis to ensure the student is progressing and meeting required competencies. Students may not enter second semester placements until all prerequisite courses (noted below) are successfully completed. Clinical competencies not completed in the first semester placements must be completed in the second or third semester placement.

**Prerequisite(s):** PA1110, PA1130, PA1150, PA1170, PA1310, PA1600, PA1350, PA1510, PA1330, PA1500, PA1410

**PA1620 Clinical and Field Practicum III**

The clinical practicums for the Primary Care Paramedic program are integrated into the first two semesters of the program, and comprise the entire third semester. The first semester involves rotations on ambulance, and in hospital that are scheduled over the last 4 weeks of the first semester. The second semester involves rotations on ambulance and in hospital, scheduled over the final 6 weeks of the second semester. The learning objectives for field (ambulance) and clinical (hospital) practicums are based on the National Occupational Competencies Profile for paramedicine, which was developed by the Paramedic Association of Canada, and is used by the Canadian Medical Association Subcommittee on Accreditation of programs. Additional competencies beyond the minimum competencies stated in the NOCP are included as learning objectives to meet the needs of the provincial ambulance industry. The purpose of the third semester practicum is to provide the student the opportunity to continue applying all skills learned in the first and second semesters, primarily on ambulance, working alongside paramedic preceptors. During the third semester placement, the student is expected to clearly demonstrate that he/she is consistently proficient in all field competencies, performs in a professional manner, demonstrates initiative, and leadership in taking charge during the final weeks of the third semester field preceptorship. Students will be scheduled for a minimum 262.5 hrs on ambulance with field preceptors during the seven weeks of this semester. Additional time may be arranged if required for the student to meet incomplete competencies. Students will be provided a competency checklist for any of the outstanding clinical competencies not completed in their first and second semester Clinical (hospital) practicum. The competencies for the Field (ambulance) practicum will continue being recorded on the student’s Palm pilot. It is the responsibility of the student to ensure all competencies are met by the end of this semester. Students who have not met competencies within the accepted timelines for the semester, will meet with faculty to discuss remedial actions. Following remediation, sufficient additional placement time will be arranged based on the individual needs of the student. Faculty will review competency checklists on a frequent basis to ensure the student is progressing and meeting required competencies. Third semester placement is a continuation of the second semester placement. Students will receive a mid rotation evaluation near the end of the second semester, or at the beginning of the third semester. The mid rotation evaluation will identify student strengths and weaknesses, as well as clarifying any outstanding competencies that are required to be met.

**Prerequisite(s):** PA1110, PA1130, PA1150, PA1170, PA1310, PA1600, PA1350, PA1510, PA1330, PA1500, PA1410

**PC1100 Political Science**

Introduction to Canadian Politics and Government is an introductory course in political science. Students are introduced to the discipline of political science and to the structure and role of federal, provincial, and municipal government institutions in Canada. They also study some of the major contemporary political issues in the country.

**Prerequisite(s):** PC1100

**PD2100 Portfolio Development**

In this course students will create a portfolio of their work. Topics include studio photography, portfolio types, and portfolio development and maintenance.

**Prerequisite(s):** MC1170

**PD2110 Special Project I**

In this course students will identify the elements and components necessary to launch an event such as an exhibition and/or fashion show. Students will learn to develop and implement a project plan complete with checklists and documentation.

**Prerequisite(s):** Successful completion of semesters one through four.

**PD2120 Special Project II**

In this course students will implement an event plan and corresponding timeline while conducting regular checkpoints. Students will also learn how to critically evaluate the event, make recommendations, and develop corresponding documentation.

**Prerequisite(s):** PD2110

**PE1100 Basic Electronics (M, E)**

This M and E introductory course in electrical theory covers the basic concepts of electricity, circuit analysis and magnetism. The laboratory work is designed to develop skills in the construction of electrical circuits, use of electrical measuring instruments, and reinforce theoretical concepts.

**Prerequisite(s):** PE2120

**PE1110 Basic Electronics (M, E)**

This M and E course covers basics of A.C. theory and application. Analyzing A.C. circuits using impedance, admittance and phase to obtain any required circuit quantities as current, voltage, power, and frequency. This course examines resonance frequency and phase relating to sinusoidal waveform on capacitors, inductors, and resistors. Electrical measuring equipment such as oscilloscope, frequency generators, frequency counters, VOM, and other electronic measuring devices will be used to enforce theoretical concepts.

**Prerequisite(s):** PE1100

**PE1200 Basic Aircraft Electrical Systems (M, E)**

The purpose of this M and E course is to give the student an overview of aircraft electrical systems. Batteries, generators, alternators and ground power sources will be explained. Basic wiring practices as well as an introduction to wiring schematics and ignition systems will be completed. The practical portion of this course will include all aspects of wire routing, securing, tying, splicing and attaching.

**Prerequisite(s):** PE1200

**PE1300 Battery Maintenance (M, E)**

This M and E course is designed to have the student deep cycle an Aircraft Ni-CAD battery and charge an aircraft lead acid battery.

**Prerequisite(s):** PE1200

**Co-requisite(s):** PE3150

**PE1350 Electrical Power Systems (M)**

This M course only covers the basic knowledge and skill learned to date. An in depth study of AC/DC power generation will take place. External Power systems and Electrical load Distribution will also be addressed in greater detail.

**Prerequisite(s):** PE1300

**PE1500 Electrical Machines**

This course introduces the student to electrical machines and transformers. It covers theory, typical configurations and operating parameters for both rotating machines and transformers. The students gain an appreciation of the machine types, circuit arrangements, and operating characteristics through lab exercises.

**Prerequisite(s):** ET2100

**PE2100 Analog Electronics (M, E)**

This M and E course is an introduction to analog application. The student will cover all basic theory in power supply, amplifiers, radio receivers and transmitters. In labs the student will identify symptoms in malfunctioning equipment and perform preliminary checks and eliminate obvious problems. This course will direct the student through a balanced approach of theory and practical experience in constructing circuits from diagrams, component identification and the use of electronic test equipment.

**Prerequisite(s):** PE1140

**PE2120 Electrical Practices**

This course introduces the student to the plant electrical distribution system. It provides a foundation in the principles applied to the distribution, protection and control of plant power.

**Prerequisite(s):** PE1500

**PE2140 Digital Electronics (M, E)**

This M and E course provides an effective way to teach student the basics of digital methods and techniques. The microprocessor architecture covers the operation, memories, how personal computers work. All labs experiments and troubleshooting techniques will enhance the student concepts of digital electronics in this course.

**PE2430 Plant Electrical Systems**

This course introduces the student to the plant electrical systems needed to support a modern production process, one that focuses on distributing, converting and controlling electrical energy in an effort to improve product quality and reduce operating costs. Topics include energy sources, power distribution in an industrial plant, energy conversion using motors, motor protection and control requirements, and digital controllers used for energy management (demand controller) and motor control (PLC).

**Prerequisite(s):** ET1101

**PE2500 Electrical Practices**

This course covers the care and use of hand tools, safety, types of electrical protection, installation of motor starters and relays, drawing electrical schematics, troubleshooting motor control circuits, installation of circuits using sections of the CSA electrical code.

**Prerequisite(s):** CI1300, ET1101

**PE2501 Electrical Practices**

This is an intermediate level course that covers the testing and dismantling of DC and AC motors, as well as an introduction to electrical installations in hazardous locations.

**Prerequisite(s):** PE2500, MP2910

**PE2700 Industrial Instrumentation Practices**

This course covers the care and use of hand tools, safety, types of electrical protection.

**Prerequisite(s):** CI1300

Available through correspondence
PE2800 Industrial Mechanical Systems
The purpose of this course is to introduce the students to industrial mechanical systems. The students are expected to use this knowledge to assist with improving the efficiency of common mechanical processes, in an effort to improve product quality. Topics covered include the operation, application and maintenance of pumps, power transmission equipment, conveyors, seals and bearings; condition monitoring and preventive measures, including alignment issues, vibration analysis, and fluid sampling, and predictive and preventive maintenance techniques.
Prerequisite(s): PH1101, FM2320

PE3100 Electrical Practices
This course covers the installation of heating and lighting controls, electrical drawings and commercial and industrial demand load calculations.
Prerequisite(s): PE2501

PE3101 Electrical Practices (Facility Design)
This is an advanced course intended to introduce students to the broad field of electrical facility design. Major topics include electrical distribution design, exterior lighting and controls, lamp technology, interior lighting and controls, electrical heating and controls and electrical distribution design. This course is followed by a project course (PE4100) to reinforce theoretical concepts and enable students to apply those concepts in the design process.
Prerequisite(s): PE3100

PE4100 Elect. Practice (Bldg. Elect.)
This course is a continuation to Electrical Practice PE3101 (Building Electrical Design). It is designed for advanced electrical engineering technology students to provide them with the necessary information for completing electrical system design. The project started in the first term is continued and to be completed as a part of this course.
Prerequisite(s): PE3101

PE4110 Electrical Practices (Facility Design)
This course is project oriented and is a continuation of subject materials covered in all prior Electrical Practices courses. It involves compilation of a complete electrical facility design inclusive of design calculations, preparation of detailed specifications, as well as a complete set of electrical drawings. The final product shall be sufficiently detailed to enable a hypothetical electrical contractor to prepare a complete tender package in order to implement the work.
Prerequisite(s): PE3101

PF1340 Tools and Equipment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the care and safe use of tools and equipment.

PF1350 Blueprint I (Basic Residential)
Upon successful completion of this unit, the apprentice will be able to interpret piping drawings in orthographic and isometric views for residential dwellings; complete single line sketches from drawings and blueprints; convert orthographic piping drawings to isometric drawings; convert isometric piping drawings to orthographic drawings; apply compass and elevations to pipe drawings; produce simple orthogonal sketches.

PF1360 Blueprint II (Advanced Residential / Light Commercial)
Upon successful completion of this unit, the apprentice will be able to interpret piping drawings in both orthographic and isometric views for advanced residential / commercial buildings; complete single line sketches from advanced residential / commercial drawings and blueprints; convert orthographic piping drawings to isometric drawings; convert isometric piping drawings to orthographic drawings; apply compass and elevations to advanced residential / commercial installations; interpret architectural drawings for advanced residential / commercial.
Prerequisite(s): PF1340

PF1370 Rigging
Upon successful completion of this unit, the apprentice will be able to identify the limitations of equipment used for rigging; demonstrate knowledge of safe operating procedures for slings, cables and cranes; select rigging and lifting equipment using rigging charts and manuals as well as rule of thumb methods.

PF1380 Introduction to Fuel Brazing and Cutting
Upon successful completion of this unit, the apprentice will be able to use fuel cutting and brazing equipment.
Prerequisite(s): PF1340

PF1390 Pipe and Tubing Fundamentals
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the types of piping systems and their characteristics; demonstrate knowledge of the materials used in the construction and installation of pipe and piping systems.
Prerequisite(s): PF1340

PF1400 Steel Piping
Upon successful completion of this unit, the apprentice will be able to select materials; demonstrate knowledge of steel pipe and fittings and their assembly; carry out work in compliance with codes, standards and manufacturer’s literature.
Prerequisite(s): PF1340

PF1410 Copper Piping
Upon successful completion of this unit, the apprentice will be able to select materials; demonstrate knowledge of non-ferrous pipe / tubing and its assembly; carry out work in compliance with codes, standards and manufacturer’s literature.
Prerequisite(s): PF1340

PF1420 Plastic Piping
Upon successful completion of this unit, the apprentice will be able to select materials; demonstrate knowledge of plastic pipe and fittings and their assembly; carry out work in compliance with codes, standards and manufacturer’s literature.
Prerequisite(s): PF1340

PF1430 Brass Piping
Upon successful completion of this unit, the apprentice will be able to select materials; demonstrate knowledge of brass pipe and fittings and its assembly; carry out work in compliance with codes, standards and manufacturer’s literature.
Prerequisite(s): PF1340

PF1440 Piping Valves
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of piping valves and their installation.

PF1450 Hydronic Heating I
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the operation of hot water boilers and heating systems, their compo-

PF1540 Low Pressure Steam
Upon successful completion of this unit, the apprentice will be able to sketch and label low pressure steam heating systems; demonstrate knowledge of safety controls and equipment; select steam traps for specific steam applications; demonstrate knowledge of the piping system operation for steam to hot water converters; interpret drawings for steam tracing lines and installation requirements; demonstrate knowledge of installation procedures for oil burner piping and components.
Prerequisite(s): PF1330, PF1360, PF1390, PF1400

PF1550 Pipe Template Development
Upon successful completion of this unit, the apprentice will be able to use drawing procedures and tools to divide lines and circles; demonstrate knowledge of template development; demonstrate knowledge of procedures used to perform layout for the fabrication of pipe fittings to acceptable tolerances.
Prerequisite(s): PF1380, PF1390

PF1560 Pipe Layout and Fitting Fabrication
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of procedures used to layout elbows; demonstrate knowledge of procedures used to layout tees, laterals and mitre turns using templates; demonstrate knowledge of procedures used to fabricate tees, laterals and mitre turns; demonstrate knowledge of procedures used to machine pipes; demonstrate knowledge of procedures used to fasten pipe.
Prerequisite(s): PF1380, PF1390

PF1570 Introduction to Electric Welding and Cutting
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of electrically operated welding and cutting equipment and associated safety procedures.
Prerequisite(s): PF1340, PF1390

PF1600 Ferrous Pipe Assembly
This course provides the knowledge and skills to select, measure, cut, fit and tack weld steel pipe.
Prerequisite(s): WD1210, WD1230, WD2110, PF1240, PF2210

PF1610 Cast Iron Piping
Upon successful completion of this unit, the apprentice will be able to select materials; demonstrate knowledge of cast iron pipe and fittings and their assembly; carry out work in compliance with codes and standards.
Prerequisite(s): PF1340

PF1620 Non-Metallic Piping
Upon successful completion of this unit, the apprentice will be able to select non-metallic piping materials; demonstrate knowledge of non-metallic piping and fittings and their assembly; carry out work in compliance with codes and standards.
Prerequisite(s): PF1340

PF1630 Water Service
Upon successful completion of this unit, the apprentice will be able to demonstrate understanding of how water supply equipment functions; install piping systems for potable and non-potable water supplies.
Prerequisite(s): PF1340

Available through College Distributed Learning Service
Available through correspondence
Upon successful completion of this unit, the apprentice will be able to interpret industrial piping drawings in both orthographic and isometric and sketch views; interpret architectural drawings and specifications for commercial / industrial installations; complete single line sketches from commercial / industrial drawings and blueprints; convert orthographic commercial / industrial pipe drawings to isometrics pipe drawings; apply compass and elevations to commercial / industrial pipe drawings; compile as-built, design built and shop drawings; demonstrate understanding of system identification procedures; determine measurements and elevations using a builders level; compile materials lists from sketches.

Prerequisite(s): PF1350, PF1360

**PF2110 Aluminum Piping**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of aluminum pipe and tubing.

Prerequisite(s): PF1340

**PF2120 Hydronic Heating II**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the operation of commercial heating systems, their associated piping and control systems; demonstrate knowledge of the operation and controls of multi-zone hydronic heating systems.

Prerequisite(s): PF1340, PF1450

**PF2130 Introduction to Electricity**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of electrical principles.

**PF2150 Introduction to Gas Piping I (Low Pressure)**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the combustion process; demonstrate knowledge of gas piping installation according to code.

**PF2160 Standpipe Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of standpipe systems and their installation.

Prerequisite(s): PF1340

**PF2170 Medical Gas Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of medical gas systems.

**PF2250 Fire Protection Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of fire protection systems and their installation.

Prerequisite(s): PF1340

**PF2260 Residential Sprinkler Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of residential sprinkler systems and their installation.

Prerequisite(s): PF1340

**PF2270 Commercial Drainage, Waste and Venting II**
Upon successful completion of this unit, the apprentice will be able to size commercial venting systems; install venting systems for commercial applications according to codes and regulations.

Prerequisite(s): PF1340

**PF2280 Commercial Appliances, Fixtures and Trim**
Upon successful completion of this unit, the apprentice will be able to select, install plumbing fixtures, appliances and trim for a variety of commercial applications.

Prerequisite(s): PF1340, PF1350, PF1360, PF1630, PF1640, PF1650, PF1660, PF1680

**PF2310 Cross Connection Control Devices**
Upon successful completion of this unit, the apprentice will be able to identify cross connections and determine how to correct them.

Prerequisite(s): PF1340, PF1390, PF1400, PF1410, PF1420, PF1430, PF2110, PF1610, PF1620

**PF2320 Introduction to Gas Piping II (High Pressure)**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the combustion process; demonstrate knowledge of gas piping installation according to code.

Prerequisite(s): PF2150

**PF2510 Compressed Air and Vacuum Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of compressed air and vacuum systems and their installation.

**PF2520 Chilled Water Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of chilled water systems and their installation.

**PF2530 Solar Heating Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of solar heating systems and their installation.

**PF2540 Rural Water Supply**
Upon successful completion of this unit, the apprentice will be able to demonstrate understanding of the operation of rural water supply systems; demonstrate understanding of the operation, installation and repair of water pumps.

Prerequisite(s): PF1340

**PF2550 Historic Piping**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of historic piping materials.

Prerequisite(s): PF1390, PF1400, PF1410, PF1420, PF1430, PF1610, PF1620, PF2110

**PF2560 Food Processing Systems**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of food processing systems and their installation.

Prerequisite(s): PF1340

**PF2570 Commercial Drainage, Waste and Venting III**
Upon successful completion of this unit, the apprentice will be able to size building sewers and sanitary drainage systems for commercial / industrial applications according to code; demonstrate knowledge of the procedures to install venting systems for commercial / industrial applications according to code.

Prerequisite(s): PF1700, PF2270

**PF2580 Industrial / Commercial Appliances, Fixtures and Trim**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures to select and install plumbing fixtures, appliances and trim for a variety of commercial / industrial applications.

Prerequisite(s): PF1340, PF1350, PF1360, PF1680
PF2590 Lawn Sprinkler Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the installation of lawn sprinkler systems and equipment.
Prerequisite(s): PF1340

PF2600 Swimming Pool Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of installation of swimming pool systems and equipment.
Prerequisite(s): PF1340

PF2700 Instrumentation
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of instrument controls and indicating devices, their operation and installation procedures; interpret instrumentation requirements from drawings.

PF2710 Pipe and Tube Bending
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of procedures used to layout and mark pipe and tube for bending; demonstrate knowledge of procedures used to bend pipe and tubing
Prerequisite(s): PF1340, PF1380, PF1390, PF1570

PF2720 Specialty Steamfitting / Pipefitting Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of safety requirements for installation of specialty piping systems.
Prerequisite(s): PF1340, PF1390

PF2730 Pumps / compressors and Hydraulic Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of safety procedures for working with and around air compressors and hydraulic systems; demonstrate knowledge of disassembly / reassembly of hydraulic systems and components; demonstrate knowledge of procedures used to maintain, hydraulic equipment and compressors; demonstrate knowledge of procedures used to inspect, adjust and replace component parts; identify and interpret applicable codes.
Prerequisite(s): PF1340, PF1350, PF1360, PF1380, PF1390, PF1570, PF2100

PF2740 Valves
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of procedures used to select and install valves; demonstrate knowledge of procedures used to maintain and service valves.
Prerequisite(s): PF1340, PF1390

PF2750 High Pressure Steam
Upon successful completion of this unit, the apprentice will be able to sketch and label a high pressure steam system; identify and explain operation and components of steam boilers; select high pressure gaskets, bolts, and flanges for specific steam applications; interpret drawings for high pressure steam system requirements; identify and interpret applicable codes.
Prerequisite(s): PF1350, PF1360, PF1390, PF1400, PF1540

PF2760 Refrigeration
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the components and operation of refrigeration piping systems.

PF2770 Stainless Steel and Specialty Piping
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of methods of cutting stainless steel pipe; demonstrate knowledge of the procedures for preparing chromoloy pipe and fittings for joining and welding; demonstrate knowledge of the procedures for joining stainless steel and chromoloy pipe; demonstrate knowledge of methods of tapping, threading and drilling of stainless steel.
Prerequisite(s): PF1340, PF1370, PF1380, PF1390, PF1400, PF1410, PF1420, PF1430, PF1550, PF1560, PF2110

PF2780 Blueprint IV
Upon successful completion of this unit, the apprentice will be able to identify location of piping components, controls and equipment.
Prerequisite(s): PF1350, PF1360, PF2100

PF2790 Advanced Rigging
Upon successful completion of this unit, the apprentice will be able to determine the weights of loads; select appropriate rigging equipment; select appropriate lifting equipment; ensure a safe work area for lifting; set-up rigging equipment to perform a lift.
Prerequisite(s): PF1370

PF2800 Controlled Bolting, Testing and Commissioning
Upon successful completion of this unit, the apprentice will be able to explain the principles of torquing and controlled bolting; demonstrate knowledge of torqueing procedures for fasteners; demonstrate knowledge of hydrostatic and pneumatic tests on piping systems; demonstrate knowledge of procedures used when commissioning piping systems.

PH1050 Introductory Physics I ●
Introductory Physics I is a Comprehensive Arts and Science (CAS) College Transition course. The course focuses on the fundamentals of Physics from a conceptual viewpoint, It is the first of two Physics courses offered in CAS College Transition. These courses are designed to assist students with further study in Physics at the post secondary level and entry in College programs.

PH1051 Introductory Physics II
Introductory Physics II is a Comprehensive Arts and Science (CAS) College Transition course. It is the second of two physics courses designed to prepare students for entry into a number of technical programs at the College level as well as CAS Transfer: College-University. Following Introductory Physics I, this course continues the exploration of some of the fundamental topics common to all Physics courses. The objective of this course is to build a strong conceptual foundation for the rigorous treatment of problem solving in PH 1100/1101 and PH 1120/1121.
Prerequisite(s): PF1050

PH1100 Physics ●
This is an introductory physics course designed to extend students’ knowledge and understanding of basic physics principles, concepts and applications related to mechanics. This course also extends abilities in data handling, problem solving and experimentation.

PH1101 Physics ●
This is a second semester course designed to extend the student’s knowledge and understanding of basic Physics principles, concepts and applications related to kinetic theory, heat, vibrations, sound and light. It also extends abilities in data handling, problem solving and experimentation.

PH1120 Physics I
Transferable to MUN Physics 1020. This is an introductory course designed to extend students’ knowledge and understanding of the basic concepts, principles and applications of mechanics. Physics I is a college credit course which may be used as a transfer credit in Physics in a Memorial University degree program. Topics covered include: kinematics in one and two dimensions, vectors, dynamics, equilibrium, work and energy, and linear momentum.
Prerequisite(s): High School Level III Academic Mathematics with a minimum mark of 70%, or a pass in Advanced Mathematics; or College MA1104 (or MUN Mathematics 1090), MA1104 (MUN Mathematics 1090) may be taken concurrently.
Co-requisite(s): First semester pre-calculus Mathematics.

PH1121 Physics II
Transferable to MUN Physics 1021 Physics II is an introductory level physics course which may be used as a transfer credit course in physics in a Memorial University academic degree program. Topics covered are Fluids, Vibrations and Waves, Sound, Electric Charge and Electric Field, Electric Potential and Potential Energy, Electric Current, D. C. Circuits and Instruments, Magnetism and Geometrical Optics.
Prerequisite(s): PH1120 or MUN Physics 1020 and College MA1130 or (MUN Mathematics 1000). MAT130 (MUN Mathematics 1000) may be taken concurrently.
Co-requisite(s): Second semester calculus stream mathematics.

PH1130 Physics I
Transferable to MUN Physics 1050. This course is a calculus-based introduction to mechanics. The course emphasizes problem solving. One goal is to extend students’ knowledge and understanding of the basic concepts, principles and applications of mechanics, which underlies so much of science. An equally important goal, however, is to develop methods of learning and problem solving which will be of value in whatever endeavors they ultimately choose to pursue. Physics I is a college course which may be used as a transfer credit course in Physics in a Memorial University degree program. Topics covered include Measurement, Kinematics in one and two Dimensions, Vectors, Laws of Motion, Application of Newton’s Laws, Work and Energy, Momentum, and Static Equilibrium.
Prerequisite(s): Completion of Physics 2204 and Physics 3204 in high school and enrolment in Mathematics 1130 (MUN Mathematics 1000) concurrently.
Co-requisite(s): Mathematics 1130 (MUN Mathematics 1000), which may be taken concurrently.

PH1131 Physics I 1
Transferable to MUN Physics 1051 General Physics II is a Calculus-based Physics course. This course is integrated with the use of computers in a workshop environment. Computers will be used to collect and analyze data on simple physical systems. Physics 1130 (Physics I) introduces mechanics. This course focuses on oscillation, wave motion, physical optics, electricity, and magnetism. This course further develops the processes of logical reasoning and critical thinking as applied to Physics in particular, and Science, in general. General Physics II is a college credit course which may be used as a transfer credit course in Physics in a Memorial University degree program.
Prerequisite(s): PH1130 (MUN Physics 1050) or PH1120 (MUN Physics 1020) with a minimum grade of 65%, and MA1131 (MUN Mathematics 1001). MA1131 (MUN Mathematics 1001) may be taken concurrently.
Co-requisite(s): MA1131 (MUN Mathematics 1001), which may be taken concurrently.

PH1200 Physics
This is a second-semester course designed to extend students knowledge and understanding of basic physics principles, concepts and applications relating to waves, sound, light, heat and electricity.
Prerequisite(s): PH1100 or PH1120

PH1201 Physics
This is an intersession course designed to extend students knowledge and understanding of basic physics principles as they apply to an aircraft maintenance environment, and applications related to mechanics. The course also extends abilities in data handling, problem solving and experimentation. This M course will provide the student with the knowledge of reciprocating engine inspection removal, installation, overhaul and maintenance procedures, so that he can develop sound maintenance practices.

PH2200 Radiation Physics
This is a radiation course designed for medical radiography students; it will give them an understanding of: X-ray physics; the nature of X-rays, the production of X-rays with matter. Radiation dosimetry; radiation exposure, absorbed dose, dose equivalent, effective dose equivalent, detection of radiation and dosimeters.
Prerequisite(s): PH1201

PH2400 Analytical Mechanics
This course is intended to provide the student with the solid base in the concepts of mechanics and their application to structures and electric machinery.
Prerequisite(s): MA1101, PH1100

PH3100 Geophysics
Geophysics involves the study of the earth through the application of physics. Geophysics is a broad discipline with applications in mineral exploration, oil and gas exploration, industry and academic research. This course is a basic introduction to physical exploration in the oil and gas industry. Topics will center around the major exploration tools -- Seismic, magnetics and gravity.
Prerequisite(s): GE2500

PM2110 Drilling Technology I
This is the first of three courses in drilling technology. This course covers all aspects of rig construction and operation and fundamental operations associated with drilling a well for petroleum exploration and production in both onshore and offshore environments.
Prerequisite(s): CF2540, FM2100, GE1501

PM2111 Drilling Technology II
This is the second of three courses in drilling technology. Students apply and build on the skills and knowledge developed in “Introduction to Drilling Technology” to carry out drilling engineering analysis and optimization and well planning.
Prerequisite(s): PM2110

PM2210 Petroleum Production I
An introductory course in Petroleum Production operations introducing the major processes and equipment involved in initiating and maintaining production from a wellbore. The course stresses an interdisciplinary approach to well completion and work over planning by introducing concepts of total quality management. Topics include well completion design for both conventional and horizontal wells, tubing selection including interactions with packers, subsurface control equipment, formation damage, completion and work over fluids, perforating oil and gas wells, scale deposition, prevention and removal treatments, surfactants, acidizing, hydraulic fracturing and work over and completion systems.
Prerequisite(s): PM2500, PM2210

PM2211 Petroleum Production II
A second course in Petroleum Production focusing on the engineering aspects of well production design and operation. This course stresses an interdisciplinary approach to solving production problems by introducing concepts of total quality management.
Prerequisite(s): MA1670, PM2210

PM2310 Reservoir I
A first of two courses designed to provide an introduction to the principles and practices of petroleum reservoir engineering. The first course serves as an introduction allowing the student to master the concepts of basic reservoir engineering theory and application, providing him/her with the knowledge and skills to effectively study more complex problem solving techniques covered in the second course.
Prerequisite(s): MA1670, TD2100

PM2301 Reservoir II
The second course in this subject area builds upon the basic presented in the first offering. The mechanics of fluid flow in a porous media are covered in detail enabling the student to analyse flow problems for a variety of reservoir boundary conditions. The course also deals in significant detail with the analysis of oil and gas well test data, utilizing the methods of pressure build-up testing and type curve matching. The course concludes with the presentation of the unsteady state water inflow theories to enable prediction of the amount of water inflow into a reservoir.
Prerequisite(s): MA1670, PM2310

PM2400 Logging & Formation Evaluation
This course explains the requirements and purposes of production logging and relates this activity to overall successful development. The student will develop an understanding of the purpose and operation of the various production logging tools, including specific tools used for measuring flow rate, fluid density and temperature. The presentation aims at developing a full understanding of the operation of the many logging tools, and the ability to read, understand and interpret the production logging data gathered by the various tools.
Prerequisite(s): CH2330, GE2500, PH3100

PM2401 Production Logging & Applications
This is a course in interpretation. It will cover production logging tools and the interpretation of the data obtained from those tools.
Prerequisite(s): PM2400

PM2500 Facilities Engineering
This course presents the basic concepts and techniques necessary to design, specify and manage oil field processing equipment. The course has a project component where course work is related to the development of an oil field.
Prerequisite(s): CF2540, FM2100, MA2100

PM2501 Facilities Engineering
A course which presents the basic concepts and techniques necessary to design, specify and manage gas processing equipment. Major topics include: heat transfer theory, heat exchangers, hydrates LTX and indirect fired heaters, condensate stabilization, acid gas treating, gas dehydration, gas processing, compressors, mechanical design of pressure vessels, pressure relief, safety systems and electrical systems overview.
Prerequisite(s): PM2300, TD2100

PM3110 Drilling Technology III
This is an advanced course in drilling engineering which uses simulation software to perform engineering analysis and optimization, well planning and data management. Students build on and apply the skills and knowledge developed in two previous drilling engineering courses by using simulation software to carry out well planning and drilling engineering analysis and optimization. As a complement to the course labs, students are required to prepare a detailed drilling program and Application for Expenditure (AFE).
Prerequisite(s): PM2111

PM3210 Petroleum Production III
A third course in Petroleum Production concentrating on natural lift methods to enable depleting reservoirs to sustain viable production rates.
Prerequisite(s): PM2211

PO1200 Introduction to Industrial Processes
This course introduces students to the role of chemical processing in industry. The student will obtain an overview of the chemical processes that take place in a variety of industries. They will also examine some of the processes present in the college campus. They will learn to use block process flow diagrams (PFD) and pipe and instrument diagrams (P&ID) for college processes.
Prerequisite(s): EG1430

PO2300 Introduction to Separation Processes
Students will be introduced to the variety of separation processes used in industrial processes. Students will examine in depth separation of two and three phase fluid systems in both the classroom and the laboratory. Solid-liquid separation, adsorption and ion-exchange processes are investigated in the classroom and laboratory. The application of these processes in industry will be examined. Simulation and laboratory work will be used to teach students the fundamentals of start-up, shut-down and control and troubleshooting of liquid-liquid extractors, ion-exchange units.
Prerequisite(s): CL1500
Co-requisite(s): CH2450, MH2820

PO3100 Oil and Gas Processing I
This course introduces students to the various processes and plants present in an oil refinery. It focuses in depth on distillation as a separation process. Simulations and training units are used to teach principles associated with distillation operations.
Prerequisite(s): PO2300, MH2820
Co-requisite(s): CH3450

PO3101 Oil and Gas Processing II
This course continues the study of processes that are used in the oil and gas industry. The various methods to convert unusable products into commercial products are
studied. These include thermal cracking, catalytic cracking, hydrocracking. The processes to remove water and sour gases are studied. Simulation and laboratory work will be used to teach the student the fundamentals of safe and correct start-up, shut-down and control and troubleshooting processes.

**Prerequisite(s):** P03100

**PR2110 Project Course**

This Web Site Administrator project course is offered during the fourth semester. During this course students will research and develop web site concepts. Students will design and create customized homepages specific for e-commerce clients. Students will maintain and administer web sites in a theoretical framework (classroom). The Web Site Administrator student will research the client’s concept, refine the concept, design and develop the web page that will articulate that concept.

**PR2200 Technological Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

This will be STAGE 1 of the technical project which will include: Problem Solving and the Engineering Design Process; Project Identification; Project Analysis; Project Research; Report Preparation; Report Presentation.

**Prerequisite(s):** All required courses prior to Semester 7.

**PR2201 Technological Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

This will be STAGE 1 of the technical project which will include: Problem Solving and the Engineering Design Process; Project Identification; Project Analysis; Project Research; Report Preparation; Report Presentation.

**Prerequisite(s):** All required courses prior to Semester 7.

**PR2211 Major Technical Presentation**

This course is intended to prepare the student for a final presentation of the Major Technical Project begun in the second Technical Intersession. The presentation will consist of both an oral/multi-media component as well as submission of a graphic and written portfolio. The purpose of the course is to enable the student to develop the necessary skills required to prepare a professional product of their work.

This course enables the student in their final semester to synthesize the components of the Major Technical Project begun in the second Technical Intersession. Students will be required to define the scope of their presentation/portfolio and to develop a time line ending in a final oral/multi-media presentation of their project. Students will also be required to pursue an area of individual interest that will be highlighted in their final presentation.

**Prerequisite(s):** Successful completion of all courses prior to the commencement of Semester 8.

**PR2230 Technical Thesis (Seminar)**

The investigation of subjects of interest for the selection of a topic for the students Technical Thesis. The period will be used for individual investigation and evaluation of geomatics subjects in consultation with an academic instructor.

**Prerequisite(s):** All courses in previous academic semesters.

**PR2231 Technical Thesis**

The technical thesis will allow for the integration of the academic, laboratory and workplace knowledge gained during the course of study in the Geomatics Engineering technology program. The Technical Thesis will allow the student to demonstrate the knowledge and skills developed during their course of study. The thesis will allow the student to do a more in-depth study and experimentation and analysis in a particular area and on a topic of interest.

**Prerequisite(s):** All courses in previous academic semesters.

**PR2300 Major Technical Project**

This course exposes students to a major technical project that will be continued and developed in subsequent semesters. It is also designed to provide students with the opportunity to apply knowledge and skills gained in previous semesters to this project. Topics covered are broken down into the following areas: Architectural Working Drawings, Building Services, and CAD. It is intended that students develop a preliminary data base of their projects and to extensively address site development problems.

Individual student presentations will be made.

**Prerequisite(s):** DR3301, BU2401, CP2601, BU2201, BU2200, EG2200

**PR2451 Systems Project**

The systems project enables students to demonstrate the application of knowledge and skills developed through their program. Students taking this course will work in teams of four on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

This will be STAGE 1 of the technical project which will include: Problem Solving and the Engineering Design Process; Project Identification; Project Analysis; Project Research; Report Preparation; Report Presentation.

**Prerequisite(s):** All required courses prior to Semester 7.

**PR2460 Comprehensive Project**

The comprehensive project course enables students to demonstrate the application of knowledge and skills developed throughout their program of studies. Students taking this course will work in teams on a project, under the supervision of a faculty supervisor, and will perform the following: 1) an in-depth analysis of a problem; 2) a design and implementation of the problem solution; 3) full documentation and a presentation of their solution.

**Prerequisite(s):** CM2300, CP4420

**Co-requisite(s):** CP2370, CP4460

**PR2500 Technological Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the entire program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological applications, and fully document and present their findings.

**Prerequisite(s):** PR2500

**PR2511 Technical Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the entire program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological applications, and fully document and present their findings.

**Prerequisite(s):** PR2511

**PR2551 Technical Thesis II**

This technical thesis project enables the student to demonstrate the application of knowledge and skills developed through the program. Students will learn to plan and execute a series of experiments or investigations in one of the three subject areas of biology, chemical, or environmental engineering. The student will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

Emphasis is on long-term planning, organization of information and equipment, record keeping, and presentation of findings. The communication of results, formally and informally, in writing and orally, is stressed throughout.

Students taking this course will work independently on a project under the supervision of a faculty advisor.

**Prerequisite(s):** CM1400, CM1401

**PR2600 Technical Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

**Prerequisite(s):** Successful completion of semester 6 & GPA = 2.00.

**PR2601 Technical Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the entire program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological applications, and fully document and present their findings.
knowledge and skills developed throughout the entire program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): Successful completion of semester 6 & GPA = 2.0

PR2611 Technological Thesis
The technological thesis enables the student completing
a Diploma Program to demonstrate the application of
knowledge and skills developed throughout the entire
program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): PR2610

PR2620 Technological Thesis
The technological thesis enables the student completing
a Diploma Program to demonstrate the application of
knowledge and skills developed throughout the entire
program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): PR2620

PR2630 Technological Thesis
The technological thesis enables the student completing
a Diploma Program to demonstrate the application of
knowledge and skills developed throughout the entire
program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): Successful completion of semester 5 & GPA = 2.0

PR2631 Technological Thesis
The technological thesis enables the student completing
a Diploma Program to demonstrate the application of
knowledge and skills developed throughout the entire
program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): PR2630

PR2632 Technological Thesis
The technological thesis enables the student completing
a Diploma Program to demonstrate the application of
knowledge and skills developed throughout the entire
program. Students taking this course will work indepen-
dently on a project, under the supervision of a faculty
supervisor. They will carry out an in-depth study of a
problem, design or technological applications, and fully
document and present their findings.
Prerequisite(s): PR2620

PR2640 Technological Thesis I
The technological thesis enables the student complet-
ing a Diploma Program in Engineering Technology to
demonstrate the application of skills and knowledge
developed throughout the program. Students taking this
course will work with minimal supervision on a project,
der the guidance of a faculty member. The student
will work independently or in teams of two to carry out
an in-depth study of a problem, design or technological
application, and fully document and present their find-
ings. At the end of this course, the student will have
completed a proposal of their technical thesis that will
be completed in the following academic semester of their
program. Students should commence planning for the
course at the beginning of the final year of studies. Since
the project and report are to be prepared through inde-
pendent study, the assigned hours represent only part
of the time that students are expected to allocate to the
course. Regular meetings with a faculty supervisor will
be scheduled within the assigned hours and it is mandatory
that students attend these meetings. This course will be
co-delivered to the students by a technical instructor and
a communications instructor.
Prerequisite(s): All courses in previous academic semes-
ters and a minimum cumulative GPA of 2.0
Co-requisite(s): PR3150

PR2641 Technological Thesis II
The technological thesis enables the student complet-
ing a Diploma Program in Engineering Technology to
demonstrate the application of skills and knowledge
developed throughout the program. Students taking this
course will work with minimal supervision on a project,
der the guidance of a faculty member. The student
will work independently or in terms of two to carry out
an in-depth study of a problem, design or technological
application, and fully document and present their find-
ings. Students should commence planning for the course
at the beginning of the final year of studies. Since the
project and report are to be prepared through inde-
pendent study, the assigned hours represent only part
of the time that students are expected to allocate to the
course. Regular meetings with a faculty supervisor will
be scheduled within the assigned hours and it is mandatory
that students attend these meetings. This course will be
delivered to the students by a technical instructor and a
communications instructor.
Prerequisite(s): PR2640 and all courses in previous aca-
demic semesters

PR2650 Technical Thesis I
The technical thesis enables the student completing a
Diploma in the Electrical Engineering Technology (Power &
Controls) Co-op program to demonstrate the application of
skills and knowledge developed throughout the program.
Students taking this course will work independently on a
project, under the supervision of a faculty supervisor.
The student will work independently or in terms of two
to carry out an in-depth study of a problem, design or
technical application, and fully document and present their
findings. At the end of this course, the student will have
completed a proposal of their technical thesis that will
be completed in the following academic semester of their
program. Students should commence planning for the
course at the beginning of the final year of studies. Since
the project and report are to be prepared through inde-
pendent study, the assigned hours represent only part
of the time that students are expected to allocate to the
course. Regular meetings with a faculty supervisor will
be scheduled within the assigned hours and it is mandatory
that students attend these meetings. This course will be
completely delivered to the students by a technical instructor and a
communications instructor.
Prerequisite(s): All courses in previous academic semes-
ters and a minimum cumulative GPA of 2.0
Co-requisite(s): PR3150

PR2651 Technical Thesis II
The technical thesis enables the student completing a
Diploma in the Electrical Engineering Technology (Power &
Controls) Co-op program to demonstrate the application of
skills and knowledge developed throughout the program.
Students taking this course will work with minimal supervi-
sion on a project, under the guidance of a faculty mem-
ber. The student can work independently or in terms of
two to carry out an in-depth study of a problem, design or
technical application, and fully document and present their
findings. Students should commence planning for the
course at the beginning of the final year of studies. Since
the project and report are to be prepared through inde-
pendent study, the assigned hours represent only part
of the time that students are expected to allocate to the
course. Regular meetings with a faculty supervisor will
be scheduled within the assigned hours and it is mandatory
that students attend these meetings. This course will be
delivered to the students by a technical instructor and a
communications instructor.
Prerequisite(s): PR2560 and all courses in previous aca-
demic semesters

PR2660 Technical Project and Presentation
This technical thesis project enables the student to dem-
strate the application of knowledge and skills devel-
oped throughout the program. Students will learn to plan
and execute a series of experiments or investigations in
a subject area related to the field of study. The student
will carry out an in-depth study of a problem, design, or
technological application, and fully document and pres-
ent his/her findings. Emphasis is on long-term planning,
organization of information and equipment, record keep-
ing, and presentation of findings. The communication of
results, formally and informally, in writing and orally, is
stressed throughout. Students taking this course will work
independently on a project under the supervision of a
faculty supervisor.
Prerequisite(s): CM1401

PR2680/PR2681 Technological Thesis
The technological thesis enables the student completing a
Diploma Program to demonstrate the application of
knowledge and skills developed throughout the program.
Students taking this course will work independently on a
project under the supervision of a faculty supervisor.
Students will select project topics, in consultation with
instructors and industry contacts. Students will carry out
an in-depth study of a problem, design, or technological
application, and fully document and present their find-
ings. The technical thesis development process includes
problem solving and the engineering design process, pro-
ext identification, project analysis, project research, report
preparation and report presentation.
Prerequisite(s): Successful completion of all courses
scheduled before the last term.

PR2721 Technological Thesis
The technological thesis enables the student completing a
Diploma Program to demonstrate the application of
knowledge and skills developed throughout the program.
Students taking this course will work independently on a
project, under the supervision of a faculty supervisor.
They will carry out an in-depth study of a problem, design
or technological applications, and fully document and
present their findings.
Prerequisite(s): CM1401

PR3150 Project Management and Financial Analysis
This course introduces students to the topics of project
management and financial analysis, by the introduction of
the concepts, tools and techniques of formal project
management and financial analysis. Topics include: project management, risk management, project scheduling, concepts of financial management, economic decision making analysis of alternatives, and depreciation. Students are introduced to the use of project management software.

**Prerequisite(s):** MA1101

**PR3610 Technical Thesis I**

This course is designed to provide a good understanding of a model for definition, analysis, and solution of technical problems; and to develop the student's ability to (i) apply diverse methods and strategies in project analysis, (ii) prepare and deliver effective oral technical presentations, and (iii) define and plan a major applied research project.

**Prerequisite(s):** CM1400, CM1401

**PR3711 Technological Thesis**

The technological thesis enables the student completing a Diploma Program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and then orally present their findings. Projects must address the social, economic, financial, environmental, legal and ethical considerations where relevant.

**Prerequisite(s):** CM1401

**PR3722 Technical Thesis**

The technical thesis enables the student completing a Diploma in the Mechanical Engineering Technology program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and then orally present their findings. Projects must address the social, economic, financial, environmental, legal and ethical considerations where relevant.

**Prerequisite(s):** CM1401

**PR3725 Technical Thesis**

The technical thesis enables the student completing a Diploma in the Industrial Engineering Technology (Co-op) program to demonstrate the application of knowledge and skills developed throughout the program. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and then orally present their findings. Projects must address the social, economic, financial, environmental, legal and ethical considerations where relevant.

**Prerequisite(s):** PR3610

**PS1100 Psychology I**

This is an introductory psychology course. Current experimentation and the various methods of psychological research are emphasized throughout the course. The topics to be covered include: (1) psychology as a science, (2) learning, (3) perception, (4) sensation, (5) personality, and (6) human development.

**Prerequisite(s):** PR3610

**PS1101 Psychology II**

This is an introductory psychology course. Current experimentation and the various methods of psychological research are emphasized throughout the course. The topics to be covered include: (i) stress and adjustment, (ii) language and thought, (iii) intelligence and psychological testing, (iv) motivation and emotion, (v) social psychology, and (vi) psychopathology.

**PS1150 Introduction to Psychology I**

Transferable to MUN Psychology 1000. This course introduces students to psychological theory and research in the areas of neuroscience, human development, and learning and memory, sensation and perception of stimuli, and different states of consciousness.

**PS1151 Introduction to Psychology II**

Transferable to MUN Psychology 1001. This course introduces the student to psychological theory and research in the areas of human cognition and emotion, motivation, personality, psychological disorders and treatment, social psychology, health and stress, and sexuality.

**Prerequisite(s):** PS1150 or MUN Psychology 1000.

**PS1200 Drugs & Behaviour**

This course examines the relationship between drugs and behaviour in Canadian society. Basic concepts and terminology pertaining to substance abuse will be defined. Emphasis will be placed on theories of dependency, pharmacological concepts, major drug classifications, prevention, and treatment modalities.

**Prerequisite(s):** PS1100, PS1101

**PS1230 Understanding Addictions**

This course takes a detailed look at how alcohol and/or drug addiction affects an individual. (1) It examines the nature of dependency on a physical, psychological, and emotional level. (2) This information will then be utilized to teach students basic assessment, intervention, and counseling techniques. (3) Students will receive a detailed understanding of the process of change, relapse prevention, and stages of recovery in addiction. (4) They will also learn how addiction impacts upon a family, and utilize this information to conduct a comprehensive assessment. (5) Students will also acquire more knowledge on how addiction affects specific populations, (youth, women, seniors, nates, and adult children of alcohol/drug users). (6) Finally, they will develop an understanding of gambling addiction, individuals with FAS/ARBD, and addiction and violence.

**Prerequisite(s):** PS1100; PS1101; PS1200, CS2200

**PS1330 Organizational Behaviour**

This course is designed to provide an understanding of the basic principles underlying workplace behaviour with particular emphasis on the applications for effective supervision in the contemporary workplace.

**PS1360 Behaviour Management**

This course covers the principles and practice of behaviour modification and introduces the student to principles of Gentle Teaching. These principles are viewed as tools to facilitate teaching persons with development disabilities as well as methods of understanding behaviour.

**Prerequisite(s):** PS1100 or PS1101

**PS2200 Developmental Psychology**

This course familiarizes students with basic concepts, principles, and theories of human development and examines each stage of development from conception to adolescence.

**Prerequisite(s):** PS1100 or PS1101

**PS2220 Developmental Psychology**

This course will explore human development at different periods of the lifespan, including both physical and psychological growth. It will provide a perspective on the many changes that occur during a person's life, and examine reasons for developmental change or disturbance.

**PS2340 Organizational Behaviour**

This course is an introduction to the study and practical application of organizational behaviour. It concerns itself with the behaviour of people within organizations to achieve both personal and organizational goals.

**PT1110 Reciprocating Engine Fundamentals (M)**

This M course will provide students with the basic knowledge of the operation of aircraft reciprocating engines and engine components. Students will perform engine ground-runs and basic aircraft servicing.

**Prerequisite(s):** GM1120, GM1130

**Co-requisite(s):** PT1115

**PT1115 Reciprocating Engine Fundamentals (M, E)**

This M and E course will provide students with the basic knowledge of the design, construction and theory of operations of aircraft reciprocating engines.

**Prerequisite(s):** GM1120, GM1130

**Co-requisite(s):** PT1110

**PT2120 Reciprocating Engine Systems (M)**

This M course will provide the student with knowledge of reciprocating engine internal systems, their design, construction, operation, and maintenance.

**Prerequisite(s):** PT1115, AS2520

**PT2121 Reciprocating Engine Overhaul (M)**

This M course will provide the student with the knowledge of reciprocating engine inspection removal, installation, overhaul and maintenance procedures, so that he can develop sound maintenance practices.

**Prerequisite(s):** PT2120

**PT2210 Turbine Engine Maintenance (M, E)**

This M and E course is designed to provide the student with a comprehensive knowledge of turbine engine design and operation. Students will be dismantling a turbine engine and required to identify each component.

**Prerequisite(s):** GM1120, GM1130

*Available through correspondence*
PT2240 Turbine Engine Systems (M)
This M course will provide the student with a detailed description of turbine engine systems and their installations. Particular attention is paid to the lubrication and fuel control systems of the Pratt and Whitney PT6 and Allison 250 engines. Helicopter application of turbine engines is also discussed in detail.
Prerequisite(s): PT2210

PY1100 Introduction to Photography I
This course introduces students to basic photographic techniques, teaching the use of the 35 mm camera as a tool for expression. It also teaches the fundamentals of black and white film processing and printmaking. In this course students will learn to expose a composed, focused image on film and print the image on paper with the tonal qualities of the existing scene. Students will also be exposed to digital photography and will learn to convert black and white negatives to digital format for storage and printing.

PY1101 Introduction to Photography II
In this course students continue to improve and refine the skills and concepts acquired in Introduction to Photography I. Emphasis is on print quality, photo composition and using the camera for effective personal expression. Use of the digital camera and other means of inputting images into a computer for digital image manipulation as a means of effective personal expression are also explored.
Prerequisite(s): PY1100

PY1320 Photojournalism I
In this course, students will learn basic photographic principles and techniques. They will learn how to use digital cameras and how to perform basic image editing functions using industry-standard digital image editing software.

PY1321 Photojournalism II
Building upon the technical foundation acquired in Photojournalism I, students will learn the principles of news and feature photography.
Prerequisite(s): PY1320

RF1160 Safety Orientation
Upon successful completion of this unit, the apprentice will be able to practice safety and maintain a safe work environment; safely work around electricity.

RF1170 Hand / Power Tools and Fasteners
Upon successful completion of this unit, the apprentice will be able to select, use and care for hand / power tools and fasteners to execute tasks.
Prerequisite(s): RF1160

RF1210 Tube, Pipe, Fittings, Soldering and Brazing
Upon successful completion of this unit, the apprentice will be able to cut, fit, swage, flare, bend, solder and braze copper tubing; cut, fit and thread pipe.
Prerequisite(s): RF1170

RF1220 Refrigeration Fundamentals
Upon successful completion of this unit, the apprentice will be able to understand and analyze the refrigeration cycle and operation.
Prerequisite(s): RF1160

RF1230 Refrigeration Tools and Instruments
Upon successful completion of this unit, the apprentice will be able to identify and utilize the appropriate specialty tool, instrument or accessory during system diagnos-
RF1440 Refrigerant Recovery and Recycling Procedures
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of refrigerant recovery from various systems; maintain refrigerant recovery / recycle equipment.
Prerequisite(s): RF1230

RF1450 Refrigeration and Air Conditioning Installation I
Upon successful completion of this unit, the apprentice will be able to identify and apply procedures, materials and components in the installation of refrigeration and air conditioning systems.
Prerequisite(s): RF1260, RF1270

RF1460 Troubleshooting Techniques
Upon successful completion of this unit, the apprentice will be able to apply troubleshooting techniques when servicing refrigeration and air conditioning systems.
Prerequisite(s): RF1450

RF1470 Industry and Relevant Codes
Upon successful completion of this unit, the apprentice will be able to understand the scope and jurisdiction of the B-52 Mechanical Refrigeration Code and other relevant codes; interpret the B-52 Mechanical Refrigeration Code and other relevant codes.
Prerequisite(s): RF1460

RF1480 Control Circuits and Wiring Diagrams
Upon successful completion of this unit, the apprentice will be able to install, service and repair control circuits; demonstrate knowledge to wire control circuits to achieve the desired control functions; demonstrate knowledge of wiring diagrams.
Prerequisite(s): RF1320, RF1410

RF1490 Motor Controls, Relays and Transformers
Upon successful completion of this unit, the apprentice will be able to understand the principle of operation of motor controls, relays and transformers; identify, service and wire motor controls, relays and transformers.
Prerequisite(s): RF1480

RF1500 Refrigeration Equipment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of installation, maintenance; servicing and repairing refrigeration equipment.
Prerequisite(s): RF1210, RF1240, RF1320, RF1340, RF1350, RF1360, RF1370, RF1440, RF1470, RF1490,

RF1510 Air Conditioning Equipment
Upon successful completion of this unit, the apprentice will be able to understand the application, construction and installation of unitary and split air conditioning systems; identify, maintain, service and repair window, rooftop, packaged room and split system air conditioning units.
Prerequisite(s): RF1330

RF1520 Refrigeration Load Calculations
Upon successful completion of this unit, the apprentice will be able to calculate a refrigeration heat load.
Prerequisite(s): RF1220, RF1510

RF1530 Refrigeration System and Pipe Design
Upon successful completion of this unit, the apprentice will be able to apply the principles of refrigeration system design; select system components based on design criteria.
Prerequisite(s): RF1520

RF1540 Refrigeration and A/C Installation II
Upon successful completion of this unit, the apprentice will be able to sketch a piping schematic, sketch an electrical schematic, install refrigeration and air conditioning systems.
Prerequisite(s): RF1530

RF1550 System Capacity Control
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the requirement for system capacity control; identify, install, adjust, service and troubleshoot capacity control devices.
Prerequisite(s): RF1510

RF1560 Compressor Diagnostics and Repair
Upon successful completion of this unit, the apprentice will be able to analyze causes of compressor failures.
Prerequisite(s): RF1540, RF1550

RF1570 Troubleshooting Systems and Their Components
Upon successful completion of this unit, the apprentice will be able to troubleshoot system and component problems in refrigeration and air conditioning systems.
Prerequisite(s): RF1560

RF1580 Psychrometrics
Upon successful completion of this unit, the apprentice will be able to predict the changes in air properties in the air conditioning process; measure and plot the changes in air properties as it is being conditioned.
Prerequisite(s): RF1330

RF1590 Air Conditioning System Design
Upon successful completion of this unit, the apprentice will be able to apply fundamental air conditioning design principles.
Prerequisite(s): RF1580

RF1600 Heat Pump Systems
Upon successful completion of this unit, the apprentice will be able to apply heat pump principles of operation in installing, servicing and troubleshooting heat pumps.
Prerequisite(s): RF1510, RF1590

RF1610 Fans, Mechanical Drives and Air Filtration
Upon successful completion of this unit, the apprentice will be able to apply the principles of air movement, fan operation and filter application; identify types of fans used in the industry; align and adjust fan and flower drives; identify and select filters for various applications.
Prerequisite(s): RF1220, RF1600

RF1620 Air Measuring Instruments and System Balancing
Upon successful completion of this unit, the apprentice will be able to apply the principles of air measurement in the servicing of air conditioning equipment; measure air quantities from grills, diffusers and ductwork.
Prerequisite(s): RF1220

RF1630 Control Applications and Components
Upon successful completion of this unit, the apprentice will be able to identify and apply system control applications used in air conditioning systems.
Prerequisite(s): RF1510

RF1640 Understanding, Interpreting and Troubleshooting Wiring Diagrams
Upon successful completion of this unit, the apprentice will be able to read, interpret and draw pictorial and schematic wiring diagrams; troubleshoot systems using wiring diagrams.
Prerequisite(s): RF1570

RF1650 Industrial System Components
Upon successful completion of this unit, the apprentice will be able to identify and troubleshoot components in industrial systems.
Prerequisite(s): RF1570

RF1660 Air Conditioning Load Calculations
Upon successful completion of this unit, the apprentice will be able to calculate an air conditioning load.
Prerequisite(s): RF1330

RF1670 Duct Systems and Design
Upon successful completion of this unit, the apprentice will be able to apply duct design principles to troubleshoot, install and service air conditioning systems.
Prerequisite(s): RF1660

RF1680 Humidification and Dehumidification Equipment
Upon successful completion of this unit, the apprentice will be able to apply the principles of humidification and dehumidification to select and install associated equipment.
Prerequisite(s): RF1170, RF1530, RF1590

RF1690 Installation of Air Conditioning Equipment
Upon successful completion of this unit, the apprentice will be able to install residential and commercial air conditioning systems.
Prerequisite(s): RF1680

RF1700 Air Conditioning System Troubleshooting
Upon successful completion of this unit, the apprentice will be able to troubleshoot air conditioning system problems.
Prerequisite(s): RF1640

RF1710 Energy Management and Indoor Air Quality
Upon successful completion of this unit, the apprentice will be able to apply fundamental indoor air quality principles to identify indoor air quality problems and apply corrective measures; identify energy inefficiencies in the operation of refrigeration and air conditioning systems and apply corrective measures.
Prerequisite(s): RF1700

RF1720 Chillers and Chiller Systems
Upon successful completion of this unit, the apprentice will be able to troubleshoot and service chiller systems.
Prerequisite(s): RF1710

RF1730 Multiplex Refrigeration Systems
Upon successful completion of this unit, the apprentice will be able to apply the principles of operation to troubleleshoot and service multiplex refrigeration systems.
Prerequisite(s): RF1720

RF1740 Specialty Systems (Ultra-low, Cryogenic)
Upon successful completion of this unit, the apprentice will be able to apply the principles of operation to troubleshoot and service cryogenic and ultra-low refrigeration systems.
Prerequisite(s): RF1570

RF1750 Control Application and Components
Upon successful completion of this unit, the apprentice will be able to install, service, repair and troubleshoot refrigeration and air conditioning controls components.
Prerequisite(s): RF1700
RF1760 Basic Electronics
Upon successful completion of this unit, the apprentice will be able to identify and test fundamental electronic components related to circuit boards.
Prerequisite(s): RK1160

RF1770 Wiring Diagrams
Upon successful completion of this unit, the apprentice will be able to troubleshoot refrigeration and air conditioning systems from interpreting electrical wiring diagrams.
Prerequisite(s): RF1720

RF1780 Specialized Control Systems
Upon successful completion of this unit, the apprentice will be able to identify D.C. (direct digital control) control applications and components and understand D.C. system capabilities.
Prerequisite(s): RK1160

RF1790 Industrial Refrigeration Systems
Upon successful completion of this unit, the apprentice will be able to install, maintain, service, repair and troubleshoot flooded, liquid re-circulating, direct expansion and compound systems.
Prerequisite(s): RF1650

RK1100 Safety
Upon successful completion of this course, the apprentice will be able to practice safety and maintain a safe work environment. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 1.

RK1110 Tools and Equipment
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of hand tools, their use and care; demonstrate knowledge of power tools, their use and care; demonstrate knowledge of the ironworker machine, its operating principles and procedures for use and care. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 1.
Prerequisite(s): RK1100

RK1120 Blueprint Reading I (Principles)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the conventions and basic operations associated with blueprints and drawings used in constructions. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 2.

RK1130 Blueprint Reading II (Structural)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of structural drawings and their use. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 2.
Prerequisite(s): RK1120

RK1140 Blueprint Reading III (Rebar)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of rebar drawings and their use. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 2.
Prerequisite(s): RK1120

RK1150 Oxy-Fuel and Plasma Arc Cutting
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of oxy-fuel cutting equipment and procedures for their use and care; demonstrate knowledge of plasma arc cutting equipment and procedures for their use and care. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis throughout the document.
Prerequisite(s): RK1110, RK1160

RK1160 Electric Arc Welding and Arc Air Gouging
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of electric arc welding and arc air gouging equipment and procedures for their use; set up equipment and weld using the FCAW process; set up equipment and weld using the SMAW process. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis throughout the document.
Prerequisite(s): RK1110

RK1170 Rigging I (Hardware)
Upon successful completion of this course, the apprentice will be able to: select and inspect, use and care for synthetic, wire rope, fibre rope and chain slings; select and inspect, use and care for hoist ropes and tackle. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 4.
Prerequisite(s): RK1170

RK1180 Rigging II (Procedures)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the criteria and calculations necessary to select and plan rigging equipment and methods; demonstrate knowledge of rigging procedures and their use. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis tasks 4 and 5.
Prerequisite(s): RK1170

RK1190 Rigging III (Load Handling)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of hoisting and conveying equipment, their components, applications and procedures for use; rig and move loads. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 5.
Prerequisite(s): RK1180

RK1200 Conventional and Hydraulic Cranes
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of crane assembly and disassembly; demonstrate knowledge of load rigging and lifting procedures using cranes. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 7, 8, and 17.
Prerequisite(s): RK1190

RK1210 Decking and Grating
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of decking and grating, its components and installation. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 15.
Prerequisite(s): RK1130, RK1170, RK2110

RK2110 Structural Steel I (Preparation)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of structural steel members, their identification and handling. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis tasks 11 and 17.
Prerequisite(s): RK1110, RK1130, RK1200, RK2130

RK2110 Structural Steel II (Erection)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of erecting and securing structural steel. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 11 and 17.
Prerequisite(s): RK2100

RK2120 Structural Steel III (Plumbing and Securing)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of plumbing and securing steel structures; test and inspect steel structures. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 11 and 17.
Prerequisite(s): RK2110, RK2230

RK2130 Job Planning, Coordination and Site Preparation
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of planning requirements and procedures; demonstrate knowledge of job-site preparation and coordination of tasks. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis tasks 2 and 3.
Prerequisite(s): RK1110, RK1120, RK1200

RK2140 Dismantling
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of planning requirements for demolition; demonstrate knowledge of equipment and procedures used in demolition; demonstrate knowledge of material storage and disposal. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 18.
Prerequisite(s): RK1130, RK1200, RK2120

RK2150 Post-tensioning
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of post-tensioning tendons in cast-in-place and pre-cast concrete; demonstrate knowledge of inspection and testing of post-tensioned structures. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 20.
Prerequisite(s): RK1140, RK1180

RK2160 Robotic Equipment
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the inspection, erection and installation of robotic equipment for material handling and automated mechanical systems. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 21.
Prerequisite(s): RK1120, RK1200

RK2170 Ornamental and Miscellaneous Ironwork
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of ornamental and miscellaneous ironwork and procedures for installation and finishing. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 15 and 17.
Prerequisite(s): RK1130, RK1200, RK1150, RK1160

RK2180 Pre-cast Concrete
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of erection and installation of pre-cast concrete components. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 16 and 17.
Prerequisite(s): RK1200, RK2190, RK1160
RK2200 Derricks and Electric Overhead Traveling (EOT) Cranes
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of derricks and electric overhead traveling cranes. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 19.
Prerequisite(s): RK1200

RK2210 Reinforced Concrete I (Principles)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of reinforced concrete, its components and construction. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 19.
Prerequisite(s): RK1200, RK1190, RK2130

RK2220 Reinforced Concrete II (Pre-assembly and Installation)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of the procedures used to pre-assemble and install reinforcing steel. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 19.
Prerequisite(s): RK1200, RK2210, RK1140

RK2230 Temporary Access Structures and Working Platforms
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of temporary access structures, their assembly, erection and disassembly; demonstrate knowledge of temporary working platforms, their assembly, erection and disassembly. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 19.
Prerequisite(s): RK1110, RK1120, RK1180

RK2240 Storage, Tanks, Bins and Hoppers
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of assembly and erection of storage tanks, bins and hoppers. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 12 and 17.
Prerequisite(s): RK1120, RK1200, RK2230

RK2250 Pre-Engineered Buildings
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of planning, pre-assembly and erection of pre-engineered structures. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 13 and 17.
Prerequisite(s): RK1120, RK1200, RK2230

RK2260 Wooden Structures
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of wooden structures and their erection. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis tasks 17 and 24.
Prerequisite(s): RK1120, RK1200, RK2230

RK2270 Reinforced Concrete III (Fabrication)
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of procedures used to fabricate reinforcing steel; demonstrate knowledge of inspection procedures. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 19.
Prerequisite(s): RK1140, RK1200, RK2230

RK2280 False-work
Upon successful completion of this course, the apprentice will be able to: demonstrate knowledge of falsework, its installation and dismantling. The material covered satisfies in whole or in part, the requirements of National Occupational Analysis task 17 and 22.
Prerequisite(s): RK1130, RK1200, RK2230

RM1100 Introduction to Natural Resources Management
This course is designed to introduce the student to a number of important ideas and issues in natural resources conservation and management. It includes information on the philosophy and principles of natural resources management, the consumptive and non-consumptive use of natural resources, international management models, sustainable development and socio-economic issues.
Prerequisite(s): RK1130, RK1200, RK2190, RK2200

RM1200 Natural Resources Management I
This course requires the use of field and laboratory equipment, and a suitable environment. It involves the collection, handling, identification and preservation of specimens, recording and analysis of data. It includes information on inventory and monitoring methods and the identification of flora and fauna.
Prerequisite(s): RM1300

RM1201 Natural Resource Management Methods II
This course requires the use of field and laboratory equipment, and a suitable environment. It involves the collection, handling, identification and preservation of specimens, recording and analysis of data. It includes information on inventory and monitoring methods, identification of landforms and environmental conditions.
Prerequisite(s): RM1300, GE1120

RM1300 Fish and Wildlife Management Methods I
This course requires the use of field and laboratory equipment, and a suitable environment. It involves determining the age, size and maturity of fish and wildlife, the collection and preservation of biological samples, analysis of diet and the identification of parasites and diseases. It includes information on anatomy, necropsy techniques, parasites, diseases, preservatives, collecting methods, species identification and safety precautions.
Prerequisite(s): RM1200, RM1201

RM1301 Fish and Wildlife Management Methods II
This course requires the use of traps, firearms, immobilizing and laboratory equipment, and a suitable environment. It involves controlling nuisance wildlife, immobilizing, capturing and monitoring fish and wildlife, and collecting biological data. It includes information on types of wildlife damage, animal diseases and parasites, tranquilizer drugs and animal care techniques.
Prerequisite(s): BL1120, BL1400

RM1400 Wildlife Techniques I
This course will expose students to the various techniques used in wildlife research and management. This course provides theoretical and practical training of mammal and bird capture techniques, handling and tagging, chemical immobilization and radio / biotelemetry techniques.
Prerequisite(s): BL1400

RM1401 Wildlife Techniques II
This course investigates methods to determine sex, age, size and maturity of mammals and birds. Current techniques used to inventory and monitor mammal and bird populations will be studied.
Prerequisite(s): BL1400

RM1500 Fisheries Techniques I
This course will expose students to the various techniques used in fisheries research and management. This course provides theoretical and practical training of fish capture techniques, handling and tagging, chemical immobilization and radio / biotelemetry techniques.
Prerequisite(s): BL1400

RM2200 Habitat Assessment
This course will enable students to identify and classify fish and wildlife habitats.
Prerequisite(s): FR1330

RM2300 Fish and Wildlife Management Methods III
This course requires the use of field and laboratory equipment, and a suitable environment. It involves determining the cause of death of fish and wildlife, the collection and preservation of biological samples, analysis of diet and the identification of parasites and diseases. It includes information on anatomy, necropsy techniques, parasites, diseases, preservatives, collecting methods, species identification and safety precautions.
Prerequisite(s): BL1400

RM2400 Habitat Management
This course is designed to train individuals in field and laboratory techniques used in wildlife research and management. It involves determining the cause of death of mammals and birds, the collection and preservation of biological samples, analysis of diet and the identification of parasites and diseases. It includes information on anatomy, necropsy techniques, parasites, diseases, preservatives, collecting methods, species identification and safety precautions.
Prerequisite(s): RM1200, RM1201

RM2410 Wildlife Techniques III
This course is designed to train individuals in field and laboratory techniques used in wildlife research and management. It involves determining the cause of death of mammals and birds, the collection and preservation of biological samples, analysis of diet and the identification of parasites and diseases. It includes information on anatomy, necropsy techniques, parasites, diseases, preservatives, collecting methods, species identification and
safety precautions.  
Prerequisite(s): BL1400

**RM2420 Habitat Management**  
This course involves management including habitat enhancement, reclamations, and protection techniques.  
Prerequisite(s): RM2200

**RM2500 Fisheries Techniques III**  
This course is designed to train individuals in field and laboratory techniques used in fisheries research and management. It involves determining the cause of death of fish, the collection and preservation of biological samples, analysis of diet and the identification of parasites and diseases. It includes information on anatomy, necropsy techniques, parasites, diseases, preservatives, collecting methods, species identification and safety precautions.  
Prerequisite(s): BL1400

**RP1100 Introduction to Records Management**  
This course is designed to introduce students to the records and information management discipline. The topics covered will make students aware of the history and role of records management, career opportunities, and professional associations. Students will study the life cycle of records, records inventory procedures, records appraisal, records retention principles, the use/function of records manuals, and current trends in the discipline.  
Prerequisite(s): RP1100

**RP1200 Archives Principles**  
This course introduces students to the study of archival storage. Archives will be examined from their evolution to their current role/function. Students will examine archival principles and procedures and career opportunities in the discipline.

**RP1300 Active and Semi-Active Records**  
This course involves a detailed examination of active, and non-active records. Students examine each group of records in terms of storage, maintenance, and retrieval procedures; supplies and equipments are examined in terms of suitability and cost. Records destruction policies and procedures are examined.

**RP1400 Information Security and Procedures**  
This course is designed to teach students the fundamentals of information security and procedures. The topics covered will make the students aware of the legislation and litigation procedures involved with information security. Students will study retention requirements, the need for security, and the classification of vital records, as well as disaster prevention and recovery and the use/function of manuals.

**RP2200 Classification Systems**  
This course is designed to teach students the fundamentals of classification systems. The topics covered will make students aware of the different types of classification systems and show them how to select one that is appropriate for the particular group of records; they will be given an opportunity to work on projects involving these various systems.
monitoring and evaluation of mechanical ventilatory techniques.

Prerequisite(s): Successful completion of semester 4

RT2230 Mechanical Ventilators
This course is a detailed technical analysis of mechanical ventilators. Major topics include systems of classification, functional analysis, the internal and external circuit, ventilator modes and controls, and quality control. Specific mechanical ventilators are analyzed in detail.

Prerequisite(s): Successful completion of semester 4

RT2300 Pharmacology
This is an introductory course in Pharmacology as applied to Respiratory Therapy. General principles relating to drug administration are studied. Emphasis is placed on drugs affecting the cardiovascular, respiratory and central nervous systems.

Prerequisite(s): Successful completion of semester 3

RT2310 Anesthesia
This is an introductory course in the principles and practices of anesthesia pertinent to the respiratory therapist. Major course topics include anesthesia machines, vaporizers, breathing circuits, anesthetic ventilators, preparative procedures, monitoring the anesthetized patient and complications of anesthesia.

Prerequisite(s): Successful completion of semester 3

RT2450 Respiratory Therapy Procedures
This course introduces students to the theory and application of clinical assessment and management skills requisite to the practice of respiratory therapy.

Prerequisite(s): Successful completion of semester 3

RT2451 Neonatal/Pediatric Respiratory Care I
This course introduces the student to the anatomical and physiological differences of the neonate and the clinical management of these patients. Major areas of study are gestational lung development; fetal-neonatal transition; newborn assessment; thermoregulation; neonatal cardiopulmonary pathophysiology, neonatal ventilation.

Prerequisite(s): Successful completion of semester 4

Co-requisite(s): RT2220

RT2452 Neonatal/Pediatric Respiratory Care II
This course introduces the student the clinical management of the pediatric patient. Major areas of study are neonatal resuscitation (NRP), pediatric advanced life support (PALS), pediatric cardiopulmonary pathophysiology, pediatric mechanical ventilation, high frequency ventilation. Formal certification for NRP and PALS is not granted at the end of this course.

Prerequisite(s): Successful completion of semester 5

RT2500 Cardiopulmonary Diagnostics
This is a detailed course in the principles of pulmonary function testing and the significance of the various test data to the respiratory therapist. Basic electrocardiography with respect to recognition of standard arrhythmias from 3 and 12 lead EEG strips; clinical significance; and basic treatment of arrhythmias is also studied.

Prerequisite(s): Successful completion of semester 4.

RT3401 Comprehensive Respiratory Care
This course is designed to assist the student with the integration of knowledge obtained in the previous semesters necessary for respiratory therapy. Through problem-based learning and critical thinking skills the student will focus on the therapeutic management of various categories of patients, including the principles of trauma life support and venipuncture.

Prerequisite(s): Successful completion of semester 5

RT3450 Clinical Respiratory Therapy
This clinical course will incorporate knowledge and skills previously obtained in SD1610 and SD1611. This course will help students perform respiratory therapy procedures under direct supervision using critical thinking and problem solving skills. Each student will rotate through adult, pediatric, and neonatal clinical placements.

Prerequisite(s): Successful completion of clinical orientation SD1610 and SD1611

Co-requisite(s): Semester 6 courses

RT3510 Clinical Practicum I
This clinical practicum is designed to provide the third year respiratory student the opportunity to rotate through the various healthcare sites/areas including: Emergency Rooms, Intensive Care Units, Anesthesia Rooms, Cardiopulmonary Laboratories, and other locations. By rotating through various adult, pediatric and neonatal clinical areas, the student will acquire the necessary competencies and clinical proficiencies in respiratory care to successfully complete this practicum.

Prerequisite(s): Successful completion of the 2nd year of studies of the Respiratory Therapy program and mandatory completion of RT1610.

RT3520 Clinical Practicum II
This clinical practicum is a continuation of RT3510. As with the previous clinical course, students will have the opportunity to rotate through various health care sites/areas further acquiring and refining clinical skills in many different areas of adult, pediatric, and neonatal respiratory care. Because this course is the second clinical course for the third year respiratory therapy student, students are expected to refine the competencies and increase the proficiencies developed in the various clinical areas introduced in RT3510.

Prerequisite(s): RT3510

RT3530 Clinical Practicum Elective
After successful completion of Clinical Practicums I and II, students will have an additional 7 weeks of training to gain clinical experience in respiratory care. Students will have the opportunity to return to a specific clinical area for further review or be assigned to a clinical area by clinical faculty. Students will be afforded the opportunity to complete a home care/community component as well as have the option of carrying out a portion of this clinical placement at a rural hospital site. Overall, this elective will give students additional clinical/didactic review prior to writing the national certification exam.

Prerequisite(s): RT1610, RT3510, RT3520

RW3140 Rotary Wing Aircraft (M)
This M course is to introduce the student to the helicopter and the helicopter industry. Its aim is to provide students with knowledge of helicopter fundamentals, theory of flight and the different main rotor systems. This is to enable students to perform maintenance functions on a helicopter main rotor and associated systems.

Prerequisite(s): GM1120, GM1130

RW3141 Rotary Wing Aircraft Systems (M)
This M course is to provide the students with knowledge of the basic systems found on a helicopter. This will enable the student to perform maintenance inspections and repairs on the complete aircraft.

Prerequisite(s): RW3140

SC1120 Sociology I
This is an introductory sociology course. Students are introduced to the methods and perspectives of sociology, and then apply these approaches to the study of contemporary Canadian society.

SC1121 Sociology II
A critical look at Newfoundland and Labrador society and culture. By developing a sociological perspective, students gain a better understanding of their own society and culture.

SC1150 Principles of Sociology
Transferable to MUN Sociology 2000. Sociology 1150 is an introduction to the concepts, principles and topics of sociology. The theoretical foundations of modern sociology are examined through the works of such social theorists as Karl Marx, Emile Durkheim and Max Weber, in addition to the contemporary theoretical perspectives of functionalism, feminism, conflict theory and symbolic interactionism. The course also examines a range of sociological topics and concepts including research methods, culture, socialization, social stratification, deviance and crime, race and ethnicity, sex and gender, health and healthcare, work and the economy, and populations.

SC1160 Sociology of Families
Transferable to MUN Sociology 2270. Topics covered include: defining the family, sociological perspectives on the family, family diversity, dynamics of intimate relationships, marriage, children and parenting, lone parent families, separation, divorce and remarriage, the family and work, the family and poverty, midlife and beyond, social problems in the family, trends in Canadian family life.

SC1240 Healthy Aging-The Older Adult
This is an introductory course. Using a multidisciplinary approach, students will gain knowledge and understanding of the aging process and older adults which is the foundation of further study of the aging field.

SC1300 Women’s Studies I
This course overviews events leading to the Women’s Movement in a Canadian and Newfoundland context. It examines many of the contributions and achievements made by women, while also analyzing many of the persistent barriers to full equality for women.

SC1301 Women’s Studies II
This course examines and analyzes issues and concerns facing women in contemporary society from a feminist framework. Topics for examination and analysis include women and violence, women and power, women and the media, women and addictions, and women’s health issues.

Prerequisite(s): SC1300

SC1400 Sociology - Labrador Society and Culture
This course will provide students with an opportunity to take a critical look at Labrador society and culture. By developing a sociological perspective, students gain a better understanding of their own society and culture.

SC1430 Labrador Society and Culture
This course examines Labrador Society and Culture from its pre-Contact origins through to the present day. Through coursework, guest speakers and documentaries attention will center on specific cultural groups/traits within Labrador, as well as their interrelationships, which constitute Labrador society.
SD1130 Field Work Preparation
This course is the first in a series of field-related courses designed to assist students in obtaining occupational experience. It is designed to prepare students for placement with human service agencies.

SD1140 Basic General Knowledge Seminar ●

SD1170 Technology Awareness I
This course (with Technology Awareness II) is designed to raise career awareness levels for engineering technology students by providing information regarding the engineering technology profession. The course will prepare students for the workplace by illustrating how the skills and practices of successful students parallel the skills and practices of successful professionals.

SD1171 Technology Awareness II
This course (with Technology Awareness I) is designed to raise career awareness levels for engineering technology students by providing information regarding the engineering technology profession. The course will prepare students for the workplace by illustrating how the skills and practices of successful students parallel the skills and practices of successful professionals
Pre-requisite(s): SD1170

SD1230 Career Exploration
This course takes the student through the process of career exploration, teaching the skills needed to make informed decisions about their future education and career goals. The student will be lead on a journey of personal discovery and self-assessment, learn multiple research methods used for gathering career-related information, and develop a clear understanding of the career decision-making process. By the end of the course the student will have developed a career portfolio, created a resume and developed a personal career plan.

SD1400 Work Term Preparation
This is a pass/fail course that is to be completed by all co-op students in the School of Information Technology two semesters prior to the first co-op work term. This course will allow the student to obtain an information technology industry overview and to experience a self and career assessment process. An Experiential Education Model will be introduced as part of the co-operative education process.

SD1420 Workplace Skills
This course develops sound customer service skills in the student and assists the students in preparing for job search and the office environment. Practical exercises, cases and behavioural modelling are conducted to assist the student’s skill development and knowledge of customer service and expected work ethic, attitude and skills.

SD1450 E-Business Career Development
This course is designed to assist students acquire skills in job search preparation and techniques. Emphasis will be placed on achieving a professional approach. Students will learn how to assess and refine their own skills and to match those skills with employment opportunities in an e-business environment. Techniques for effectively using electronic job banks and other online job search tools will be explored.

SD1460 College, Career and Portfolio Preparation
This course will allow the student to obtain basic college information, an information technology industry overview, a self and career assessment process, and an introduction to ethics and best practices in the Information Technology field. An Experiential Education Model will be introduced as part of the co-operative education process. The main focus of this course is the development of a career portfolio that the student will continue to work with throughout their program of study.

SD1470 College, Career and Portfolio Preparation - Non Co-op
This course will allow the student to obtain basic college information, an information technology industry overview, a self and career assessment process, and an introduction to ethics and best practices in the Information Technology field. An Experiential Education Model will be introduced as part of the co-operative education process. The main focus of this course is the development of a career portfolio that the student will continue to work with throughout their program of study.

SD1520 The Technologist and the Workplace
This is an introduction to the conduct that is expected of a Geomatics Engineering Technologist in his career. This conduct is expected of the students both in their work and personal life. The responsibilities and liabilities of professionals and para-professional will be investigated. The regulations concerning workplace safety and the role of the technologist in assisting in workplace safety will be discussed.

SD1530 Change in the Workplace
Students examine the concepts of change in the workplace. Historical aspects of the Canadian Health Care System and recent changes to the system are explored. The significance of these changes to the citizens of Canada and Newfoundland and Labrador, and to the roles of workers in the field will be considered. Areas to be addressed include: management and employee decision making; integration of roles; motivation and job satisfaction; accepting and coping with change; introduction to stress and becoming employed. Application of these concepts to related work settings provide an employee’s perspective to working in a rapidly changing field.

SD1570 Effective Learning
This course is designed to help Comprehensive Arts and Science students develop the skills, strategies and tools needed to ensure their success in College. Students who successfully complete the course will have a better understanding of themselves as learners and of strategies for improving their learning potential. They will also have a greater appreciation of the need to define their educational and career goals clearly and to develop the habits and skills which will enable them to achieve those goals. The course will also provide an opportunity for students to become aware of the full range of campus resources available to support their learning and to learn how to use those resources effectively. Students will compile a portfolio during this course which should prove to be of value to them throughout their College life.

SD1580 Critical Thinking Across the Curriculum
This course is designed to help Comprehensive Arts and Science students develop analytical and critical thinking skills for practical application in their post-secondary programs as well as in their lives and careers. Students who successfully complete this course will have a better understanding of how to present sound and logical arguments and how to apply the skills of critical analysis in their studies as well as in their working and social lives. The course also provides an introduction to the principles and processes of debating and the basic elements of formal meetings.

SD1610 Clinical Orientation (Respiratory Therapy)
This course is an introductory course for the respiratory therapy student to the clinical setting. The clinical orientation gives the student an opportunity to observe and demonstrate respiratory therapy procedures under direct supervision. This clinical course is designed to enhance the knowledge and skills concurrently being taught in the didactic and laboratory sessions held in the college setting.
Prerequisite(s): Successful completion of semester 3.

SD1611 Clinical Orientation (Respiratory Therapy)
This course is a continuation of SD1610. This course gives the student an opportunity to observe and demonstrate respiratory therapy procedures under direct supervision. This clinical course is designed to enhance the knowledge and skills concurrently being taught in the didactic and laboratory sessions held in the college setting.
Prerequisite(s): Successful completion of semester 4

SD1620 Clinical Orientation
The clinical orientation of the student during the fourth and fifth semesters is designed to reinforce in a practical manner, the theoretical knowledge he/she is acquiring during the didactic segment of the training program. For several hours each week, under the direction and supervision of a clinical instructor, students participate in a variety of basic routine radiographic procedures that present in accordance with their level of training. Students are also afforded the opportunity to enhance their knowledge of various basic and specialized radiographic equipment used in today’s modern diagnostic imaging departments. During their clinical orientation, students are also able to apply their understanding of the concepts used in providing quality patient care and radiation protection in a “real life” setting.
Prerequisite(s): Successful completion of semester 3.
Co-requisite(s): All subjects in semester 4

SD1621 Clinical Orientation
This clinical course is designed to enhance the knowledge of various basic and specialized radiographic equipment used in today’s modern diagnostic imaging departments. During their clinical orientation, students are also able to apply their understanding of the concepts used in providing quality patient care and radiation protection in a “real life” setting.
Prerequisite(s): Successful completion of Semester 4.
Co-requisite(s): All subjects in semester 5

SD1630 Working in Health Care ●
This is an introductory course in health care ethics and workplace issues. Through course content, lectures, selected readings and student discussions ethical theories will be examined and applied to current issues that arise in health care.

● Available through @College Distributed Learning Service  © Available through correspondence
SD1650 Clinical Practicum
(Under Development)

SD1700 Workplace Skills ●
This course involves participating in meetings, information on formal meetings, unions, workers’ compensation, employment insurance regulations, workers’ rights and human rights. Upon completion of this course, students will be able to participate in meetings, define and discuss basic concepts of unions, workers’ compensation, employment insurance, workers’ rights, human rights, workplace diversity and gender sensitivity.

SD1710 Job Search Techniques ●
This course is designed to give students an introduction to the critical elements of effective job search techniques. Upon completion of this course, students will be able to demonstrate effective use of Job Search Techniques.

SD1720 Entrepreneurial Awareness ●
This course is designed to introduce the student to the field of entrepreneurship, including the characteristics of the entrepreneur, the pros and cons of self-employment, and some of the steps involved in starting your own business. Upon completion of this course, the student will be able to identify the various types of business ownership, the advantages and disadvantages of self-employment and identify the characteristics of an entrepreneur; state the purpose and identify the main elements of a business plan.

SD1860 Portfolio Development
This course is designed to provide students with the skills necessary to develop a professional portfolio and resume for employment in the Graphic Design industry. Students will learn how to assemble a professional looking portfolio, how to edit their work for a portfolio, how to design and prepare a resume, how to act in a job interview and job search techniques. It is expected that students in this course will already have developed a substantial body of their own work.

Prerequisite(s): Successful completion of Graphic Design core courses in semesters 1 through 4; all Graphic Design core courses in Intersession 1.

SD1910 Workplace Success and the Administrative Assistant ●
This course is designed to provide students with the skills and knowledge necessary to successfully enter the workplace as an Administrative Assistant professional. The purpose of this course is to reinforce many previously-learned office management concepts prior to students entering the workplace.

Prerequisite(s): OF1100, OF1101, OF2100

SD2220 Introduction to the Workplace
This course is designed to introduce the student to the workplace as a junior professional and provide them with an awareness of what is expected of them in this environment.Emphasis will be on developing the practical skills, which are necessary to effectively function in a technical environment, through hands-on exercises that simulate real workplace experiences.

Prerequisite(s): Eligibility for work term placement.

SD2410 Personal, Professional and Portfolio Development
This course is designed to prepare the students for the workplace. The focus is on acquiring the skills of a successful professional employee. The students will learn how to access and refine their own skills and to match these skills with employment opportunities.

Prerequisite(s): SD1460 or SD1470

SD2610 Interdisciplinary Studies
This course concentrates on the integration of the knowledge gained in all courses in the program. Students will challenge five (5) comprehensive examinations over the course of the semester, one (1) examination per week. Students will concentrate on analyzing and solving problems involving all disciplines. Students are also expected to rotate through the following laboratories: Public Health Laboratory, Canadian Blood Services, Electron Microscopy, Immunology and Clinical Genetics for exposure to advanced diagnostic techniques.

Prerequisite(s): Successful completion of semester 9.

SD3400 Graduation Preparation
This is a course that is to be completed by students during the academic semester preceding graduation. It is designed to allow the students to share the technical aspects of their work term and to give them support in gaining graduate placement opportunities.

Prerequisite(s): Enrolment in the final semester of program.

SD3410 Portfolio Completion and Career Preparation
This is a pass/fail course that is to be completed by students during the academic semester preceding graduation. It is designed to allow the students to share the technical aspects of their work term, give students individual work term performance review and to complete the career portfolio started in the first semester of their program.

Prerequisite(s): SD2410

SE1010 Fire Protection
This course is designed to give students a thorough understanding of the potential loss, due to fire, both in terms of human values and economic impact. Students will also learn about the practice and theory of fire prevention, fire containment, and fire extinguishing. They will also understand the regulatory codes and standards related to fire protection.

SE1020 Occupational Health & Safety-Loss Control
This course will familiarize the student with health and safety losses of human and financial resources both on and off the job, and will provide the student with an understanding of loss control techniques that may be used to reduce these losses in the workplace.

SE1030 Occupational Hygiene I (Chemical Agents)
This course will introduce the student to the fundamentals of occupational health and chemical agents. It will provide the student with an understanding of the methods of recognition, evaluation and control of health hazards involving toxic chemicals and dusts in the workplace.

SE1060 Workplace Safety Legislation
This course will introduce the student to the interpretation and application of workplace health and safety legislation.

SE1070 Human Factors Engineering
This course is designed to provide students machine interface from a design perspective as it relates to occupational health and safety in the workplace.

SE1080 Auditing Occupational Health, Safety and Environmental Management Systems (HSEMS)
Hazard recognition, evaluation and control and the legislated management responsibilities and accountabilities with respect to this area are of prime importance to the occupational health and safety professional. The course is designed to provide students with a working knowledge of audits as a tool to ensure that organizations’ practices/procedures/policies are aligned with corporate standards and in compliance with legislative requirements. The course will focus on audit preparation, conducting and reporting on the audit, and post-audit activities.

SE1440 Business Side of Occupational Health and Safety
The course is designed to provide a working knowledge of the fundamentals of accounting and engineering economics that can be useful for the graduate safety engineering professional in understanding, interpreting, preparing financial statements, and utilizing the economic decision making methodologies to present strong cases for the expenditure of capital for major projects and training initiatives. The use of cost benefit analysis and the rate of return analysis for various projects will provide students with a tool to justify health and safety expenditures. By demonstrating that health and safety is a short term cost but a long term investment, they will be able to obtain support form top management for health and safety efforts. Such support will ensure the long term viability of the health and safety programs.

SE1470 Worker’s Compensation and Disability Management
This course will enable the student to acquire the basic skills necessary to apply the principles and techniques of Worker’s Compensation and Disability Management to the workplace in a practical manner.

SE1500 Introduction to Occupational Health and Safety
This course will introduce the student to the interpretation and application of workplace health and safety legislation, due diligence, and some specific safety procedures.

SE2000 Occupational Hygiene II (Physical Agents)
This course will provide the student with an understanding of the methods of recognition, evaluation and control of health hazards involving physical agents in the workplace.

SE2010 Systematic Safety Management
This course will provide the student with an understanding of safety administrative and management techniques that may be used to integrate into the management system.

SE2020 Accident Prevention Engineering and Technology
This course is designed to orient the student to the need for safe work practices, procedures and standards for construction and production operation.

SE2040 Environmental Protection
This course will introduce the student to the various types of pollution, its effects on health and the environment and its control. Legislative aspects will also be covered.

SE2050 Emergency Preparedness Planning
This course will introduce the student to Emergency Response Planning. It will provide the student with an understanding of the various considerations that must be addressed in an emergency response plan that may be applied in the workplace.

SE2100 Safety and Maintenance of Field Equipment
This course is designed to teach the student the necessary skills required to safely operate and maintain various field equipment. It includes practical and theoretical information on the operation of gas powered small engines as
well as a variety of hand tools. Included also are electrical systems, ignition systems and a basic knowledge of generators and alternators.

**Prerequisite(s):** Standard First Aid (St. John Ambulance), WHMIS

**SE2140 Safety & Maintenance of Field Equipment**

This (hands-on) module is designed to teach the student the necessary skills required to safely operate and maintain field equipment. It includes practical and theoretical information on the operation of gas powered small engines as well as a variety of hand tools. Included also are electrical systems, ignition systems and a basic knowledge of generators and alternators.

**Prerequisite(s):** SE2500

**SE2150 Safety Certifications**

This course will provide students with certifications needed for work in industry. Certificate courses will be offered in the week prior to Semester 6.

**SE2210 Firearms Safety**

This course is a firearms safety course for conservation enforcement officers and will include marksmanship and the laws and regulations for non-restricted and restricted firearms.

**SE2240 Hunter Education**

This module on firearms safety / hunter education is designed to help the conservation officer understand wildlife management, conservation, safe use and handling of firearms and the ethical responsible behaviour that is required for all hunters.

**SE2300 Quality Management Systems**

This course is designed to introduce the student to the International Organization for Standards (ISO) 9000 quality standards, Deming, Juran, Malcolm Baldridge National Quality Award (MBNQA), Crosby, Total Quality Management (TQM), and Statistical Process Control (SPC). Emphasis will be on providing a good understanding of ISO 9000. Several approaches to the development, implementation, maintenance and evaluation of quality management systems, which may be used to complement the ISO 9000 standards, will be discussed. Quality concepts and problem-solving techniques associated with SPC will be addressed.

**SE2310 Management of Computer Technology & Databases**

This course will provide students with a basic understanding of information management systems and the strategic use of computer technology to enhance occupational health and safety initiatives and ensure they are aligned with organization needs. It will introduce the student to the concepts and applications of database and enable the student to become proficient in the fundamental competencies necessary to use a database package. Project management software features will be explored to prepare students for the use of this software when planning projects.

**SE2320 Risk Management**

The course is designed to enable the student to utilize industry-recognized standards and methodologies to assess risk, measure magnitude, and develop plans to minimize and control it. Case studies form the oil and gas industry, and the chemical process industries, will be used to demonstrate the necessity for a comprehensive Risk Management Program.

**SE2500 Occupational Health & Safety Program Elements**

This course will introduce the student to the key elements of an occupational health and safety program. The role of a Behavior-Based Safety Approach in the establishment of a strong safety culture will also be addressed.

**Prerequisite(s):** SE1500

**SE3300 Process Safety/Risk Management**

The course is designed to enable the student to utilize industry-recognized standards and methodologies to assess risk, measure its magnitude, and develop plans to minimize and control it. Case studies from the oil and gas and chemical process industries will be used to demonstrate the necessity for comprehensive Risk Management Systems. Process Safety Analysis/Risk Management, Management of Change and Control of Work systems will be applied in the Power Plant Laboratory.

**Prerequisite(s):** SE2500

**SF1400 Press Brake Operation**

Upon successful completion of this unit, the apprentice will be able to bend sheet and plate using a press brake; layout materials in preparation for bending; perform operational adjustments and corrective maintenance.

**Prerequisite(s):** SF1460

**SF1410 Roll Forming Equipment and Operation**

Upon successful completion of this unit, the apprentice will be able to roll ferrous and non-ferrous plate, sheet and structural shapes to specified dimensions; demonstrate knowledge of attachments used with roll forming equipment; perform maintenance to roll forming equipment.

**Prerequisite(s):** WD1185

**SF1420 Basic Layout Operations**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of basic layout operations; perform a simple sketch.

**Prerequisite(s):** WD1660

**SF1430 Basic Parallel Line Development**

Upon successful completion of this unit, the apprentice will be able to perform basic parallel line development.

**Prerequisite(s):** SF1420

**SF1440 Basic Radial Layout**

Upon successful completion of this unit, the apprentice will be able to perform basic radial line development; use radial line layout in combination with other layout methods.

**Prerequisite(s):** SF1430

**SF1450 Basic Triangulation Layout**

Upon successful completion of this unit, the apprentice will be able to use triangulation to develop patterns; use triangulation layout in combination with other layout methods.

**Prerequisite(s):** SF1440

**SF1460 Basic Plate Development**

Upon successful completion of this unit, the apprentice will be able to lay out basic cylinders, cones, hoppers and chutes; use plate development in combination with other layout methods.

**Prerequisite(s):** SF1450

**SF1470 Basic Assembly and Fitting**

Upon successful completion of this unit, the apprentice will be able to fit and assemble basic shop and field units; demonstrate knowledge of common accessories and related equipment.

**Prerequisite(s):** SF1420

**SF1490 Structural Components and Detailing Practices**

Upon successful completion of this unit, the apprentice will be able to interpret basic prints and working drawings pertaining to structural members; identify basic structural components and detailing practices.

**Prerequisite(s):** SF1420

**SF1500 Pressure Vessel and Pipe Drawing Interpretation**

Upon successful completion of this unit, the apprentice will be able to interpret pressure vessel and pipe drawings; identify specifications and symbols used in piping and pressure vessel drawings.

**Prerequisite(s):** WD2440

**SF1510 Advanced Parallel Line Development**

Upon successful completion of this unit, the apprentice will be able to perform advanced parallel line development.

**Prerequisite(s):** SF1430

**SF1520 Oxy-Fuel Optical Tracer**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of optical tracer equipment and its setup and adjustment; demonstrate knowledge of procedures used to operate the cutting machine in the strip and trace mode.

**Prerequisite(s):** WD1600

**SF1530 CNC Cutting Machine**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of CNC controls and commands; demonstrate knowledge of CNC cutting machine operation.

**Prerequisite(s):** SF1520

**SF1540 Finishing and Shipping**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of finishing and shipping products.

**Prerequisite(s):** SF1470

**SF1550 On-Site Installation**

Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of on-site installation; demonstrate knowledge of codes and regulations; demonstrate knowledge of site hazards.

**Prerequisite(s):** SF1540

**SF1560 Job Planning**

Upon successful completion of this unit, the apprentice will be able to demonstrate ability to estimate materials and timeline; describe sequential procedures for a complete project.

**Prerequisite(s):** WD2440

**SF1700 Truss and Girder Fabrication**

Upon successful completion of this unit, the apprentice will be able to interpret truss and girder prints and drawings; identify characteristics of trusses and girders; demonstrate knowledge of layout and fabrication.

**Prerequisite(s):** SF1490

**SF1710 Advanced Radial Layout**

Upon successful completion of this unit, the apprentice will be able to perform advanced radial line development; use radial line layout in combination with other layout methods.

**Prerequisite(s):** SF1440
SF1720 Advanced Triangulation Layout
Upon successful completion of this unit, the apprentice will be able to use triangulation to develop patterns for transitional and/or twisted shapes; use triangulation layout in combination with other layout methods.
Prerequisite(s): SL1450

SF1730 Advanced Assembly and Fitting
Upon successful completion of this unit, the apprentice will be able to fit and assemble girders and trusses; demonstrate knowledge of the installation and testing of large structures.
Prerequisite(s): SF1470

SF1740 Advanced Plate Development
Upon successful completion of this unit, the apprentice will be able to lay out advanced cylinders, cones, hoppers and chutes; use plate development in combination with other layout methods.
Prerequisite(s): SF1460

SI1500 Introduction to Physical and Life Science I
Transferable to MUN Science 1150
This course is designed for non-science majors and students wanting to pursue a degree in Primary and elementary education. This course is divided into two parts, the first part focusing on the Earth and sky, and the second part focusing on living systems. The first half of the course deals with Earth in relation to the rest of the solar system, galaxy, and the universe, and the geology of the earth in more detail. This is followed by a section on the atmosphere and weather systems, then by a brief description on soils. Atmosphere and soils will lead into the second half which will concentrate on living systems with emphasis on ecology and elementary cell biology.

SI1501 Introduction to Physical and Life Science II
Transferable to MUN Science 1151
This is a continuation of SI1500 course. This course will develop the fundamental concepts of chemistry and physics. It will emphasize on the (1) energy of motion, which includes mechanical and thermal energy, laws of thermodynamics, kinetic theory, and energy transfer; (2) energy of the atom, which includes structure of the atom, bonding, chemical energy, radioactivity, relativity, and nuclear energy; and (3) energy of the electron (light and electricity), which includes radiant energy, behaviour of waves, light and colour, electric current and circuits, effects of electric current, and production of electric current.

SI2300 Materials Science
This course will focus on the structure and composition of materials used industrial equipment. Emphasis will be placed on the properties of these materials in relation to strength, fatigue and corrosion. Commercial classifications of materials will be examined in relation to engineering specifications.
Prerequisite(s): CH1121, PH1101

SL1100 Safety
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of operation of fire extinguishing equipment; demonstrate knowledge of safe working practices. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 7, 21, 22, 27, 30, 31, 32, 33 and 34.
Prerequisite(s): SL1100

SL1120 Material Handling and Rigging
Upon successful completion of this course, the apprentice will be able to use safe and efficient material handling practices using both manual and mechanical means; identify the limitations of equipment used for rigging; operate slings, cables and overhead shop cranes; select appropriate equipment for the job, using rigging charts and manuals as well as rule of thumb methods. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 1, 2, 3, 8, 19 and 20.
Prerequisite(s): SL1110

SL1130 Fabrication
Upon successful completion of this course, the apprentice will be able to plan and organize work; identify and select materials; fabricate basic seams and edges; fabricate and insulate ducts; fabricate specialty systems (such as ductmate). The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 30 – 44.
Prerequisite(s): SL1110

SL1140 Metallurgy
Upon successful completion of this course, the apprentice will be able to demonstrate understanding of basic metalurgy principles. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis.
Prerequisite(s): SL1360

SL1150 Basic Drawing and Layout
Upon successful completion of this course, the apprentice will be able to perform basic sketches and drawings; perform basic layout procedures. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 13.

SL1160 Blueprint Reading I (Basic)
Upon successful completion of this course, the apprentice will be able to interpret basic blueprints as they relate to sheet metal work. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 9 – 12.

SL1170 Blueprint Reading II (Advanced)
Upon successful completion of this course, the apprentice will be able to interpret blueprints; prepare shop drawings (sketches); prepare materials take-off list. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 9 – 12.
Prerequisite(s): MC1050

SL1240 Layout and Fabrication – Parallel Lines I
Upon successful completion of this course, the apprentice will be able to develop roof jacks, two piece elbows and basic branches using the parallel line method of layout. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 14.
Prerequisite(s): SL1150

SL1250 Layout and Fabrication – Radial Lines I
Upon successful completion of this course, the apprentice will be able to layout patterns and fabricate tapered fittings. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 16.
Prerequisite(s): SL1150

SL1260 Layout and Fabrication – Triangulation I
Upon successful completion of this course, the apprentice will be able to develop basic transformers using the triangulation method. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 15.
Prerequisite(s): SL1150

SL1350 Oxy-Fuel Welding and Cutting
Upon successful completion of this course, the apprentice will be able to use oxy-fuel equipment to perform basic welding, cutting and brazing. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 23 and 28.

SL1360 Shielded Metal Arc Welding (SMAW)
Upon successful completion of this course, the apprentice will be able to use SMAW equipment to perform welding. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 24.

SL1370 Gas Metal Arc Welding (GMAW)
Upon successful completion of this course, the apprentice will be able to set up equipment, and strike and maintain an arc using the GMAW process; fillet weld in four positions using the GMAW process. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 7.
Prerequisite(s): SL1150, SL1360

SL1380 HVAC Systems
Upon successful completion of this course, the apprentice will be able to describe the air pattern of a typical HVAC system. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 45 – 54.
Prerequisite(s): SL1110, SL1160

SL1350 Cost Estimation
Upon successful completion of this course, the apprentice will be able to prepare cost estimates. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 10 and 11.

SL1540 Installation
Upon successful completion of this course, the apprentice will be able to install duct runs according to plan and specifications; understand installation processes for specialty systems. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 45, 42, 45 and 46.
Prerequisite(s): SL1160, SL1540

SL1560 Layout and Fabrication – Parallel Lines II
Upon successful completion of this course, the apprentice will be able to layout and fabricate flat-on-top and flat-on-bottom patterns; layout and fabricate round tees; layout and fabricate basic gutter mitres; layout and fabricate round elbows. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 14.
Prerequisite(s): SI2120

SL1620 Layout and Fabrication – Radial Lines II
Upon successful completion of this course, the apprentice will be able to layout and fabricate tapers on a pitch; layout and fabricate scalene and oblique cones (eccentrics). The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 16.
Prerequisite(s): SL1150
the requirements for the National Occupational Analysis task 16.  
**Prerequisite(s):** SL1250  

**SL1630  Layout and Fabrication – Triangleulation II**  
Upon successful completion of this course, the apprentice will be able to layout and fabricate complex transitions and transformers; layout and fabricate complex drop cheek elbows and rolling offsets; layout and fabricate wye-branches; layout and fabricate tapered elbows. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 15.  
**Prerequisite(s):** SL1620  

**SL1700  Layout and Fabrication – Parallel Lines III**  
Upon successful completion of this course, the apprentice will be able to layout and fabricate complex gutter mitres; layout and fabricate basic cornice work. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 14.  
**Prerequisite(s):** SL1610  

**SL1710  Layout and Fabrication – Radial Lines III**  
Upon successful completion of this course, the apprentice will be able to layout and fabricate tapered elbows; layout and fabricate wye-branch using scalene cones; layout and fabricate intersections. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis for the Sheet Metal Work occupation task 16.  
**Prerequisite(s):** SL1620  

**SL1720  Advanced Layout and Fabrication**  
Upon successful completion of this course, the apprentice will be able to layout and fabricate composite components using a combination of methods. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 15 and 29.  
**Prerequisite(s):** SL1630; SL1700; SL1710  

**SL1730  Automatic Controls, Instruments and Testing**  
Upon successful completion of this course, the apprentice will be able to describe the procedure to seal and test duct systems. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 45, 46, 55, 56, and 57.  
**Prerequisite(s):** SL1550; SL1710  

**SL1740  Air Quality Management**  
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of basic air quality management principles. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 45, 46, 55, 56, and 57.  
**Prerequisite(s):** SL1130; SL1360  

**SL1750  Gas Tungsten Arc Welding (GTAW)**  
Upon successful completion of this course, the apprentice will be able to use GTAW equipment to perform welding. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 25.  
**Prerequisite(s):** SL1130; SL1360  

**SL1760  Fabricates & Installs Architectural Sheet Metal Products**  
Upon successful completion of this course, the apprentice will be able to plan and organize work; identify and select material; fabricate basic architectural components; install basic architectural components. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis tasks 39, 49 – 51.  
**Prerequisite(s):** SL1110; SL1140  

**SL1770  Soldering**  
Upon successful completion of this course, the apprentice will be able to use soldering equipment to successfully solder seams and joints. The material covered satisfies in whole or in part, the requirements for the National Occupational Analysis task 27.  
**Prerequisite(s):** SL1240  

**SN1100 Introduction to Sound**  
This is an introductory course in sound and music. Students are introduced to the fundamentals of sound, the mechanics of hearing, and basic music theory. Musical styles will be discussed in reference to popular music in videos, film and advertising, as well as ear training for pitch, tonality and musical textures.  
**SN1140 Physics of Sound**  
This course provides a theoretical base in the science of sound for subsequent study of applied sound content. The intent of this course is to explore the objectives at a greater level of detail than in traditional Physics courses and to conduct laboratory activities more specifically related to careers in sound.  
**SN1200 The Music Business**  
This course will give students an insight into the Music Business. It will deal with Contractual Agreements between participants as well as Copyright laws and Performing Rights Organizations. Sound related jobs and other employment opportunities will be discussed as well as the perks and pitfalls of Independent Record Productions.  
**SN1300 Engineering Graphics for Recording Arts**  
This is an introductory course in Engineering Graphics which uses CAD as a tool to produce various drawings and diagrams. Engineering Graphics provides visually oriented data that is usable by technicians to assist in equipment layout and stage design. Topics covered include an introduction to CAD, geometric terminology and constructions, orthographic projection, sketching, dimensioning, and preparation of charts, diagrams and plots.  
**SN1400 Stage Lighting**  
This course is designed to introduce the student to the components and applications of stage lighting as it pertains to the music industry and the performing arts. It will cover such topics as history of stage lighting and design, methods of lighting, design and procedure, introduction to lighting fixtures, consoles, dimmers, intelligent lighting and lighting control software.  
**SN2100 Electro-Acoustic Devices and Design**  
This course is designed to give students a comprehensive look at the various types of microphones and loudspeakers. General purpose and specialty microphones will be studied with respect to their use in recording and sound reinforcement. Loudspeaker types and enclosures for sound reinforcement and studio monitoring will studied with design considerations for indoor and outdoor sound systems.  
**SP1200 Machine Shop Practice**  
This is an introductory course designed to give students a knowledge and understanding of the fundamental metal-removal and general machine shop concepts which will form the basis for further studies in science and technology.  
**SP1300 Radiation Safety**  
This is an introductory course dealing with the regulations pertaining to and the safe practices to be followed while carrying out radiographic testing. Health effects from radiation, monitoring radiation, controlling dose, standard operating procedure, regulations.  
**SP1400 Facilities Engineering**  
This course is designed for Mechanical, Mechanical (Manufacturing) and Industrial Engineering Technology students. Development and application of preventive and predictive maintenance programs for industrial equipment and facilities is emphasized. Condition monitoring of equipment, predictive techniques including vibration analysis and fluid sampling are explained with practical applications and related exercises. A preventive and predictive maintenance program is developed as a project, using industry-recognized methods.  
**SP1700 Computer Numerical Control (CNC Machining I)**  
This course is designed to be an introductory course in Computer Numerical Control (CNC) machining. Most of the course will be instructed through hands-on work with both a CNC Lathe and CNC Milling Machine. Lecture will accompany the labs for theory.  
**SP1701 Computer Numerical Control (CNC Machining II)**  
This course is a continuation of SP1700 for Computer Numerical Control (CNC) using Computer Applied Manufacturing (CAM) software. This course is delivered using computers to produce CAD/CAM programs that are applied through shop floor exercises with CNC Machining Centers. Instruction will be done through lectures, com-
computer labs and hands-on work in the shop.

Prerequisite(s): SP1700

SP1800 Precision Metrology
This course is a bridge between Machine Shop Practice and Quality Control dealing with the physical data gathering for quality assessment. Measurement using small hand tools, optical comparator and a Coordinate Measuring Machine (CMM) will introduce students to inspection procedures.

Prerequisite(s): SP1200

SP1830 Metrology and Quality Control
This course integrates the relationship between the metrology of product design with the control of quality for a product or service. The emphasis in the course is on the measurement of the physical characteristics of a product and its relationship to the manufacture, quality and cost. The student will use a variety of measuring tools such as micrometers, scales, optical comparator and coordinate measuring machine (CMM) for inspection procedures. This will be then integrated into the quality control procedures required in the manufacture of the product.

Prerequisite(s): SP1200
Co-requisite(s): MA1670

SP2300 Quality Assurance
This course is designed to introduce the concepts, philosophy and application of Total Quality Management, Statistical process control and the International Standards Organization (ISO) 9000 quality standards. Emphasis will be on the integration of the total quality management philosophy into the production process. Development of quality control procedures and documentation will be discussed including reference to existing industry quality control specifications. The implementation process for quality assurance manuals and their auditing procedures will be outlined.

SP2301 Quality Control
This course is designed to provide knowledge and skills prerequisite to the development, implementation, maintenance and evaluation of Quality Control Systems.

SP2310 Quality Control and Inspection I
To develop the student’s ability to work in an organization which is involved in Quality Control and Inspection. To properly take measurements and do dimensional checks on materials under control. To perform basic visual, LPI and MPI tests on weldments. An introductory course in Quality Control and Non-Destructive Testing methods. The topics include introduction to Quality Control, Metrology, CSA standards Z299.1-85, Visual, LPI and MPI testing.

Prerequisite(s): WD1100, PH1100

SP2311 Quality Control and Inspection II
This course requires that the student develop an understanding of the theory and concepts behind both ultrasonics and liquid penetrant evaluation, it then provides practical applications of these and requires that the student use typical industrial codes and standards to evaluate results.

Prerequisite(s): CF1100, SP2310

SP2330 Quality Assurance / Quality Control
This course is designed to give students an understanding of the concepts and requirements of QA/QC such as, interpreting standards, controlling the acceptance of raw materials, controlling quality variables and documenting the process. It includes information on quality concepts, codes and standards, documentation, communications, human resources, company structure and policy, team-work and responsibilities. Upon completion of this course, students will be able to develop the skills and knowledge required to apply quality assurance/quality control procedures as related to the trade; develop an awareness of quality principles and processes; apply quality assurance/quality control procedures in a shop project.

SP2400 Safety Engineering
This course will provide the student with an overview of the fundamentals of occupational health and safety in the workplace.

SP2410 Safety Engineering Technology
This course will provide the student with an overview of the fundamentals of occupational health and safety in the oil and gas drilling and production environment.

SP2510 Plant and Facility Layout
The course examines the contribution that a competently performed plant or facility layout plan can make toward achieving a profitable and efficient company or non-profit organization. The course combines fundamental principles and practical methodologies in plant and facility layout and material handling. The student will investigate and apply these principles and techniques in a variety of realistic situations. Further, since any proposal for innovation or change must be analyzed and described thoroughly, this course also emphasizes development of competencies in CAD and communications, with emphasis on the written report.

Prerequisite(s): EG1430

SR1120 Service Information Systems
Upon successful completion of this unit, the apprentice will be able to select and use different types of service manuals found in Small Equipment Repair industry.

SR1130 Engine Operations
This course in engines requires the use of basic tools, shop equipment and test equipment. It involves compression testing and valve timing. It includes information on the operation of different types of engines and component parts.

Prerequisite(s): TS1190, SR1120

SR1140 Lubrication Systems
This course in lubrication systems requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling lubrication systems; inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of lubrication systems and component parts.

Prerequisite(s): TS1190, SR1120

SR1220 Small Equipment Engines
This course in engines requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling light duty engines; and inspecting, testing, adjusting and repairing/replacing component parts. It includes information on the operation of different types of light duty engines and component parts.

Prerequisite(s): SR1130

SR1230 Small Equipment Starting and Charging Systems
This electromechanical course requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling light duty starting and charging systems; and inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of light duty starting and charging systems and component parts.

Prerequisite(s): MP1440

SR1240 Ignition Systems
This course in ignition systems and emissions requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling ignition systems; and inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of ignition systems and component parts.

Prerequisite(s): MP1440

SR1320 Gasoline Engine Air and Fuel Delivery Systems
This course in fuel systems requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling gasoline air and fuel delivery systems; and inspecting, testing and repair/replacing component parts and making adjustments. It includes information on the operation of different types of gasoline air and fuel delivery systems and component parts.

Prerequisite(s): TS1190, SR1120

SR1330 Gasoline Injection Systems
This course in fuel systems requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling gasoline injection systems; and inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of gasoline injection systems and component parts.

Prerequisite(s): SR1320, MP1440

SR1340 Carburetted Fuel Systems
This course in fuel systems requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling carburetted fuel systems; and inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of carburetted fuel systems and component parts.

Prerequisite(s): SR1320

SR1420 Small Equipment Cooling Systems
This course in cooling systems requires the use of basic tools, shop equipment and test equipment. It involves disassembling and reassembling light and medium duty cooling systems; and inspecting, testing and repairing/replacing component parts and making adjustments. It includes information on the operation of different types of light and medium duty cooling systems and component parts.

Prerequisite(s): TS1190, SR1120

SR1430 Emission Control Systems
Upon successful completion of this unit, the apprentice will be able to service and repair vehicle emission control systems while maintaining industry and provincial standards.

Prerequisite(s): SR1330, SR1340, SR1240

SR1500 Small Equipment Transmissions
This course in small equipment transmissions involves servicing lawn and garden equipment transmissions and differentials, chainsaws and drive systems, hydrostatic drives, snowmobile chain cases, motorcycle transmissions and crankshafts, motorcycle clutches, and marine equipment transmissions and velvet drives. It includes information on the design and function of transmissions, types of snowmobile chain cases, motorcycle transmission operations, motorcycle gear shifting mechanisms, motorcycle
This course involves servicing carburettor intake systems; performing routine maintenance and tune-ups; servicing engine auxiliary components, single component ignition modules and molder decks and attachments; reconditioning carburettor and auxiliary systems; servicing brake and steering components; and servicing chain saws. It includes information on the operation of governors and chainsaw chain and bar failures.

**Prerequisite(s):** Completion of all entry level courses

**SR2110 Lawn & Garden Equipment Troubleshooting and Repair**

This course involves servicing valve trains, engine components, clutches and drives, hydraulic systems, engine driven water pumps, chainsaws engines, lawn and garden equipment cooling systems, AC generators, and remote starters. It includes information on the causes for piston failure, types of bearing failure and the causes, the importance of maintaining the correct quantity and quality of lubrication, the design and function of clutches, hydraulic theory and systems, the operation of water pumps, function of chainsaw engine components, and the operation of AC generators.

**Prerequisite(s):** SR2100

**SR2200 Snowmobile Servicing Fundamentals**

This course in snowmobile maintenance involves servicing and repairing recoil operations, carburettors, oil injection systems, braking systems, cooling systems, steering components, independent front suspensions, frame components, cosmetic damage, and track suspension units. It includes information on the operation of fuel systems, the venture principle, variable and fixed venturi carburettors, starters, oil injection systems, liquid and air cooling systems, cosmetic repair procedures, drive clutches, driven clutches, bogie wheel suspensions, slide rail suspensions and snowmobile handling.

**Prerequisite(s):** Completion of all entry level courses

**SR2210 Snowmobile Troubleshooting and Repair**

This course in snowmobile servicing involves troubleshooting and repair of electronic ignition systems, lighting and charging systems, fuel systems, gas charged shocks, drive clutches, driven clutches, engines, and exhaust systems. It includes information on operation of a fuel injection system, carburetted fuel systems, altitude-compensated carburettors, clutches, engines and labyrinth seals.

**Prerequisite(s):** SR2200

**SR2300 Motorcycles and ATV Servicing Fundamentals**

This course in motorcycle and ATV maintenance involves servicing and repairing recoil starters, engines, motorcycle air cleaners, wheels and tires, brake systems, front forks, final drives, handling problems, clutches, and body damage. It includes information on the operation of starters, motorcycle air filters, drum and hydraulic disk brakes, motorcycle front forks and clutches.

**Prerequisite(s):** Completion of all entry level courses

**SR2310 Motorcycle and ATV Troubleshooting and Repair**

This course in motorcycle and ATV maintenance involves servicing and repairing lubrication systems, four-stroke engines, magnets and battery ignition systems, electronic ignition systems, charging systems, electrical malfunctions, carburettor malfunctions, starter systems and cooling systems. It includes information on the operation of two- and four-stroke lubrication systems, motorcycle head gaskets, cylinder heads and parts, pistons and rings, engines, battery ignition systems, capacitor discharge systems, transistor ignition systems, motorcycle charging systems, fuel systems, and carburettors.

**Prerequisite(s):** SR2300

**SR2400 Marine Equipment Servicing Fundamentals**

This course in marine equipment maintenance involves servicing recoil starters, carburettors, outboard powerheads, remote controls, cooling systems, stern drive engines, electrical systems, stern drive boat and motor rigging, fibreglass hulls, outboard controls and accessories, marine toilets, bilge pumps, bilge blowers and boat trailers. It includes information on carburettor components and circuits, carburettor fundamentals, the operation of a fuel injection system, corrosion protection systems, maintenance procedures for stern drive engines, four-stroke engine operating principles, safe boating practices, rigging requirements and powerboat fibreglass hull design.

**Prerequisite(s):** Completion of all entry level courses

**SR2410 Marine Equipment Troubleshoot and Repair**

This course in marine equipment involves the troubleshooting and repair of ignition systems, starting and charging systems, fuel systems, tilt and trim systems, propellers, impellers, upper gear housings, lower gear housings and lower units. It includes information on carburettor fundamentals and the theory of propeller operation.

**Prerequisite(s):** SR2400

**ST2110 Metal I**

This course is designed to continue to give students experience in working with metal as a three-dimensional sculptural material. Students will be provided with intermediate skills in both jewellery and metal sculptural areas. Previously learned skills will be refined and students will experiment with other three-dimensional forming techniques, stone setting, rolling mill, casting and advanced soldering techniques. Students will work in consultation with the instructor to design creative metal constructions.

**Prerequisite(s):** ST2400

**ST2111 Metal II**

This course is designed to help students gain a greater skill and understanding when working with metal. This course provides students with more emphasis on using metal as a three-dimensional medium for more personal expression. Students will be expected to design projects of special interest, expand their use of skills learned in the previous semester and execute more advanced design ideas. Students will create a series of unique and complex works in metal.

**Prerequisite(s):** ST2110

**ST2120 Painting I**

This course builds on students’ introductory skills in painting attain in Materials and Techniques I. The course is experimental in nature, both technically and conceptually. A wide variety of subject matter is used.

**Prerequisite(s):** VA1301

**ST2121 Painting II**

This is an intermediate course in painting designed to consolidate and refine skills learned in Painting I. Students observe and experiment with various painting media while continuing to develop themselves through exploration of various content areas.

**Prerequisite(s):** ST2120

**ST2130 Ceramics I**

This course is designed for students who wish to continue developing their pottery clay skills. Demonstrations are given and projects are assigned which involve using a variety of intermediate hand-building and decorating techniques. Students will improve their throwing techniques on the potter’s wheel through throwing cylinders, mugs, vases, bowls and plates. More experience is gained through decoration, glazing and firing of the final clay forms.

**Prerequisite(s):** VA1300

**ST2131 Ceramics II**

This is an advanced course in ceramics which will require students to specialize in a combination of hand-building and/or throwing on the wheel. Emphasis will be placed on personal designs and the construction of unique work. Students will be taught to mix their own clay and glazes and load and fire kilns independently. A series of final works will be designed and created in consultation in a format which they have selected in consultation with the instructor.

**Prerequisite(s):** ST2130

**ST2140 Printmaking I**

This is an intermediate course in printmaking designed to further develop the student’s knowledge of printmaking materials and techniques. Specific print techniques include line and tonal etching processes, basic colour printing, editioning and photo etching. Students will be expected to develop a body of work that expresses a particular theme in printmaking.

**Prerequisite(s):** VA1301

**ST2141 Printmaking II**

This is the final course in printmaking and in many respects is an extension of Printmaking I. In close consultation with the instructor, students will define individual problems, directions, and projects for the semester. New print techniques to be investigated include color reduction woodcut and missed media prints. Individualized instruction and evaluation are an important component of the course.

**Prerequisite(s):** ST2140

**ST2160 Photography I**

This course is designed for the student who has a strong interest in the digital and film photographic medium as a means of personal expression. The student is introduced to conversion of colour film to digital format for further processing and output, as well as further exploration of black and white techniques and their application to digital photography.

**Prerequisite(s):** PT1101

**ST2161 Photography II**

This course is an extension of Photography I. In this course students have the opportunity to continue colour as well as black and white film techniques as part of the ongoing exploration of modern digital photography. The course involves a more individualized approach and the student is expected to build a large body of photographic work around concepts of interest and expression.

**Prerequisite(s):** ST2160

**ST2181 Weave II**

In this course students will learn more advanced weaving techniques. Students will be introduced to weave theory, intermediate weave techniques, finishing techniques, and basic computer skills in weave. Students will continue to maintain records of their work.

**Prerequisite(s):** 1X1500, VA1201

Available through @College Distributed Learning Service

Available through correspondence
ST2182 Weave III
This course provides students with an opportunity to complete an independent learning project. Working in consultation with their instructor, students will identify a project concept, develop a project plan, complete design research, develop a project design incorporating advanced weaving techniques, and implement the project.
Prerequisite(s): ST2181, VA2250

ST2300 Embroidery and Quilt II
In this course students will learn more advanced embroidery and quilt techniques. Students will be introduced to basic machine embroidery, traditional embroidery techniques and basic computer skills in embroidery. In quilt, students will explore traditional and contemporary quilt techniques in addition to exposure to basic computer skills in quilt. Students will continue to maintain records of their work.
Prerequisite(s): TX1300, VA1201

ST2301 Embroidery and Quilt III
This course provides students with an opportunity to complete an independent learning project. Working in consultation with their instructor, students will identify a project concept, develop a project plan, complete design research, develop a project design incorporating advanced embroidery and quilt techniques, and implement the project.
Prerequisite(s): ST2300, VA2250

ST2330 Print and Dye II
In this course students will learn more advanced print and dye techniques. Students will be introduced to intermediate resist techniques, silk screen print techniques, intermediate chemical application, intermediate natural dye techniques, and basic computer skills in print and dye. Students will continue to maintain records of their work.
Prerequisite(s): TX1330, VA1201

ST2331 Print and Dye III
This course provides students with an opportunity to complete an independent learning project. Working in consultation with their instructor, students will identify a project concept, develop a project plan, complete design research, develop a project design incorporating advanced print and dye techniques, and implement the project.
Prerequisite(s): ST2330, VA2250

ST2400 Apparel Construction II
In this course students will learn more advanced apparel construction techniques. Topics include intermediate sewing techniques and draping techniques. Students will also be introduced to the CAD system to construct intermediate flat patterns. Students will construct a blouse and skirt using the CAD system.
Prerequisite(s): TX1400, VA1201

ST2401 Apparel Construction III
In this course students will continue to learn advanced apparel construction techniques. Topics covered include using specialty fabrics in garment construction and designing and constructing outerwear garments.
Prerequisite(s): ST2400, VA2250

ST2500 Design Studio
This course is designed to provide advanced graphic design students with the opportunity to investigate a design project of their choosing, in consultation with the instructor. Students may choose to partner with a private, government or non-profit organization in developing a joint project or they may choose to pursue a self-directed area of exploration. It is expected that students taking this course will be completely familiar with the design process, as well as with the tools of the design industry.
Prerequisite(s): Successful completion of all core Graphic Design courses in semesters 1 through 4, and Intersession 1.

ST2600 Knit II
In this course students will learn more advanced knitting techniques in addition to learning introductory machine knitting techniques and skills. Basic computer skills in knit will also be reviewed. Students will continue to maintain records of their work.
Prerequisite(s): TX1500, VA1201

ST2601 Knit III
This course provides students with an opportunity to complete an independent learning project. Working in consultation with their instructor, students will identify a project concept, develop a project plan, complete design research, develop a project design incorporating advanced knit techniques, and implement the project.
Prerequisite(s): ST2600, VA2250

SU1150 Field Navigation
This course is designed to expose students to concepts of field navigation. It is essentially a field oriented course in which students will be introduced to navigational skills using: map and compass, aerial photos, and GPS. Students will also be introduced to viewing and manipulating digital data through desktop mapping.

SU1200 Plane Surveying
Plane Surveying is an introductory surveying course for technologists. Topics studied include, but are not limited to: measure of angle, direction and distance with appropriate instruction in the corresponding areas of traverse and coordinate computation. Included also are differential, profile, cross-section levelling. Field labs will emphasize use and care of surveying equipment, note taking and interpretation and plotting of field notes.
Prerequisite(s): MA1101
Co-requisite(s): DR1211

SU1210 Construction Surveying
This course is the second course in surveying being offered to students in the Civil Technology program. Its purpose is to strengthen the surveying skills of students enrolled in the third term of the program, to teach them new skills in surveying that are directly related to the construction of buildings, roads and municipal services and to provide them with the required skills to successfully complete the construction camp to be offered in the second Technical Intersession.
Prerequisite(s): SU1200, DR1211

SU1220 Surveying
This course is an introductory course designed to provide students with a basic understanding of the various types of surveys commonly used in the design and construction industry. This course deals mainly with surveys of relatively small areas such as building construction sites.
Prerequisite(s): MA1101, GE1110

SU1310 Plane Surveying I
This is an introductory course in surveying presented to Geomatics Engineering Technology. The topics to be covered are: introduction to the theory of surveying on a plane, the acquisition of linear distances, horizontal angle, vertical angles, the calculation of coordinates and areas, the determination of elevations using spirit levelling, profiles and cross-sections, the graphical presentation of acquired data. The student will use tapes, total stations and spirit levels to acquire the required data.
Prerequisite(s): EG1430, MA1101, PH1100

SU1311 Plane Surveying
This is the second course in plane surveying for the Geomatics Engineering Technology program. This course expands on topics covered in SU1310, vertical and horizontal datums, data transformation, total station instrumentation, horizontal and vertical curves, and construction surveying.
Prerequisite(s): SU1310, SU1500

SU1400 Surveying I
This course will acquaint the student with the basic concepts of engineering surveying. While theory is a vital part of the course, heavy emphasis is placed throughout on instrumentation and hands-on training with the various types of equipment. The student's progress and expertise in handling survey instruments will, therefore, be continuously monitored and evaluated and a significant portion of the total mark will be assigned to instrumentation testing.

SU1440 GIS I
This is the first of two GIS courses and has focus on vector structure. The course introduces the GIS and its interlink with the real world. The topological structure and the linking between the graphical database and the textual database is explored. The various types of textual databases are introduced. The use of GIS as a facility management tool is addressed with emphasis on the combining of the various themes to answer posed questions.
Prerequisite(s): SU1530, SU1310, SU2500

SU1441 GIS II
This course in GIS focuses on the design and use of the raster data structure. Topics included are characteristics of raster data, data collection and processing systems, and GIS software operations on raster data. Spatial analysis will be taught with a focus on single and multiple layer operations, point pattern, network, and surface analyses. The topic of spatial statistics will be introduced. Raster GIS applications will be addressed.
Prerequisite(s): SU1440

SU1500 Cartography
This course is an introductory course offered to Geomatics Engineering Technology students. The course is divided into two modules. Module one covers topics in cartography while module two expands on the CAD skills acquired by the student in Engineering Graphics EG1100.
Prerequisite(s): MA1101, PH1100, GE1110

SU1530 Digital Mapping
This course is an introduction to Digital Mapping. The main focus is on the structuring of conventional hardcopy data for entry into an Automated Mapping or Geographics Information System.
Prerequisite(s): SU1500, SU1310

SU1540 Hydrography I
This course is an introductory course in hydrographic principles and procedures. It is designed to emphasize the theoretical and practical applications of hydrography and the marine survey environment.
Prerequisite(s): SU1311

SU1541 Hydrography II
This course is an advanced course in hydrographic principles and procedures. It is a continuation of Hydrography I SU-1540 with emphasis on advanced hydrographic sys-
various methods are investigated. Aerial photogra-
phy interpretation and GPS technology are addressed
through lectures and practical applications. Students are
exposed to satellite imagery, processes and products.
Prerequisite(s): SU1150

SU1570 Remote Sensing
This course introduces the student to the principles of
Remote Sensing. The concept of acquiring data outside
our visual range and the use of that data to identify and
classify objects and phenomena is investigated. The basic
data recording systems in common use are addressed.
Prerequisite(s): SU2500, SU2570, SU1441

SU1710 Forest Surveying
This is an introductory course in Surveying including the
basic fundamentals of plane surveying and the use and
care of equipment. The measurement of distance, direc-
tion and elevation is emphasized. The steel tape, rope,
chain, level, hand compass, and transit are the major
pieces of equipment studied.

SU2320 Geodetic Surveying
This course is the third surveying course for the
Geomatics Engineering Technology program and addresses
the acquisition of precise positioning. The course deals
with the determination of high precision data by using
the available instrumentation to its capacity. The check-
ing and adjusting of equipment is learned and the errors
associated with observed data and the effect of these
errors on the accuracy of the calculated parameters. The
use of data loggers and the transfer of the logged data to
coordinate geometry calculation programs are addressed.
Prerequisite(s): MA2100, SU1311, PH1101

SU2500 Photogrammetry
This course is an introduction to photogrammetry for the
Geomatics Engineering Technology program. The course
introduces the student to the use of aerial photography
for the production of maps. The principals of photogram-
metry are addressed and the use of stereoplotters for
map compilation is explored. The acquiring of the pho-
tography and the aerotriangulation process for the tie of
the photos to ground is investigated. The use of aerial
photography for the production of rudimentary maps is
also addressed.
Prerequisite(s): SU1310, SU1500

SU2530 Cadastral
This is an intermediate level course designed to familiar-
ize the student with legal principles and applicable legis-
lation in the area of Cadastral Surveying. The student will
also make practical application of this knowledge.
Prerequisite(s): SU1311

SU2570 GPS and Remote Referencing
This course introduces the student to the Global
Positioning System (GPS) as a precise measuring tool.
The System, control and user segments of the system
are investigated as well as the various signals which are
emitted by the satellites. The various referencing
pertinent to space positioning are addressed. The process-
ing of the observed data and the various methods and
algorithms which can be used and the accuracies of the
various methods are investigated.
Prerequisite(s): MA2120, SU2320

SU3210 Introduction to GIS
This course is designed to provide students with an
overview of Geographic Information Systems (GIS) tech-
nology and an in depth appreciation of the role of GIS
technology in natural resources applications. Students will
gain valuable skills and hands-on experience to support
resource-based GIS projects typical in the workforce.
Using vector-based GIS data models, students will create
databases, manage spatial and attribute data, generate
map-based and tabular outputs, and perform geographic
analysis. The course culminates with a major GIS project
designed to reinforce the skills covered in the course.
Prerequisite(s): SU2570, MA3120

SU3300 Geodesy & Map Projections
This third year course offered in Geomatics Engineering
Technology expands on map projections and develops
the higher order corrections to positioning problems.
The course introduces geodesy and geodetic concepts to
equip students for modelling and measurement in a 3D
global context. This course expands on map projections
and develops higher order corrections to positioning
problems.
Prerequisite(s): SU2570, MA3120

SU3500 Adjustments
Further exploration into the use of the Least Squares
method for the adjustment of survey observations.
The parametric model is explored with an introduction to
the combined model. The statistical analysis of derived
parameters is used for quality assurance.
Prerequisite(s): MA3120, SU2570, SU1540

SV1100 Safety in the Shop
Upon successful completion of this unit, the apprentice
will be able to identify various types of hazards in the
shop and describe safe work habits.

SV1101 Safety
Upon successful completion of this unit, the apprentice
will be able to demonstrate knowledge of safe work prac-
tices, knowledge of regulatory requirements pertaining to
safety and knowledge of safety equipment, their applica-
tions and procedures.
Pre-requisite(s): None

SV1110 Ozone Depletion Substances
Upon successful completion of this unit, the apprentice
will be able to write an exam covering the regulations
on ozone-depleting substances with a pass of 75%.
Prerequisite(s): Completion of Block 4

SV1121 Gaskets and Seals
Upon successful completion of this unit, the apprentice
will be able to demonstrate knowledge of gaskets and
seals, their applications and procedures for use.
Prerequisite(s): TS1520, SV1166

SV1125 Gaskets, Seals and Bearings
Upon successful completion of this unit, the apprentice
will be able to select, remove and install various types
of bearings, gaskets, seals, and sealing compounds, and
identify causes of failures.
Prerequisite(s): SV1185

SV1131 Electrical & Electronic Principles
Upon successful completion of this unit, the apprentice
will be able to use instruments to test components of
series, parallel and series-parallel circuits to determine
cause of malfunctions in an electrical circuit.
Prerequisite(s): SV1130, SV1100, SV1110, TS1510, TS1520

SV1140 Hydraulic Principles
Upon successful completion of this unit, the apprentice
will be able to identify hydraulic components and systems
and their applications; interpret and use hydraulic symbols
and diagrams; and identify safety practices when working
around hydraulic fluid.
Prerequisite(s): SV1195

SV1141 Introduction to Hydraulics
Upon successful completion of this unit, the apprentice
will be able to demonstrate knowledge of the principles
of hydraulic components, their purpose and operation.
Prerequisite(s): None

SV1151 Service Information Systems
Upon successful completion of this course, the apprentice
will be able to select and use different types of service
manuals found in heavy equipment and truck and trans-
port.

SV1155 Service Information Systems
Upon successful completion of this unit, the apprentice
will be able to select and use various types of service
information systems.

SV1165 Hand Tools
Upon successful completion of this unit, the apprentice
will be able to select, use and maintain various cutting
and non-cutting hand tools.
Prerequisite(s): SV1100

SV1166 Tools and Equipment
Upon successful completion of this course, the apprentice
will be able to demonstrate knowledge of hand and
power tools, measuring tools, diagnostic tools and shop
equipment, their applications, maintenance and proce-
dures for use.
Prerequisite(s): SV1101

SV1175 Shop Tools and Equipment
Upon successful completion of this unit, the apprentice
will be able to select, inspect, use and maintain shop
tools and equipment.
Prerequisite(s): SV1155, SV1165, TS1520

SV1181 Fasteners, Tubings and Fittings
Upon successful completion of this course, the apprentice
will be able to select and use common fasteners, tubing
and fittings found in heavy equipment and truck and
transport.
Prerequisite(s): SV1160

SV1185 Fasteners, Tubing and Fittings
Upon successful completion of this unit, the apprentice
will be able to select and use common fasteners, differ-
et types of tubing, hoses, fittings, and flaring tools.
Prerequisite(s): SV1175

SV1190 Lubrication and Fluid Services
Upon successful completion of this course, the apprentice
will be able to perform engine oil and filter changes,
chassis lubrication and service automatic lubrication
systems.
Prerequisite(s): SV1100, SV1110, SV1120, SV1151,
SV1181, TS1510, TS1530

SV1195 Lubrication and Fluid Servicing
Upon successful completion of this unit, the apprentice
will be able to change oil and filter, and lubricate a
vehicle’s chassis.
Prerequisite(s): SV1125
SV1201 Start, Move, and Park Vehicle
Upon successful completion of this course, the apprentice will be able to start move and park heavy equipment machinery and prepare a vehicle to be towed.
Prerequisite(s): SV1151, SV1100

SV1211 Tires, Rims and Wheels
Upon successful completion of this course, the apprentice will be able to remove and install tires from a demountable rim flange used on heavy equipment machinery.
Prerequisite(s): SV1100, SV1151, SV1181, TS1510, TS1520

SV1215 Wheels and Tires
Upon successful completion of this unit, the apprentice will be able to recognize tire, wheel and rim construction; inspect and service tires, wheels and rims; and perform wheel balancing.
Prerequisite(s): SV1195

SV1225 Manual Steering
Upon successful completion of this unit, the apprentice will be able to identify types and components of steering gear, and apply procedures for the maintenance and repair of steering linkage.
Prerequisite(s): Completion of Block 2

SV1231 Power-Assisted Steering Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair power-assisted steering systems.
Prerequisite(s): Block 5

SV1245 Wheel and Axle Alignment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to perform wheel and axle alignment.
Prerequisite(s): Block 2, SV1441, SV1461

SV1255 Suspension
Upon successful completion of this unit, the apprentice will be able to identify suspension components and their purpose; remove, replace and/or adjust suspension components; and have basic understanding of the diagnoses and repair of computer-controlled active suspension systems.
Prerequisite(s): SV1215

SV1261 Vehicle Hydraulic Brake Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of vehicle hydraulic brake systems, their components and operation and the procedures used to service and repair the brake system.
Prerequisite(s): SV1190, SV2381

SV1271 Basic Air Brake Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of basic air brake systems, procedures used to service and repair their components and operation.
Prerequisite(s): SV1261

SV1281 Drive Lines
Upon successful completion of this course, the apprentice will be able to remove, repair and install drive lines on heavy equipment and truck and transport.
Prerequisite(s): SV1190

SV1285 Drive Lines
Upon successful completion of this course, the apprentice will be able to Describe the operation of the major components of drive lines.

SV1291 Drive Axle Assemblies
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair axle assemblies.
Prerequisite(s): Block 1

SV1303 Engine Principles
Upon successful completion of this course, the apprentice will be familiar with internal combustion engines and components.
Prerequisite(s): SV1190

SV1305 Engine Principles
Upon successful completion of this unit, the apprentice will be able to describe the operation of all major parts of engines and their purpose.
Prerequisite(s): SV1195

SV1310 Cooling Systems
Upon successful completion of this course, the apprentice will be able to service and repair engine cooling systems and components.
Prerequisite(s): SV1303, SV2580

SV1315 Cooling System
Upon successful completion of this unit, the apprentice will be able to describe the purpose and operation of all major parts of cooling systems.
Prerequisite(s): SV1305

SV1321 Engine Lubrication Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair engine lubrication systems.
Prerequisite(s): Block 4

SV1331 Intake and Exhaust Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair intake and exhaust systems.
Prerequisite(s): SV1166, SV1303

SV1361 Diesel Fuel Supply Systems
Upon successful completion of this course, the apprentice will be able to service, inspect and repair Diesel fuel supply systems.
Prerequisite(s): SV1340

SV1365 Non-Diesel Fuel Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate the procedures used to service and repair non-diesel fuel systems.
Prerequisite(s): SV1151, SV1166

SV1370 Batteries
Upon successful completion of this course, the apprentice will be able to remove, service, change and install batteries used on heavy equipment and truck and transport.
Prerequisite(s): SV1100, SV1110, SV1131, SV1151, SV1160, SV1170, SV1181, TS1510, TS1520, WD1300

SV1375 Batteries
Upon successful completion of this unit, the apprentice will be able to diagnose battery problems and service batteries.
Prerequisite(s): SV1131

SV1380 Starting Systems
Upon successful completion of this course, the apprentice will be able to disassemble, test, repair and assemble starting motors and components.
Prerequisite(s): SV1370

SV1385 Starting Systems
Upon successful completion of this unit, the apprentice will be able to describe the purpose and operation of all major parts of the starting system.
Prerequisite(s): SV1375

SV1386 Starting Aids
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair starting aids.
Prerequisite(s): Block 1, SV1380

SV1391 Charging Systems
Upon successful completion of this course, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair charging systems.
Prerequisite(s): Block 1

SV1395 Charging Systems
Upon successful completion of this unit, the apprentice will be able to test and service charging systems and components and diagnose charging system problems.
Prerequisite(s): SV1375

SV1401 Gauges
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair gauges.
Prerequisite(s): SV1500

SV1410 Fire Suppression Units
Upon successful completion of this course, the apprentice will be able to service, inspect and repair fire suppression systems used on heavy equipment machinery.
Prerequisite(s): SV1100, SV1110, SV1151, SV1170, SV1181, TS1510, TS1530

SV1441 Front Axles and Suspension Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair front axles and suspension systems.
Prerequisite(s): Block 2

SV1451 Steering Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair steering systems.
Prerequisite(s): SV1190

SV1461 Rear Axles and Suspension Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair rear axles and suspension systems.
Prerequisite(s): Block 2

SV1480 Dual Air Brake Systems
Upon successful completion of this course, the apprentice will be able to service dual air brake systems.
Prerequisite(s): SV1420, SV1270

SV1491 Conventional Lighting Circuits
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of conventional lighting circuits, their components and operation. They
will also demonstrate the procedures used to service and repair conventional lighting circuits.

SV1495 Lighting Systems
Upon successful completion of this unit, the apprentice will be able to describe the operation of the major parts of the lighting systems and their purpose.
Prerequisite(s): SV1131, SV1151, SV1370

SV1501 Wiring Harness and Accessories
Upon successful completion of this course, the apprentice will be able to diagnose and repair wiring harness and vehicle accessories.
Prerequisite(s): SV1370

SV1600 Ignition Systems
Upon successful completion of this unit, the apprentice will be able to test and service ignition systems and diagnose ignition system problems.
Prerequisite(s): SV1305, SV1375

SV1610 Steering Columns
Upon successful completion of this unit, the apprentice will be able to describe the operation of all the major parts of the steering column.
Prerequisite(s): SV2160

SV1625 Front-Wheel Drive
Upon successful completion of this unit, the apprentice will be able to describe the operation of the major parts of a front-wheel drive system.

SV1630 Hydraulic Brake Systems
Upon successful completion of this unit, the apprentice will be able to remove, repair or replace hydraulic brake systems and components.
Prerequisite(s): SV1140, SV1215

SV1640 Power Brake Systems
Upon successful completion of this unit, the apprentice will be able to inspect power brake systems, diagnose problems with the systems and service and repair them.
Prerequisite(s): SV1630

SV1650 Fuel Delivery
Upon successful completion of this unit, the apprentice will be able to describe the operation of all major parts of the fuel system.
Prerequisite(s): SV1131, SV1305

SV1660 Intake and Air Filtration Systems
Upon successful completion of this unit, the apprentice will be able to describe the operation and purpose of all major parts of the intake and air filtration systems.
Prerequisite(s): SV1305

SV1670 Exhaust Systems
Upon successful completion of this unit, the apprentice will be able to describe the operation of all major parts of the exhaust system and their purpose.
Prerequisite(s): TS1510, SV1305

SV1800 Hoisting and Lifting
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of hoisting and lifting equipment, their applications and procedures for use.
Prerequisite(s): SV1101

SV1810 Preventive Maintenance
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of preventative maintenance and its purpose and the procedures used to perform preventative maintenance.
Prerequisite(s): None

SV1820 Bearings
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of bearings and their applications. They will demonstrate knowledge of the procedures to remove and install bearings.
Prerequisite(s): TS1520, SV1166

SV1830 Metallurgy
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of metals and their characteristics by testing.
Prerequisite(s): None

SV1840 Heating and Ventilation Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair heating and ventilation systems.
Prerequisite(s): Block 1

SV2011 On-Board Computer Diagnostics II
Upon successful completion of this unit, the apprentice will be able to describe the various components of OBD-II systems and explain the logical approach to proper diagnostics.
Prerequisite(s): SV2015

SV2015 On-Board Computer Diagnostics I (OBD-1)
Upon successful completion of this unit, the apprentice will be able to describe the operation of all major components related to OBD-1.
Prerequisite(s): Completion of Entry Level Courses

SV2020 Power Steering
Upon successful completion of this unit, the apprentice will be able to apply proper procedures to diagnose, maintain and repair/replace power steering components.
Prerequisite(s): SV1225

SV2030 Electronic Power Steering
Upon successful completion of this unit, the apprentice will be able to describe the function of various electronic power steering components and describe procedures to diagnose, service and/or replace electronic power steering systems.
Prerequisite(s): SV2020

SV2040 Wheel Alignment
Upon successful completion of this unit, the apprentice will be able to describe procedures to diagnose wheel alignment problems and to describe procedures to properly perform wheel alignments.
Prerequisite(s): SV2020

SV2050 Engine Clutches
Upon successful completion of this unit, the apprentice will be able to describe the operation of the major components of clutches.
Prerequisite(s): Completion of Block 3

SV2060 Manual Transmissions and Trans-Axles
Upon successful completion of this unit, the apprentice will be able to diagnose problems relating to manual transmissions, and service and overhaul manual transmissions.
Prerequisite(s): Completion of Block 3

SV2075 Automatic Transmissions and Trans-Axles
Upon successful completion of this unit, the apprentice will be able to describe the operation of the major parts of automatic transmissions and trans-axles, and diagnose problems related to automatic transmissions.
Prerequisite(s): Completion of Block 3

SV2090 Electronic Transmission Controls
Upon successful completion of this unit, the apprentice will be able to diagnose problems relating to electronic transmission control systems, and service and repair electronic transmission control systems.
Prerequisite(s): SV2075

SV2100 Transfer Cases and Hub Assemblies
Upon successful completion of this unit, the apprentice will be able to diagnose problems relating to transfer cases and hub assemblies, and service and repair transfer cases and hub assemblies.
Prerequisite(s): Completion of Block 3

SV2110 Differential and Axle Assemblies
Upon successful completion of this unit, the apprentice will be able to diagnose problems relating to differential and axle assemblies; service and repair differential and axle assemblies; and overhaul differential and axle assemblies.
Prerequisite(s): Completion of Block 3

SV2120 Anti-Locking Brake System and Traction Control
Upon successful completion of this unit, the apprentice will be able to describe and diagnose ABS or traction control systems, and service and repair ABS or traction control systems.
Prerequisite(s): Completion of Block 2

SV2130 Air Brake Systems
Upon successful completion of this unit, the apprentice will be able to test, service and diagnose air brake systems and components.
Prerequisite(s): Completion of Block 2

SV2144 Automotive Heating Systems
Upon successful completion of this unit, the apprentice will be able to describe procedures to inspect, diagnose, service, and repair components of the auto heating system.
Prerequisite(s): Completion of Block 4

SV2145 Air Conditioning Systems
Upon successful completion of this unit, the apprentice will be able to describe procedures to inspect, diagnose, service, and repair air conditioning systems.
Prerequisite(s): SV2144

SV2155 Power-Actuated Accessories
Upon successful completion of this unit, the apprentice will be able to identify power-actuated accessories, diagnose problems with power-actuated accessories, and service and repair power-actuated accessories.
Prerequisite(s): Completion of Block 2

SV2160 Air Bag Systems
Upon successful completion of this unit, the apprentice will be able to identify, test, diagnose and repair air bag systems and their components.
Prerequisite(s): Completion of Block 2
SV2170 Engine Diagnostics (Gasoline)
Upon successful completion of this unit, the apprentice will be able to diagnose problems when engines fail to perform properly, understand symptoms, and follow procedures to isolate problems.
Prerequisite(s): Completion of Block 4.

SV2180 Engine Removal and Installation
Upon successful completion of this unit, the apprentice will be able to remove and reinstall engines to manufacturer’s specifications and inspect parts for wear.
Prerequisite(s): Completion of Block 4.

SV2220 Emission Control
Upon successful completion of this unit, the apprentice will be able to identify, test, remove, service and replace emission control systems or components.
Prerequisite(s): SV2235

SV2235 Fuel Injection Systems
Upon successful completion of this unit, the apprentice will be able to diagnose problems in gasoline fuel systems and service them.
Prerequisite(s): SV2011

SV2250 Alternative and Variable Fuels
Upon successful completion of this unit, the apprentice will be able to describe other types of fuels used in combustion engines, components used, and the safety factors that must be followed.
Prerequisite(s): Completion of Entry Level.

SV2260 Preventative Maintenance Inspections (PMI)
Upon successful completion of this unit, the apprentice will be able to describe the procedures to perform a preventative maintenance inspection.

SV2265 Vehicle Management Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of vehicle management systems, their components and operation including: reprogramming software and the procedures used to diagnose and repair vehicle management system components.
Prerequisite(s): Block 3

SV2266 Diesel Fuel Injection Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair diesel fuel injection systems.
Prerequisite(s): Block 4

SV2270 Provincial Government Inspections (MVI)
Upon successful completion of this unit, the apprentice will be able to describe the procedures to perform provincial safety inspections.
Prerequisite(s): Completion of Block 3.

SV2280 Pre-Delivery Inspections (PDI)
Upon successful completion of this unit the apprentice will be able to perform a pre-delivery inspection on a light duty motor vehicle.

SV2291 Tracked Steering Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair tracked steering systems.
Prerequisite(s): Block 2

SV2301 Track Type Undercarriage
Upon successful completion of this course, the apprentice will be able to remove, disassemble, repair, assemble and install a track type undercarriage from a crawler tractor or excavator.
Prerequisite(s): SV1190, SV1211, WD2320

SV2310 Electric Brakes
Upon successful completion of this course, the apprentice will be able to service, repair and adjust electric brake systems.
Prerequisite(s): SV1131, SV1270

SV2341 Manual Transmissions and Power Take-Offs
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair manual transmissions and power take-offs.
Prerequisite(s): Block 4

SV2350 Torque Converters
Upon successful completion of this course, the apprentice will be able to repair, install and test torque converters.
Prerequisite(s): SV1281

SV2365 Automatic/Power Shift Transmissions
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair automatic/power shift transmissions.
Prerequisite(s): Block 3

SV2371 Final Drives
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair final drives.
Prerequisite(s): Block 2

SV2381 Hydraulic Fittings, Piping, Tubing and Hoses
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of hydraulic fittings, piping, tubing and hoses and the procedures used to maintain them, how to remove and install them.
Prerequisite(s): SV1141, SV1190

SV2391 Reservoirs, Coolers and Filters
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of their applications and operation along with the procedures used to service and repair reservoirs, coolers and filters.
Prerequisite(s): SV2381

SV2400 Hydraulic Pumps and Motors
Upon successful completion of this course, the apprentice will be able to disassemble, inspect, repair and assemble hydraulic pumps and motors.
Prerequisite(s): SV2400

SV2411 Control Valves
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair control valves.
Prerequisite(s): Block 2

SV2420 Hydraulic Cylinders
Upon successful completion of this course, the apprentice will be able to remove, disassemble, inspect, repair, assemble and install hydraulic cylinders.
Prerequisite(s): SV2410

SV2431 Accumulators
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair accumulators.
Prerequisite(s): Block 2

SV2441 Articulated Steering Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair articulated steering systems.
Prerequisite(s): Block 5

SV2451 Hydrostatic Drives
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair hydrostatic drives.
Prerequisite(s): Block 2

SV2461 Hydraulic Systems Diagnostics and Testing
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge used to test and diagnose hydraulic systems.
Prerequisite(s): Block 2

SV2471 Winches, Wire Ropes and Accessories
Upon successful completion of this course, the apprentice will be able to disassemble, repair and assemble winches; remove and install wire ropes and accessories used on heavy equipment machinery.
Prerequisite(s): SV2410, WD2320

SV2481 Cabs and Protective Structures
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of cabs and protective structures, the procedures used to service and repair them.
Prerequisite(s): Block 5

SV2491 Pneumatic Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair pneumatic systems and components.
Prerequisite(s): Block 5

SV2510 Blades, Buckets and Cutting Edges
Upon successful completion of this course, the apprentice will be able to remove, repair and install blades, buckets and cutting edges used on heavy equipment machinery.
Prerequisite(s): SV2420, WD1300, WD2320

SV2555 Material Handling Equipment
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair material handling equipment.
Prerequisite(s): Block 5

SV2556 Equipment Hydraulic Brake Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair equipment hydraulic brake systems.

SV2560 Preventive Maintenance Inspections
Upon successful completion of this course, the apprentice will be able to perform a complete preventive maintenance inspection, to manufacturer’s specifications, on heavy equipment machinery.
Prerequisite(s): Entire Program

SV2571 Engine Brakes and Retarders
Upon successful completion of this course, the apprentice will be able to service, repair and adjust engine brakes and retarders.
Prerequisite(s): SV1270
SV2590 Turbochargers, Blowers and Intercoolers
Upon successful completion of this course, the apprentice will be able to remove service or repair and install engine turbochargers, blowers and intercoolers used on Diesel engines.
Prerequisite(s): SV1190, SV1320

SV2605 Diesel Engine Overhaul
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to overhaul diesel engines.
Prerequisite(s): Block 4

SV2611 Base Engine Diagnostics
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to diagnose base engines and their components.
Prerequisite(s): Block 4

SV2651 Electronically-Controlled Diesel Fuel Injection Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair electronically-controlled diesel fuel injected systems.
Prerequisite(s): Block 3

SV2661 Electronic Ignition Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair electronic ignition systems.
Prerequisite(s): Block 1

SV2670 Air Conditioning Systems
Upon successful completion of this course, the apprentice will be able to service, inspect and repair air conditioning systems used on heavy equipment and truck and transport.
Prerequisite(s): SV1110, SV1130, SV1190, SV1310

SV2691 Frames and Chassis
Upon successful completion of this course, the apprentice will be able to service and repair truck frames and chassis.
Prerequisite(s): SV1460, SV2810

SV2720 Manual Transmissions
Upon successful completion of this course, the apprentice will be able to service and repair manual transmissions in trucks.
Prerequisite(s): SV2710

SV2725 Power Take-offs
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair power take-offs.
Prerequisite(s): Block 5

SV2726 Anti-lock Braking and Traction Control Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of anti-lock braking systems, traction control systems and the procedures to service and repair both systems.
Prerequisite(s): Block 5

SV2727 Cab Components
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair cab components.
Prerequisite(s): Block 5

SV2728 Trailers
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair trailers.
Prerequisite(s): Block 2

SV2729 Engine Clutches
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair engine clutches.
Prerequisite(s): Block 5

SV2741 Transfer Cases
Upon successful completion of this course, the apprentice will be able to service and overhaul transfer cases in trucks.
Prerequisite(s): SV1100, SV1151, SV1160, SV1170, SV1180, SV1281, WD1300, WD2320

SV2760 Gasoline Fuel Injection Systems
Upon successful completion of this course, the apprentice will be able to service, diagnose operational deficiencies and carry out corrective maintenance on gasoline electronic fuel injection systems used on medium duty trucks.
Prerequisite(s): Entire Program

SV2771 Emission Control Systems
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair emission control systems.
Prerequisite(s): Block 3

SV2781 Trailer Coupling Devices
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures used to service and repair trailer coupling devices.
Prerequisite(s): Block 2

SV2820 Diesel Engine Principles
Upon successful completion of this unit, the apprentice will be able to describe the working principles of a diesel engine, describe the operation of the components, describe various systems on a diesel engine, and follow proper procedures to inspect and test delivery pumps and injectors.
Prerequisite(s): Completion of Block 4

SV2830 Diesel Engine Diagnostics
Upon successful completion of this unit, the apprentice will be able to identify symptoms and possible problems, test engine components, and diagnose problems related to electrical components.
Prerequisite(s): SV2820

SV2840 Diesel Engine Repair
Upon successful completion of this unit, the apprentice will be able to service and repair diesel engine components.
Prerequisite(s): SV2820

SV2900 Engine Rebuilding (Gasoline)
Upon successful completion of this unit, the apprentice will be able to disassemble, service, and reassemble cylinder head and cylinder block assemblies.
Prerequisite(s): Completion of Block 4

TA1120 Orientation to Rehabilitation for PTA
This is a clinical placement to familiarize the student with the rehabilitation/health care environment and roles of rehabilitation staff

TA1130 Orientation to Rehabilitation for OTA
The purpose of this course is to introduce the student to the field of rehabilitation, the role of the Occupational Therapist Assistant, professional organizations and areas of specialization. The course will include a one week clinical placement.

TA1220 Normal Functional Movement
This course will provide students with an ease in: handling, moving patients; describing the human body in motion; and safe body mechanics. This will be based on theoretical and practical study of normal functional movement and how it applies to persons with atypical movement patterns. The course will include a lab component, and a practical skills exam. A two week clinical placement will immediately follow successful completion of all course content (a pass must be achieved in both the practical skills exam and the theory component).
Prerequisite(s): TA1130, BL1320

TA1310 The Health Care System
This is an introductory course which focuses on the evolution of the Canadian Health Care system, from the Federal and Provincial division of powers and responsibilities under the British North America Act of 1867 (now the Constitution Act of 1982) to the development of the current day publicly funded system. It will include determinants of health status, special interest groups and a comparison of the Canadian system to various other models. The purpose of the course is to familiarize student with the organization of the Canadian Health Care System and the roles and interrelationships of health professions.

TA1510 Introduction to Gerontology
This course defines aging and the Canadian population according to current and forecast age distributions. Implications on the dependency, economic and social status of the elderly are analyzed. Health status and influencing factors are examined with a concurrent review of health care and housing systems available in urban and rural communities.

TA2120 Disabling Conditions
Students will be introduced to a selection of disabling conditions based on broad diagnostic categories, including developmental, physical and psychosocial conditions in pediatric, adult and geriatric populations. Emphasis will be placed on the impact that these conditions present to the individual and the rehabilitation management of these conditions.
Prerequisite(s): BL1320

TA2210 Communication Disorders in Rehabilitation
The purpose of this course is to review the communication problems associated with neurological and sensory impairments which inhibit a person’s ability to effectively communicate with others. The focus of the course is to teach the students practical skills which will enhance their communication skills with people who have speech and language problems. As well, the students will learn strategies which they can use in assisting disabled persons to communicate despite their impairments. Some time will be spent on learning the skills to help people with communication disorders.
Prerequisite(s): BL1320

TA2510 Psychiatric Disorders
This course provides a general overview of common psychiatric disorders, their management, theories of mental illness and psycho social practice. As well, current issues in mental health and social-cultural and developmental perspectives will be explored. To facilitate integration of...
theory and knowledge into practice consideration will be given to the role of the OTA and PTA in this setting.

**TA2630 Therapeutic Skills I for PTA ●**
Therapeutic Skills I is a comprehensive list of practical skills for the entry-level Physiotherapists Assistant to be used in conjunction with the practical exam forms and the clinical evaluation forms. The evaluator of these skills can be any licensed Physiotherapist who observes these skills being performed and deems they have been performed in a safe and competent manner. The evaluation may take place during lab sessions or during the field clinical placement.

**TA2640 Therapeutic Skills II for PTA ●**
Therapeutic Skills II is a comprehensive list of practical skills for the entry-level Physiotherapists Assistant to be used in conjunction with the practical exam forms and the clinical placement evaluation forms. The evaluator of these skills can be any licensed Physiotherapist who observes these skills being performed and deems they have been performed in a safe and competent manner. The evaluation may take place during lab sessions or during the clinical placement.

**TA2650 Therapeutic Skills I for OTA ●**
Therapeutic Skills I - OTA TA2650 is to be used in conjunction with the Evaluation Guide and the Clinical Placement Evaluation Form. The evaluator of these skills can be any licensed Occupational Therapist who observes these skills being performed and deems they have been performed in a safe and competent manner. The evaluation may take place during lab sessions or clinical sessions.

**TA2660 Therapeutic Skills II for OTA ●**
Therapeutic Skills II - OTA TA2660 is to be used in conjunction with the Evaluation Guide and the Clinical Placement Evaluation Form. The evaluator of these skills can be any licensed Occupational Therapist who observes these skills being performed and deems they have been performed in a safe and competent manner. The evaluation may take place during lab or clinical sessions.

**TA2820 Clinical Placement I for PTA ●**
This course will provide students the opportunity to practice handling and moving patients; describing the human body in motion; and safe body mechanics. Clinical Placement I - PTA TA2820 will immediately follow successful completion of all Normal Functional Movement course content. A pass must be achieved in both the practical skills exam and the theory component.
Prerequisite(s): TA1120, BL1320, TA1220, TA2120

**TA2830 Clinical Placement II for PTA ●**
This six-week clinical placement will provide the opportunity for students to continue to develop their therapeutic skills and practice entry level competence as an PTA.
Prerequisite(s): TA2630

**TA2840 Clinical Placement III for PTA ●**
This three-week clinical experience will provide the opportunity for students to continue to develop their therapeutic skills and practice entry level competence as an PTA in an acute care setting.
Prerequisite(s): Completion of all other program courses.

**TA2850 Clinical Placement I for OTA ●**
This course will provide students the opportunity to practice handling and moving patients; describing the human body in motion; and safe body mechanics. TA2850 Clinical Placement I will immediately follow successful completion of all Normal Functional Movement course content. A pass must be achieved in both the practical skills exam and the theory component.
Prerequisite(s): TA1130, BL1320, TA1220, TA2120

**TA2860 Clinical Placement II for OTA ●**
This five-week clinical placement will provide the opportunity for students to continue to develop their therapeutic skills learned in TA2860 Therapeutic Skills I - OTA and practice entry level competence as an OTA.
Prerequisite(s): TA2650

**TA2870 Clinical Placement III for OTA ●**
This four-week clinical placement will provide the opportunity for students to continue to develop their therapeutic skills learned in Therapeutic Skills II - OTA TA2870 and practice entry level competence as an OTA.
Prerequisite(s): All other program courses.

**TD2100 Thermodynamics ●**
This is an introductory course in thermodynamics. The course will provide the student with the basics of thermodynamics and its application to various processes.
Prerequisite(s): PH1100, CH1121

**TD2120 Thermodynamics ●**
This course follows from Thermodynamics TD2100 and applies the knowledge obtained in that course to specific mechanical systems. These applications are ones which the mechanical engineering technician is likely to use in his/her future work.
Prerequisite(s): TD2100

**TD3100: Applied Thermodynamics ●**
This is both a theory and practical course in the topic of refrigeration and air conditioning. It should draw on knowledge gained in Thermodynamics in the specific application refrigeration.
Prerequisite(s): TD2100

**TD3110 Thermodynamics II: Heat Transfer and Heat Transfer Applications ●**
This course deals with underlying theories and applications of heat transfer. These principles are then related to the unit processes involved in pulp and paper manufacture. Topics include Heat Transfer and Measurement; Conduction, Convection and Radiation; Heat Exchangers; Conduction and Energy Conversions. Examples of applications include: thermal efficiency of biomass and recovery furnaces, steam penetration, heat transfer in digesters and paper dryers. Conversion of mechanical energy to heat energy in refiners, heat losses and heat conservation in the pulp and paper industry.
Prerequisite(s): MA1101, TD2100

**TM1130 Medical Terminology ●**
This course is designed to guide the student from the fundamentals of word building to complete mastery of a medical word building system. Correct spelling and pronunciation are emphasized.

**TM1130 Medical Terminology ●**
This course is a continuation of TM1100 with emphasis on building and interpreting terminology related to the anatomy, physiology and pathology of specified body systems in a manner that maximizes learning opportunities.

**TM2100 Medical Terminology II ●**
This course is a continuation of TM1100 with emphasis on building and interpreting terminology related to the anatomy, physiology, and pathology of the human body.
Prerequisite(s): TM1100

**TR1600 Newfoundland & Labrador Tourism Destinations ●**
This course explores Newfoundland and Labrador destinations through the themes of culture/folklore, history, cultural sport events, physical attractions, festivals and special events. Students will discover that special charm that is Newfoundland and Labrador.

**TR1610 Introduction to Tourism & Hospitality ●**
This course is an introductory course designed to give students an overall view of the tourism industry. Students will explore the theories of travel motivation before moving into the eight sectors of tourism. Issues and challenges facing tourism will also be covered.

**TR1660 Newfoundland and Labrador Interpretation ●**
This course delivers an introduction into the rich cultural, historical and archaeological history of the province of Newfoundland and Labrador. It also focuses on the geological highlights for which the province is renowned, the uniqueness and diversity of the flora and fauna, and the impact that whales, seabirds and icebergs have had on the province.

**TS1100 Shop Fundamentals ●**
This general studies course requires the use of safety equipment, tools, fasteners, shop equipment and facilities and manuals. It involves the development of safety practices in the operation and maintenance of shop tools, equipment and facilities. It includes information on general safety regulations, occupational health and safety, and fire prevention and suppression.

**TS1190 Shop Fundamentals ●**
This general studies course requires the use of safety equipment, tools, fasteners, shop equipment and facilities. It involves the development of safety practices in the operation and maintenance of hand tools, equipment and facilities. It includes information on general safety regulations, fire prevention and suppression.

**TS1220 Precision Measurement ●**
This general studies course requires the use of precision measuring instruments. It involves operating, maintaining and storing precision measuring instruments. It includes information on measurement conversion and purposes of precision measurement.

**TS1300 Rigging ●**
This general studies course requires the use of rigging equipment, ladders, block and tackle, and safety equipment. It involves installing, testing and maintaining rigging and tying knots and splicing rope. It includes information on safety requirements, types of ropes, types of knots, slings, types of scaffolds, and types of ladders.
TS1510 Occupational Health and Safety
This course is designed to give participants the knowledge and skills necessary to interpret the Occupational Health and Safety Act, laws and regulations; understand the designated responsibilities within the laws and regulations; the right to refuse dangerous work; and the importance of reporting accidents. Upon successful completion of this unit, the apprentice will be able to: prevent accidents and illnesses; improve health and safety conditions in the workplace.

TS1520 WHMIS
This course is designed to give participants the knowledge and skills necessary to define WHMIS, examine hazard identification and ingredient disclosure, explain labeling and other forms of warning, and introduce material safety data sheets (MSDS). Upon successful completion of this course, the apprentice will be able to: interpret and apply the Workplace Hazardous Materials Information System (WHMIS) Regulation under the Occupational Health and Safety Act.

TS1530 Standard First Aid
This course is designed to give the apprentice the ability to recognize situations requiring emergency action and to make appropriate decisions concerning first aid.
Prerequisite(s): Complete a St. John Ambulance Standard First Aid Certificate course.

TS1550 WHMIS
This course is designed to give participants the knowledge and skills necessary to define WHMIS, examine hazard identification and ingredient disclosure, explain labeling and other forms of warning, and introduce material safety data sheets (MSDS).

TX1100 Fibre and Fabric Exploration
This course is designed to introduce students to various fibres and their properties. Students will learn basic felting, papermaking, spinning, and basketry techniques. Basic dye techniques including natural and acid dye and simple construction techniques will also be covered.

TX1200 Introduction to Sewing
This course will introduce students to basic sewing skills. Students will be introduced to semi-industrial and three/four overlock sewing machine operation. Topics include basic sewing tools and techniques in addition to knowledge of basic flat pattern construction and application.

TX1210 Industrial Sewing
This course introduces students to the operation of standard industrial sewing machines and equipment. Students will learn to operate single needle and three/four overlock and chain stitch sewing machines. Specific sewing techniques using industrial sewing equipment will be covered. Students will develop speed and accuracy using industrial equipment and produce samples according to industry standards.
Prerequisite(s): TX1200, TX1400

TX1300 Embroidery and Quilt I
In this course students will learn introductory embroidery and quilt techniques. In addition, students will be introduced to specialty products for embroidery and quilting. Students will learn to maintain accurate records of their work.
Prerequisite(s): VA1200

TX1330 Print and Dye I
This is an introductory course in print and dye techniques. Topics covered include fibre reactive dye, discharge techniques, resist techniques, and block printing. Students will learn to maintain accurate records of their work.
Prerequisite(s): TX1200, VA1200

TX1400 Apparel Construction I
This is the first in a series of courses in apparel construction. Students will be provided with an overview of the apparel industry. Emphasis will be placed on mastering basic sewing techniques to produce garments according to industry standards.
Prerequisite(s): TX1200, VA1200

TX1500 Knit and Weave I
This course introduces students to basic knitted and weave techniques. Topics in knit include shaping, texture, colour usage, and finishing techniques. Topics in weave include tapestry techniques and basic weave techniques on a floor loom. Students will learn to maintain accurate records of their work.
Prerequisite(s): VA1200

UL4110 Ultrasound Physics
This course is designed to instruct students in the theoretical and practical application of ultrasound physics and instrumentation. Selected topics include the interaction of sound and matter, properties of ultrasound transducers, pulse echo instrumentation, images and artifacts, Doppler instrumentation, instrument quality assurance, bioeffects and safety.

UL4210 Obstetrics
This course is designed to enable students to acquire a comprehensive knowledge of obstetrics. The didactic phase will include instruction in normal pregnancy and fetal growth and development from fertilization to parturition. Emphasis will be placed on cross-sectional anatomy, pathophysiology, examination procedures and protocol, and normal/abnormal sonographic appearances.
Prerequisite(s): Successful completion of semester 1
Co-requisite(s): UL4230, UL4311, UL4610

UL4230 Gynecology
This course is designed to enable students to acquire a comprehensive knowledge of female pelvic anatomy and physiology. The didactic phase of the program will include instruction in pelvic musculature, peritoneal compartments, reproductive organs and vasculature. Emphasis will be placed on cross-sectional anatomy, pathophysiology, examination procedures and protocol, and normal/abnormal sonographic appearances.
Prerequisite(s): Successful completion of semester 1
Co-requisite(s): UL4311, UL4210, UL4610

UL4310 Basic Scanning I
This is a comprehensive course designed to provide the student with sufficient practice to acquire the basic skills necessary to produce diagnostic ultrasound images. Instruction will be provided in ultrasound practice, principles and protocol. Emphasis will be placed on basic, alternate and specialized imaging techniques utilized for abdominal and vascular examinations.

UL4311 Basic Scanning II
This is a comprehensive course designed to provide students with sufficient practice to acquire the basic skills necessary to produce diagnostic ultrasound images. Instruction will be provided in ultrasound practice, principles and protocol. Emphasis will be placed on basic, alternate and specialized imaging techniques utilized for superficial obstetrical and gynecological examinations.
Prerequisite(s): Successful completion of semester 1
Co-requisite(s): UL4210, UL4230, UL4610

UL4420 Abdomen
This course is designed to enable the student to acquire a comprehensive knowledge of abdominal ultrasound. The didactic phase of the program will include instruction in abdominal/ pelvic organs and vasculature. Emphasis will be placed on cross-sectional anatomy, pathophysiology, examination procedures and protocol, and normal/abnormal sonographic appearances.
Prerequisite(s): None
Co-requisite(s): UL4430

UL4430 Abdomen Pathology
This course is designed to enable the student to acquire a comprehensive knowledge of the pathology encountered with abdominal ultrasound. Emphasis will be placed on cross-sectional anatomy, pathophysiology to know the abnormal sonographic appearances.
Prerequisite(s): None
Co-requisite(s): UL4420

UL4510 Superficial Structures
This course is designed to enable students to acquire a comprehensive knowledge of superficial organs and structures. The didactic phase of the program will include instruction in thyroid, parathyroid, scrotal, testes and musculoskeletal and salivary gland anatomy. Emphasis will be placed on cross-sectional anatomy, pathophysiology, examination procedures and protocol and normal/abnormal sonographic appearances.
Prerequisite(s): Successful completion of 2nd Semester.

UL4610 Clinical Training
This phase of the program is designed to enable students to acquire, to the fullest extent, the technological skills necessary to become competent in the practice of ultrasonography. Emphasis is placed on extensive "hands on" scanning in the clinical setting. Upon completion of training the student will be able to produce high quality scans in all general and most specialty areas in an efficient and effective manner.
Prerequisite(s): Successful completion of semester 1
Co-requisite(s): UL4210, UL4230, UL4311

UL4611 Clinical Training
This phase of the program is designed to enable students to acquire, to the fullest extent, the technological skills necessary to become competent in the practice of ultrasonography. Emphasis is placed on extensive "hands on" scanning in the clinical setting. Upon completion of training the student will be able to produce high quality scans in all general and most specialty areas in an efficient and effective manner.
Prerequisite(s): Successful completion of semester 2
Co-requisite(s): UL4510

VA1100 Introduction to Drawing I
This course is designed to introduce students to the rudiments of drawing. Students practice observation, identifying variations within subject matter, and translating these visions into the drawn form. A variety of basic techniques and drawing styles are introduced and developed during the semester.

VA1101 Introduction to Drawing II
This course is designed to consolidate and refine skills learned in Introduction to Drawing I. Experimentation with various media qualities, techniques, and compositional studies are stressed in relation to developing the drawing. Particular individual attention is paid to drawing problem areas to ensure that the student develops strong drawing skills.
Prerequisite(s): VA1100
VA1150 Animation Drawing I
This course builds upon the skills acquired in VA1100 by providing the student with a structured series of studio experiences which develop competencies in sketching the human form and objects. The focus is upon capturing the human form at rest and throughout a range of motion. Animation storyboarding will be introduced through a simple comic book project.
Prerequisite(s): VA1100

VA1200 Elements of Design
This is an introductory course in design elements. Students will be provided with an understanding of design concepts, the elements of design and how these elements can be used in visual communications.

VA1210 Principles of Design
This is an introductory course that provides a clear understanding of the principles of design and how they can be used in visual communications.
Prerequisite(s): VA1200

VA1230 Graphic Design I: Design Fundamentals
This introductory course provides a clear introduction to the elements and principles of design, and how they can be utilized for basic graphic arts tasks. It also introduces students to the role of the Graphic Designer in the Graphic Arts industry, and exposes students to the basic operation of a design studio environment.

VA1231 Graphic Design II: Design for Business
This course is designed to further develop students' graphic design skills using digital tools. A specific focus of the course is to introduce students to the design requirements of business, including information graphics, business stationery, signage and display advertising.
Prerequisite(s): VA1230; GA1110; GA1410; MC1180

VA1300 Materials & Techniques I
This is the first of two courses in materials and techniques. It is the primary introduction to most visual arts studio areas. Each studio area is introduced in a seven week unit during which students are taught the fundamental techniques of that particular medium. Media covered include painting and ceramics.

VA1301 Materials & Techniques II
This is the second of two courses in materials and techniques. It is the primary introduction to most visual arts studio areas. Each studio area is introduced in a seven week unit during which students are taught the fundamental techniques of that particular medium. Media covered include metal jewellery/sculpture and printmaking.
Prerequisite(s): VA1300

VA1350 Animation 3D Modelling
This course provides students with the skills to produce original pieces from clay or plasteline. The physical modelling of an object or human form refines skills in 3D visualisation, enabling digital pieces to attain higher levels of realism. Additionally, physical models can assist in selling a concept.
Prerequisite(s): VA1151

VA1400 Introduction to Colour Theory
This introductory course provides the student with a clear understanding of the elements and principles of colour theory, and how colour can be used to create more effective visual images.

VA1500 Photographic Illustration I
An introduction to the basics of photography as applied to graphic art and design applications. The visual aspects and rendering of graphic information photographically reproduced towards enhancement of visual and graphic perception.
Prerequisite(s): VA1100

VA1501 Photographic Illustration II
A continuation of Photography I. This course stresses the importance of photographic insight as applied to the advertising industry. The reproduction of the photographical image as an intrinsic part of an overall design, and specifically as a design anchor point, will be especially emphasized.
Prerequisite(s): VA1500

VA1700 Graphics Art and Design
This course is designed to introduce students to the rudiments of drawing and graphics design. Topics such as drawing fundamentals, elements of design, and principles of design will be discussed.

VA2100 Drawing I
This course is designed to consolidate and refine skills learned in the Introduction to Drawing courses. The use of various materials, compositions, and drawing techniques are stressed in relation to developing intermediate technique and style in drawing. With individualized guidance from the instructor, students are encouraged to develop more personal responses in all aspects of drawing.
Prerequisite(s): VA1101

VA2101 Drawing II
This course is designed to allow students to create a body of drawings demonstrating their ability to make personal choices in all aspects of developing final drawings. Students will incorporate personal ideas and content in this body of drawings and continue to refine their use of various materials, compositions, and drawing techniques in consultation with the instructor.
Prerequisite(s): VA2100

VA2200 Introduction to Three Dimensional Design
This is a required introductory course in three dimensional design for visual arts students. The course provides students with a clear understanding of how line, shape, and volume can be controlled to produce art objects.
Prerequisite(s): VA1201

VA2201 Intermediate Three Dimensional Design
This is a required intermediate course in three dimensional design for students in the Visual Arts program. The course provides students with an understanding of subtractive sculpture and the processes involved with removing material from wood and stone blocks to create sculptural objects.
Prerequisite(s): VA2200

VA2221 Graphic Design IV: Identity Systems Design
This course is designed to give advanced graphic design students an understanding of and experience with developing complex identity systems for the private, governmental and non-profit sectors.
Prerequisite(s): Successful completion of all first year Graphic Design courses; GA1870; VA2240; GA1511; GA1800

VA2240 Graphic Design II: Packaging Design
This course is designed to introduce students to the theory and practice of packaging design. Students will be exposed to a variety of packaging concepts and options, and will apply their knowledge to the development of several packaging projects that incorporate their own ideas. Students will develop packaging solutions that meet clients’ needs using industry standard software on the Apple Macintosh and PC platforms.
Prerequisite(s): Successful completion of all first-year Graphic Design courses.

VA2250 Application of Design Theory I
This course is designed to consolidate and refine skills learned in the Elements of Design and Principles of Design courses. Particular attention is paid to developing an individual working method in design that allows the student to use design theory in practical applications.
Prerequisite(s): VA1201

VA2251 Application of Design Theory II
In this course students will have the opportunity to design and produce a body of work that will reflect the accumulated knowledge and experience gained in previous design courses. Particular attention will be given to independent thinking and the development and creation of personal ideas in terms of style and content with further emphasis on critical analysis.
Prerequisite(s): VA2250

VA3100 Life Drawing
This course emphasizes the development of quick sketch techniques using models in action and video stills to study the motion.

VA3200 Introduction to Classical Animation Techniques
This course provides students with the skills required to complete an animated project. The course consists of traditional animation production leading to the development of a 30 second animation in supervised labs with regular progress reviews. Students will develop a storyboard, design layout and produce finished animation drawings. Individual coaching on portfolio and demo reel preparation and presentation will be presented.

VA3550 Screening and Peer Critique
This course provides students with an opportunity to engage in weekly peer review sessions during which all students will demonstrate the projects that they are working on. The intent is to enable each student to have projects critiqued by peers and the instructor for the program, while valuing the opportunity to learn from the creative applications of those same peers.

WA1100 Hydraulics
This course is included in the Civil Engineering Technology program as an engineering science to provide the student with a knowledge of the principles of fluid mechanics and the application of these principles to practical applied problems. Students completing this course should have the ability to design and analyze practical fluid flow systems and continue learning other applied courses such as hydrology, urban services design, urban planning, etc.
Prerequisite(s): MA1101, PH1101

WA1120 Fundamentals of Hydraulics and Pneumatics
This course in hydraulics and pneumatics requires the ability to design and analyze practical fluid flow systems and continue learning other applied courses such as hydrology, urban services design, urban planning, etc.
Prerequisite(s): MA1101, PF1170
WA1200 Hydrology
This course is designed to serve as an introductory course, one that includes the major concepts and principles of hydrology.

WC1150 Co-op Work Term I
The work term provides a unique learning experience in a real work place setting. Work terms must be program relevant, 12-16 weeks in duration, and be a normal work week in terms of at least 35 hours, remunerated (paid), and evaluated. Participation in the work term is determined through a competitive process and successful completion of all courses prior to the work term with a Grade Point Average of at least 2.00 is mandatory for work term eligibility. This work term follows the successful completion of semester 2. For most students, it represents their first professional work experience in a business environment and, as such, represents their first opportunity to evaluate their choice of pursuing a career in information technology. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. During the on-the-job experience students develop their employability and technical skills, further enhancing their personal growth. The students are learning from the new network of contacts and widening their perception of life and career choices.

Prerequisite(s): Successful completion of all courses in academic terms one and two with a minimum Grade Point Average of 2.00.

WC1200 Work Term I
For most students, this work term represents their first experience in an electrical engineering environment and therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 6 in the Electrical Engineering Technology (Power and Controls) program. Students are expected to learn, develop and demonstrate the high standards of behaviour and performance normally expected in the work environment. Students will be evaluated by their employer and submit a work term report within four weeks of returning to classes.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1201 Work Term II
The second work term provides students possessing significant knowledge from the Electrical Engineering Technology (Power and Controls) Co-op program with the opportunity to contribute to an employer’s operation. This work term follows the successful completion of Semester 8. Students are expected to further develop and expand their knowledge and work-related skills, and should be able to accept increased responsibility and challenge in the workplace. In addition, students are expected to demonstrate an ability to deal with increasingly complex concepts and problems. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1250 Safety Program Development
This work term course is designed to allow students who have completed several specialty courses in Safety and Occupational Health, to undertake in-depth, on-the-job analysis and /or development of a viable safety program.

It follows the successful completion of academic semester one.

WC1300 Work Term I
This work term follows the successful completion of Semester 5 (Academic Term). For most students, it represents their first professional work experience in a Surveying environment and, as such, represents their first opportunity to evaluate their choice of pursuing a career in Surveying. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

Prerequisite(s): Successful completion of semesters 1 – 5.

WC1301 Work Term II
This work term follows the successful completion of Semester 7 (Academic Term). Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to undertake increasingly complex surveying tasks. Students should conscientiously assess the various opportunities relative to their individual interests.

Prerequisite(s): Successful completion of semesters 1 – 7.

WC1330 Work Term (Under Development)

WC1400 Co-Op Work Term I
This work term follows the successful completion of academic semester 4. For most students, it represents their first professional work experience in a service/production environment and, as such, represents their first opportunity to evaluate their choice of pursuing a career in Industrial Engineering. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

Prerequisite(s): Eligibility according to co-op regulations in current College calendar.

WC1401 Co-Op Work Term II
This work term follows the successful completion of academic semester 6. Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to deal with increasingly technical industrial engineering principles and analysis techniques. Students should conscientiously assess the various opportunities relative to their individual interests.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1500 Co-operative Work Term I
This work term follows the successful completion of Semester 5 in the Environmental Technology program. For most students, it represents their first professional work experience in a service/production environment and, as such, represents their first opportunity to evaluate their choice of pursuing a career in the Environmental Technology field. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1521 Co-operative Work Term II
This work term follows the successful completion of Semester 7 in the Environmental Technology program. Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Students should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1700 Co-op Work Term I
For most students, this work term represents their first experience in an information technology engineering environment and therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 5. Students are expected to learn and develop and demonstrate the high standards of behaviour and performance normally expected in the work environment.

Prerequisite(s): Successful completion of Semester 4 and GPA of 2.00

WC1701 Co-op Work Term II
The second work term provides students with a substantial degree of academic achievement with the opportunity to contribute to an employer’s operation. This work term follows the successful completion of Semester 7. Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Students should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Successful completion of Semester 5 with GPA of 2.00

WC1830 Work Term I
For most students, this work term represents their first experience in a processing engineering environment and therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 6 in the Chemical Process Engineering Technology Program. Students are expected to learn, develop and demonstrate the high standards of behaviour and performance normally expected in the work environment. Students will be evaluated by their employer and submit a work term report within four weeks of returning to classes.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1831 Work Term II
The second work term provides students possessing significant knowledge from the Chemical Process Engineering Technology program with the opportunity to contribute to an employer’s operation. This work term follows the successful completion of Semester 6. Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Students should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1832 Work Term III
The third work term provides students possessing significant knowledge from the Chemical Process Engineering Technology program with the opportunity to contribute to an employer’s operation. This work term follows the successful completion of Semester 7. Students are expected to further develop and expand their knowledge and work-related skills and should be able to accept increased responsibility and challenge. In addition, students are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Students should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.
problems. Students should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the student demonstrating competence in both technical content and communication skills.

**Prerequisite(s):** Eligibility according to Co-op regulations in current College calendar.

**WC1900 Co-op Work Term I**
This workterm follows the successful completion of semester 5 in the Mechanical (Manufacturing) Engineering Technology program. For most students, it represents their first professional work experience in a service/production environment and, as such, represents their first opportunity to evaluate their choice of pursuing a career in this field. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

**Prerequisite(s):** Eligibility according to Co-op regulations in current College calendar.

**WC1901 Co-op Work Term II**
This workterm follows the successful completion of semester 7 in the Mechanical (Manufacturing) Engineering Technology program. For most students, it represents their first professional work experience in a service/production environment and, as such, represents their second opportunity to evaluate their choice of pursuing a career in this field. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

**Prerequisite(s):** Eligibility according to Co-op regulations in current College calendar.

**WC2150 Work Term II**
This is the second work term exposure. The student is expected to further develop and expand his/her knowledge and work-related skills and should be able to accept increased responsibility and challenges. In addition, the student is expected to demonstrate an ability to deal with increasingly complex technical concepts and problems. The student should conscientiously assess the various opportunities relative to their individual interests and career aspirations.

The work term provides a unique learning experience in a real work place setting. Work terms must be program relevant, 12-16 weeks in duration, and be a normal work week in terms of at least 35 hours, remunerated (paid), and evaluated. Participation in the work term is determined through a competitive process. During the on-the-job experience students develop their employability and technical skills, further enhancing their personal growth.

**Prerequisite(s):** Successful completion of all courses in academic terms one and two and WC1050 Work Term I and WC2150 Work Term II with a Grade Point Average of at least 2.00. In the event a student has not obtained a work term before semester six results are released, then, the student has to be in clear standing from semester six.

**WD1100 Welding Technology and Processes I**
This introductory course deals with welding technology and processes as applied to the metal fabricating industry. Safety practices are emphasized in all aspects of welding applications in the shop. Applications include welding preparations, welding basic joints, and cutting processes.

**Prerequisite(s):** Eligibility according to Co-op regulations in current College calendar.

**WD1101 Welding Technology & Processes II**
This course is a continuation of Welding Technology and Processes I (WD1100). It covers fusion welding of steel structures under CSA STANDARD 47.1. In conjunction with this standard, using the SMAW process and its applications, the course deals with welding power supplies, electrodes, welding procedures, and testing.

**Prerequisite(s):** WD1100

**WD1120 Shielded Metal Arc Welding Fundamentals**
This SMAW course requires the use of safety equipment, SMAW equipment and accessories, and materials and supplies. It involves setting up equipment, preparing and welding metal, shutting down equipment and testing the weld. It includes information on basic electricity, types of electrodes, types of welding machines, joint design and weld faults.

**Prerequisite(s):** PF1160

**WD1165 Hand, Measuring and Layout Tools**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of proper use of hand, measuring and layout tools.

**WD1170 Hand and Power Cutting Tools**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of cutting tools, their applications, maintenance and procedures for use.

**WD1175 Drilling and Threading Tools**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of drilling, threading and fastening tools, their use and maintenance.

**Prerequisite(s):** WD1170

**WD1180 Grinding and Finishing**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of grinding and finishing tools and equipment.

**Prerequisite(s):** WD1170

**WD1185 Bending and Rolling**
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of bending and rolling equipment.

**WD1250 Oxy-Fuel Cutting and Heating**
Upon successful completion of this course, the apprentice will be able to identify procedures for the safe and effective set-up and operation of oxy-fuel equipment for heating, cutting and braze welding.

**Prerequisite(s):** TS1190

**WD1260 Shielded Metal Arc Welding**
Upon successful completion of this course, the apprentice will be able to set up arc welding equipment, describe the different types of electrodes and identify the purpose; describe the different types of joints, perform basic arc welding procedures.

**Prerequisite(s):** TS1190

**WD1270 Shielded Metal Arc Welding (SMAW) But Joint – Flat and Horizontal Positions (F-4 Class Electrodes) – Mild Steel**
Upon successful completion of this unit, the apprentice will be able to weld butt joints on mild steel in the flat and horizontal positions with F-4 class electrodes using the SMAW process; test welds.

**Prerequisite(s):** WD1620

**WD1300 Oxy-Fuel Welding/cutting**
Upon successful completion of this unit, the apprentice will be able to operate oxy-fuel heating and cutting equipment to industrial safety standards for the removal and/or installation of parts, and perform braze welding and flame cutting using oxy-fuel equipment.

**Prerequisite(s):** SV1165

**WD1320 Gas Metal Arc Welding**
Upon successful completion of this course, the apprentice will be able to describe the basic MIG (GMAW) welding process and provide the trainee with the skills and knowledge needed to use MIG Welding equipment.

**Prerequisite(s):** TS1190

**WD1330 Oxy-Fuel Welding**
Upon successful completion of this unit, the apprentice will be able to operate oxy-fuel equipment to cut metals; operate oxy-fuel equipment to execute basic welding procedures; operate oxy-fuel equipment to execute basic brazing and soldering procedures.

**Prerequisite(s):** MS1230

**WD1340 Gas Metal Arc Welding (GMAW) Fillet Weld – Flat and Horizontal Positions Mild Steel**
Upon successful completion of this unit, the apprentice will be able to fillet weld mild steel in the flat and horizontal position using the GMAW process; test welds.

**Prerequisite(s):** WD1630

**WD1380 Electric Arc Welding**
Upon successful completion of this unit, the apprentice will be able to set up arc welding equipment; describe the different types of electrodes and identify the purpose; describe the different types of joints; perform basic arc welding procedures.

**Prerequisite(s):** WD1330
WD1510 Metallurgy Fundamentals
This metallurgy course requires the use of hardenable steel, heating sources and temperature indicators. It involves shaping metal, determining heat ranges, applying heat, monitoring colour and temperature and quenching. It includes information on structure and properties of metals, heat treatment processes, production of materials, corrosion, expansion and contraction, millwork, casting, heat line bending, pre-heat and post-heat and alloying elements.
Prerequisite(s): WD1200
WD1600 Oxy-Fuel Cutting, Welding, Heating and Gouging
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of oxy-fuel equipment.
Prerequisite(s): TS1530
WD1610 SMAW (Shielded Metal Arc Welding) I Set-Up, Strike and Maintain an Arc
Upon successful completion of this unit, the apprentice will be able to set up and maintain an arc; deposit a weld bead.
Prerequisite(s): WD1600
WD1620 SMAW II – Fillet Weld all Positions
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of fillet weld mild steel in all positions using the SMAW process; perform visual inspection of welds.
Prerequisite(s): WD1610
WD1630 GMAW (Gas Metal Arc Welding) I Set Up and Maintain an Arc
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the procedures to set up GMAW equipment, strike and maintain an arc; disassemble and reassemble GMAW welding systems; perform visual inspection of weld.
Prerequisite(s): WD1610
WD1640 GTAW (Gas Tungsten Arc Welding) I – Set Up
Upon successful completion of this unit, the apprentice will be able to demonstrate, set-up equipment, strike and maintain an arc; perform visual inspection of welds.
Prerequisite(s): WD1610
WD1650 Plasma Arc Cutting and Gouging
Upon successful completion of this unit, the apprentice will be able to set-up and operate plasma arc equipment; cut and gouge ferrous and non ferrous metal.
Prerequisite(s): WD1610
WD1660 Blueprint Reading I (Basic)
Upon successful completion of this unit, the apprentice will be able to demonstrate a basic knowledge of blueprints and their purpose.
WD1670 Blueprint Reading II (Welding Symbols)
Upon successful completion of this unit, the apprentice will be able to interpret welding abbreviations and symbols.
Prerequisite(s): WD1660
WD1680 Metallurgy, Expansion and Contraction Control
Upon successful completion of this unit, the apprentice will be able to demonstrate understanding of the practices and principles to control expansion, contraction and distortion.
Prerequisite(s): WD1610
WD1690 Quality Control
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of quality control; demonstrate knowledge of non-destructive tests.
Prerequisite(s): WD1610
WD1700 Stationary Powered Shearing
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of powered shearing equipment and its applications.
WD1710 Iron Worker Operation
Upon successful completion of this unit, the apprentice will be able to operate iron worker equipment for punching and shearing of structural shapes, plate and sheet sections; perform preventative maintenance.
Prerequisite(s): TS1530, WD1615
WD1720 Jigs and Fixture Fabrication
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of jig and fixture fabrication and applications.
Prerequisite(s): WD1730
WD1730 Fabrication Fundamentals
Upon successful completion of this unit, the apprentice will be able to prepare joints on structural shapes to industry standards; fabricate using various structural shapes.
WD1740 FCAW (Flux-Cored Arc Welding) I-Setup and Deposit a Weld
Upon successful completion of this unit, the apprentice will be able to set-up and adjust FCAW equipment.
Prerequisite(s): WD1630
WD1750 FCAW II – Weld Plate (Flat and Horizontal)
Upon successful completion of this unit, the apprentice will be able to deposit a weld in flat and horizontal positions using flux cored wire; identify various gases and gas mixtures; shut down FCAW equipment.
Prerequisite(s): WD1740
WD1760 Air-Arc Cutting and Gouging
Upon successful completion of this unit, the apprentice will be able to remove a weld from a joint using the AAC process; cut metal using the AAC process.
Prerequisite(s): WD1270
WD1770 Submerged Arc Welding Set-Up
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of the SAW process.
Prerequisite(s): WD1270
WD1800 SMAW (Shielded Metal Arc Welding) III – Groove Weld all Positions
Upon successful completion of this unit, the apprentice will be able to groove weld on mild steel in all positions using the SMAW process with F-3 and F-4 electrodes; perform weld tests.
Prerequisite(s): WD1610
WD1810 SMAW (Shielded Metal Arc Welding) IV – Fillet and Groove Weld Medium and High Carbon Steel
Upon successful completion of this unit, the apprentice will be able to describe the process to weld on medium and high-carbon steel in all positions using the SMAW process.
Prerequisite(s): WD1680
WD1820 GMAW II – Fillet Weld all Positions, Mild Steel
Upon successful completion of this unit, the apprentice will be able to fillet weld on mild steel in all positions using the GMAW process.
Prerequisite(s): WD1630
WD1830 GMAW (Gas Metal Arc Welding) III – Groove Weld all Positions, Mild Steel
Upon successful completion of this unit, the apprentice will be able to groove weld on mild steel in all positions using the GMAW process.
Prerequisite(s): WD1630
WD1840 GTAW (Gas Tungsten Arc Welding) II – Fillet Weld all Positions, Mild Steel
Upon successful completion of this unit, the apprentice will be able to fillet weld on mild steel in all positions using the GTAW process.
Prerequisite(s): WD1640
WD1850 GTAW (Gas Tungsten Arc Welding) III – Groove Weld all Positions, Mild Steel
Upon successful completion of this unit, the apprentice will be able to groove weld on mild steel in all positions using the GTAW process.
Prerequisite(s): WD1640
WD1860 GTAW IV – Fillet and Groove Weld Medium and High Carbon Steel
Upon successful completion of this unit, the apprentice will be able to fillet and groove weld on medium and high-carbon steel in all positions using the GTAW process.
Prerequisite(s): WD1680
WD1870 Build Up of Metal Parts
Upon successful completion of this unit, the apprentice will be able to build up metal parts of various shapes; apply hard surfacing treatments to protect against wear and impact.
Prerequisite(s): WD1610
WD1880 Fusion, Brazing and Braze Welding (Oxy-Fuel)
Upon successful completion of this unit, the apprentice will be able to braze (silver solder) copper pipe in all positions; fusion weld steel in the flat and horizontal positions; braze weld.
Prerequisite(s): WD1600
WD1890 FCAW II – Fillet and Groove Weld Plate all Positions
Upon successful completion of this unit, the apprentice will be able to deposit a weld in all positions using flux cored wire; identify various gases and gas mixtures.
Prerequisite(s): WD1740
WD1900 Air Carbon Arc Cutting and Gouging
Upon successful completion of this unit, the apprentice will be able to remove a weld from a joint using the air carbon arc (ACA) process; prepare joints using the air carbon arc (ACA) process.
Prerequisite(s): WD1600
WD1910 Layout and Template Development Fundamentals
Upon successful completion of this unit, the apprentice will be able to develop templates for structural fabrications; develop wrap around templates for use in welded fabrication of joints in pipe and tubing.
WD2100 Welding GMAW/FCAW
This course is a continuation of Welding Technology and Processes II (WD1101). The emphasis is to familiarize the
student with common semi and fully automatic processes, their control, limitations, and applications. Processes include GMAW, FCAW, SAW, EGW and ESW Welding. The student will be required to apply knowledge and experience to a variety of industrial problems (i.e. actual and simulated). Shielded Metal Arc processes, Welding procedures, CSA standard W47.1.
Prerequisite(s): WD1101

WD2101 Welding Technology & Processes IV
This course is designed to familiarize the student with the theory and practice of Gas Tungsten Arc Welding (GTAW). The GTAW course includes the selection and set-up of equipment and accessories and their application to aluminum, steel and stainless steel in all positions.
Prerequisite(s): WD2100

WD2200 Welding Codes
This course introduces the student to welding codes, standards and specifications related to the fabrication and inspection of pressure vessels, tanks, structures, and structural steel. Applicable codes such as ASME, Section VIII, and IX and CSA Standards W47.1, W59, W178, and W178.2 are discussed in detail. Other similar codes, standards, and specifications such as ABS, Lloyds, AWS, and DNV will also be discussed and compared with ASME and CSA.
Prerequisite(s): WD1100, EG1100, CF1100

WD2300 Welding Failure Analysis
Actual cases of failed structures will be studied in detail. The case studies involve analysis of material used, design procedures followed, fabrication methods, and testing controls used. Emphasis will be placed on the design of weldments to avoid fatigue and brittle fractures using fracture mechanics.
Prerequisite(s): CF1101, CF2510

WD2320 Arc Welding
Upon successful completion of this course, the apprentice will be able to set up and perform basic arc welding.
Prerequisite(s): SV1100, SV1110, SV1150, SV1170, WD1300, TS1510, TS1520

WD2330 GMAW Welding (MIG)
Upon successful completion of this unit, the apprentice will be able to operate MIG welding equipment to industrial safety standards as needed for various motorized equipment.
Prerequisite(s): Completion of Entry Level

WD2400 Welding Metallurgy
Welding difficulties and defects, metallurgical problems encountered in welding low, medium, and high-carbon steels and alloy steels, including stainless and high-chromium steels, austenitic manganese steel and tool and die steels.
Prerequisite(s): CF1100, CF1101

WD2410 Stud Welding and Resistance Spot Welding
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of stud welding and resistance spot welding.
Prerequisite(s): WD1610

WD2420 Blueprint Reading III (Advanced/CAD)
Upon successful completion of this unit, the apprentice will be able to interpret dual dimensions; interpret international symbols; interpret test and inspection symbols; describe computer aided drafting (CAD).
Prerequisite(s): WD1670

WD2430 Material Handling, Rigging and Scaffolding
Upon successful completion of this unit, the apprentice will be able to demonstrate knowledge of rigging, hoisting, lifting equipment, scaffolding, accessories and practices.
Prerequisite(s): TS1510

WD2440 Blueprint Reading IV (Shop Drawings)
Upon successful completion of this unit, the apprentice will be able to identify structural components from shop drawings; draw templates for structural parts.
Prerequisite(s): WD2420

WD2500 SAW VI – Alloy Steels
Upon successful completion of this unit, the apprentice will be able to describe the process to weld alloy steel using the SMAW process; describe the process to weld stainless steels using the SMAW process; describe the process to weld nickel alloy steels using the SMAW process.
Prerequisite(s): WD1680

WD2510 GMAW (Gas Metal Arc Welding) IV – Fillet and Groove Weld, Medium and High Carbon Steel
Upon successful completion of this unit, the apprentice will be able to describe the process to fillet and groove weld in all positions using the GMAW process.
Prerequisite(s): WD1630, WD1820, WD1830

WD2520 GMAW (Gas Metal Arc Welding) V – Pipe and Tubing, all Positions Ferrous Metals
Upon successful completion of this unit, the apprentice will be able to weld pipe and tubing in all positions using the GMAW process.
Prerequisite(s): WD2510

WD2530 GMAW VI – Aluminum and Stainless Steel
Upon successful completion of this unit, the apprentice will be able to describe the process to weld aluminum sheet and plate in all positions using the GMAW process; describe the process to weld stainless steels in all positions using the GMAW process.
Prerequisite(s): WD1630

WD2540 GTAW VI – Alloy and Non-Ferrous Metals
Upon successful completion of this unit, the apprentice will be able to describe the process to weld alloy and non-ferrous metals using the GTAW process.
Prerequisite(s): WD1640, WD1840

WD2550 FCAW III – Pipe and Tubing all Positions
Upon successful completion of this unit, the apprentice will be able to weld pipe and tubing in all positions using the FCAW process; weld pipe and tubing using a rotating positioner.
Prerequisite(s): WD1890

WD2560 SAW (Submerged Arc Welding) Weld Plate
Upon successful completion of this unit, the apprentice will be able to describe the process to weld carbon steel plate of various thicknesses using the submerged arc welding (SAW) process.
Prerequisite(s): WD1610

WD2570 Electric Arc Cutting (SMAW)
Upon successful completion of this unit, the apprentice will be able to cut using the metal arc cutting process.
Prerequisite(s): WD1610

WD2580 SAW V – Pipe all Positions
Upon successful completion of this unit, the apprentice will be able to weld pipe and tubing in all positions using the SMAW process with F-3 and F-4 class electrodes.
Prerequisite(s): WD1800

WD2590 GTAW (Gas Tungsten Arc Welding) V – Pipe and Tubing, Mild Steel, all Positions
Upon successful completion of this unit, the apprentice will be able to weld pipe and tubing in all positions using the GTAW process; demonstrate knowledge of orbital welding equipment.
Prerequisite(s): WD2540

WD3100 Cost Analysis
This course is designed to provide the student with the knowledge to interpret structural, shop and pipe and pressure vessel drawings. The emphasis is to familiarize the student with the knowledge to calculate the cost of fabricating different structural components, by interpreting all elements of industrial drawings and submitting a bid as a major assignment. Arc Welding Processes, Weld Quality Control and Inspection, Welding Procedures and Welding Codes.
Prerequisite(s): WD1100, WD1101, WD2100, WD2101, WD2200, SP2310, SP2311

WM1100 Introduction to Women's Studies
Transferable to MUN Women's Studies 2000. This course is a feminist introduction to the history, principles, and practices of Women's Studies within a Canadian context. The initial readings document the key ideas leading to the rise of feminist consciousness in Western culture in general and the emergence of first wave feminism in Britain and North America specifically. The next group of readings documents the development of second wave feminism in Britain and North America, as well as second and third wave feminism in Canada. The impact of key second wave feminist theories on the establishment of Women's Studies as an academic field of inquiry in Canada will form the context for the interdisciplinary analysis of a variety of Canadian women's works, including (but not limited to) literature (fiction and non-fiction), film, artworks, and personal documents (for example, diaries, photographs, oral records) in archival collections.

WT1180 Intersession Work Term
The work term is a required portion of the program. The work term provides a unique learning experience in a real work place setting. Work terms must be program relevant, and 15 weeks in duration. Participation in the work term is determined through a competitive process and successful completion of all courses prior to the work term is mandatory for work term eligibility. This work term follows the successful completion of the preceding academic term. For most students, it represents their first professional work experience in a business environment, and as such represents their first opportunity to evaluate their choice of pursuing a career in information technology. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment.

During the on-the-job experience students develop their employability and technical skills, further enhancing their personal growth. Through the work term students will experience different business cultures (e.g., public, private, and not-for-profit sector, small and large organizations, etc.). They are learning from the new network of contacts and widening their perception of life and career choices.

Prerequisite(s): Successful completion of all courses in academic terms.
WT1185 Work Term
The work term is a required portion of the program. The work term provides a unique learning experience in a real work place setting. Work terms must be program relevant, and 15 weeks in duration. Participation in the work term is determined through a competitive process and successful completion of all courses prior to the work term is mandatory for work term eligibility. This work term follows the successful completion of the preceding academic term. For most students, it represents their first professional work experience in a business environment, and as such represents their first opportunity to evaluate their choice of career in information technology. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. During the on-the-job experience students develop their employability and technical skills, further enhancing their personal growth. Through the work term students will experience different business cultures (e.g., public, private, and not-for-profit sector, small and large organizations, etc.). They are learning from the new network of contacts and widening their perception of life and career choices.
Prerequisite(s): Successful completion of all courses in academic terms

WT1200 Practical Training I
The practical component of the Food Service & Nutrition Management program consists of 7 weeks training in the hospitality sector. Students will develop skills through on-site training under the direction of an industry field supervisor.
Prerequisite(s): Successful completion of all academic courses in semesters 1 and 2.

WT1201 Practical Training II
The practical component of the Food Service & Nutrition Management program consists of 7 weeks training in the health care sector. Students will develop skills through on-site training under the direction of an industry field supervisor.
Prerequisite(s): Successful completion of all academic courses in semesters 3 and 4.

WT1400 Work Term
The work term provides students with the opportunity to gain practical experience in the petroleum working environment and with the life and work of a petroleum technologist. Employers are provided the opportunity to train and assess students for possible future employment. The work term must be relevant to the petroleum industry and each student is required to submit and pass a work term report.
Prerequisite(s): Successful completion of all academic courses in the first four semesters with a minimum cumulative GPA of 2.00

WT1460 Work Placement
A minimum seven-week placement is a required portion of the program. The Work Placement Study Program provides students with the opportunity to gain practical experience in the working environment of a power plant and with the life and work of a Power Engineer. Employers are provided the opportunity to train and assess students for possible future employment. The program builds on the range of tasks laid down in the Occupational Analysis of Power Engineers and familiarizes the student with all the machinery and systems that Power Engineers are required to maintain and operate. The course is mainly concerned with safety, operation and maintenance of plant and equipment. The plant in which the Engineer is serving acts as a real-life teaching aid, augments knowledge already acquired and assists students with studies leading to a Certificate of Competency, Third Class.
Prerequisite(s): Successful completion of all courses in the first three semesters and a minimum cumulative GPA of 2.00.

WT1520 Mining Technician Work Term I
The work term is a required portion of the program. The work term provides a unique learning experience in a real work place setting. Work terms must be program relevant, and 7 weeks in duration. Participation in the work term is determined through a competitive process and successful completion of all courses prior to the work term is mandatory for work term eligibility. This work term follows the successful completion of the preceding academic term. For most students, it represents their first professional work experience in an industrial environment, and as such represents their first opportunity to evaluate their choice of pursuing a career in mining. Students are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. During the on-the-job experience students develop their employability and technical skills, further enhancing their personal growth. They are learning from the new network of contacts and widening their perception of life and career choices.
Prerequisite(s): Successful completion of all courses in academic terms.

WT1700 Biomedical Practicum
Comprehensive on-the-job training for Biomedical students in a setting within the health care engineering field. The duration of this particular section is seven weeks and will be scheduled at the end of the eighth semester. Students will choose among a variety of differing work environments such as placement in a hospital biomedical engineering department or a private sector medical supply company. The biomedical practicum is designed to enable the student to gain valuable experience in a Biomedical engineering work environment. This experience may be obtained in a health care setting or with a medical equipment supplier or distributor. The duration of the practicum is seven weeks to be scheduled upon satisfactory completion of all academic course work. Students’ abilities will be assessed by the Employer and the College staff.
Prerequisite(s): Successful completion of all courses in the first three semesters and a minimum cumulative GPA of 2.00.

XD1350 Environment & Ethics
This course introduces students to the legal and ethical rights, obligations and responsibilities of the engineering profession. Through the use of readings, case studies and debates, students will gain an understanding of the intent and application of professional code of ethics, Tort Law, environmental protection and occupational health and safety.

XD1810 Solid State Motor Controls
This course introduces the student to solid state electronics in motor controls. It includes coverage of power electronic devices, solid state relays and protection devices, and drive electronics.
Prerequisite(s): DPT1100; AE2301; XD2300

XD2300 Electromechanical Motor Controls
This course introduces the student to motor control concepts and electromechanical control devices. The students become familiar with control diagrams, techniques, and methods. It provides the students with knowledge and background to support the more advanced control concepts presented in later courses.
Prerequisite(s): PET500

XD2500 Programmable Controllers I
This course introduces the student to programmable logic controllers. It covers PLC concepts and applications. The students become familiar with PLC types, wiring details and programming techniques. Actual programs and systems operation are introduced through lab exercises.
Prerequisite(s): DP1100; XD2300

XD2900 Programmable Controllers II
This course is a continuation of XD2500. It extends the students knowledge of PLC control through advanced instructions and practical exercises with industrial control trainers.
Prerequisite(s): XD2500