Academic Calendar 2015 - 2016

cna

Table of Contents

President's Message 2
About the College 3
Important Notice 3
Programs by Campus 4
Campus Directory 5
Calendar of Events 2015-2016 6
Administration List 7
Access to Information and Protection of Privacy (ATIPP) Act 7
Admissions Regulations 8
Awards 14
Fees and Charges 15
Student Services 17
Student Housing 18
Contract Training 19
Continuing Education 20
Office of Distributed Learning 21
International Students 23
International Contracts 24
Alumni and Advancement 25
Applied Research and Innovation 25
Programs and Courses 25

School of Academics, Applied Arts and Tourism

Academics
Aboriginal Bridging Program 27
Comprehensive Arts & Science (CAS) Transfer: College-University 27
Comprehensive Arts & Science (CAS) Transition 28

Applied Arts
Community Recreation Leadership 29
Community Studies 30
Digital Animation 31
Early Childhood Education 31
Early Childhood Education By Distance Education 32
Film and Video Production 33
Graphic Communications 34
Graphic Design 35
Journalism 36
Journalism (Post Diploma) 36
Music: Performance, Business & Technology 37
Sound Recording & Production 38
Textiles: Craft & Apparel Design 39
Video Game Design 39

Tourism
Hospitality Tourism Management 41

School of Business and Information Technology

Business
Business Administration 44
Business Administration (Accounting) 44
Business Administration (General) 45
Business Administration (Human Resource Management) 46
Business Administration (Marketing) 46
Business Management (Accounting) 47
Business Management (Human Resource Management) 48
Business Management (Marketing) 48
Office Administration 49
Office Administration (Executive) 50
Office Administration (Legal) 50
Office Administration (Medical) 51
Office Administration (Records and Information Management) 51

Information Technology
Computer Systems and Networking 51
Health Informatics (Post Diploma) 52
Information Management (Post Diploma) 53
Programmer Analyst (Business) Co-op 53
Software Development 54
Web Development 55

School of Engineering Technology and Natural Resources

Engineering Technology
Architectural Engineering Technology 57
Chemical Process Engineering Technology (Co-op) 58
Civil Engineering Technology (Co-op) 59
Computing Systems Engineering Technology (Co-op) 60
Electrical Engineering Technology (Power & Controls) Co-op 61
Electronics Engineering Technolog (Biomedical) 63
Engineering Technology (First Year) 64
Geomatics/Surveying Engineering Technology (Co-op) 66
Industrial Engineering Technology (Co-op) 67
Instrumentation and Controls Engineering Technology 68
Mechanical Engineering Technology 70
Mechanical Engineering Technology (Manufacturing) Co-op 71
Petroleum Engineering Technology (Co-op) 72
Process Operations Engineering Technology 72
Safety Engineering Technology (Post Diploma) Co-op 74
Welding Engineering Technician 74

Natural Resources
Fish and Wildlife Technician 75
Forest Resources Technician 76
GIS Applications Specialist (Post Diploma) 77

School of Health Sciences
Diagnostic Ultrasonography 80
Home Support Worker / Personal Care Attendant 81
Medical Laboratory Assistant 81
Medical Laboratory Sciences 82
Medical Radiography 83
Practical Nursing 84
Primary Care Paramedicine 85
Rehabilitation Assistant (OTA & PTA) (DL) 86
Respiratory Therapy 86

School of Industrial Trades
Aircraft Maintenance Engineering Technician 90
Aircraft Structural Repair Technician 91
Automotive Service Technician 91
Baker 92
Cabinetmaker 92
Carpenter 93
Commercial Driver 93
Construction / Industrial Electrician 94
Cook 94
Hairstylist 95
Heavy Duty Equipment Technician 96
Heavy Equipment Operator 96
Industrial Mechanic (Millwright) 97
Instrumentation and Control Technician 97
Machinist 98
Metal Fabricator (Fitter) 99
Mining Technician 99
Mobile Crane Operator 100
Motor Vehicle Body Repairer (Metal And Paint) 101
Non-Destructive Testing Technician 101
Plumber 102
Power Engineer 4th Class 103
Powerline Technician (Operating) 103
Process Operator 104
Refrigeration & Air Conditioning Mechanic 104
Renovation Technician 105
Sheet Metal Worker 106
Small Equipment Service Technician 106
Steamfitter / Pipefitter 107
Truck and Transport Mechanic 107
Welder 108
Welder / Metal Fabricator (Fitter) 109

Course Descriptions 110

President's Message

Welcome to College of the North Atlantic!

I invite you to explore our 2015-2016 Academic Calendar to see what College of the North Atlantic (CNA) has to offer. Our programs and training have helped thousands of graduates achieve rewarding and wonderful careers regionally, nationally and internationally and they can do the same for you!

The college's mandate is to provide you with the knowledge and skills students need to embark on a career and help meet the labour force needs of our province's businesses and industries – and we hold fast on that mandate. We take a proactive approach in making our program decisions and we have every confidence those choices will have a lasting impact on the lives of our current and future students, and the people of this province.

We focus on your success by working closely with industry and community stakeholders, ensuring that our programs and training opportunities meet the demands of an ever-changing workplace and economy. The educational experience at CNA is more than what is learned in classrooms, labs and workshops. Our faculty and staff take an active role in shaping the future of our students and we are proud of the nurturing environment we provide both inside and outside the classroom.

In addition to working with industry, College of the North Atlantic partners with a number of universities and post-secondary institutions throughout North America and around the world to provide graduates with the ability to further their education through credit transfer agreements. These arrangements allow our students to enter degree programs with advanced standing, cutting years off the time it takes them to earn a degree and saving them money in the process.

I wish you well as you embark on this new and important journey at CNA. I hope your CNA experience will be both rich and rewarding, and that it will serve you as well as it has the countless others who have chosen CNA throughout our history!

Congratulations and best wishes.

Ann Marie Vaughan

Dr. Ann Marie Vaughan
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, Applied Arts and Tourism
- Business and Information Technology
- Engineering Technology and Natural Resources
- Health Sciences
- Industrial Trades

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 of College of the North Atlantic ("the college") and to provide information about current course offerings at 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.

College of the North Atlantic disclaims all responsibility and liability for loss or damage suffered or incurred by any student or other party as a result of errors in, interruptions to, or delays or termination of its services, courses, classes or operations, which are caused by events beyond the reasonable control of the college, including force majeure, fire, flood, riot, war, strike, lock-out, damage to college property, financial exigency, computer failure or the incompatibility of college computing systems with other systems.

Programs by Campus

BAIE VERTE CAMPUS
Construction/Industrial Electrician
Industrial Mechanic (Millwright)
Welder

BAY ST. GEORGE CAMPUS
Automotive Service Technician
Baker
Business Administration
- Certificate
- Accounting
- Human Resource Management

Commercial Driver
Community Studies
Comprehensive Arts & Science (CAS)
- Transition

Construction/Industrial Electrician
Cook
Digital Animation
Film and Video Production
Hairstylist
Heavy Duty Equipment Technician
Heavy Equipment Operator
Heavy Equipment Operator (Jan. 2016 Intake)
- Blended offering with Bonavista campus
- Blended offering with St. Anthony campus

Journalism
Journalism (Post Diploma)
Mobile Crane Operator
Office Administration
- Certificate
- Executive
- Records & Information Management

Powerline Technician (Operating)
Primary Care Paramedicine
Small Equipment Service Technician
Sound Recording & Production
Truck and Transport Mechanic
Video Game Design

BONAVISTA CAMPUS
Baker
Construction/Industrial Electrician
Cook
Heavy Equipment Operator
Heavy Equipment Operator (Jan. 2016 Intake)
- Blended offering with Bay St. George campus

Plumber

BURIN CAMPUS
Comprehensive Arts & Science (CAS)
- Transfer: College-University

Construction/Industrial Electrician
Cook
Instrumentation and Control Technician
Metal Fabricator (Fitter)
Non-Destructive Testing Technician
Office Administration
- Certificate
- Executive

Sheet Metal Worker
Welder
Welding Engineering Technician

CARBONEAR CAMPUS
Business Administration
- Accounting

Carpenter
Community Studies (Next intake is 2016)
Comprehensive Arts & Science (CAS)
- Transfer: College-University
- Transition

Construction/Industrial Electrician
Engineering Technology (First Year)
Home Support Worker/Personal Care Attendant
Practical Nursing

CLARENVILLE CAMPUS
Business Administration
- Certificate
- Accounting
- Human Resources Management

Carpenter
Comprehensive Arts and Science (CAS)
- Transition

Home Support Worker/Personal Care Attendant
Office Administration
- Certificate
- Executive

Practical Nursing
Steamfitter/Pipefitter

CORNER BROOK CAMPUS
Business Administration
- Certificate
- Accounting
- Marketing

Civil Engineering Technology Co-op
Comprehensive Arts & Science (CAS)
- Transition

Computer Systems and Networking
Construction/Industrial Electrician
Early Childhood Education
Electronic Systems Engineering Technology (Co-op)
Engineering Technology (First Year)
Environmental Engineering Technology (Advanced Diploma)
Fish and Wildlife Technician
Forest Resources Technician
Geographic Information Systems Applications Specialist (Post Diploma)
Home Support Worker/Personal Care Attendant
Industrial Mechanic (Millwright)
Office Administration
- Certificate
- Executive

Power Engineer (4th Class)
Practical Nursing
Process Operations Engineering Technology
Software Development (Next intake is 2016)
Welder

GANDER CAMPUS
Aircraft Maintenance Engineering Technician
Aircraft Maintenance Engineering Technician - Advanced Diploma (EASA)
Aircraft Structural Repair Technician
Automotive Service Technician
Comprehensive Arts and Science (CAS)
- Transition

Engineering Technology (First Year)
Hairstylist
Instrumentation and Control Technician

GRAND FALLS-WINDSOR CAMPUS
Business Administration
- Certificate
- Accounting
- Human Resource Management

Business Management
- Accounting
- Human Resource Management

Community Studies (Next intake is 2016)
Comprehensive Arts and Science (CAS)
- Transfer: College-University
- Transition

Home Support Worker/Personal Care Attendant
Medical Laboratory Assistant
Office Administration
- Certificate
- Executive

Plumber
Practical Nursing
Renovation Technician

HAPPY VALLEY-GOOSE BAY CAMPUS
Aboriginal Bridging
Carpenter
Comprehensive Arts and Science (CAS)
- Transfer: College-University
- Transition

Construction/Industrial Electrician
Cook
Early Childhood Education (Next intake is 2016)
Heavy Duty Equipment Technician
Home Support Worker/Personal Care Attendant
Industrial Mechanic (Millwright)
Powerline Technician (Operating)
Practical Nursing
Welder

LABRADOR WEST CAMPUS
Comprehensive Arts and Science (CAS)
- Transfer: College-University
- Transition

Construction/Industrial Electrician
Industrial Mechanic (Millwright)
Mining Technician
Office Administration
- Certificate
- Executive

Welder

PLACENTIA CAMPUS
Heavy Duty Equipment Technician
Heavy Equipment Operator
Industrial Mechanic (Millwright)
Machinist
- Dual campus offering with Prince Philip Drive

Process Operator
Welder

PORT AUX BASQUES CAMPUS
Business Administration
- General

Cabinetmaker
Non-Destructive Testing Technician
Office Administration
- Certificate
- Executive

Welder/Metal Fabricator (Fitter)

PRINCE PHILIP DRIVE CAMPUS
Automotive Service Technician
Business Administration
- Certificate
- Accounting

- General
- Human Resource Management
- Marketing

Business Management
- Accounting
- Human Resource Management
- Marketing

Comprehensive Arts and Science (CAS)
- Transition

Community Recreation Leadership
Computer Systems and Networking
Cook
Diagnostic Ultrasonography (Post Diploma)
Early Childhood Education
Graphic Communications (Next intake is 2016)
Graphic Design
Home Support Worker/Personal Care Attendant
Hospitality Tourism Management (Next intake is 2016)
Machinist
- Dual campus offering with Placentia

Medical Laboratory Assistant
Medical Laboratory Sciences
Medical Radiography
Motor Vehicle Body Repairer (Metal and Paint)
Music: Performance, Business & Technology
Office Administration
- Certificate
- Executive
- Legal
- Medical
- Records & Information Management

Primary Care Paramedicine
Programmer Analyst (Business) Co-op
Respiratory Therapy
Textiles: Craft & Apparel Design
Video Game Art & Design
Welder
X-Ray Skills for Medical Laboratory Technologists

RIDGE ROAD CAMPUS

Architectural Engineering Technology
Chemical Process Engineering Technology Co-op
Civil Engineering Technology Co-op
Computing Systems Engineering Technology Co-op
Electrical Engineering Technology
- Power & Controls Co-op

Electronics Engineering Technology
- Biomedical

Engineering Technology (First Year)
Geomatics/Surveying Engineering Technology Co-op
Industrial Engineering Technology Co-op
Instrumentation and Controls Engineering Technology
Mechanical Engineering Technology
Mechanical Engineering Technology
- Manufacturing Co-op

Petroleum Engineering Technology Co-op
Refrigeration and Air Conditioning Mechanic
Safety Engineering Technology Co-op (Post Diploma)

SEAL COVE CAMPUS

Comprehensive Arts and Science (CAS)
- Transition

Construction/Industrial Electrician
Cook
Instrumentation and Control Technician
Powerline Technician (Operating)
Sheet Metal Worker

ST. ANTHONY CAMPUS

Comprehensive Arts and Science (CAS)
- Transition

Construction/Industrial Electrician
Heavy Equipment Operator (Jan. 2016 Intake)
- Blended offering with Bay St. George campus

Office Administration
- Executive

Powerline Technician (Operating)

VIA DISTRIBUTED LEARNING

Business Administration
- Certificate
- General
- Human Resource Management

Business Management (part-time)
- Human Resource Management (3rd Year)

Comprehensive Arts and Science (CAS)
- Transition

Early Childhood Education
Health Informatics (Post Diploma)
Information Management (Post Diploma)
Journalism (Post Diploma)
Office Administration
- Certificate
- Executive
- Medical

Rehabilitation Assistant (OTA & PTA)
Web Development

Campus Directory

Baie Verte Campus
1 Terra Nova Road
Baie Verte, NL A0K 1B0
tel: (709) 532-8066
fax: (709) 532-4624

Bay St. George Campus
DSB Fowlow Building
432 Massachusetts Drive
P. O. Box 5400
Stephenville, NL A2N 2Z6
tel: (709) 643-7838
fax: (709) 643-7734

Bonavista Campus
301 Confederation Drive
P. O. Box 670
Bonavista, NL A0C 1B0
tel: (709) 468-2610
fax: (709) 468-2004

Burin Campus
105 Main Street
P. O. Box 370
Burin Bay Arm, NL A0E 1G0
tel: (709) 891-5600
fax: (709) 891-2256

Carbonear Campus
4 Pike's Lane
Carbonear, NL A1Y 1A7
tel: (709) 596-6139
fax: (709) 596-2688

Clarenville Campus
69 Pleasant Street
Clarenville, NL A5A 1V9
tel: (709) 466-6900
fax: (709) 466-2771

Corner Brook Campus
141 O'Connell Drive
P. O. Box 822
Corner Brook, NL A2H 6H6
tel: (709) 637-8530
fax: (709) 634-2126

Gander Campus
1 Magee Road
P. O. Box 395
Gander, NL A1V 1W8
tel: (709) 651-4800
fax: (709) 651-4854

Grand Falls-Windsor Campus
5 Cromer Avenue
Grand Falls-Windsor, NL A2A 1X3
tel: (709) 292-5600
fax: (709) 489-4180

Happy Valley-Goose Bay Campus
219 Hamilton River Road
P. O. Box 1720, Station "B"
Happy Valley-Goose Bay, NL A0P 1E0
tel: (709) 896-6300
fax: (709) 896-3733

Labrador West Campus
1600 Nichols-Adam Highway
Labrador City, NL A2V 0B8
tel: (709) 944-7210
fax: (709) 944-6581

Placentia Campus
1 Roosevelt Avenue
P. O. Box 190
Placentia, NL A0B 2Y0
tel: (709) 227-2037
fax: (709) 227-7185

Port aux Basques Campus
59 Grand Bay Road
P. O. Box 760
Port aux Basques, NL A0M 1C0
tel: (709) 695-3582
fax: (709) 695-2963

Prince Philip Drive
1 Prince Philip Drive
P. O. Box 1693
St. John's, NL A1C 5P7
tel: (709) 758-7284
fax: (709) 758-7304

Ridge Road Campus
153 Ridge Road
P. O. Box 1150
St. John's, NL A1C 6L8
tel: (709) 758-7000
fax: (709) 758-7126

Seal Cove Campus
1670 Conception Bay Highway
P. O. Box 19003, Station Seal Cove
Conception Bay South, NL A1X 5C7
tel: (709) 744-2047
fax: (709) 744-3929

St. Anthony Campus
83-93 East Street
P. O. Box 550
St. Anthony, NL A0K 4S0
tel: (709) 454-3559

fax: (709) 454-8808
Distributed Learning Services
69 Pleasant Street
Clarenville, NL A5A 1V9
tel: (709) 466-6961
toll free: 1-877-465-2250
fax: (709) 466-4640

Program Enquiry College-Wide
toll free: 1-888-982-2268
www.cna.nl.ca
info@cna.nl.ca

Calendar of Events 2015-2016

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

August 3 - 14 (Monday to Friday)
On-Line Registration Period - Fall Semester

August 4 (Tuesday)
Registration begins – DL Fall Semester

September 7 (Monday)
College CLOSED – Labor Day

September 8 (Tuesday)
Classes begin - Fall Semester
On-Line Classes begin – DL Fall Semester

September 22 (Tuesday)
Last day to add courses - Fall Semester

October 6 (Tuesday)
Fees Due - Fall Semester
Last day to opt out of Health & Dental – Fall Semester

October 12 (Monday)
College CLOSED – Thanksgiving Day

November 3 (Tuesday)
Last day to drop courses without academic prejudice - Fall Semester

November 11 (Wednesday)
College CLOSED – Remembrance Day

December 1 (Tuesday)
Registration begins – DL, Winter Semester

December 1 - 14 (Tuesday to Monday)
On-Line Registration Period -Winter Semester

December 18 (Friday) *
Last day of classes/examinations - Fall Semester

December 21 (Monday) –
January 1 (Friday)
Christmas Break

January 4 (Monday)
Classes begin - Winter Semester
January 5 (Tuesday)
Classes begin – DL Winter Semester

January 18 (Monday)
Last day to add courses – Winter Semester

February 1 (Monday)
Fees Due - Winter Semester
Last day to opt out of Health & Dental - New Students, Winter Semester

February 29 (Monday)
Last day to drop courses without academic prejudice - Winter Semester

March 25 (Friday)
College CLOSED - Good Friday

March 28 - April 1 (Monday - Friday)
Winter Semester Reading Break

April 5 (Tuesday)
Registration begins – DL Intersession

April 4 - 15 (Monday to Friday)
On-Line Registration Period - Intersession

April 22 (Friday) *
Last day of classes/examinations - Winter Semester

April 25 (Monday)**
Classes begin - Intersession, Continuing Programs and Spring Semester

May 2 (Monday)
Classes begin - Technical Intersession, DL, and Technical Spring Semester
Last day to add courses - Intersession, Continuing Programs

May 9 (Monday)
Fees Due – Intersession
Last day to add courses -Technical Intersession and Spring Semester
Last day to drop courses without academic prejudice - Intersession
Last day to opt out of Health & Dental - New Students, Intersession

May 16 (Monday)
Fees Due – Technical Intersession
Last day to add courses – Technical Spring Semester
Last day to drop courses without academic prejudice – Technical Intersession
Last day to opt out of Health & Dental - New Students, Technical Intersession

May 20 (Friday)
Fees Due - Spring Semester
Last day to opt out of Health & Dental - New Students, Spring Semester

May 23 (Monday)
College CLOSED - Victoria Day

May 30 (Monday)
Fees Due – Technical Spring Semester
Last day to opt out of Health & Dental - New Students, Technical Spring Semester
June 9 (Thursday)
Last day for classes/examinations – Intersession, Continuing Programs

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

June 20 (Monday)
Last day to drop courses without academic prejudice - Spring Semester

June 24 (Friday)
Last day to drop courses without academic prejudice - Technical Spring Semester

June 27 (Monday)
College CLOSED - Discovery Day

July 1 (Friday)
College CLOSED - Canada Day

August 10 (Wednesday)
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: College-University Program may vary from the above as it is aligned to the MUN Examination Schedule.***

The Continuing Programs Intersession includes programs such as Trades and other programs where marks from the Winter Semester are not needed prior to registration.

Administration List

Board of Governors
Cheryl Stagg, Chair
Yordest Andrews
Mark Bradbury
Patricia Dicker
Robert Gardiner
Roy Hutchings
Bonita Lane-McCarthy
Troy Mitchell
Charles Penwell, Vice-Chair
Beverly Scott
Wade Pinhorn
Student, T.B.D.
Student, T.B.D.
Edith Alexander, Executive Assistant
Ann Marie Vaughan, (President) Ex-Officio

Headquarters
President's Office
Ann Marie Vaughan, President & CEO
Giselle Borden, Executive Assistant
Geoff Peters, General Counsel
Edith Alexander, Executive Assistant
Heidi Staeben-Simmons,
Director of Public Affairs

Corporate Services
John Hutchings, Vice President - Corporate Services / Chief Operating Officer
Mary Tait, Executive Director - Human Resources
Annette Morey, Director - Finance
Debbie White, Executive Assistant

Academic
Brian Tobin, Senior Vice President - Academic & Chief Learning Officer (Interim)
Elizabeth Chaulk, Associate Vice President - Student Services
Chris Mercer, Associate Vice President - Strategic Enrollment Management & Registrar (Acting)
T.B.D., - Associate Vice President - Campus Operations
Tammy Gale, Executive Assistant

Industry and Community Engagement
Robin Walters, Vice President - Industry & Community Engagement
Dawn Leaman, Executive Assistant
Daniel Wong, Director - China Project
Kevin Deveau, Project Manager - Qatar Project
Vivienne White, Executive Assistant
Deans and Chairs
Mohammad Iqbal, Chair - Applied Research
Joanne O'Leary, Chair - Contract Training & Continuing Education
Theresa Pittman, Chair - Distributed Learning Services and Learning Technologies
Brenda Tobin, Dean - Academics, Applied Arts and Tourism
Mary Vaughan, Dean - Business and Information Technology
Robin Walters, Dean - Industrial Trades
Jane Gamberg, Dean - Health Sciences
Brent Howell, Dean - Engineering Technology and Natural Resources

Campus Administrators
Baie Verte Campus
Emily Foster

Bay St. George Campus
Darlene Oake

Bonavista Campus
T.B.D.

Burin Campus
Stephen Warren

Carbonear Campus
T.B.D.

Clarenville Campus
Maisie Caines

Corner Brook Campus
Chad Simms

Gander Campus
Bob Dwyer
Fergus O'Brien

Grand Falls-Windsor Campus
Joan Pynn

Happy Valley-Goose Bay Campus
T.B.D.

Labrador West Campus
Richard Sawyer

Placentia Campus
Darrell Clarke

Port aux Basques Campus
Jan Peddle

Prince Philip Drive Campus
Trudy Barnes
Conrad Maillet

Ridge Road Campus
Paul Forward
Gary Tulk

Seal Cove Campus
Chris Patey

St. Anthony Campus
T.B.D.

Access to Information and Protection of Privacy (ATIPP) Act

College of the North Atlantic is committed to the protection of privacy and confidentiality of our students. The college collects, uses, and discloses your personal information in accordance with the *Access to Information and Protection of Privacy (ATIPP) Act and under the authority of the College Act, 1996.*

Personal Information
Personal information means any identifiable information about you including your name, an identifying number such as your social insurance number or driver's license number, your birth date, your contact information, or your credit card information.

Collection
College of the North Atlantic collects your personal information for the purposes of facilitating admission, registration, academic progression, graduation, alumni relations, student services, and other activities related to our programs and courses. The types of personal information we may collect from you, includes for example, your:

- Contact information (e.g. name, address, e-mail address, telephone number).
- Demographic information (e.g. age, gender, industry, occupation).
- Registration and enrolment information (e.g. educational records, transcripts).
- Proof of identity information (e.g. signature, driver's licence number).
- Financial information (e.g. credit card number and expiration date, social insurance number).
- Health information (e.g. MCP card number, health insurance).

Use
College of the North Atlantic uses your personal information to deliver our programs and courses and provide services to you. This includes, but is not limited to:

- Assessing an applicant's suitability for enrollment in our programs and courses.
- Administering academic awards, scholarships, and financial aid.
- Delivering programs and courses.
- Recording academic progress and achievement.
- Providing access to our student services such as Counselling and Personal Development Services, Career Employment Services, Disability Services, Residency Services, and Library Services.
- Maintaining student records.
- Maintaining tuition accounts.
- Collecting payments.
- Issuing tax receipts.
- Administering alumni and development operations.
- Performing program evaluation or statistical and institutional research.
- Communicating with students regarding college business.

Disclosure
College of the North Atlantic collects only as much of your personal information as is necessary to achieve the purposes for which it was collected, for uses consistent with that purpose, or where authorized by the ATIPP Act or another federal or provincial Act. For example, the college may disclose your personal information to the following bodies to facilitate admissions, registration, academic progression, graduation, alumni relations, student services and other activities related to our programs and courses:

- College employees and third parties contracted by the college who need the

information in the performance of their assigned duties or services.
- Student associations who need the information for administering their services.
- Federal and provincial government agencies who need the information for funding, statistical analysis, and planning purposes.

Contact

If you have any questions about the college's collection, use, and disclosure of your personal information, please consult *http://www.cna.nl.ca/About/Your-Privacy.aspx* or contact the college's Registrar for more information:

Registrar
College of the North Atlantic
432 Massachusetts Drive, P.O. Box 5400
Stephenville, NL A2N 2Z6
Tel. 709-643-0827
E-mail: registrar@cna.nl.ca

Admissions Regulations

It is the policy of the College to maintain an "open admission policy"; i.e., 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, or in the case of programs approved for competitive entry, on the basis of the selection criteria approved for that program.

Applications may be submitted at any time. Students currently in high school must be in their final year of high school at the time of application submission.

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.

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 learners, provide a Record of Achievement or other equivalent official transcript.
6. Provide further documentation or report for an interview or for testing when required.
7. Provide Certificate of Conduct 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:

1. Basic Training for Skill Development (BTSD) Level 4.
2. Adult Basic Education Certificate (ABE) Level 3 (Level 4 prior to 1991).
3. General Educational Development (GED).
4. The Grade XI Certificate (Department of Education, Public Exams).

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.
5. Applicants may be required to meet additional program specific entry requirements. Please refer to program applied to for any additional admission requirements.

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.

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. This 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 Committee on Special Admissions. 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 prestamped 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. Where required, 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 from all programs except the Comprehensive Arts and Science Transition Program will be permitted to register for one course for credit in a certificate or diploma program or for any number of courses in the Comprehensive Arts and Science Transition Program. Students who have been academically dismissed from the Comprehensive Arts and Sciences Transition Program will be permitted to register for one course for credit per semester in a certificate or diploma program.
2. Students who have been academically dismissed from the college on two or more occasions will not be eligible for readmission to the college 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. Candidates will be placed on the eligibility list for first come, first served programs by the date of eligibility provided all entrance requirements are satisfied and all necessary documentation is received, or in the case of programs approved for competitive entry, on the basis of the selection criteria approved for that program.

SELECTION PROCESSES

For programs administered under First Come, First Served process

Original Application:

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 place will go to the applicant next on the eligibility list.

For Engineering Technology programs:

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.

For programs administered under Competitive Entry

1. Applications will be processed using a competitive entry process. 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 may be required to meet additional program specific competitive entry requirements. Please refer to program applied to for any additional competitive entry admission requirements.

STUDENT NUMBERS

1. A student number will be assigned to every student who enters the college 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. Applicants must also have reached the legal school-leaving age on the commencement of the course.

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:
   a. on a first-come, first-served basis on the provision that space is available, or;
   b. under a competitive entry process as outlined in the program description.
3. Students 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

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

LANGUAGE REQUIREMENTS

All international students must meet 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 paper based 550, TOEFL Internet based 79, TOEFL computer based 213 or equivalent, IELTS overall band score of 6.5 and 6.0 for reading and writing, MELAB minimum 85, etc.).

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 requir-

ing 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.

Academic Regulations

DEFINITIONS OF ACADEMIC TERMS

Academic Year
Academic Calendar 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 four or more courses in course-based programs.

Part-Time Student
Students who are registered for less than four 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 April or 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 five parchments:
1. A Certificate in (Program Title)
2. A Diploma in (Program Title)
3. A Post Diploma in (Program Title)
4. An Advanced Diploma in (Program Title)
5. A Certificate in Continuing Studies in (Program/Course Title)

QUALIFICATIONS FOR A DIPLOMA, AN ADVANCED DIPLOMA, A POST DIPLOMA OR A CERTIFICATE

To qualify 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, other than Technology or Health Sciences 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.

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 hours of lab/week/semester is equivalent to one credit
5 – 7 hours of lab/week/semester is equivalent to two credits
8 – 10 hours of lab/week/semester is equivalent to three credits
11 – 14 hours of lab/week/semester is equivalent to four 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 and 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

Students are in clear standing when they have passed all courses and have attained a grade point average of at least 2.0, except in the following:
a. 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.
b. In Industrial Trades programs, the pass mark is 70% in the practical component and 70% in the theory component.
c. In Aircraft Maintenance Engineering Technician and Aircraft Structural Repair the passing grade is 70%.
d. In Primary Care Paramedicine, the pass mark is 70%, including a minimum of 70% 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 clear course deficiencies in order to graduate (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 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 for 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.

Pending availability of space, learners 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 or the Comprehensive Arts and Science (CAS) Transition 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
Health Sciences programs include mandatory clinical training rotations. Students must successfully complete all previous courses and have a minimum G.P.A. of 2.00 to be promoted to the clinical training component of their program.

Promotion in Nutrition and Food Service Management
Students must pass all first and second semester courses (minimum

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. Work terms provide unique learning experiences in a real work place setting. They are program relevant, full-time, 12 – 16 weeks in duration, and normally remunerated. Scheduling of work terms varies by program; however they alternate between academic semesters. Work term start and finish dates correspond with academic semesters; however specific dates are established with each employer.

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

INDUSTRIAL TRADES

There are incidents where Industrial Trades programs may deviate from standard academic regulations. These differences are identified below:

Credit System
The credit system is not applicable to programs in the School of Industrial Trades. Courses are assigned hours in order to match with the Provincial Apprenticeship Program Structure (Plan of Training).

Grade Point Marking System
The Grade Point Marking System is not applicable to programs in the School of Industrial Trades. Courses are assigned hours in order to match with the Provincial Apprenticeship Program Structure (Plan of Training).

Conditional Status
Students are classified as conditional when they must clear course deficiencies in order to graduate. Students who are required to successfully complete a failed course must follow the regulations as outlined in College Rewrite Policy AC-117 / AC-117-PR.

Supplementary Exams
Students will follow regulations as outlined in the College Rewrite Policy AC-117 / AC-117PR.

A rewrite of a final evaluation provides an opportunity for students to improve their standing in a course in which they have attained a failing grade. The grade attained in the rewrite will be used to determine the final grade.
The following conditions must be met in order to qualify for a rewrite:
1. A score of at least 60% on the original exam
2. Attendance of at least 90%

Students may be eligible for a maximum of two rewrites during the fall semester; a maximum of two rewrites during the winter semester and a maximum of one rewrite during intersession. For complete details please refer to the College Rewrite Policy AC-117 / AC-117PR.

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 exam. The deferred examination is the final examination for the individual concerned.

Incomplete
The Incomplete regulation does not apply to Industrial Trades.

TRANSFER OF CREDIT STATUS

Transfer of credit status is awarded for any course completed at any post-secondary institution that matches the course numbers in the Provincial Plan of Training as outlined by the Department of Advanced Education and Skills.

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. The college will consider exemptions for courses if the student received a passing grade in the course.

The college will accept any course from a recognized post-secondary institution as an exemption if the course can match 70% of the objectives in the current Provincial Plan of Training as outlined by the Department of Advanced Education and Skills.

REGISTRATION

It is the policy of the 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 campus administrator or designate.

REPEATING COURSES
With the permission of the campus administrator or designate, students may repeat any course for which a passing grade has previously been awarded, conditional on space limitations and other considerations. 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 campus administrator or designate 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 campus administrator or designate 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 campus 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 campus 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 campus administrator or designate 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 campus 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 campus administrator or designate.

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 campus Student Services 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 campus Student Services Office by February 15.
2. Transfers are granted based on (a) space availability and (b) 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 post-secondary institution or high school will be used in calculating the weighted average.

Leave as is for this year. Policy review in conjunction with the Dean is required.

PROGRAM TRANSFER
Students wishing to change their program of studies must apply for a Program Transfer. Program Transfer Request applications are available from the campus Student Services Office. Transfers will be approved provided the following conditions are met:

a. The student is enrolled at the time of the transfer request;
b. The student meets the entrance requirements for the program requested;
c. Space (i.e. a seat) is available in the program requested;
d. The appropriate counselling process has been followed;
e. The student has received the Counsellor's written recommendation supporting the program transfer.

Students must complete the following steps to apply for a program transfer:

a. Complete and sign the applicable section of the Program Transfer Request application;
b. Complete a counselling process with the campus Counsellor regarding the requested transfer;
c. Receive a written recommendation from the Counsellor supporting the transfer request;
d. Receive written approval from the Campus Administrator(s) or designate at the campus of origin for the recommended transfer;
e. Submit completed Program Transfer Request application with appropriate signatures to Student Services for processing.

The Registrar's designate at the sending campus will contact the Campus Administrator (or designate) at the receiving campus for appropriate approval and to determine appropriate transfer time frame and program start date.
Program transfers will be processed by date of receipt of the student's application to the program for which they are currently enrolled.

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 campus Student Services 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 the minimum pass mark or five marks above the minimum pass mark.

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 campus Student Services 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.
9. Comprehensive Arts and Science (CAS) Transfer: College-University Program students who write supplementary examinations are advised to consult with the Counsellor at a campus where the Comprehensive Arts and Science (CAS) Transfer: College-University Program is offered concerning their transferability of courses to Memorial University.
10. Before writing a Supplementary Examination in the 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 or designate. Copies should be kept by the instructor and Campus Administrator, and a copy must be placed in the student's file in Student Services.

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.

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

A request for deferred examinations must be submitted to the campus Student Services 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 campus administrator or designate 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 GRADES

Subject to the approval of the campus administrator or designate, an incomplete grade may be assigned when the mandatory components of the course are not completed. Incomplete grades must be cleared by the end of the third week after the beginning of the subsequent semester. If incomplete grades 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 campus 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.

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 campus Student Services 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 campus administrator and faculty be given credit for the course.

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

ACADEMIC DOCUMENTATION

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 Student Services 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 achievement awards, scholarships, bursaries, distinction awards, 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 and the college website www.cna.nl.ca/awards

DEFINITION OF AWARDS

Achievement Award
Monetary award given in recognition of academic excellence, leadership and community/college involvement.

Scholarship
Monetary award given in recognition of academic excellence.

Bursary
Monetary award given in recognition of academic merit and financial need.

Distinction Award
An award given in recognition of a variety of qualities. Some examples would be but are not limited to: passion for learning, demonstrated initiative, significant contribution to class, good work ethic, positive attitude, willingness to help others and/or a strong desire to succeed.

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

Medal
President's Medals of Excellence, Governor General's Academic medals, and other medals presented upon graduation.

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

Academic Excellence
For the purpose of Achievement Awards and Scholarships, academic excellence refers to a candidate who has attained the minimum weighted/overall average of 75% or higher. Note: some programs are based on weighted average and others are based on overall average.

Academic Merit
For the purpose of Bursaries and Prizes, academic merit refers to a candidate who has attained the minimum weighted/overall average of 60% or higher except in cases where the grading basis is higher for their program. Note: some programs are based on weighted average and others are based on overall average.

APPLICATION PROCESS
Application forms for awards administered by the college are available at the campus Student Services Office and the College website.
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 Services Office and College website but is generally mid-January. Please see application for exact date.

CRITERIA FOR AWARDS
• No achievement award, 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.
• To be eligible for renewal of an achievement award, scholarship or bursary the student must maintain full time status in their recognized college program and continue to meet eligibility requirements of the award.

The eligibility criteria for awarding an achievement award or a scholarship:
• Candidates must be in clear academic standing with a minimum weighted/overall 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/overall average.
• Candidates must have attained a passing grade in **ALL** courses being considered in establishing weighted/overall average. Marks obtained in supplementary exams will be considered in the calculation of the weighted/overall average.
• In cases where the student repeats a course, the best earned grade will stand for calculation of the weighted/overall average.

The eligibility criteria for awarding a bursary, distinction award or a prize:
• Candidates must be in clear academic standing and have attained a minimum weighted/overall average of 60%, except in cases where the minimum grading basis is higher (i.e. in Industrial Trades it is 70%, and in Paramedicine it is 80%). The weighted average will be used except in cases where programs use an overall average.
• 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/overall average.
• Candidates must have attained a passing grade in **ALL** courses being considered in establishing weighted/overall average. Marks obtained in supplementary exams will be considered in the calculation of the weighted/overall average.
• In cases where the student repeats a course, the best earned grade will stand for calculation of the weighted/overall average.

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 weighted/overall average at each campus, where applicable. 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 full time **graduate** in each program who attains the highest weighted/overall average 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 where the passing grade of the courses is 50% to 65% who have a grade point average (GPA) of 4.0
• Those in diploma-level programs where the passing grade of the courses is 80% who have a grade point average (GPA) of 4.0 and no mark less than 90%
• Those in industrial trades programs who have **80% or greater** in each course.
• Students who are registered under General Studies who have completed **four (4) or more courses** within any given semester and who achieve 80% or greater in each course.
• Some campuses offer Office Administration and Business Administration by the individualized instruction methodology. At campuses where this applies 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.

Students who have achieved honour society status will have their names posted at their campuses and on the college website at the end of the semester.

COLLEGE AWARDS PUBLICATIONS/OPT OUT FORM
Students who do not wish to have personal information (name, photo, program of study and community) published by the college must complete an Awards Publications "opt out" form, available in the Student Awards Handbook or on the college website at www.cna.nl.ca/awards, and submit it to the Student Services Office at their campus.

OUTSTANDING FEES
Award recipients who owe outstanding fees to the college will have their monetary award credited to their account.

PRIVACY DISCLAIMER
As part of the Scholarship/Awards process, your personal information (name, photo, program of study and community) may be shared with our donor to advise them of how their scholarship monies have been distributed. If you do not wish to have this information shared, please e-mail evelyn.hyde@cna.nl.ca.

All students who are selected for an award/scholarship/bursary will be required to provide their Social Insurance Number so that a T4A may be issued for income tax purposes.

College of the North Atlantic recommends that students who are receiving funding and/or sponsorship contact their funding/ sponsoring agency for clarification of whether receiving an award may affect their funding/sponsorship status.

Fees and Charges

1.0 REGULATIONS GOVERNING PAYMENT OF FEES & CHARGES
a. All student fees must be paid by the date specified in each term. The dates are listed in the Calendar of Events. Students receiving Student Aid must present their notification of Student Aid form on the first day of classes. These students are permitted to have fees outstanding until receipt of the Student Aid, at which time 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, access to register, 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 registration, tuition and equipment/materials fees.
g. Distributed Learning (DL): Some campuses offer programs that do not have all courses delivered in the classroom on-campus and some courses in the program are offered by DL. Students enrolled in these programs are therefore required to do courses via DL. These students will pay the regular program tuition fees. No additional DL tuition fee or DL technology fee will be charged.
However, additional tuition and DL technology fees will be charged under the following circumstances:

i. Any student electing to do a DL course over and above their normal term load (requires application to extend normal course load per semester).
ii. Any student choosing to do an elective through DL instead of the electives offered on-campus will be required to pay the course tuition fee and the DL technology fee for that course.
iii. Any student electing to repeat courses through DL which were previously taken on campus or via DL.
iv. Any student electing to do a DL course instead of an identical on-campus course.

h. In some instances, students may enroll in a program through Distributed Learning that may require them to attend on-campus to complete the required course. In this case, the student will pay the regular program tuition fees to DL and not pay an additional on-campus tuition fee per course. Students pay the DL technology fee for online courses only. However, an additional tuition fee per course will be charged under the following circumstances:

i. Any student electing to do an on-campus course over and above their normal DL term load (requires application to extend normal course load per semester).
ii. Any student choosing to do an elective on-campus instead of the electives offered through DL.
iii. Any student electing to do an on-campus course instead of an identical DL course.
iv. Any student electing to repeat courses on-campus which were previously taken on-campus or via DL.

2.0 FEES AND CHARGES

International students should refer to "International Students" section of calendar.

Students enrolled in four (4) or more courses:
a. Application fee per program $30.00
(Non-refundable except as noted in 3.a.)

b. Confirmation/Registration fee $95.00
Student 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 programs:

Regular Term (15-weeks)	$726.00
Intersession (up to 7-weeks in duration)	$343.00
ii. Continuous in-take programs	$49.00 per week
iii. Trade programs	$49.00 per week

d. Equipment/materials fee per term (intended to help offset material costs of program; excluding DL students)
i. Term based Programs:
Regular Term (15-weeks):

Applied Arts/CAS/Access/Tourism	$110.00
Business/Information Technology	$55.00
Engineering/Natural Resources	$165.00
Trades	$165.00
Health Sciences	$165.00
Heavy Equip/Commercial Driver	$550.00

Intersession (up to 7-weeks in duration):

Applied Arts/CAS/Access/Tourism	$55.00
Business/Information Technology	$27.50
Engineering/Natural Resources	$82.50
Trades	$82.50
Health Sciences	$82.50
Heavy Equip/Commercial Driver	$275.00

ii. Continuous in-take programs:
Business Programs
($55.00 per 15-week term)
Fees are pro-rated on the number of weeks in attendance.

iii. Trade Programs
Trades
($165.00 per 15-week term)

Fees pro-rated based on the number of weeks in attendance.

Heavy Equipment/Commercial Driver
($550.00 per 15-week term)
Fees pro-rated based on the number of weeks in attendance.

e. DL 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.

i. Student Health and Dental Plan Fees (based on a calendar year). The Student Health and Dental Plan is applicable to all full time students enrolled in on-campus programs.

Please refer to Student Health/Dental Plan in the Student Services section of the calendar for coverage details and rates.

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 "DL" courses will pay a maximum tuition of $726.00 and a $50.00 Technology fee for each DL course.

General studies students who enroll in a combination of "classroom" and "DL" courses will pay regular tuition for "classroom" courses and $230.00 tuition plus a $50.00 Technology fee for each DL 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
(This is an annual fee and is non-refundable)

Residence Registration fee $50.00
(This is an annual fee and is non-refundable)

b. Room Charges

	Single	Double
Daily	$15.00	$10.00
Weekly	$60.00	$40.00

c. Rooms and Meals

Bay St. George Campus	Single	Double
Room and 10 meals weekly	N/A	$120.00
Room and 14 meals weekly	N/A	$152.00
Room and 19 meals weekly	N/A	$192.00
Burin Campus		
Room and 5 meals weekly	$100.00	$80.00
Room only weekly	$60.00	$40.00
Happy Valley Campus		
Room and 14 meals weekly	$172.00	$152.00
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	$33.00 per day (Covers food & lodging - not tuition)
e. NSF Cheques	$25.00
f. Replacement I.D. cards	$15.00
g. Day Care fees (contact applicable campus)	

3.0 REFUNDS

a. Application fees are only refundable if the program does not go ahead and the applicant does not want to transfer the application to another program.

b. Confirmation fees will be refunded only to individuals who were conditionally accepted and upon receipt of High School marks do 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 four weeks of any term will receive a full refund. If the withdrawal takes place within the fifth or sixth week, 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. Intersession (up to 7 weeks)
A student who withdraws within the first two weeks of Intersession will receive a full refund. If the withdrawal takes place in the third week, 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 programs
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. Trade programs

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.

v.International students

Please refer to the International students section of the calendar for refund information pertaining to International students.

d. Refunds for Contract Training/Continuing Education

i. Contracted programs of 15 or more week's duration

A student who withdraws within the first four weeks of any term will receive a full refund. If the withdrawal takes place within the fifth or sixth week, 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 class.

ii. Contracted programs of 6 to 14 weeks duration

A student who withdraws/cancels within one week of a training program start date will receive a full refund upon written request. A student who withdraws/cancels within two weeks of the start date of a training program will receive a 50% refund upon written request. No refund will be made after the second week of the program start date.

iii. Contracted programs of 2 to 5 weeks duration

A student who withdraws/cancels after one day of a course/program start date will receive a full refund upon written request. A student who withdraws/cancels by the end of the second day of a course/program start date will receive a 50% refund upon written request. No refund will be made after two days.

iv. Part-time Continuing Education (i.e. part-time hours/outside regular delivery hours)

Students must notify Continuing Education of their intent to withdraw or cancel at least 5 days prior to the start date of a course to be entitled to a full refund. If the student notifies the office with the intent to withdraw or cancel less than 5 days prior to the course start date, the student will receive a 50% refund. A student who registers for a course, does not notify the college of their intent to withdraw, and does not attend any classes, will be deemed a "no show" and will forfeit their tuition fees. In the event the college cancels a course offering, students will receive a full refund.

v. Client Contracts

The refund policy for client contracts is set out in the College's standard Contract Training Agreements.

e. Textbooks

Refunds may be given for returned textbooks under the following conditions:

i. Books are unmarked and in saleable condition

ii. Books are returned within the first three weeks after the commencement of classes

iii.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 FINANCIAL CREDIT

Deadline for payment of specified fees is 28 days from registration date. The College may grant credit to students to cover tuition and/or materials fees only (credit is not available to cover books or residence fees). The College may, from time to time, institute equipment lease/purchase programs for which credit may be granted. Students applying for financial credit must meet with a Student Services representative for assessment of their request. Credit will not be granted to students with outstanding fees from prior semesters.

FINANCIAL CONTRACT

If financial credit is recommended, the student must complete a Financial Contract in consultation with a Student Services representative. The Financial Contract will specify what is covered and for what period of time. The completed Financial Contract must be reviewed and signed by a Campus Administrator or an approved designate. The student is subject to collection action if the account is not paid.

Students Receiving Student Loans

Students with confirmed Student Loans are eligible for credit. When the student loan is issued, the amount owing will be deducted by the College as specified in the Financial Contract.

Students Receiving External Funding

Students with documentation confirming external funding will be granted credit and are expected to pay their fees once they are in possession of their funding as agreed to in the Financial Contract.

Students Not Receiving Student Loans or External Funding

Students seeking financial credit who do not meet the above criteria will only be granted financial credit in extenuating circumstances and upon written approved by the Campus Administrator or designate.

5.0 FINANCIAL APPEALS

Appeals of a financial assessment should be made in writing to the Director of Finance at P.O. Box 5400, Stephenville, NL A2N 2Z6.

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.

Student Services

INTRODUCTION

Student Services is the division of the college that provides services to students to support and guide them in pursuit of their educational goals. Student Services complements and supports the student's academic experiences by establishing a college environment that fosters engagement, persistence, growth and development, and academic success.

COUNSELLING SERVICES

All students have access to a professional Counsellor for career, social, financial, employment, and personal counselling. As well, Counsellors are responsible for standardized testing and are integral in recruitment and retention initiatives.

DISABILITIES SERVICES

Services for students with disabilities are available 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 develop an acceptable program and service plan to help remove barriers related to access and success. Delivery of outlined program and services may involve a Resource Facilitator at some campuses.

STUDENT DEVELOPMENT SERVICES

Student Development Officers (SDO) plan and implement various student engagement initiatives and provide guidance and assistance for student-led initiatives (campus-based and provincial). Student engagement initiatives contribute to positive and meaningful student experiences, build on student spirit, promote attachment to the institution and foster relationships within and outside the institution. These activities include, but are not limited to, orientation, spirit days, graduation ceremonies, scholarship and awards program, signature and special events, recreation/sports, health and wellness, student and graduate employment, social activities, and other extra-curricular activities. The SDO acts as the college liaison between the students and the college administration/staff and is an advisor to the Student Representative Council on campus. SDOs may also be involved in coordinating peer tutoring and assisting students with financial aid information. The SDO is also responsible for organizing and conducting recruitment liaison initiatives including participation in career fairs, school visits and trade shows.

LIBRARY SERVICES

Campus library services are offered by a staff of library professionals who provide assistance for students wishing to make use of the library resources and services. Every campus library has a collection of materials intended to support and complement program curriculum at the particular campus along with a varying amount of materials for recreational reading. On line access to article databases and reference books is provided both on campus and from home. Library staff is available to help students with research, including assistance with finding materials in library collections and through electronic resources. Through inter-library loan, materials can be borrowed from other College of the North Atlantic libraries and most lending libraries across Canada.

Library tours and individual or group instruction in the use of the library and its resources may be arranged. Students are encouraged to visit the campus library to see exactly what is available. You can also visit the library website at: http://www.cna.nl.ca/bottomtoolbar/library/

ACADEMIC ADVISING
Academic advising is an interactive process designed to help students gain the maximum benefit from their College of the North Atlantic experience. It is primarily intended to support students in achieving academic success. Advising entails using both College and community resources to assist students in making informed decisions, directing students to other information sources when necessary, and making appropriate referrals. Each first year student is assigned an Academic Advisor (program instructor) who initially meets with his/her group of advisees to discuss the importance of academic advising and the advising schedule for the semester/ year. The Advisor should meet with each student for a minimum of two formal sessions per semester.

HELP CENTRES
Help Centres, located on some campuses, provide a location for students to receive assistance with course work in which they may be experiencing difficulties. Individual and group tutoring may also be available.

The college supports a peer tutoring program whereby students may access peer tutors or earn remuneration as a peer tutor.

STUDENT GOVERNMENT
College of the North Atlantic supports the activities of the student body through campus Student Representatives Councils (SRC) and provincially through the College of the North Atlantic Student Union (CNASU). 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.

Campus-based Student Representatives Councils (SRCs) aim to address the issues of the students locally, provincially, and nationally. In September of each year, elections are held at each campus to elect members of the Student Representatives Council. The Student Representatives Council may be involved in the organization and delivery of various extracurricular activities on behalf of students:
• Winter Carnival
• Recreational and Athletic Activities
• Social Events
• Student Newspaper and
• Yearbook

College of the North Atlantic Student Union (CNASU) provides a provincial forum for representatives from the various campuses Student Representatives Councils to work cooperatively in advancing the interests of the students they represent. The CNASU promotes awareness and understanding of the needs and issues confronting students and advocates on their behalf. Students are encouraged to become involved with their Student Representatives Council and have a voice in the events that influence their educational experience.

Students interested in the Student Representatives Council or the College of the North Atlantic Student Union (CNASU) should contact the campus Student Development Officer.

STUDENT HEALTH/DENTAL PLAN
Registered students at the college have access to drug, extended medical, and dental insurance coverage upon registration. The plan is **mandatory** unless documents demonstrating coverage under another plan (through employment/spouse/parent) is presented during the Health and Dental enrolment period. If a student does not opt out by the deadline, he/she will automatically be enrolled and his/her student account will be charged accordingly. Please check with the Student Services office for the opt out deadline for particular programs. Beyond the coverage of Newfoundland and Labrador Medical Coverage Plan (MCP), 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.

For more information please contact the campus nearest you or visit our website at www.cna.nl.ca.

Please refer to the International Student section of this calendar for information regarding Health Insurance for International Students.

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.

STUDENT HANDBOOK
The college provides a Student Handbook annually. This Handbook includes important information and useful tips for students. A copy of this handbook is provided free of charge.

STUDENT CODE OF CONDUCT (RIGHTS AND RESPONSIBILITIES)
College Policy SS-201 respects the general rights of students and recognizes that students also have responsibilities. Please see the Student Handbook for details.

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, fellow students, and agents of the college or others. Refer to the Student Handbook for the details of this policy (Policy PO-005).

THREATS AND ACTS OF VIOLENCE
All students, staff and other persons visiting the college have the right to a healthy and safe environment free from threat and/or the act of physical or sexual injury, danger or violence. Refer to the Student Handbook for details of Policy SS-215 Threats and Acts of Violence.

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.

STUDENT AID
Information and assistance regarding student aid and financial options is available to students at each campus. Contact the campus Student Development Officer or Counsellor.

CHAPLAINCY SERVICES
Chaplaincy services may be made available to students at the college upon request.

BOOKSTORE
Textbooks for all courses are available at the college bookstore on each campus.

DAYCARE CENTRES
Daycare centres, located on the Corner Brook, Happy Valley-Goose Bay, and Prince Philip Drive Campuses, can be utilized for children of students if space is available and set criteria met. These daycare centres are linked to the college's Early Childhood Education programs. Interested students can contact either of these campuses for further information.

PARKING
Parking is limited at many campuses and is considered a privilege, not a right. Students, staff and visitors must park in designated parking areas. "No Parking" and "Restricted Parking" areas are designated either by a sign, road markings or both.

Student Housing

OFF-CAMPUS HOUSING
The Student Services office at each campus maintains a list of boarding accommodations available. Students attending College of the North Atlantic in St. John's can apply to stay at Memorial University residence by calling 709-737-7590. Students attending College of the North Atlantic in Corner Brook can apply to stay at Grenfell residence by calling 709-637-6266.

COLLEGE RESIDENCES
The college maintains residence facilities at the Bay St. George, Burin and Happy Valley-Goose Bay campuses. Students wishing to apply for residence should contact the campuses listed below to obtain an application and should apply directly to the Residence Office of the appropriate campus.

The Residence Office
Bay St. George Campus
P. O. Box 5400
Stephenville, NL A2N 2Z6

tel: (709) 643-7764

The Residence Office
Burin Campus
P. O. Box 370
Burin Bay Arm, NL A0E 1G0
tel: (709) 891-5618

The Residence Office
Happy Valley-Goose Bay Campus
P. O. Box 1720, Stn. B
Happy Valley-Goose Bay, NL A0P 1E0
tel: (709) 896-6349

Residence space is limited and therefore the college cannot guarantee a room to everyone who applies. All applications are processed on a first-come, first-served basis only after a student has been confirmed in a program at the college. For more information please contact the campuses above or call 1-888-982-2268.

Contract Training

CUSTOMIZED TRAINING – ON-SITE, ON CAMPUS, ANYTIME

What is contract training? Contract training is customized training that is developed and/or delivered to meet the needs of the workplace. College of the North Atlantic can develop customized training options for small businesses, corporations, governments, individuals and communities from an extensive list of more than 100 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 each with Business Development Officers available to discuss training needs. In fact, Contract Training and Continuing Education served over 20,000 students last year alone.

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. Call 1.888.982.2268 or visit www.cna.nl.ca/corporate for more information or to speak directly with one of our contract training and continuing education professionals.

OTHER SERVICES TO HELP YOU SUCCEED

- Custom design curriculum / program development
- Meeting facilitation
- Training needs analysis
- Workplace essential skills assessments

TRAINING FOR 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.

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.

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.

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.

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 Labradoreans will enjoy optional health." College of the North Atlantic provides comprehensive support to health sector professional staff, technicians and management.

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.

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. CNA is an approved WHSCC provider of Fall Protection, Traffic Control Person, Powerline Hazards and Confined Space Entry training.

Training for Government

College of the North Atlantic is pleased to provide a range of training courses and programs to provincial, federal, and municipal government departments to support changing technologies and client and service needs and professional development in one or more of the college's 17 campuses across the province.

Training for Individuals and Community Organizations

Individuals and community organizations in towns and communities across the province comprise a significant number of student registrations for contract training and continuing education. These students are seeking to upgrade skills for current employment, explore new careers, and complete a range of programs to compete for jobs in Newfoundland and Labrador's industry and other sectors.

Please refer to the Fees and Charges section of the calendar for refund information pertaining to Contract Training/Continuing Education.

TO INQUIRE ABOUT CUSTOMIZED TRAINING, CONTACT US.

Call Toll Free: 1.888.982.2268
Email: corporatetraining@cna.nl.ca
Website: www.cna.nl.ca

Business Development Offices:

Baie Verte Campus
P: 709/532-8066
F: 709/532-4624

Bay St. George Campus
P: 709/643-7825
F: 709/643-7748

Bonavista Campus
P: 709/468-1700
F: 709/468-2004

Burin Campus
P: 709/891-5606
F: 709/891-2256

Carbonear Campus
P: 709/596-8957
F: 709/596-2688

Clarenville Campus
P: 709/466-6947
F: 709/466-2771

Corner Brook Campus
P: 709/637-8570
F: 709/634-2126

Gander Campus
P: 709/651-4804
F: 709/651-3376

Grand Falls-Windsor Campus
P: 709/292-5642
F: 709/489-4180

Happy Valley-Goose Bay Campus
P: 709/896-6316
F: 709/896-3733

Labrador West Campus
P: 709/944-6908
F: 709/944-5413

Placentia Campus
P: 709/227-6281
F: 709/227-7185

Port aux Basques Campus
P: 709/695-3582
F: 709/695-2963

Prince Philip Drive Campus
P: 709/758-7259
F: 709/758-7297

Ridge Road Campus
P: 709/758-7554
F: 709/758-7059

Seal Cove Campus
P: 709/744-6845
F: 709/744-3929

St. Anthony Campus
P: 709/457-2719
F: 709/457-2163

Training Provided Includes:

Agrifood related training and activity:
Food Processing
Food Sanitation
HACCP Training
Kitchen Helper
Meat Cutting
National Food Safety Training (NFSTP)
Nutritional Analysis and Labeling
Test Market Analysis

Business and Information Technology sector training
ArcGIS
Atlantic Business
Trades Certification (Entrepreneurship for tradespersons)
AutoCAD
Training for Small Business startups
CISCO certification
Customer Service Excellence
Fibre Optics
Front Line
Supervisory Skills
HR for Small Business
Microsoft Office Suite Retail Skills
Computerized Accounting
Supply Management Training
Business Writing

Construction Sector training:
Air Brake
Endorsement
Specialized Welding
CWB Training and Testing
Blueprint Reading
GIS/Map and Compass
Boom Truck Evaluation
Canadian Electrical Code
Excavator Training
Grader Training
Heavy Equipment Operator
Mobile Crane
NDT (Non-Destructive Testing)

Energy Sector training:
Alberta B Welding
Supervisory Skills
Development for Production Supervisors
Cultural Diversity
Drill Rig Safety Inspection
H2S Alive (ENFORM Certified)
Hazardous Area "EX" (CAPP Standard)
Hoisting, Rigging and Slinging
Hydraulic Safety and Testing Procedures
Well Control (ENFORM Certified)
Power Engineering (3rd and 4th Class)
Primavera (Project Management Software)
Project Management
Tractor Trailer Endorsement (Class 3)

Recent Health Sector training:
Changing Minds (Mental Health Awareness)
Emergency Medical Responder (EMR) via Distance
Home Support Worker/Personal Care Attendant
Intravenous Therapy (IV) and Symptom Relief
Introduction to Home Care
Medical Device Reprocessing Technician
Medical Laboratory Assistant Bridging
Medical Terminology
Paramedics
Rehabilitation Assistant Bridging (for single OTA or PTA training individuals)

Recent Mining Sector training
Leadership Development
Computer Skills Training
Customized Mill Operator
Heavy EquipmentOperator
Industrial Mechanic
Machinist
Mining Technician
Prospectors Training

Safety training:
Arc Flash Safety
Asbestos Abatement
Back Injury Prevention
Brush Clearing
Bus Driver Training
CFC Refrigerant
Handlers
Chainsaw Safety
Climbing Techniques and Aerial Rescue
Confined Space
Entry (WHSCC Approved)
Construction Safety Supervisor
Construction SafetyTraining System (CSTS)
CPR Refresher
Electrical Hazards Awareness
Emergency and Standard First Aid
Emergency Medical Responder
ENFORM certifiedsafety training
Fall Protection (WHSCC Approved)
Fall Protection Recertification (WHSCC Approved)
Forklift Operator
Safety
Gas Detection
H2S Alive (ENFORM Certified)
High Voltage
Industrial
Industrial Scaffolding
Occupational Health and Safety (OHS)
Fundamentals Certificate Program
Safety Engineering
OHS Committee/Rep (WHSCC Approved)
Overhead Crane
Power Line Hazards (WHSCC Approved)
Propane Safety
Scaffolding Safety Awareness
Transportation of Dangerous Goods (TDG)
Workplace Hazardous Materials Information Systems (WHMIS)

Natural Resources Sector:
- Conservation and Law Enforcement Training Program (CLET)
- Quality Compliance Enforcement
- Program (QCEP)
- Law Enforcement-Level 1
- Security Services
- Environmental Monitor

Training for Individuals and Community Organizations:
- Paramedic Program
- Mining Technician
- Heavy Equipment Operator
- Kitchen Helper
- Commercial Cook
- Power Engineer
- Firearms Safety/Hunter Education
- Construction Safety
- Supervisor

Training for Professional Designations:
Certified Sales Professional
Maintenance Management Professional (MMP)
Payroll Practitioner
Supply Chain
Management Professional

Continuing Education

Professional and Personal Development Opportunities
For those who want to increase their chances of getting a job, upgrade their skills to advance in their present career, maintain their certification, or are interested in pursuing a personal interest, College of the North Atlantic offers a vast array of continuing education courses and certificate 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 (correspondence courses). Students enrolling in a certificate program have the convenience of studying part-time while maintaining current employment.

Certificate programs and professional development courses available include:
- Changing Minds - Mental Health Education Program
- Conservation Law Enforcement Training
- Exam Sessions (Real Estate / LLQP / RIBO)
- Maintenance Management Professional (offered in partnership with Plant Engineering and Maintenance Association of Canada)
- Marine Front Line Hospitality
- Medical-Related Training
- Applied Cardiac Life Support (ACLS)
- Cardiology Review and Altered Sensorium
- Drug Calculations for the Paramedic
- ECG Rhythm Strip Review
- Emergency Medical Dispatch (EMD)
- Emergency Medical Responder (EMR)
- Femoral Traction Splint for
- Open Femur Fracture

- IV Therapy Recertification
- IV Therapy Testing Challenge (for out-of-province entrants)
- IV Therapy Testing Challenge
- (for in-province entrants)
- Medical Device Reprocessing Technician (MDRT)
- Primary Care Paramedicine (PCP) Refresher
- Occupational Health and Safety (OHS) Fundamentals Certificate Program
- Project Management Certificate Program
- Project Management Professional Exam Preparation Course
- Records and Information Management (RIM) Certificate Program
- Security Services*
- Supervisory / Management / Leadership Development
- Supply Management Training

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:

- Diagnostic Ultrasonography
- GIS Applications Specialist
- International Business Management
- Journalism
- Safety Engineering Technology

Credit Courses
(transferable to full-time programs)
Credit courses offered through continuing education are part of the following full-time programs:

- Business Management
- Computer Systems and Networking
- Engineering Technology
- Health Sciences
- Office Administration
- Programmer Analyst

Leadership, Management and Supervisory Skills Training
As the country's baby boomers retire, the nation faces major labour shortages, including administration and management positions. We must plan for that shortage now by training our existing workforce in leadership, management and supervisory skills. College of the North Atlantic offers 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
- B.O.A.T.
- Cooking / Baking
- Firearms Safety Courses
- Language Training
- Matting and Framing
- Photography
- Welder Testing (CWB)
- Welding Courses
- Yoga

For a list of course descriptions and schedule information, visit our Continuing Education website at http://www.cna.nl.ca/continuing-education/ 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.

Please refer to the Fees and Charges section of the calendar for refund information pertaining to Contract Training/Continuing Education.

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

Business Development Officer
Prince Philip Drive Campus
P: 709-758-7135
F: 709-758-7297

Office of Distributed Learning (http://dls.cna.nl.ca)

College of the North Atlantic's award-winning Office of Distributed Learning (DL) provides students new opportunities to complete college courses and programs without having to attend a college campus. All online courses carry the same credentials and academic standards as their classroom equivalents. During the academic year, our Help Desk provides support seven days a week for extended hours. We provide online chat and toll-free telephone support 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 and independent students who may not be able to attend a campus. DL 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. Students 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, video and web conferencing tools are also used in some courses.

Distributed Learning is technology-mediated and students must become familiar with using computers that are Internet ready. Before registering for a course, potential students should take responsibility for learning about the technology, 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. Visit the DL webpage at http://dls.cna.nl.ca. Students may enroll on a full-time or part-time basis.

AVAILABLE COURSES AND PROGRAMS
Distributed Learning provides credit courses from all academic Schools. For further information about specific programs and courses offered through DL see the Course Descriptions section of the calendar or view the Office of Distributed Learning website at http://dls.cna.nl.ca.

Distributed Learning offers complete diploma and certificate programs in:

- Business Administration (BA)
- BA Certificate
- BA General Diploma
- BA Human Resources Management Diploma
- Business Management (BM)
- BM Human Resource Management (3rd Year) Diploma
- Early Childhood Education
- Information Management Post-Diploma
- Office Administration (OA)
- OA Certificate
- OA Executive Diploma
- OA Medical Diploma
- Rehabilitation Assistant (OTA and PTA) Diploma
- Web Development Diploma

Note: The following list of courses is subject to change.

DISTRIBUTED LEARNING COURSES

AC1100	Bookkeeping I
AC1260	Financial Accounting I
AC1350	Income Tax
AC2100	Bookkeeping II
AC2220	Intermediate Financial Accounting I
AC2230	Computerized Accounting I
AC2231	Computerized Accounting II
AC2250	Managerial Accounting I
AC2260	Financial Accounting II
AC2360	Principles of Internal Auditing
AC2600	Managerial Accounting for HRM
AC3220	Intermediate Financial Accounting II
AC3250	Managerial Accounting II
AM1100	Math Essentials
AP1101	Intro to Apprenticeship
BL1020	Introductory Biology I
BL1021	Introductory Biology II
BL1330	Anatomy
BL1390	Anatomy and Physiology
CH1030	Introductory Chemistry I
CH1031	Introductory Chemistry II
CM1060	Essential English I
CM1061	Essential English II
CM1100	Writing Fundamentals
CM1240	Business Communications I
CM1241	Business Communications II
CM1270	Communications in Health Care
CM1370	IM Communications
CM1400	Technical Report Writing I
CM1401	Technical Report Writing II
CM1520	Writing for the Arts
CM2100	Workplace Correspondence
CM2110	Business Writing Fundamentals
CM2130	Workplace Writing
CM2160	Communication Essentials
CM2200	Oral Communications
CM2300	Report Writing
CP1120	Fundamentals of Programming I
CP1330	Windows Server Administration
CP1410	Web Analysis and Design

CP1560	Data Management
CP1570	Networking for Programmers
CP2130	Fundamentals of Programming II
CP2280	Object Oriented Programming in Java
CP2310	Electronic Spreadsheet Applications
CP2410	Micro-Database Applications
CP2420	PHP
CP2470	Web Server
CP2640	Desktop Publishing
CP3100	MVC Framework Development
CP3130	Content Management Systems
CP3150	Interface Design and Analytics
CP3160	Multimedia Development
CP3370	Software Development with ASP.NET
CP3470	IM Systems Analysis and Design
CP3510	Database Design
CR1120	Introduction to the Field of IT & Ethics
CR1260	Client Service for Computer Industry
CR1280	Computer Concepts for Information Management
CR1360	IM Security
CR1510	Website Development
CR2170	Trends in Web Development
CR2510	Linux Service Administration I
CR2800	Security for Programmers
CR3540	Capstone Project
DM1200	Document Production I
DM1210	Document Production II
DM1300	Transcription I
DM1301	Transcription II
DM1400	Medical Transcription I
DM1401	Medical Transcription II
DM2200	Document Production III
DM2240	Document Production IV
EC1110	Microeconomics
EC1210	Macroeconomics
EE1180	Curriculum I
EE1181	Curriculum II
EE1280	Infant and Toddler Care
EE1290	Positive Behavior Guidance
EE1340	Child Development I
EE1341	Child Development II
EE1360	Observation
EE1420	Creative Experiences I
EE1421	Creative Experiences II
EE1440	Family Studies I
EE1441	Family Studies II
EE1480	Inclusion I
EE1481	Inclusion II
EE1870	Community Resources
EE2180	Curriculum III
EE2260	Introduction to Child Care Administration
EE2340	Child Development III
EE2350	Professional Practice
EE2470	Infant Development and Care
EE2500	School-Age Development and Care
EE2555	Advanced Behavior Guidance
EP1110	Introduction to Business
EP1130	Business for Information Systems
EP2130	Business Principles and Practices for IM
EP2150	Entrepreneurship
EP2200	Business Planning
EP2250	Small Business Development
EP2400	Business Solutions
FH1340	Health and Safety
FH1360	Childhood Nutrition
FH1500	Personal Wellness
FN1140	Introduction to Finance
FN2110	Business Finance
FW1320	Field Placement (Post Diploma)
FW1600	Field Placement I
FW1601	Field Placement II
FW2600	Field Placement III
FW2601	Field Placement IV
GD1120	Storytelling in Games I
GD1130	Game Theory Design
GD1140	Serious Game Theory
HB1100	Introduction to Health Informatics
HB1130	Health Delivery Systems I
HB1131	Health Delivery Systems II
HB1170	Medical Process Terminology
HB1200	Health Information Networking
HB1240	Data Management
HB1300	Research and Data in Health Care
HB1350	Data Quality and R isk Management
HB1400	Public Health, Population Health & Epidemiology
HB2100	Management Health Information
HB2160	Records Management for HI Professionals
HB2200	HIS Systems Analysis
HB2220	Leadership for HI Professionals
HB2260	Health Informatics Capstone
HG1680	Ethics in Health Care
HN1100	Industrial Relations
HN1200	Human Resource Management
HN1230	Human Resource Management I
HN1240	Human Resource Management II
HN1400	Occupational Health and Safety
HN2100	Collective Agreement Administration
HN2110	Dispute Settlement
HN2130	Recruitment and Selection
HN2140	Attendance and Disability Management
HN2150	Training and Development
HN2200	Strategic Compensation and Benefits
HN2210	Human Resource Planning
HN3110	Current Topics in Human Resource Management
HR1300	Communications and Human Relations
HY1120	Prehistory to Renaissance
HY1130	Renaissance to 20th Century
JL1110	Reporting & New Writing I
JL1120	Reporting & New Writing II
JL1130	Audio Storytelling
JL1160	Video Storytelling
JL1420	Journalism Ethics & the Law
JL1581	Online Journalism
JL1850	News Production I
JL1851	News Production II
JL2120	Reporting & News Writing III
KB1150	Keyboarding I
KB1151	Keyboarding II
LW1210	Labour and Employment Law
LW1230	Business Law
LW1280	Information Management Law
LX1000	Digital Imaging I: Capture, Display and Archiving
LX1010	Apparatus & Accessories
MA1040	Math Fundamentals I
MA1041	Math Fundamentals II
MA1100	Mathematics
MA1670	Statistics
MA1900	Problem Solving for Information Technology
MC1060	Computer Essentials
MC1240	Computer Applications I
MC1242	Computer Applications II
MN2600	Strategic Management
MN3100	Business Ethics
MN3200	Performance Management
MR1100	Marketing I
MR1600	Professional Selling
MR2100	Marketing II
MR2300	Business Research
MR2400	Marketing Communications
NC1747	Medical Terminology
NC1888	Introduction to Cultural Tourism
NC2489	The Business of Food
OF1100	Office Management I
OF1101	Office Management II
OF2100	Office Management III
OF2101	Office Management IV
OF2300	MCP Billing
OF2400	Medical Office Management I
OF2401	Medical Office Management II
OF2700	Capstone Project
OF2720	Capstone Project
OJ1100	Work Exposure - BA Certificate (2 wks)
OJ1130	Work Exposure - OA Certificate (2 wks)
OJ1550	Work Exposure - BA HRM (6 wks)
OJ1580	Work Exposure - BA ACCT (6 wks)
OJ1590	Work Exposure - BA General (6 wks)
OJ1900	Work Exposure - OA Executive (6 wks)
OJ1920	Work Exposure - OA Medical (6 wks)
OP1320	Classification
OP1400	Records & Information Management I
OP1401	Records & Information Management II
OP1600	Electronic Records Management
PH1050	Introductory Physics I
PH1051	Introductory Physics II
PH1070	X-Ray Skills Physics
PH1100	Physics
PH1101	Physics
PR1100	Website Project I
PR1101	Website Project II
PR2330	Project Management for HIS
PR2700	Project Management
PS1130	Psychology I
PS1150	Introduction to Psychology I
PS1151	Introduction to Psychology II
PS1420	Health Care Organization and Structure
PS2340	Organizational Behaviour
PY1150	Photography
PY1330	News Photography I
PY1331	News Photography II
RP1100	Introduction to Records Management
RP1101	Management and Control of Records
SC1120	Introduction to Sociology
SC1150	Principles of Sociology
SC1160	Sociology of Families
SD1570	Effective Learning
SD1760	Workplace Essentials
TA1141	Orientation to Rehabilitation
TA1231	Human Movement and Kinesiology
TA1511	Introduction to Gerontology
TA1601	Introduction to Clinical Skills
TA1610	Clinical Orientation Placement

TA1612	Advanced Clinical Skills
TA1701	Clinical Placement I
TA2140	Disease, Injury and Intervention I
TA2141	Disease, Injury and Intervention II
TA2221	Communication Disorders in Rehabilitation
TA2521	Mental Health Concepts and Techniques
TA2615	Therapeutic Skills II for Rehabilitation Assistant (OTA/PTA)
TA2671	Therapeutic Skills I for OTA
TA2685	Therapeutic Skills I for PTA
TA2741	Clinical Placement II for OTA
TA2751	Clinical Placement II for PTA
TA2710	Clinical Placement III for the Rehabilitation Assistant (OTA/PTA)
TM1100	Medical Terminology I
TM1130	Medical Terminology
TM2100	Medical Terminology II
VA1110	Drawing Methods & Media
VA1115	2D Design
VA1120	Digital Imaging
VA1140	Figure Drawing
VA1170	3D Design
VA1400	Colour Theory

International Students

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 Atlantic 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 Application for Admission Form (available on-line at: http://www.cna.nl.ca/application) and forward it, along with the $100 application fee, proof of English competency and official academic transcripts and graduation certificates to the address listed below. While the application and application fee can be submitted on-line, all the supplementary documents are to be submitted in hard copies.

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: 709 758-7304
E-mail: internationalweb@cna.nl.ca
Web: www.cna.nl.ca

2. The application will be reviewed once all the appropriate documents are received by the International Student Coordinator and, if accepted, a **Letter of Acceptance** will be issued to the student. The letter will confirm fee, enrolment date, program of study and length of program.

3. Upon receipt of an electronic copy of the Letter of Acceptance, the student is required to pay the registration fee and tuition fee for the first semester of the program of studies. In the event that a student visa/study permit 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. See section below on refunds for further details.

4. Applicants should take their letter of acceptance to the nearest Canadian Embassy, High Commission, or Consulate to apply for a **Student Visa (if required) and a Study Permit**. Generally, applicants will need:
- Documentation verifying personal identification (such as a passport)
- An original **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

For more information regarding the application process, please visit the Citizenship and Immigration Canada website at: http://www.cic.gc.ca/english/study/index.asp.

5. Once an applicant has been issued a Study Permit, he/she should advise the college and make arrangements to travel to Canada to begin his/her program at College of the North Atlantic.

LANGUAGE REQUIREMENTS

All international students must meet 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 paper based 550, TOEFL Internet based 79, TOEFL computer based 213 or equivalent, IELTS overall band score of 6.5 and 6.0 for reading and writing, MELAB minimum 85, etc.).

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 marks which will be assessed on an individual basis.

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, at smaller campuses there is more flexibility around entry times. Students with advanced standing may be able to enter a program in its second or third semester.

STUDENT SERVICES AND ON-CAMPUS FACILITIES

The 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 events/activities for students throughout the year.

The International Student Coordinator should be the first contact for all international students. The Coordinator is sensitive to the special needs of international students and is experienced in providing support to them. Below is a list of services provided by the Coordinator:
- Advice on Accommodation Search.
- Language assessment.
- Orientation.
- Monthly international events.
- Liaison with sponsoring agencies, foreign governments, consulates and embassies.
- General advising and counseling regarding personal and financial concerns.

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

Newfoundland and Labrador's Medical Care Plan (MCP) and International Students
The Medical Care Plan (MCP) program applies to any international student issued an official study permit by Citizenship and Immigration Canada before entering the country. The individual must be attending a recognized post-secondary educational institution in Newfoundland and Labrador (including College of the North Atlantic) for a period of at least 12 months. Dependents of the student will also be covered under MCP, provided they are living in the province and have relevant documentation to support their application.

Coverage will become effective for eligible students and dependents on the date of registration. Eligible students must present a registration letter from the college and an MCP application form to be considered for the program. Coverage is renewable on a yearly basis, with a current enrollment letter, and will terminate upon completion of the study program or the end date of study permit, whichever is earlier. Students must be attending school and residing in the province in order to avail of coverage. Work terms outside the province are not covered.

Please note that only services listed under the Medical Care Insured Services Regulations and the Hospital Insurance Plan Regulations will be accessible for international students.

For the MCP application form and more information regarding the services offered under the plan, please visit the Newfoundland and Labrador government website at: www.health.gov.nl.ca/mcp/.

International Health Insurance Plan
Registered international students of College of the North Atlantic are covered under an accident insurance plan. This DOES NOT provide routine medical coverage for students. If a student wishes to opt out of the plan, he/she must

provide proof of purchase of a similar health insurance plan to the International Student Coordinator before registration.

FEES AND COSTS

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

Regular Academic Studies

Application Fee:	CAD $100.00

Non-refundable – must be sent with application

Tuition Fees:

Regular-Full-time programs	CAD $3300.00 per semester (15 weeks - Fall or Winter Semester)
Intersession	CAD $1650.00 per semester (7 weeks - Intersession)
Continuous Intake	CAD $220.00 per week and prorated equipment/materials fees
In-class course - Part-time students	CAD $825.00 per course
DL courses	CAD $825.00 per course + $50.00 Tech Fee
Co-op work term	CAD $1650.00 per semester (12-16 weeks)
On the Job Training	CAD $220.00 per week
Equipment/Materials	CAD $55.00 - $165.00

(varies from program to program; some exceptions may apply)

In general, for most programs one academic year consists of two 15-week semesters and one 7-week semester. For some programs, an academic year consists of three 15-week semesters. See program description in the college calendar for details.

Registration Fee:

All programs	CAD $95.00

Per academic year (September to August)

Other Costs (Note: these are estimations of expenses, not exact figures)
Textbooks
CAD $ 500.00 – 1000.00 per semester
Health Insurance
CAD $ 500.00 – 550.00 per year

SCHEDULE OF PAYMENTS

- Application Fee ($100.00) must accompany application form
- Registration Fee ($95.00) due when student receives Letter of Acceptance or during registration
- First semester tuition ($3300.00) due when student receives Letter of Acceptance
- Tuition and Equipment/Materials are paid during registration at the beginning of each semester
- Health Insurance must be purchased before or upon arrival in Canada

ACCEPTABLE METHOD OF PAYMENTS

Payment can be made by credit card or direct transfer into the college's account.

REFUNDS

The following outlines the international eligibility for tuition refund:

- Application fee and registration fee are non-refundable.
- 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. If the student has registered and attended classes prior to this notification, the student will be liable for a pro-rated tuition and equipment and materials fee for the weeks attended
- In the event that a student formally withdraws their acceptance to the college 30 days prior to the program registration date, a $1000.00 administration fee will be deducted and the remaining tuition fees will be refunded to the student.
- Once a student is registered in his/her program of study, and holds a valid visa, he/she is not eligible for any refund of tuition for the semester in which he/she is registered or any prior semesters. If the student has paid tuition fees for more than the current semester in which he/she is registered, tuition fees for subsequent semesters will be refunded. (The application fee and the registration fee are nonrefundable)

SCHOLARSHIPS

The college does not offer scholarships or bursaries to international students upon admission. Once a student is enrolled at the college, he or she may be eligible to apply for a scholarship or bursary. Eligibility for the college's scholarships and bursaries is usually determined by the student's academic performance.

LIVING EXPENSES

An average monthly estimate of living expenses (not exact figure):

Housing:	$500.00-700.00
Meals:	$250.00-300.00
Transportation:	$70.00-100.00
Total Average	$900.00

RESIDENCE

The College maintains residence facilities at the Bay St. George, Burin and Happy Valley-Goose Bay campuses. Fees for room and board at the residences range between $350 and $650 per month with optional meal plans available. Please refer to Fees & Charges section of the calendar for rates. Students wishing to apply for residence should apply directly to the Residence Office of the appropriate campus.

OFF-CAMPUS HOUSING

Newfoundland and Labrador also has many off-campus housing options including renting a single room in an apartment or house, rental apartments, rental houses, and boarding houses (which often include meals). 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 information and advice regarding off-campus housing options. Depending on the type of accommodation and location, the cost of off-campus housing can range from $500-$700 and up.

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 programs to meet the needs of businesses and organizations worldwide. Customized training can vary in duration from a one-day session to programs of several months. We pride ourselves in responding quickly and accurately to clients' needs.

College of the North Atlantic's instructional and support staff has the expertise to ensure quality programs 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
- 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 2001, 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 Colleges and Institutes Canada.

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:

Elizabeth Vincent
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

Alumni and Advancement

The Alumni and Advancement Office operates within the Division of Industry and Community Engagement. Its role is twofold: to foster a climate which creates and nurtures partnerships for the college – allowing for first-rate education opportunities for its students; and to provide an opportunity for all Alumni to connect with the college and with one another.

ADVANCEMENT

Advancement activities within the college play a pivotal role in engaging community and corporate supporters. Financial support allows for the continuous growth of the college, and through scholarships and bursaries ensures that students have access to high quality education, state of the art equipment and excellent career opportunities. Support for our advancement goals occurs through corporate and private donations and through our internal Faculty and Staff Appeal.

ALUMNI

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 predecessor institutions.

The college has always felt a sense of responsibility, pride and interest in the lives of its graduates. With the development of an Alumni Office, our alumni have a lifelong connection to the college. This connection in turn encourages our many alumni worldwide to continue to support College of the North Atlantic and its students.

The Alumni and Advancement Office prides itself on providing key benefits to both former and current students.

BENEFITS FOR REGISTERED ALUMNI

- Free subscription to the alumni e-newsletter
- Opportunities to stay connected or to re-connect with the college, former teachers, classmates and friends through social media outlets and local events
- Continuing Education opportunities
- Free access to campus libraries
- Discounts from our select partners
- Career employment services and interview tips
- Opportunities to give back to the college by serving as a college ambassador within their communities
- Diploma frames and class rings

BENEFITS FOR STUDENTS

- Student scholarships, bursaries and awards are a key part of our Office's activities. By securing corporate and community support, we encourage and support the development of our students.
- We build connections between students and alumni which facilitates career guidance or mentorships between these two groups.
- Students can be confident in knowing that the relationships they are forming as students will continue beyond graduation

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

Alumni and Advancement Office
College of the North Atlantic
1 Prince Philip Drive, Room L202
P. O. Box 1693
St. John's NL A1C 5P7
tel: 709 758-7356
fax: 709 758-7222

Reconnect to the college
Visit: www.cna.nl.ca/alumni

Applied Research and Innovation

With a demonstrated capability in several areas of technology, trades, natural and social sciences, the college furnishes the necessary building blocks for an applied research and innovation system. Our strategic research plan prioritizes applied research and innovation in areas of College's traditional strength as well as in disciplines where significant potential for growth exists as a result of industry demand. The college is equipped with modern infrastructure, state-of-the-art equipment and a cadre of researchers committed to innovation and research. As well, we enjoy strong association with the community and good working relationships with industry.

The college's Office of Applied Research (OAR) works toward fostering a spirit of research creativity among its faculty, staff and students. An important area of our responsibility is to support researchers in the creation of new knowledge as well as in the development of innovative products and services. We are connected with local business and industry and respond to their needs in problem solving, product development, patents and licenses. Our current areas of activity in applied research include:

- Engineering Technology
- Mining Technology
- Oil & Gas
- Renewable Energy
- Environmental Science
- Interdisciplinary Research
- Natural Resources
- Nanotechnology
- Digital Animation
- Social Sciences/Humanities/Community Based Research

Our researchers in engineering and manufacturing sciences utilize the latest technologies in design software, 3-D printing, laser scanning, vacuum forming, injection molding, etc. Researchers are provided with support throughout the research process from proposal development to technology transfer and commercialization.

Projects involving multiple funding and community partnerships are ongoing in strategic areas of activity. Some of our leading initiatives include projects in; ocean energy, applied minerology, mobile housing, industrial research assistance to SMEs, etc. Information on current and past projects can be found on our website. http://www.cna.nl.ca/office-applied-research/default.asp

In addition to its regular staff, the office oversees several campus based positions such as industrial research chair, research technicians, and work term students, across the province. The timing and role of these positions vary according to the research needs and the availability of funding.

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: tara.jackson@cna.nl.ca

Programs and Courses

College of the North Atlantic has nearly 100 full-time program offerings and more than 300 part-time in a variety of school areas. For specific information on our programs, such as entrance requirements, duration of the program, campus the program is offered at, description of the program, and courses required for completion, please visit our website at www.cna.nl.ca/programs-courses.

School of Academics, Applied Arts and Tourism

ACADEMICS

Aboriginal Bridging Program

CERTIFICATE
- **One Year**
- **September**
- **Happy Valley-Goose Bay Campus**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1				
CM1010	Communications I for Aboriginal Students	5	5	0
MA1010	Mathematics I for Aboriginal Students	4	4	1
BL1060	Biology for Aboriginal Students	4	4	1
AH1060	Personal Skills Development I	4	4	0
MC1080	Introduction to Computers	2	2	0
Semester 2				
CM1011	Communications II for Aboriginal Students	5	5	0
MA1011	Mathematics II for Aboriginal Students	4	4	1
CH1060	Chemistry for Aboriginal Students	4	4	1
SD1230	Career Exploration	4	4	0
AH1010	Aboriginal Health Initiatives	3	3	0
AH1061	Personal Skills Development II	3	3	0
Semester 3				
CM1012	Communications III for Aboriginal Students	4	4	0
MA1012	Mathematics III for Aboriginal Students	4	4	0
PH1060	Physics for Aboriginal Students	3	3	1

This program is designed to "bridge the educational gaps" in the lives of Aboriginal learners, enabling them to succeed in subsequent college programs of study. The Aboriginal Bridging program is, moreover, a valuable academic "refresher" for mature students returning to school for training, or to the workforce after a prolonged period of absence. Students enrolling in this program will receive instruction in reading comprehension, writing, numeracy, public speaking, researching, scientific experimentation, personal awareness, study skills, time management, and critical thinking.

In additional to academic courses in Communications, Mathematics and Science, the Aboriginal Bridging program also recognizes that personal skills training is often as important to success as academic studies, and that cultural supports are a necessary component for Aboriginal students entering post-secondary environments. Culturally relevant materials are therefore utilized to form a curriculum designed specifically for First Nations, Inuit, and Métis students. Elder and community participation will be incorporated into the classroom, and career and computer skills courses, as well as personal development and health and wellness training, will be offered as complements to the academics. Students will receive instruction in nutrition, for example, as well as stress management, healthy relationships, parenting, self-determination, and active lifestyles. Combined, this split focus – academic and personal skills development – forms a solid foundational year upon which future post-secondary success may be built.

The Aboriginal Bridging program is closely associated with the CAS Transition offering of courses and feeds directly into that college program. The successful completion of Aboriginal Bridging will enable students to gain specific credits which may be used in CAS Transition

OBJECTIVES
1. To provide Aboriginal students, who are secondary level graduates or have mature status, with the opportunity to strengthen the academic and personal development skills necessary to succeed in future post-secondary programs.
2. To provide, in response to identified occupational needs, a bridging program that enhances Aboriginal student transition to higher education.
3. To enhance the employment opportunities of secondary level graduates and mature students through improving fundamental employability skills.

ENTRANCE REQUIREMENTS

High School - Provincial High School Graduation Certificate, or equivalent,
Adult Basic Education (ABE) - Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile).
Mature Student Status -Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ACADEMICS

Comprehensive Arts & Science (CAS) Transfer: College-University

CERTIFICATE
- **One Year**
- **September**
- **Burin, Carbonear, Grand Falls-Windsor, Happy Valley-Goose Bay, and Labrador West Campuses**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1				
BL1175	Principles of Biology I	5	4	3
BL1176	Principles of Biology II	5	4	3
CH1135	Introductory Chemistry I	6	5	3
CH1136	Introductory Chemistry II	5	4	3
CH1140	General Chemistry I	6	5	3
CH1141	General Chemistry II	6	5	3
CH1150	Introductory Chemistry III	6	5	3
CM1120	Critical Reading and Writing I	4	4	0
CM1135	Critical Reading and Writing II (Fiction)	4	4	0
CM1145	Critical Reading and Writing II (Context, Substance, Style)	4	4	0
CM1155	Critical Reading and Writing II (Drama)	4	4	0
CM1165	Critical Reading and Writing II (Poetry)	4	4	0
EC1140	Introduction to Microeconomics	4	4	0
EC1150	Introduction to Macroeconomics	4	4	0
EH1100	Earth Systems	5	4	3
EH1102	Concepts and Methods in Earth Sciences	5	4	3
EL1150	Introduction to Folklore	4	4	0
EL1180	Anthropology of War & Aggression	4	4	0
EL1320	Folklore Studies	4	4	0
EL1360	Introduction to Anthropology	4	4	0
EL1420	Introductory French I	4	4	1
EL1430	Introductory French II	4	4	1
EL1440	Introductory French III	4	4	1
EL1500	Introduction to Linguistics	4	4	0
EL2420	Advanced French for First-year Students	4	4	1
MA1104	Algebra and Trigonometry	5	5	0
MA1120	Finite Mathematics I	5	5	0
MA1121	Finite Mathematics II	5	5	0
MA1130	Calculus I	5	5	0
MA1131	Calculus II	5	5	0
MA2150	Linear Algebra I	4	4	0
PH1120	Introductory Physics I	5	4	3
PH1121	Introductory Physics II	5	4	3
PH1130	General Physics I	5	4	3
PH1131	General Physics II	5	4	3
PS1150	Introduction to Psychology I	4	4	0
PS1151	Introduction to Psychology II	4	4	0
SC1150	Principles of Sociology	4	4	0
SC1160	Sociology of Families	4	4	0
SC1430	Labrador Society and Culture	4	4	0
SI1500	Introduction to Physical and Life Science I	5	4	3
SI1501	Introduction to Physical and Life Science II	5	4	3
WM1110	Introduction to Gender Studies	4	4	0

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

Note: Please check course prerequisites and co-requisites during advising/confirmation of enrolment.

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

1. High School
Provincial High School Graduation with 60% overall average in the following courses (or equivalents):
i. English 3201 or English 3202
ii. Mathematics (2 credits) chosen from
Advanced: 3200
Academic: 3201
And
2 credits chosen from
Advanced: 2200
Academic: 2201

iii. Science (4 credits) two of which must be selected from the following:
Biology 3201
Chemistry 3202
Physics 3204
Earth Systems 3209
The remaining two credits may be selected from 2000 level courses in the above noted subject areas or from Science 1206.
iv. Two credits at the 3000 level in a Social Science or a Modern/Classical Language. This category includes the following subject areas: History, Geography, Religious Studies, French, Spanish, and other Modern/Classical Languages.
v. 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.

2. Comprehensive Arts and Science (CAS) Transition
Note: It is important that CAS Transition students who intend to enroll in the CAS Transfer program check course requirements for their intended post-secondary plans. It is strongly recommended that CAS Transition Certificate students complete:
i. Math Fundamentals MA1040 and MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology BL1020 and BL1021
b. Introductory Chemistry CH1030 and CH1031
c. Introductory Physics PH1050 and PH1051

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses:
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 has been completed.

4. Mature Student Status
Applicants who do not meet the education prerequisites of this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

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.

ACADEMICS

Comprehensive Arts & Science (CAS) Transition

CERTIFICATE

- **One Year**
- **September**
- **Bay St. George, Corner Brook, Clarenville, Carbonear, Gander, Grand Falls-Windsor, Happy Valley-Goose Bay, Labrador West, Prince Philip Drive, Seal Cove, and St. Anthony Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
Essential English I		5	5	0
Minimum of 10 Credits from Core Program courses:				
	Program Access Courses			
	General Education and Social Science Courses			
	Exploration and Student Success Courses			
Minimum of 3 Credits from Electives				
Semester 2		**Cr**	**Le**	**La**
Essential English II		5	5	0
Minimum of 10 Credits from Core Program courses:				
	Program Access Courses			
	General Education and Social Science Courses			
	Exploration and Student Success Courses			
Minimum of 3 Credits from Electives				
Additional Credits as needed to attain 40 Credits				

Note: While it is possible to complete the required 40 credits by doing 5 courses per semester, students who select courses with a credit value of 3 or less may have to complete more than 5 courses per semester to graduate in two semesters. The maximum number of courses a student may complete per semester is 7.

Required Courses		**Cr**	**Le**	**La**
CM1060	Essential English I	5	5	0
CM1061	Essential English II	5	5	0

CORE PROGRAM COURSES:

Program Access Courses		**Cr**	**Le**	**La**
MA1040	Math Fundamentals I	4	4	1
MA1041	Math Fundamentals II	4	4	1
BL1020	Introductory Biology I	4	3	2
BL1021	Introductory Biology II	4	3	2
CH1030	Introductory Chemistry I	4	3	2
CH1031	Introductory Chemistry II	4	3	2
PH1050	Introductory Physics I	4	3	2
PH1051	Introductory Physics II	4	3	2

General Education & Social Science Courses		**Cr**	**Le**	**La**
CM1180	College English I: Reading Across the College Curriculum	4	4	0
MC1240	Computer Applications I	3	2	2
CR1510	Website Development	3	2	3
PS1120	Psychology I	3	3	0
PS1121	Psychology II	3	3	0
SC1120	Introduction to Sociology	3	3	0
SC1121	NL Society and Culture	3	3	0
SC1400	Sociology-Labrador Society & Culture	3	3	0
EP1100	Entrepreneurial Studies I	4	3	2
HR1120	Human Relations	4	4	0
HR2200	Human Relations	2	1	2
PS2340	Organizational Behaviour	4	4	0
CS1120	Leadership Skills I	3	3	1

Exploration and Student Success Courses		**Cr**	**Le**	**La**
SD1570	Effective Learning	4	4	0
SD1580	Critical Thinking Across the Curriculum	4	4	0
SD1230	Career Exploration	4	4	0

Electives:

Students in the CAS Transition program may select electives for the College Calendar provided the course is offered and available to the CAS Transition Student. The student must meet the stated prerequisites/co-requisites of the course, the student's schedule must be able to accommodate the course and the student must meet any other regulations that may apply. Courses over and above the minimum credit requirements in the Core program courses may also be counted as Electives.

Comprehensive Arts and Science (CAS) 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 entrance requirements of the college program they would like to enter. The 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 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. 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
1. High School
Provincial High School Graduation Certificate, or equivalent

2. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)

3. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

FUTURE OPPORTUNITIES
One objective of the CAS 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 Transition has the potential to significantly affect the employment and earnings poten-

tial 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 Transition program who have successfully completed the appropriate courses may qualify for admission to other college programs or other post-secondary programs or they may elect to enter the workforce directly. Students are advised to speak to an Advisor regarding course selection. Students who complete the full certificate program may seek to meet admission criteria of Memorial University.

REQUIREMENTS FOR COMPLETION

In order to complete the requirements of the Comprehensive Arts and Science 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. (**Note**: Students may qualify for exemption and attain credit for graduation for Essential English I or II and/or Math Fundamentals I or II provided the necessary requirements are met. Only Essential English and Math Fundamentals can be considered for exemption within the CAS Transition program using the program specific exemption form. Factors affecting the decision for Exemption include: previous high school course(s) completed and grade attained, assessment scores, subsequent program choice and advisor recommendation.)

APPLIED ARTS

Community Recreation Leadership

DIPLOMA

- **Two Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM1100	Writing Fundamentals	3	3	1
FH1200	Principles of Physical Fitness	3	3	0
FW1710	Supervised Field Placement Experience I* *4 weeks of placement; 2 hours lecture per week in remaining 11 weeks	5	2	0
MC1150	Productivity Tools	4	3	2
RS1100	Introduction to Community Recreation Leadership	3	3	0
RS1280	Program Planning	2	2	1
RS1230	Creative Activities	3	2	2
Semester 2		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM2100	Workplace Correspondence	3	3	0
FW1711	Supervised Field Placement Experience II* *4 weeks of placement; 2 hours lecture per week in remaining 11 weeks	5	2	0
PS2340	Organizational Behaviour	4	4	0
RS1250	Recreation Activities I	3	2	2
RS1450	Introduction to Therapeutic Recreation	3	2	3
Semester 3 (Intersession)		**Cr**	**Le**	**La**
FH1230	Physical Activity Programming f or Older Adults	3	2	2
RS1370	Recreation Activities II	3	2	3

The lecture and ;ab hours per week are based on a 15 week semester. In Intersession, these hours will be adjusted to reflect the shorter semester length.

Semester 4		**Cr**	**Le**	**La**
CM2300	Report Writing	2	2	0
HN1200	Human Resource Management	3	3	1
RS1240	Recreation Activities III	3	2	2
RS1320	Recreation Administration	3	3	1
RS1400	Community Agencies	3	3	0
RS1440	Recreation Facilities	3	3	1
FW2710	Supervised Field Placement Experience III* *4 weeks of placement; 2 hours lecture per week in remaining 11 weeks	5	2	0
Semester 5		**Cr**	**Le**	**La**
CM2200	Oral Communications	2	2	0
MN1410	Special Events Management	4	3	3
MR2110	Marketing Methods	3	3	0
RS1460	Recreation Programming for the Older Adult	3	2	3
RS1520	Risk Management and Legal Liability	3	3	0
RS1530	Principles and Procedures of Therapeutic Recreation	3	3	0
FW2711	Supervised Field Placement Experience IV* *4 weeks of placement; 2 hours lecture per week in remaining 11 weeks	5	2	0

Hours per week may vary to accommodate supervised fieldwork experience schedule.

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 students with training in various recreational pursuits including therapeutic recreation, outdoor recreation, and community-based programming appropriate to the province.
2. To provide students with training in program planning and administration in the use and management of recreational facilities.
3. To foster students' appreciation of the nature of community life, including geographic structure, economic and social factors, and government controls.
4. To foster students' appreciation of the various groups within a community and their particular recreational needs (including children, youth, adults and older adults).
5. To provide students with leadership training to enable them to:
6. exercise initiative in the development of leisure time activities.
7. recognize and help strengthen established community activities.
8. organize and stimulate growth at the community level.

CURRICULUM

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

EMPLOYMENT OPPORTUNITIES

The graduate is awarded a Diploma in Community Recreation Leadership certifying successful completion of two years of post-secondary education combining theoretical knowledge and practical training. Graduates may obtain employment as program directors and supervisors, facility supervisors with agencies such as community centers, municipal recreational agencies, youth agencies and agencies providing therapeutic and rehabilitation services.

Note: Graduates of the Community Recreation Leadership program wishing to pursue further studies in recreation may receive course credits or exemptions from universities such as:

- Acadia University
- Dalhousie University
- Memorial University
- Concordia University
- University of New Brunswick
- Lakehead University
- University of Ottawa

ENTRANCE REQUIREMENTS

1. **High School**

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. **Comprehensive Arts and Science (CAS) Transition**

Comprehensive Arts and Science Transition Certificate

3. **Adult Basic Education (ABE)**

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%

4**. Mature Student Status**

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

A clear Certificate of Conduct is required. This certificate can be obtained from the Royal Newfoundland Constabulary (RNC) or the Royal Canadian Mounted Policy (RCMP) and must be valid up until the last day of classes for each semester. As well, students must present a copy of a Vulnerable Sector Check along with the Certificate of Conduct.

Students must possess a valid First-Aid Certificate and basic Cardiopulmonary Resuscitation Certificate (CPR), valid until the end of the semester. A record of immunization is also required.

Please note: Copies of the required Certificate of Conduct, Vulnerable Sector Check, First-Aid, CPR and Immunization Records are to be submitted during registration; otherwise, students will not be able to register for certain courses.

Due to the physical nature of many of the courses offered throughout the two-year program, students are expected to be in good physical condition and demonstrate the ability to take part in intense physical activities in an outdoor setting.

APPLIED ARTS

Community Studies

DIPLOMA

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. Program is also offered in Happy Valley-Goose Bay on a need-determined basis.

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

COURSES

CODE	TITLE	Cr	Le	La (Hrs/wk)
Semester 1				
CD2100	Community Development	3	3	0
CM1100	Writing Fundamentals	3	3	1
HR1120	Human Relations	4	4	0
HR1210	Introduction to Human Services	3	3	0
PS1120	Psychology I	3	3	0
SC1120	Introduction to Sociology	3	3	0
EL0000	Elective*	3	3	0
	*Minimum credit value of 3			
Semester 2				
CM2100	Workplace Correspondence	3	3	0
CS1120	Leadership Skills I	3	3	1
CS2340	Introduction to Social Research	3	3	0
ME1120	Media and Public Relations	3	2	2
PS1121	Psychology II	3	3	0
SC0000	Community Studies Course	3	3	0
SD1240	Field Placement Preparation	2	2	0
Semester 3 (Intersession)				
CS2420	Crisis Intervention Skills	P/F	4	0
FW1450	Field Placement I	4	4wks	

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		Cr	Le	La
CS1121	Leadership Skills II	3	2	2
CS2220	Interviewing Skills	3	2	2
CS2500	Project Management	3	3	1
SC1121	NL Society and Culture	3	3	0
SC0000	Community Studies Course	3	3	0
SC0000	Community Studies Course	3	3	0
EL0000	Elective*	3	3	0
	*Minimum credit value of 3			
Semester 5		Cr	Le	La
CS2121	Leadership Skills III	2	1	3
SC0000	Community Studies Course	3	3	0
SC0000	Community Studies Course	3	3	0
FW1451	Field Placement II5			5wks
Community Studies Courses		Cr	Le	La
CD2300	Community Economic Development	3	3	0
CD2400	Managing in the VNP Sector	3	3	0
CJ2110	Canada's Justice System	3	3	0
CJ2120	Canadian Criminology	3	3	0
CJ2210	Youth Justice in Canada	3	3	0
CJ2420	Canada's Correctional Population	3	3	0
DB2100	Introduction to Disabilities	3	3	0
DB2110	Issues in Disabilities	3	3	0
DB2300	Program Planning	3	3	0
FS1100	Family Services I	3	3	0
FS1101	Family Services II	3	3	0
FS2100	Family Services III	3	3	0
PS1200	Drugs and Behaviour	3	3	0
PS1240	Understanding Addictions	3	3	0
PS1360	Behaviour Management	3	3	0
PS2200	Developmental Psychology	3	3	0
SC1240	Healthy Aging	3	3	0
SC1300	Introduction to Women's Studies	3	3	0
SC1350	Contemporary Issues for Women	3	3	0

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

The Community Studies Program is a two-year diploma program which prepares students for diverse roles in human service/community-based organizations. More specifically, the program focuses on leadership and other career-related skills required to work in a wide variety of human services. These services may range from one-on-one support 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 individuals, families and communities. Students are challenged to think critically and to become self-directed, lifelong learners.

Throughout the program, students receive career counseling and academic advising to assist them in making course selections best suited to their particular career choices. To this end, students may choose courses available at the campuses from a number of the following areas: Addictions, Community Corrections, Community Development, Developmental Disabilities, Family Services, and Women's Studies. Not all courses are available at all campus locations.

FUTURE OPPORTUNITIES

Examples of types of organizations, agencies, and departments where Community Studies graduates have been hired include the following:

- Aboriginal Communities, e.g. health and social programs
- College of the North Atlantic, e.g. resource facilitators
- Community-based Correction Services, e.g. Youth Assessment Centres, John Howard Society and Residential Centres for ex-offenders
- Department of Health and Community Services/Department of Child, Youth and Family Services, e.g. mental health services, addiction services, family services
- Economic and Social Development Agencies, e.g. RED Boards, Family Resource Centres and Community Youth Networks
- Services and Advocacy Groups for Persons with Disabilities, e.g. Residential Support Boards, Associations for Community Living and School Boards
- Services for Women, e.g. Women's Centres, Violence Prevention Programs and Transition Houses
- Social Programs for Older Adults, e.g. Long Term Care Centres and Congregate Housing

Graduates who wish to further their education after graduation may choose to transfer credits to the Bachelor of Arts - Community Studies degree at the Cape Breton University or to the Bachelor of Professional Arts Communication Studies or Criminal Justice degrees at Athabasca 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 expose students to the knowledge, skills, and values needed to work in the human services field.
2. To develop students' understanding of human relations and of the importance of interpersonal skills as a tool for positive growth and change.
3. To introduce students to the theories and practice of leadership.
4. To develop students' abilities to perform the role of change agents with individuals, groups, and communities.
5. To develop students' abilities to organize and facilitate specific target groups.
6. To increase students' skills in effective oral and written communication.
7. To provide students with introductory knowledge of psychology and sociology.
8. To develop students' knowledge and abilities in areas such as public relations, research, crisis intervention, interviewing, and project management.
9. To provide students with direct work experience related to the human services field.

ENTRANCE REQUIREMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on

an individual basis under the Mature Student Clause

AND

A clear Certificate of Conduct, including the vulnerable sector category, will be required. This Certificate can be obtained from the Royal Newfoundland Constabulary (RNC) or the Royal Canadian Mounted Police (RCMP) and must be dated no more than three months prior to the first scheduled day of classes for the program. Please note that this documentation is required in order to be accepted in the program.

APPLIED ARTS
Digital Animation

DIPLOMA
- **Two Years**
- **September**
- **Bay St. George Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM2200	Oral Communications	2	2	0
VA1130	Drawing Fundamentals	3	3	0
MM1400	2D Digital Graphics	3	2	2
VA1600	Sculpture for Animators	3	2	2
VA1160	Animation Drawing I	3	2	3
MM1500	Introduction to 3D Animation	3	2	2
MM1600	Narrative & Production Design	3	2	2
Semester 2		**Cr**	**Le**	**La**
MM2670	3D Character Modelling	3	2	2
MM2560	3D Texture and Digital Paint	3	2	2
MM2310	Digital Video Techniques	3	2	2
MM2320	Digital Audio Techniques	3	2	2
VA1161	Animation Drawing II	3	2	2
VA2170	Life Drawing	3	2	2
Elective	(minimum 3 credits)	3	3	0
Semester 3 (Intersession)		Cr	Le	La
MM2760	Animation Design Project	4	1	10

The lecture and lab hours per week are based on a 15-week semester. In Intersession, the lecture and lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		**Cr**	**Le**	**La**
MM2680	3D Character Animation	5	3	5
CM1680	Writing for the Screen	3	3	0
MM1950	Workplace Professionalism	3	3	0
MM2620	2D Computer Animation	3	2	2
MM2700	Multimedia Lab I	2	1	2
EP1100	Entrepreneurial Studies	4	3	2
Semester 5		**Cr**	**Le**	**La**
VA3550	Screening & Peer Critique	3	2	3
MM2710	Multimedia Lab II	1	0	2
CP4470	Emerging Trends in Industry	3	2	2
MM2830	3D Post-Production & Visual FX	4	3	2
MM2850	Digital Compositing	4	3	2
MM2900	Portfolio Development	3	2	3

Digital Animation is a two-year diploma program that combines comprehensive instruction in design fundamentals, industry standard animation software tools and collaborative production techniques, with creative problem solving and visual storytelling methods. From the practice of sequentially drawn images to the creation of fully realized 3D characters and environments, this approach allows the student to study the subject of Digital Animation with the broadest creative scope and range of technical application.

This program is task-oriented; successful progress is based on personal performance in a series of both individual and group production projects. These projects include animated short subject films and video productions from conception to the finished product. The program culminates in a final personal animation project, portfolio and resume suitable for presentation to potential employers.

EMPLOYMENT OPPORTUNITIES
Graduates will be prepared for employment in the global communications and entertainment industry, film, broadcasting, gaming and design, as well as visualization services for the medical, engineering, simulation training, architectural and publishing fields.

OBJECTIVES
1. Upon successful completion of the program, graduates will be able to:
2. Apply the concept of "Design" as a professional discipline and historical practice.
3. Use technical skills in areas such as narrative, design, storyboarding, modeling and animation to create digital animation.
4. Demonstrate appropriate work habits, attitudes and behaviors required for employment.
5. Apply entrepreneurial skills to budget, resource, schedule and market animated projects.
6. Create a final portfolio demonstrating industry applicable skills.

ENTRANCE REQUIREMENTS
1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Note: Basic computer skills along with an ability to draw are important and considered definite assets for success in this program.

APPLIED ARTS
Early Childhood Education

DIPLOMA
- **One/Two Years**
- **September**
- **Corner Brook, Happy Valley-Goose Bay, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
EE1180	Curriculum I	3	3	0
EE1340	Child Development I	2	2	0
EE1290	Positive Behaviour Guidance	4	4	0
EE1420	Creative Experiences I	3	2	2
FH1340	Health & Safety	3	3	0
FW1600	Field Placement I	6	1 5wks	

Five weeks of Field Placement during the semester; Field Placement lecture in the other 10 weeks. Hours of other courses will be adjusted to reflect 10 weeks of the semester.

Semester 2		***Cr***	***Le***	***La***
EE1181	Curriculum II	3	3	0
EE1341	Child Development II	3	3	1
EE1360	Observation	2	2	1
EE1421	Creative Experiences II	3	2	2
FH1360	Childhood Nutrition	2	2	0
HR1300	Communications & Human Relations	2	2	0
FW1601	Field Placement II	6	1 5wks	

Five weeks of Field Placement during the semester; Field Placement lecture in the remaining 10 weeks. Hours of other courses will be adjusted to reflect 10 weeks of the semester.

Semester 3 (Intersession)		***Cr***	***Le***	***La***
EE2500	School-Age Development & Care	4	4	0
EE1440	Family Studies I	3	3	0
EE1480	Inclusion I	2	2	0

The Lecture and Lab hours per week are based on a 15-week semester. In intersession, the Lecture and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		***Cr***	***Le***	***La***
EE2180	Curriculum III	5	5	0
EE2340	Child Development III	4	4	0
CM2130	Workplace Writing	3	3	0
EE2255	Advanced Behaviour Guidance	3	3	0
EE1870	Community Resources ***OR***			
FH1500	Personal Wellness	2	2	0
FW2600	Field Placement III	5	1 4wks	

Four weeks of Field Placement during the semester; Field Placement lecture in the other 11 weeks. Hours of other courses will be adjusted to reflect 11 weeks of the semester.

Semester 5		***Cr***	***Le***	***La***
EE2260	Introduction to Child Care Administration	3	3	0
EE1441	Family Studies II	3	3	0
EE2350	Professional Practice	2	2	0
EE2470	Infant Development and Care	3	3	1
EE1481	Inclusion II	4	4	0
FW2601	Field Placement IV	5	1 4wks	

Four weeks of Field Placement during the semester; Field Placement lecture in the other 11 weeks. Hours of other courses will be adjusted to reflect 11 weeks of the semester.

ECE Certificate courses are those listed in Semesters 1, 2, and 3 above.

Early Childhood Education (ECEs) have a lasting, positive impact on the development of children, and provide an essential support for families, communities, and society. Early literacy and numeracy, socialization, indoor and outdoor physical activities, and creative experience in art, music, movement, and dramatic play, are some of the areas in which students will acquire knowledge and skills to support and encourage children's development. Students will have the opportunity to apply their learning on field placements, with different age groups, in the College's demonstration child care centres and a variety of child care settings.

The usual work environment for ECEs involves daily indoor and outdoor activity. Being in good health and having, energy, patience, physical stamina, good communication and interpersonal skills are assets that will help students in this profession.

ENTRANCE REQUIREMENTS
1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)
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%
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause
AND
Early Childhood Education (ECE) Documentation Required:
1. Current record of immunizations
2. Clear Certificate of Conduct, including the "vulnerable sector" category, from the RNC or RCMP, to include all jurisdictions in which the applicant has lived in the past 10 years, and
3. Satisfactory Child Protection Records Check

The Certificate of Conduct and the Child Protection Records Check:
• Must be dated no more than three months prior to the first scheduled day of classes for the program;
• Is valid for a period of three years, unless the student is absent from the program for six months or more.

EARLY CHILDHOOD EDUCATION - DIPLOMA

Students in the two-year Diploma program support children's learning, and their development in all areas: physical, social, emotional, cognitive, and language development. In addition, learners learn how to develop, maintain, and evaluate a child care program based on best practices, and support the inclusion of all children, in programming. Learners are introduced to the administrative skills necessary to manage a child care service. With relevant work experience, a Diploma graduate will be qualified to become the Operator of a licensed child care centre.

There is a direct link between the level of education an ECE has and the quality of education and care that is provided to children. The Early Childhood Education Diploma program is an important step on the career ladder (certificate, diploma, degree) to increasing qualifications as an ECE. Diploma graduates are eligible for Level II Child Care Services Certification in infant, preschool and school-age care, working with children ages 0-12.

OBJECTIVES
Upon successful completion of the Diploma program, graduates will be able to:
1. Support and promote the overall development of children aged birth to 12 years.
2. Develop and maintain developmentally appropriate programs, and indoor and outdoor environments that reflect best practices.
3. Explain variations in the developmental abilities of children aged birth to 12 years.
4. Maintain caring and responsive relationships with the children in their care.
5. Carry out effective and positive behaviour guidance, and discuss challenging behaviour.
6. Create and implement a philosophy statement, and develop programs and policies based on the philosophy.
7. Support staff in the delivery of programs, policies and guidelines.
8. Set up and maintain an environment that supports diversity and inclusion.
9. Observe, document and evaluate program delivery, child development, and adult/child interactions.
10. Discuss and illustrate the principles of early learning.
11. Demonstrate professional behaviour, reflective practice, and effective relationships with children, families, staff, and the community.
12. Apply provincial child care legislation, standards and policies, and all other applicable legislative and regulatory requirements.

FIELD PLACEMENT
Students complete four Field Placements during the Diploma program, two in year 1 and two in year 2. Each Field Placement includes time spent in the College's demonstration child care centre.

CERTIFICATION
The graduate is awarded a Diploma of Applied Arts in Early Childhood Education from the College. This parchment indicates successful completion of two years of post-secondary education, combining theory and practical experience in the care, education, and guidance of children, as well as best practices in developmentally appropriate programming and environments. Completion of this program is one of the steps towards provincial Child Care Services (CCS) Certification granted through the Association of Early Childhood Educators of Newfoundland and Labrador (AECENL). Currently, the Early Childhood Education Diploma is awarded Level II CCS Certification for infant, preschool and school-age children.

Please note: Students must possess a valid First Aid Certificate to be eligible for a Diploma of Applied Arts in Early Childhood Education from the College.

EMPLOYMENT OPPORTUNITIES
Graduates of the Diploma program will be prepared for employment with organizations caring for children, or self-employment, providing child care. With relevant work experience, graduates will be able to develop programs for and/or supervise in child care services in communities throughout the province.

EARLY CHILDHOOD EDUCATION - CERTIFICATE

Students in the one-year Certificate program support children's learning, and their development in all areas: physical, social, emotional, cognitive, and language development. The Early Childhood Education Certificate program is the first step in becoming a qualified ECE. Certificate graduates will be eligible for Level I Child Care Services Certification in preschool and school-age care (working with children ages 2-12). The one-year Certificate is also the same as the first year of the Early Childhood Education Diploma program, so graduates can continue on to complete the Diploma in just 2 more semesters.

OBJECTIVES
1. Upon successful completion of the Certificate program, graduates will be able to:
2. Support and promote the overall development of children aged 2 to 12 years.
3. Develop and maintain developmentally appropriate programs, and indoor and outdoor environments that reflect best practices.
4. Explain variations in the developmental abilities of children aged 2 to 12 years.
5. Maintain caring and responsive relationships with the children in their care.
6. Carry out effective and positive behaviour guidance, and discuss challenging behaviour.
7. Demonstrate professional behaviour and reflective practice in interactions with children, families and the community.
8. Identify and outline provincial child care legislation, standards and policies.

FIELD PLACEMENT
Students complete two Field Placements during the Certificate program. Each Field Placement includes time spent in the College's demonstration child care centre.

CERTIFICATION
The graduate is awarded a Certificate of Applied Arts in Early Childhood Education from the College. This parchment indicates successful completion of two years of post-secondary education, combining theory and practical experience in the care, education, and guidance of children. This program is one of the steps towards provincial Child Care Services (CCS) Certification granted through the Association of Early Childhood Educators of Newfoundland and Labrador (AECENL). Currently, the Early Childhood Education Certificate is awarded Level I CCS Certification for preschool and school-age children.

Please note: Students must possess a valid First Aid Certificate to be eligible for a Certificate of Applied Arts in Early Childhood Education from the College.

EMPLOYMENT OPPORTUNITIES
Graduates of the Certificate program will be prepared for employment with organizations caring for children, or self-employment, providing child care in communities throughout the province.

APPLIED ARTS
Early Childhood Education By Distance Education

DIPLOMA
• Varies
• Fall, Winter and Intersession
• Distributed Learning

PROGRAM OF STUDIES
A plan for ECE course completion is developed with each student, based on an assessment of any previous ECE or related training they may already have, and any PLAR credits received.

Early Childhood Education (ECE) is also available by distance education, online through the College's Office of Distributed Learning (DL). Program descriptions, objectives, and the list of courses may be found on the Early Childhood Education full-time program pages.

Distance students register each semester from a list of course offerings. These offerings, and other important information about ECE by Distance, are posted on the DL website at: http://dls.cna.nl.ca/ece. Students may enroll on a full-time or part-time basis. Since programs at the College are normally reviewed on a five-year cycle, students who go beyond the five-year time frame for completion by distance may be required to complete additional or revised courses before being deemed eligible to graduate.

Several courses in ECE by Distance require students to be currently working/volunteering directly with children in an approved early childhood setting, for a minimum of 15 hours per week for the semester. Each semester, all ECE distance students must submit a Learner Status for Course Registration form, which includes information on employment status.

ENTRANCE REQUIREMENTS

All entrance requirements listed on the Early Childhood Education full-time program pages must be met: both the academic requirements and the ECE program documentation requirements. Further information on obtaining ECE program documentation may be found at: http://dls.cna.nl.ca/ece.

In order to register for certain courses by distance education, please note the employment/volunteer requirement as stated above.

NOTE regarding Certificate of Conduct and Child Protection Records Check:

Applicants currently working in a regulated child care centre:

An applicant must submit the Confirmation of Documentation and Employment Status form (available at: http//dls.can.nl.ca/ece/) and copies of their current satisfactory Certificate of Conduct and their current satisfactory Child Protection Records Check. The form must be dated no more than three months prior to the first scheduled day of classes.

Applicants not working in a regulated child care centre:

An applicant must submit the documentation as outlined in the requirements for the full-time program. Once admitted into the program, a student who does not enroll in courses for six months or more must submit a new Certificate of Conduct and Child Protection Records Check.

FIELD PLACEMENT

Students in the Diploma program will be required to complete four Field Placements. A minimum of 4 weeks must be completed at a CNA demonstration child care centre, over a maximum of two Field Placement courses. Field Placement courses are planned in conjunction with the ECE Program Manager.

Students in the Certificate program will be required to complete two Field Placements. A minimum of 4 weeks must be completed at a CNA demonstration child care centre, over a maximum of the two Field Placement courses. Field Placement courses are planned in conjunction with the ECE Program Manager.

CERTIFICATION

The Diploma program graduate is awarded a Diploma of Applied Arts in Early Childhood Education from the College. This parchment indicates successful completion of two years of post-secondary education, combining theory and practical experience in the care, education, and guidance of children, as well as best practices in developmentally appropriate programming and environments. Completion of this program is one of the steps towards provincial Child Care Services (CCS) Certification through the Association of Early Childhood Educators of Newfoundland and Labrador (AECENL). Currently, the Early Childhood Education Diploma is awarded Level II CCS Certification for infant, preschool and school-age children.

The Certificate program graduate is awarded a Certificate of Applied Arts in Early Childhood Education from the College. This parchment indicates successful completion of one year of post-secondary education, combining theory and practical experience in the care, education, and guidance of children. Completion of this program is one of the steps towards provincial CCS Certification through AECENL. Currently, the Early Childhood Education Certificate is awarded Level I CCS Certification for preschool and school-age children.

PRIOR LEARNING ASSESSMENT AND RECOGNITION (PLAR)

Learners will be given every opportunity to receive credit for past learning experience through a comprehensive systematic process of evaluation. Once enrolled and active in the program, learners will be permitted to submit PLAR applications for any courses in the program for which they believe they have already acquired the appropriate level of knowledge and skills, except Field Placements II, III and IV. Please refer to the ECE webpage at http://dls.cna.nl.ca/ece/plar.htm for further information.

EMPLOYMENT OPPORTUNITIES

Graduates of the Diploma program will be prepared for employment with organizations caring for children, or self-employment, providing child care. With relevant work experience, they will be able to develop programs for and/or supervise in child care services in communities throughout the province.

Graduates of the Certificate program will be prepared for employment with organizations caring for children, or self-employment, providing child care in communities throughout the province.

LOCATION

ECE by Distance is available province-wide with on-campus Field Placements currently held at the Prince Philip Drive, Corner Brook, and Happy Valley-Goose Bay Campuses.

Courses with a work/Volunteer Requirement

Several courses require learners to be currently working/volunteering directly with children in an early childhood setting, for a minimum of 15 hours per week for the semester. Please see the list of these courses below.

EE1180 Curriculum I
EE1290 Positive Behaviour Guidance
EE1420 Creative Experiences I
FH1340 Health & Safety
EE1181 Curriculum II
EE1341 Child Development II
EE1360 Observation
EE1421 Creative Experiences II
EE2500 School-Age Development & Care
EE1440 Family Studies I
EE2180 Curriculum III
EE2340 Child Development III
EE2255 Advanced Behaviour Guidance
EE2260 Introduction to Child Care Administration
EE2470 Infant Development & Care
EE1481 Inclusion II
FH1360 Childhood Nutrition

Please note that this is not the full list of courses for the Diploma or Certificate program. For the complete listing of courses required for the Diploma and Certificate programs, please see the Early Childhood Education full-time program pages.

APPLIED ARTS

Film and Video Production

DIPLOMA

- **Two Years**
- **September**
- **Bay St. George Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM2200	Oral Communications	2	2	0
MC1150	Productivity Tools	4	3	2
PY1100	Introduction to Photography I	3	3	0
MM2310	Digital Video Techniques	3	2	2
DR1111	Basic Drawing & Sketching	3	3	0
FV1100	History of Cinema	4	3	2
FV1200	Film Production Basics	4	3	2
Semester 2		***Cr***	***Le***	***La***
MM1600	Narrative & Production Design	3	2	2
MM2320	Digital Audio Techniques	3	2	2
CM1550	Creative Writing	3	3	0
FV1240	Rigging & Grip	3	2	2
FV1250	Lighting & Electrics	3	2	2
FV1320	Advanced Digital Video	3	2	2
FV1300	The Language of Cinema	3	2	2
Semester 3 (Intersession)		***Cr***	***Le***	***La***
FV1220	Short Film Production	5	2	10

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		***Cr***	***Le***	***La***
MM1950	Workplace Professionalism	3	3	0
OF1101	Office Management II	3	3	1
CS2500	Project Management	3	3	1
MM1400	2D Digital Graphics	3	2	2
HY1100	Art History I	3	3	0
FV1400	Avid Editing	3	2	2
FV2200	Documentary Film Production	3	2	2
Semester 5		***Cr***	***Le***	***La***
SN2400	Sound Production for Animation	3	3	0
VA3550	Screening and Peer Critique	3	2	3
VA1400	Introduction to Colour Theory	3	3	0
MM2850	Digital Compositing	4	3	2
FV2300	Cinematography	3	2	2
FV1500	Certifications	3	2	2
FV2220	Final Film Production	3	2	2

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 documen-

tary 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 REQUIRMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year 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 the 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.

APPLIED ARTS

Graphic Communications

DIPLOMA

- **The first year of this program is offered every alternate year.**
- **Two Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM1400	Technical Report Writing I	3	3	0
GA1170	Graphics Problem Solving	3	3	0
GA1420	Digital Page Layout I	3	2	3
GA1230	Finishing & Bindery I	3	2	2
GA1620	Offset Printing I	5	4	4
GA1140	Vector Graphics	2	2	1
Semester 2		***Cr***	***Le***	***La***
PY1200	Photography I	3	2	3
GA1421	Digital Page Layout II	3	2	3
GA1320	Digital Printing I	5	4	2
GA1220	Colour Management	3	3	0
GA2570	Production Workflow	3	2	2
GA1470	Web Processes	2	2	1
Semester 3 (Intersession I)		***Cr***	***Le***	***La***
GA1740	Textiles Graphics & Imaging I	3	2	2
GA1750	Display Graphics & Assembly I	3	2	2
GA1890	Business Practices	3	3	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		***Cr***	***Le***	***La***
CM2200	Oral Communication	2	2	0
GA1520	Image Manipulation I	3	2	2
GA1621	Offset Printing II	5	4	4
GA2420	Digital Page Layout III	3	2	3
GA1321	Digital Printing II	5	4	2
Semester 5		***Cr***	***Le***	***La***
GA2620	Offset Printing III	5	4	4
GA1231	Finishing & Bindery II	3	2	2
Elective		3	2	2
GA2320	Digital Printing III	5	4	2
GA2740	Advanced Graphics Imaging	2	1	3
Semester 6 (Intersession II)		***Cr***	***Le***	***La***
SD1180	Field Placement Preparation I	1	1 wk 20 hrs	
FW2810	Field Placement	4	4 wks 140 hrs	
FW2811	Field Placement Reflection	1	1 wk 20 hrs	
Digital Communications Electives		***Cr***	***Le***	***La***
GA1751	Display Graphics & Assembly II	3	2	2
EL1530	Fine Art Printing	3	2	2
GA1741	Textile Graphics & Imaging II	3	2	2

Graphic Communications is a technology-based, two-year diploma program designed to provide training in modern principles and practices used in the printing and graphic communications industry. A comprehensive hands-on approach ensures that students receive a marketable set of skills within a positive learning environment.

The goal of the program is to help the student develop personal and professional competencies in communications, problem solving, teamwork, electronic pre-press, production technologies, and post-press operations that will help lead to successful employment. The program structure is in line with the national skills standards for the printing and graphic communications industry.

Program topics include: problem solving, basic layout & design, electronic pre-press, offset press operation, 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 computer graphics. Other topics include: digital scanning, colour proofing, digital photography, digital printing (colour and black & white), embroidery graphics and laser engraving.

Our fleet of equipment is constantly being modernized to offer an expanded range of technical skills. Some of our equipment and new additions include:

- Modern Heidelberg offset presses
- Xerox colour digital press
- Computer-to-plate (CTP) platesetter
- Screen printing equipment
- Vinyl cutter for signage and graphics
- Wide format inkjet printer
- Macintosh computer labs
- Embroidery machine
- Laser engraving machine

A program resembling a real-world work environment reinforces the learning process for the students.

OBJECTIVES

1. Following successful completion of the program, the graduating student will be able to:
2. Demonstrate professional and personal competencies required for the printing and graphic communications industry.
3. Apply a teamwork approach to problem-solving techniques.
4. Demonstrate a hands-on knowledge of electronic pre-press methods and equipment.
5. Operate traditional and digital printing equipment.
6. Demonstrate strong technical skills for computer programs used in the printing and graphic communications industry.
7. Demonstrate safe operation of bindery and finishing equipment.
8. Operate related graphic communications equipment such as: wide-format printer, embroidery machine, screen printing machine and laser engraver.

EMPLOYMENT OPPORTUNITIES

Graduates of the program may be employed in many areas of the printing and graphic communications industry. Some of the entry-level positions include: design & layout agencies, commercial printers, in-plant printers, government agencies, digital copy centres, sign printers and corporate promotional suppliers.

ENTRANCE REQUIREMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

PLEASE NOTE:

Basic computer literacy skills as well as strong core skills in English and Mathematics are definite assets for this program. These skills are important for success in the program.

APPLIED ARTS

Graphic Design

DIPLOMA

- **Two Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
GA1170	Graphics Problem Solving	3	3	0
VA1230	Graphic Design I	3	2	3
GA1120	Typography I	2	1	2
GA1430	Page Composition I	2	1	2
PY1200	Photography I	3	2	3
GA1640	Illustration I	3	2	2
CR1530	Web Design I	2	1	2
Semester 2		**Cr**	**Le**	**La**
VA1231	Graphic Design II	3	2	3
PY1201	Photography II	3	2	3
GA1641	Illustration II	2	1	2
GA1431	Page Composition II	3	2	2
GA1220	Colour Management	3	3	0
CM1400	Technical Report Writing I	3	3	0
MR1340	Marketing for Graphic Design	3	3	0
Semester 3 (Intersession I)		***Cr***	***Le***	***La***
GA1350	Motion I	3	2	3
GA1121	Typography II	2	1	2
GA1180	Graphic Design History	3	3	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		***Cr***	***Le***	***La***
GA1520	Image Manipulation I	3	2	2
GA1880	Business Practices	3	3	0
GA1351	Motion II	3	2	3
GA2380	Production for Designers	2	1	2
PY2200	Photography III	3	2	2
CR1531	Web Design II	2	1	2
GA2640	Illustration III	2	1	3
Semester 5		***Cr***	***Le***	***La***
GA2720	Design Management Identity	3	2	2
GA2430	Page Composition III	3	2	2
	Elective	3	2	2
CR2530	Web Design III	2	2	1
GA2350	Motion III	3	2	3
CM2200	Oral Communications	2	2	0
VA2800	Package Design	3	2	2
Semester 6 (Intersession II)		***Cr***	***Le***	***La***
SD1180	Field Placement Preparation I	1	20 hrs	0
FW2800	Field Placement	4	4 wks	
FW2801	Field Placement Reflection	1	20 hrs	0
Graphic Design Electives		***Cr***	***Le***	***La***
EL1530	Fine Art Printing	3	2	2
GA1521	Image Manipulation II	3	2	2
PY2201	Photography IV	3	2	2

Graphic Design is a technology-based two-year program that helps students hone their creativity while learning the cutting-edge design skills needed in today's fast-paced global business environment. Graphic designers develop outstanding solutions for clients in an industry that embraces and rewards great ideas, a passion for excellence, attention to detail and a love of digital technology.

Specifically, students will learn how to:

- Create powerful, inspiring designs that work in a variety of media, from print to screen
- Design and compose flyers, brochures, books and magazines
- Develop eye-catching t-shirts, shopping bags, posters and billboards
- Create logos, illustrations, information and motion graphics
- Design way-finding systems and corporate identities
- Develop animations, websites and interactive projects
- Explore digital photography, package design, signage, traditional and digital printing, and much more

The College's state-of-the-art facilities offer students the chance to gain hands-on experience on industry-standard tools and learn valuable real-world skills. The program's strong technical core, as well as its focus on creative problem-solving, has helped students win dozens of regional, provincial and national awards over the past ten years. Graduates are working at exciting careers throughout Canada and around the world.

OBJECTIVES

Upon successful completion of the program, graduates will be able to:

1. Demonstrate strong technical and conceptual design skills for print and screen.
2. Demonstrate hands-on knowledge of, and experience with, industry-standard design and production tools and equipment.
3. Demonstrate the business, communication, teamwork and time-management skills necessary for this industry.
4. Apply an approach to the design process that focuses on creativity while meeting clients' needs.
5. 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 such as advertising agencies, design companies and in-house art departments, as well as freelance work or self-employment with clients located anywhere in the world.

ENTRANCE REQUIREMENTS

1.High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

PLEASE NOTE:

Basic computer skills as well as strong core skills in English and Mathematics are definite assets for this program. These core skills are important for success in the program.

Applicant Portfolio Requirements

All applicants to the Graphic Design program must submit a portfolio as part of the admission requirements. A portfolio is a personal selection of the applicant's work that shows the potential to build on demonstrated skills and aptitudes when in the program.

The applicant portfolio should consist of:
A written personal statement explaining your reasons for wanting to be a graphic designer and your interest in the program at College of the North Atlantic. This should be no longer than 500 words or a single typed page.

One project, that relates to the College's Graphic Design program, chosen from the following three options:

a. A written personal statement explaining your reasons for wanting to be a graphic designer and your interest in the program at College of the North Atlantic. This should be no longer than 500 words or a single typed page.

b.One project, that relates to the College's Graphic Design program, chosen from the following three options:
A magazine ad promoting the program. The ad should focus on at least one positive attribute of the program, and should be produced in colour. The College's website address should be included as well. The size of the ad should be no larger than 20 cm in any dimension.

A poster promoting the Graphic Design program. The poster should focus on one positive message about the program, and should include the program name, the College's name and the College's website address. The size of the poster should be 28 cm x 43 cm (11 x 17 inches).

A logo for the Graphic Design program. The logo should be produced in no more than two (2) colours, not including white. The program title (Graphic Design) and the College's initials (CNA) should be part of the logo. Applicants should ensure that the logo suggests one or more of the positive attributes of the program.

c. A minimum of five (5) personal portfolio pieces, which could include (but are not limited to) drawings and sketches, photographs, paintings, websites, computer-generated images, or motion-based work. It is preferable to submit works in more than one category but it is not required

Other Requirements

a. Applicants should submit only copies of their work. No originals should be submitted.
b. Do not submit any framed, fragile or 3-dimensional work.
c. If applicants submit digital files, please burn them onto a CD or DVD, and ensure they are readable by a computer other than the one used to burn it. Digital submissions that cannot be opened will not be considered.
d. The applicant's work should be submitted in a case, binder or folio, with measurements not exceeding 61 cm x 92 cm (24 x 36 inches).
e. Work included in the portfolio should be identified on a separate sheet with the title (if any), the completion date and the materials used. A brief explanation of each piece would be welcome.
Note: For further information on the portfolio process, please refer to the Graphic Design program page on the College's website (www.cna.nl.ca).

APPLIED ARTS
Journalism

DIPLOMA
- **Two Years**
- **September**
- **Bay St. George Campus**

COURSES

CODE	TITLE	Cr	Le	La	Hrs/wk
Semester 1					
CM1100	Writing Fundamentals	3	3	1	
JL1130	Audio Storytelling	3	2	3	
JL1110	Reporting & News Writing I	4	4	0	
PY1330	Photojournalism I	3	2	2	
JL1140	Current Affairs	3	3	0	
PC1100	Political Science	3	3	0	
Semester 2					
JL1120	Reporting & News Writing II	4	4	0	
PY1331	Photojournalism II	3	2	2	
JL1840	Newsroom I	4	2	5	
JL1160	Video Storytelling	4	4	0	
JL1581	Online Journalism	3	2	2	
	Elective	3	3	0	
Semester 3 (Intersession-7 wks)					
JL1430	Workplace Professionalism	3	15 hrs	0	15 hrs per wk for 3 wks
FW1210	Field Placement	4	4 wks		
Semester 4					
JL1420	Journalism Ethics & the Law	3	3	0	
HY1110	Canada Since 1982	3	3	0	
JL2120	Reporting & News Writing III	4	4	0	
JL1841	Newsroom II	4	2	5	
JL1170	Advanced Broadcast Journalism	3	2	3	
CM2200	Oral Communications	2	2	0	
Semester 5					
JL1180	Reporting & News Writing IV	4	4	0	
EC1120	Understanding the Economy	3	3	0	
JL1190	Newsroom III	4	2	7	
CS2340	Introduction to Social Research	3	3	0	
JL1210	Freelance Journalism	3	3	0	
	Elective	3	3	0	
Semester 6 (Intersession-6 wks)					
JL1220	Professional Wellness	P/F	3	0	3 hrs per wk for 5 wks
JL1230	Multiplatform Journalism Project	7	6wks		18 hrs per wk for 6 wks

Electives
A list of elective courses to be offered in each semester will be made available prior to registration. Offerings will be based on student demand.

Students prepare to work as professional journalists while developing media skills that are transferrable to other professions. The program nurtures their curiosity and enables them to tell stories across several platforms – text, video, audio, photojournalism and the Internet. Students learn within a hands-on environment, where they hone their skills as storytellers by producing a news website, a current affairs magazine, radio shows and TV productions. Adapting to the new realities of journalism, students learn to use social and mobile media both to tell stories and to converse with an audience. Students acquire real-world experience via partnerships between the program and professional news organizations.

OBJECTIVES
Upon successful completion of the program, graduates will be able to:

1. Discern newsworthy happenings in their communities and develop them into stories.
2. Tell stories across several platforms – text, video, audio, photography, websites, social media and mobile applications.
3. Perform the writing, research, video, audio and photography skills expected of modern multiplatform journalists.
4. Apply a discipline of verification in seeking and reporting the truth.
5. Provide the context of the news to their audiences.
6. Reflect in their work a deep understanding of the news media, its influence and their own responsibilities as journalists.
7. Reflect in their work a broad understanding of politics, history, economics and current affairs.
8. Apply high ethical standards to their work.
9. Demonstrate a strong understanding of media law in their work.
10. Deliver high-quality journalism on deadline via different platforms within the 24-hour news cycle.

EMPLOYMENT AND OTHER OPPORTUNITIES
There are many diverse opportunities for graduate of the Journalism Diploma program. A graduate may choose to become a broadcast journalist or may choose a profession as a freelancer, or a graduate may become gainfully employed while working with various television networks. Online Journalism and print media are also options for gainful employment. Further to employment opportunities, graduates may also choose to further their studies towards degree-related opportunities at other post-secondary institutions.

ENTRANCE REQUIREMENTS
1. High School
Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent and a minimum of 60% in level 3000 English
2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science Transition Certificate
3. Adult Basic Education (ABE)
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%
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

APPLIED ARTS
Journalism (Post Diploma)

POST DIPLOMA
- **One Year (12 Courses)**
- **September**
- **Bay St. George Campus and Distributed Campus Campuses**

COURSES

CODE	TITLE	Cr	Le	La	Hrs/wk
Semester 1					
JL1130	Audio Storytelling	3	2	3	
JL1110	Reporting & News Writing I	4	4	0	
JL1420	Journalism Ethics & the Law	3	3	0	
PY1330	Photojournalism I	3	2	2	
JL1850	Newsroom I (Post Diploma)	4	2	5	
Semester 2					
JL1160	Video Storytelling	4	4	0	
JL1120	Reporting & News Writing II	4	4	0	
JL1581	Online Journalism	3	2	2	
PY1331	Photojournalism II	3	2	2	
JL1851	Newsroom II (Post Diploma)	4	2	7	
Semester 3 (Intersession-7 wks)					
JL2120	Reporting & News Writing III	4	3 wks		20 hrs per wk for 3 wks
FW1320	Field Placement (Post Diploma)	4	4 wks		

This accelerated program allows students who already have a university degree or a college diploma (minimum two years) to obtain a Journalism Post Diploma in one year.

Students who already possess either a university degree or a college diploma acquire core journalism skills in the program. They prepare to work as professional journalists while developing media skills that are transferable to other professions. The program nurtures their curiosity and enables them to tell stories across several platforms – text, video, audio, photojournalism and the Internet. Students learn in a hands-on environment, where they hone their skills as storytellers by producing a news website, a current affairs magazine, radio shows and TV productions. Adapting to the new realities of journalism, students learn to use social and mobile media both to tell stories and to converse with an audience. Students acquire real-world experience via partnerships between the program and professional news organizations.

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
Upon successful completion of the program, graduates will be able to:

1. Discern newsworthy happenings in their communities and develop them into stories.
2. Tell stories across several platforms – text, video, audio, photography, websites, social media and mobile applications.
3. Perform the writing, research, video, audio and photography skills expected of modern multiplatform journalists.
4. Apply a discipline of verification in seeking and reporting the truth.
5. Provide the context of the news to their audiences.
6. Reflect in their work a deep understanding of the news media, its influence and their own responsibilities as a journalist.
7. Apply high ethical standards to their work.
8. Demonstrate a strong understanding of media law in their work.
9. Deliver high-quality journalism on deadline via different platforms within the 24-hour news cycle.

EMPLOYMENT AND OTHER OPPORTUNITIES
There are many diverse opportunities for graduates of the Journalism Post-Diploma program. Graduates may choose to become a broadcast journalist or may choose a profession as a freelancer, or graduates may become gainfully employed while working with television networks. Online journalism and print media are also options for gainful employment. Further to employment opportunities, graduates may also choose to further their studies towards

degree-related opportunities at other post-secondary institutions.

ENTRANCE REQUIREMENTS
A university degree OR a minimum of a two-year college diploma from an institution recognized by College of the North Atlantic (***OR*** a combination of other post-secondary work and industry experience acceptable to the college as an entrance requirement).

APPLIED ARTS

Music: Performance, Business & Technology

DIPLOMA
• Two Years
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM2100	Workplace Correspondence	3	3	0
MU1415	Performance I	3	2	2
MU1130	Music Theory I	3	3	1
SN1160	Sound & Microphones	4	4	0
HM2521	Events Management	5	4	2
SN2200	Recording I	3	3	0
Semester 2		**Cr**	**Le**	**La**
CM1550	Creative Writing	3	3	0
MU1420	Performance II	3	2	3
	*Elective	3	3	0
MU1210	Music Theory II	3	3	1
MU1110	Music & Culture	3	3	0
SN1170	Music Production Techniques	3	2	2
Semester 3 (Intersession)		**Cr**	**Le**	**La**
HR1120	Human Relations	4	4	0
SN1410	Stage Lighting	3	2	2
SN3100	Live Sound Production	4	3	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		**Cr**	**Le**	**La**
MU1200	Songs & Songwriting	3	3	0
MU2130	Popular Music History	3	3	0
HR2121	Public Relations	3	3	0
MU2420	Performance III	3	2	3
SN1200	Music Business	3	3	0
CM2200	Oral Communications	2	2	0
MU2120	Traditional Music Studies	3	3	0
Semester 5		**Cr**	**Le**	**La**
MU2425	Performance IV	3	2	2
MR2110	Marketing Methods	3	3	0
	*Elective	3	3	0
CM1520	Writing for the Arts	3	3	0
EP1100	Entrepreneurial Studies	4	3	2
TR1100	Tourism & the Arts	3	3	0
MU1140	Musicianship & Recording	3	2	2
Semester 6 (Intersession)		**Cr**	**Le**	**La**
MU1150	Music in Media	3	2	2
MC1570	Creative Technologies	3	2	2
MU1160	Cultural Career Management	3	3	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Note:
*Elective (minimum credit value of 3)

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 of the course is not exceeded,
4. The student's schedule can accommodate all scheduled classes for that course.

The Music: Performance, Business & Technology program is a two-year diploma program that provides an opportunity for students whose interests lie in contemporary popular music to refine their skills in the company of others who share their passion while gaining exposure to all aspects of the music industry. The annual MusicNL Awards and East Coast Music Awards (ECMA's) highlight success in all areas of the industry and demonstrate that music is being generated and has garnered worldwide popularity. Program graduates are nominated for and win awards at such events year after year.

Highlights of what students can expect to experience when enrolled in the Music: Performance, Business & Technology Program:
•Extensive training in musical areas such as live performance, studio performance, songwriting, music theory and history, traditional and popular music, music software applications, music and media, and more.
• Essential recording studio training as well as a thorough exposure to live sound production and stage lighting.
• Studies in music business, entrepreneurialism, traditional and e-marketing, tourism, human and public relations, and event management.
• Engagement in mentorship with faculty who are professional musicians and audio engineers.
• Cultural career strategies and business planning.
• Exposure to alternate career options such as booking agents, artist management, publicity or other vital areas of the industry.
• Collaborative projects with other arts disciplines such as film and video, video game design and digital animation.

This thorough exposure to the many facets of the music industry will enable students to realistically assess their prospects for success in this highly competitive industry. The Music: Performance, Business & Technology program provides the graduate with a powerful skill-set as they enter the music industry at a professional level

EMPLOYMENT OPPORTUNITIES
Graduates of the Music: Performance, Business & Technology program will have opportunities for employment as music professionals within a range of areas such as the following: Independent Solo Performers, Independent Group Performers, Independent Recording Artists, Independent Music Studio Educators, Commercial Music School Educators, Arts and Culture Centre Employees, Musical Directors, Pit Orchestra Musicians, Music Industry Association Employees, Artist Managers, Artist Promoters, Film Score Composers, Songwriters, Music Retail Company Employees, Distribution Company Employees, Music Manufacturing Company Employees, Musical Theatre Company Employees, Instrument Design and Manufacturing Company Employees, Tourism Festival/Events Employees and Music Video Producers.

OBJECTIVES
1. Demonstrate knowledge and skills in the musical, technical and business aspects of the music industry.
2. Demonstrate refined musical skills by showcasing their artistic works through recordings, media projects and live public performances.
3. Communicate effectively, creatively and with confidence when writing, presenting, performing and speaking.
4. Use the latest music industry technology to create new artistic works, self-promote and engage with industry at a professional level.
5. Collaborate as effective team members in projects with other artistic disciplines.
6. Demonstrate the social and intellectual development required to meet the challenges of the exciting and demanding music industry.
7. Create a career plan for employment in the cultural industries which will include a self-developed professional portfolio.

ENTRANCE REQUIREMENTS
1. High School
Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent
2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science Transition Certificate
3. Adult Basic Education (ABE)
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%
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

PORTFOLIO
Applicants to the Music: Performance, Business & Technology program are required to submit a portfolio that outlines their musical experiences and training, if applicable. It should include several contrasting pieces that best demonstrate the applicant's musical talent and ability. The objective of this portfolio is for the applicant to clearly demonstrate a reasonable chance for success in the program. It will be evaluated in the following areas:
• Musical talent and ability
• Organizational skills
• Overall quality of the portfolio submission

The portfolio and musical examples may be submitted in any of the following formats or a combination of these formats:
• Hard copy printed version;
•Electronic Press Kit (EPK) with link(s) to URLs;
• CD/DVD/Digital Video Files;
• Media Storage Devices

Music: Performance, Industry & Business Applicant Portfolio Rubric

Total Points	Musical talent, ability, and creativity	Organizational skills	Overall quality of the portfolio
5	Items clearly demonstrate that the applicant possesses an exceptional level of musical talent, ability, and creativity.	Items clearly demonstrate that the applicant possesses an exceptional level of organizational skills.	Items are clearly introduced, well organized, creatively displayed, are of high quality and show connections between items.
4	Items clearly demonstrate that the applicant possesses an above average level of musical talent, ability, and creativity.	Items clearly demonstrate that the applicant possesses an above average level of organizational skills.	Items are clearly introduced, well organized, creatively displayed, are of above average quality and show connections between items.
3	Items clearly demonstrate that the applicant possesses an average level of musical talent, ability, and creativity.	Items clearly demonstrate that the applicant possesses an average level of organizational skills	Items are introduced and somewhat organized, are of average quality, showing some connection between items.
2	Items clearly demonstrate that the applicant possesses a below average level of musical talent, ability, and creativity.	Items clearly demonstrate that the applicant possesses a below average level of organizational skills.	Items are not introduced, lack organization and are of low quality.
1	Items clearly demonstrate that the applicant does not possess a level of musical talent, ability, and creativity that would be required for a reasonable chance for success in the program.	Items clearly demonstrate that the applicant does not possess an acceptable level of organizational skills.	Items are not introduced and lack organization and are of extremely poor quality.

APPLIED ARTS

Sound Recording & Production

DIPLOMA

- **Two Years**
- **September**
- **Bay St. George Campus**

COURSES

CODE	TITLE	Cr	Le	La (Hrs/wk)
Semester 1				
ET1120	Electronics for Audio	3	3	1
MA1100	Mathematics	5	4	2
SN1160	Sound & Microphones	4	4	0
MU1100	Intro to Music	4	4	0
CM1400	Technical Report Writing I	3	3	0
SN2200	Recording I	3	3	0
Semester 2				
MM2340	Digital Audio Workstations	3	2	2
SN2201	Recording II	4	3	2
CM1401	Technical Report Writing II	3	3	0
SN1170	Music Production Techniques	3	3	0
SN2140	Acoustics & Studio Design	3	2	2
	Elective*	3	3	0
Semester 3 (Intersession)				
SN3100	Live Sound Production	4	3	2
SN1180	Exploring Your Industry	3	3	0
SN1410	Stage Lighting	3	2	2

The Lecture and Lab hours per week are based on a 15 week semester. In intersession, these hours will be adjusted to reflect the shorter semester length.

Semester 4				
CP1920	Computer Hardware & Troubleshooting	4	3	2
SN1200	The Music Business	3	3	0
SN2110	Mixing & Mastering	3	2	2
SN2420	Sound for Visual Media	4	3	2
SN2120	Sound in Practice I	3	2	2
EP1100	Entrepreneurial Studies	4	3	2
Semester 5				
MU2110	Instruments	3	3	0
SN2130	Career Management	3	3	1
MC1570	Creative Technologies	3	2	2
SN2150	Sound in Practice II	3	2	4
HR1120	Human Relations	4	4	0
	Elective *	3	3	0

Elective (minimum credit value of 3)

Note:
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.

Sound Recording & Production is a two-year diploma program designed to provide training in all areas of sound production. This includes training in: live sound, music production and recording, mixing and mastering, digital audio editing, signal processing, field recording and sound design, live concert recording, and audio for the film, video, animation and gaming industries.

In the first year of the program, most of the core theory is covered along with some practical and hands-on components. In the second year, students will find themselves in a project-rich environment where they have many opportunities to further develop their knowledge and skills through practice and mentorship.

As well as the core courses in sound production, the student will learn business and entrepreneurial knowledge and skills, career management and exploration, electronics basics, acoustics, computer troubleshooting, technical writing, stage lighting and more. This extensive hands-on experience will fully prepare the graduate for employment in any of the numerous exciting occupations found in the sound recording and production industry.

OBJECTIVES

Upon successful completion of the program, graduates will be able to:

1. Explain the concept of sound, including its generation, transmission and effects, and apply that knowledge to select appropriate tools for its capture in a myriad of situations.
2. Analyze sound and lighting equipment requirements for live sound events, prep and connect all required equipment and use the equipment successfully in running the event from a technical perspective.
3. Intelligently speak the language of music when interacting with musicians in live sound and recording environments.
4. Demonstrate proficiency in Digital Audio Workstation applications, including editing and signal processing.
5. Apply logic and deductive reasoning to fix problems.
6. Demonstrate proficiency in analog signal processing required by clients in any field of music, video production, video game design, feature film and live sound industries.
7. Demonstrate safe working practices in lighting and various sound production environments.
8. Use entrepreneurial and personal finance skills to help establish recording studios, live sound companies and run these operations successfully.
9. Negotiate standard working contracts.
10. Demonstrate competencies in writing technical documents.

EMPLOYMENT AND OTHER OPPORTUNITIES

Graduates of the Sound Recording & Production program can find work as the following in their appropriate venues: Production Mixer, Boom Operator, Production Sound Assistant, Sound Transfer Operator, Dialogue Editor, Sound Effects Editor, Music Editor, Assistant Sound Editor, ADR/Sound Effects Mixer, Music Mixer, Re-recording Mixer (Film Mixer), Sound Designer, Front of House Mixer, Monitor Mixer, System Technician, Mixing Engineer, Mastering Engineer, Tracking Engineer, Music Producer, Foley Artist and On-Air Production (Radio).

ENTRANCE REQUIREMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent including:

i. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% in each course)

Academic: 2201 (50% minimum), 3201 (60% minimum)

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate with the following courses:
Math Fundamentals MA1040 and MA1041

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) including the following courses:
Mathematics 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

Note: Students who do not meet the entrance requirements as a result of their Mathematics courses and grades should explore options that may be available to them through the Comprehensive Arts & Science (CAS) Transition – Mathematics courses.

APPLIED ARTS

Textiles: Craft & Apparel Design

DIPLOMA

- **2 Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
HY1100	Art History I	3	3	0
MC1170	Introduction to Computers and Applications	3	2	2
VA1100	Introduction to Drawing I	3	3	0
VA1200	Elements of Design	3	3	0
VA1400	Introduction to Colour Theory	3	3	0
TX1100	Fibre and Fabric Exploration	5	4	2
TX1200	Introduction to Sewing	3	3	0
Semester 2		***Cr***	***Le***	***La***
HY1200	Craft History	3	3	0
TX1300	Embroidery and Quilt I	3	3	0
TX1330	Print and Dye I	3	3	0
TX1400	Apparel Construction I	3	3	0
TX1500	Knit and Weave I	6	6	0
VA1101	Introduction to Drawing II	3	3	0
VA1201	Principles of Design	3	3	0
Semester 3		***Cr***	***Le***	***La***
CG1400	Production Coordination	3	3	0
CM1520	Writing for the Arts	3	3	0
TX1210	Industrial Sewing	3	3	0
Semester 4		***Cr***	***Le***	***La***
VA2250	Application of Design Theory I	3	3	0
VA2100	Drawing I	3	3	0
EP1100	Entrepreneurial Studies	4	3	2
PD2100	Portfolio Development	3	3	0
*Studio Areas—Students Select Two Areas				
ST2300	Embroidery and Quilt II	5	4	2
ST2400	Apparel Construction II	5	4	2
ST2600	Knit II	5	4	2
ST2181	Weave II	5	4	2
ST2330	Print and Dye II	5	4	2
Semester 5		***Cr***	***Le***	***La***
VA2251	Application of Design Theory II	3	3	0
VA2101	Drawing II	3	3	0
CM1530	Proposal Writing	3	3	0
PD2110	Special Project I	2	2	1
*Studio Areas—Students Select Two Areas				
ST2301	Embroidery and Quilt III	4	3	3
ST2401	Apparel Construction III	4	3	3
ST2601	Knit III	4	3	3
ST2182	Weave III	4	3	3
ST2331	Print and Dye III	4	3	3
Semester 6 (Intersession)		***Cr***	***Le***	***La***
PD2120	Special Project II	6	4	5

The lecture and lab hours per week are based on a 15-week semester. In intersession, the lecture and lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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. To develop students' skills and knowledge in craft and apparel and on-going technical innovation in all studio areas and creative processes.
2. To provide an opportunity for students to explore and experiment with a variety of creative and artistic techniques.
3. To provide students with a strong foundation in design competencies and applications.
4. To provide students with an increased awareness of and appreciation for fine art and craft, and their varying schools of philosophical thought.
5. To assist students in the development of entrepreneurial skills through "real life" experiences and encourage a spirit of entrepreneurship.
6. To develop student's ability to promote one's work through the development of communication skills, portfolio development, and organizing special events.
7. To develop student's desire for life-long learning.

ENTRANCE REQUIREMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

Please note: This program is not suitable for applicants with respiratory problems or colour blindness.

APPLIED ARTS

Video Game Design

DIPLOMA

- **First Year: Semesters 1 & 2 - offered online via Distributed Learning**
- **Three Years**
- **September**
- **Prince Philip Drive, and Distributed Campus Campuses**

COURSES

CODE	TITLE	Hrs/Wk		
Semester 1		***Cr***	***Le***	***La***
GD1130	Game Design Theory	3	3	0
PY1150	Photography	3	2	2
HY1120	Prehistory to Renaissance	3	2	2
VA1110	Drawing Methods & Media	3	2	2
VA1400	Colour Theory	3	3	0
CM1100	Writing Essentials	3	3	1
VA1115	2D Design	2	1	2
Semester 2		***Cr***	***Le***	***La***
GD1140	Serious Games Theory	3	3	0
GD1120	Storytelling in Games I	3	3	0
VA1120	Digital Imaging	3	2	2
VA1140	Figure Drawing	3	2	2
VA1170	3D Design	3	2	2
CM1520	Writing for the Arts	3	3	0
HY1130	Renaissance to 20th Century	3	2	2
Semester 3		***Cr***	***Le***	***La***
GD1150	Game & Level Design I	4	3	2
GD1160	Art for Games I	4	3	3
GD1170	Sound Design for Games	3	2	2
GD1180	Game Industry Professionalism	3	3	0
CM2200	Oral Communications	2	2	0
MC1140	Digital Literacy in the Workplace	3	2	2
Semester 4		***Cr***	***Le***	***La***
GD2110	Game & Level Design II	4	3	3
GD2120	Art for Games II	4	3	3
GD2130	Storytelling in Games II	3	2	2
GD1600	Business of Game Development	3	3	0
CM1400	Technical Report Writing I	3	3	0
*Elective		3	3	0
Semester 5 (Intersession)		***Cr***	***Le***	***La***
GD2140	Game & Level Design III	4	3	3
GD2150	Art for Games III	3	2	2
GD2160	QA & Playtesting for Games	2	2	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 6		*Cr*	*Le*	*La*
GD3100	Game & Level Design IV	4	3	3
GD3110	Art for Games IV	4	3	3
GD3120	3D Game Character Design	4	3	3
GD3130	Visual Narrative for Games	3	2	2
*Elective		3	3	0

Semester 7		*Cr*	*Le*	*La*
GD3140	Game & Level Design V	4	3	3
GD3150	Interactive Storytelling	3	3	0
GD3160	Portfolio for the Game Industry	3	2	2
GD3170	Art for Games V	4	3	3
EP1100	Entrepreneurial Studies	4	3	2

Semester 8 (Intersession)		*Cr*	*Le*	*La*
GD3180	Game Design Capstone Project	7	4	8

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Note:
*Elective (minimum credit value of 3)

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 of the course is not exceeded,
4. The student's schedule can accommodate all scheduled classes for that course.

Video games have emerged as an interactive medium that engages society at every level, from action-oriented entertainment and immersive storytelling, to educational games, simulation, and workplace training. There is a wide range of diverse and exciting career opportunities waiting for talented and well-trained game designers, artists, and testers.

The Video Game Art & Design program at College of the North Atlantic offers an artistic approach to game development, beginning with the essentials of art and design. Students will then move on to designing and creating playable games using popular game engines without the need for programming knowledge. A strong focus is applied to the narrative aspect of game design, bringing engaging storytelling to interactive experiences. Writing detailed design documentation is also practiced. 2D and 3D games are brought to life with original artwork including pixel art, 3D models, animation, detailed textures, user interface, and special effects. Dynamic game levels will be created from the early stage of floor plan designs to the development and wonder of virtual game worlds, ready to navigate and explore. Immersive game projects will be heightened through the recording and editing of audio and video, providing soundscapes and cinematic experiences. The important studies of business, project management, professionalism, and teamwork will provide an understanding of how the industry functions and how to become a valuable and successful member of a collaborative game development project.

This program provides an extensive practice of the design and artistic approaches to video game development, opening several avenues into the game industry. Students will graduate from the program with a competitive portfolio of original games, written documentation, and art assets, as well as a deep knowledge of the practices of game design and development. A high value is placed on professional development, which prepares graduates for careers in related industries, and entrepreneurship is a potential path for graduates who aim to make their mark as innovative and independent game developers. The practices of professional behavior, software skills, personal branding, and work ethic are all highly transferrable skills attained by graduates of this program.

OBJECTIVES

1. Understand and utilize the theory, practices, computer software, and hardware resources needed to create video game art and design.
2. Demonstrate appropriate attitudes, behaviours, and work practices for employment in the game industry and other areas of media development..
3. Utilize effective visual, oral and written communication skills, and continue to grow personally in one-on-one communications.
4. Promote their work through portfolio development.
5. Work productively in a collaborative team environment.
6. Appreciate the role of history and art history as game art and design references.
7. Cultivate a desire for life-long learning.
8. Design original video games, art, and narrative for games.

EMPLOYMENT OPPORTUNITIES

There are many diverse opportunities for graduates of the Video Game Art & Design program. **Graduates may choose from an array of different exciting careers, including, but not limited to:** Quality Assurance Game Tester, Game Producer, Game Designer (entertainment, education, training and simulation, etc..), Level Designer, Writer for games and related media, Concept Artist for games and related media, 2D and 3D Asset Artist for games and related media, 3D Modeller for simulation, Texture Artist for games and related media, Character Modelling for games and related media, Graphic Interface Designer, Animator for games and related media, Sound Designer for games and related media, Cinematographer for games and related media*, Entrepreneur for media design, Marketing and Promotions for games and related media.

*Related media includes film, digital animation, visual arts, graphic arts, simulation, music and audio production, etc.

ENTRANCE REQUIREMENTS

1. High School

Provincial High School Graduation Certificate with a 60% average in nine level 3000 credits or equivalent

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science Transition Certificate

3. Adult Basic Education (ABE)

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%

4 Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

PORTFOLIO REQUIREMENTS:

All applicants to the Video Game Art & Design program must submit a portfolio as part of the admission requirements. A portfolio is a collection of the applicant's work, based on detailed guidelines as described below, that shows the potential to build on demonstrated skills and aptitudes when in the program.

The applicant portfolio should consist of:
1. An essay which consists of a written personal statement explaining your reasons for wanting to be a video game artist and/or designer, your goals, and your interest in the program at College of the North Atlantic. This should be approximately 300 to 400 words.
2. A written work of creative fiction using the provided content guidelines described below. The story must be written within 600 to 1000 words (no more, no less). Be sure the story has a beginning, a climactic middle, and an ending.
3. Two pieces of art as described below by the College's Video Game Art & Design program portfolio entry detailed guidelines.

Portfolio Entry – Detailed Guidelines

All applicants to the Video Game Art & Design program must submit the specific, assigned writing and art samples to fulfil additional program entry requirements.
The additional entry requirements should consist of:

1. An essay which consists of a written personal statement explaining your reasons for wanting to be a video game artist and/or designer, your goals, and your interest in the program at College of the North Atlantic. This should be approximately 300 to 400 words.

Present your document as follows:

- The document must be delivered in a digital format or printed on paper from a digital format (not hand written).
- Write it in a font of Times New Roman at a font size of 12, double spaced
- Title the document: VGAD Essay by "your name"
- Set only the title in a bold font, no cover page
- Proper articulation of content and writing mechanics are expected and presented in paragraph form (grammar, spelling, syntax, structure, etc.)
- Save the document as a common digital file type (docx, doc, rtf) with your last name in the file name, for example: Smith_Essay.rtf
- If word processing software is unavailable, providing the content within the body of an email is acceptable. Additionally a physical, typed print-out can be mailed.

2. A fictional, creative story writing assignment using the provided content guidelines. The story must be written within 600 to 1000 words (no more, no less). Be sure the story has a beginning, a climactic middle, and an ending.

Content to be included:
Main Protagonist Character: A psychic person
Main Setting: A night-time carnival which is fully operational and open to the public at the time of the story
Main Antagonist (Villain): An evil spirited person who practices in the dark forces of magic
Main Plot: The psychic performs a reading on a random customer and senses that the customer will be involved in an accident later that evening. The psychic will try to prevent the accident using psychic powers to uncover the evil plot. The psychic will engage in a magical duel with the antagonist, battling in a mystical landscape within their connected minds.

Character Dialogue: Include some sections of character dialogue within the story.

There is much room to present original creativity within the given guideline of content such as who the characters are, what they look like, the date, the outcome, introducing more characters, etc. Try to be descriptive in a manner that your words can inspire a visual image within the reader's imagination, and try to connect with the reader on an emotional level by providing meaningful storytelling.

Present your document as follows:
- The document must be delivered in a digital format or printed on paper from a digital format (not hand written).
- Write it in a font of Times New Roman at a font size of 12, double spaced.
- Title the document: VGAD Story by "your name"
- Set only the title in a bold font
- Proper articulation of content and writing mechanics are expected (grammar, syntax, structure, etc.)
- Save the document as a common file type (doc, docx, or rtf) with your last name in the file name, for example: Smith_Story.rtf
- If word processing software is unavailable, providing the content in an email is acceptable.

3. Two pieces of art as outlined below by the College's Video Game Art and Design program.

Present your document as follows:
- Please sign and date each piece.
- Please include PHOTOCOPIES or DIGITAL COPIES ONLY, as the portfolio will not be returned.
- All submissions must be your own work. Any submission that contains plagiarized work, copied either manually or electronically, will be disqualified and you will be refused consideration.
- Any submission that contains inappropriate or offensive content will be refused consideration.
- ENSURE THAT YOUR NAME IS ON EACH OF THE CLEARLY LABELLED PIECES.
- Additional drawings or game ideas will not be accepted, viewed, or considered.
- Art submissions should show the applicant's current level of proficiency in the visual arts.
- All observational drawings are to be executed from real-life subject material, not from photographs, images, artwork, or other drawings.
- Drawings must be made on 8.5 x 11 sheets of plain white paper.

3a. Pencil sketch of a landscape (not based on images or photos). You may draw this from inside, looking out a window and it may include a building structure. Suggested time for completion of the final drawing, not including practice sketches: 30 – 60 minutes.

3b. Pencil or color pencil drawing of a real toy such as an action figure, collectible statue, video game console controller, teddy bear, or vehicle (not based on images or photos). The full view of the toy is visible in the drawing. Suggested time for completion of the final drawing, not including practice sketches: 30 – 60 minutes.

View the Application Portfolio Rubric for this program (57KB PDF)

HOW DO I SUBMIT THESE ADDITIONAL ADMISSION REQUIREMENTS?
a. Applicants should submit only copies of their artwork, such as a photocopied drawing, or a digital scan of the drawing. No originals should be submitted. Include applicant name and contact information.
b. Do not submit any framed, fragile or 3-dimensional work. Take a photo and submit that instead. Include applicant name and contact information.
c. If applicants submit digital files, please burn them onto a disk to include with the application, or email the images and include applicant name and contact information.
d. Any physical photocopies or printed pages of work on paper should be submitted in a 9 "x12" envelope and identified with applicant name on each page. Include applicant name and contact information within.
e. Each item included should be identified with an applicant name and date, and entry requirement number at the bottom of the page. Include contact information.

Please note: We emphasize that while advanced levels of writing, drawing, and computer skills may be an asset, they are not necessary, nor a guarantee for admission to the program.

TOURISM

Hospitality Tourism Management

DIPLOMA
- **Two Years**
- **Alternate Year Intake**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		***Cr***	***Le***	***La***
CM1450	Writing Fundamentals for the Workplace	3	3	0
HS1130	Dining Room Operations	5	3	5
HS1340	Bar & Beverage Operations	3	2	2
MC1150	Productivity Tools	4	3	2
TR1600	Newfoundland and Labrador Tourism Destinations	4	3	2
TR1610	Introduction to Tourism & Hospitality	4	4	0

Semester 2		**Cr**	**Le**	**La**
CM1200	Oral Communications	3	3	0
CM2100	Workplace Correspondence	3	3	0
HR2400	Professional Development	P/F	2	1
HS1730	Rooms Division Systems	4	3	3
MR1270	Customer Service in the Hospitality Industry	3	3	0
TR1660	Newfoundland and Labrador Interpretation	4	4	0

Semester 3 (Intersession)		**Cr**	**Le**	**La**
OJ1480	Field Work I			6 wks

The Course and Lab hours per week are based on a 15-week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

NOTE: Students may qualify for a Certificate in Hospitality Services, if exiting at the end of Year I.

Semester 4		**Cr**	**Le**	**La**
AC1120	Computerized Bookkeeping I	4	3	2
EP1100	Entrepreneurial Studies I	4	3	2
HM2150	Food & Beverage Management	4	3	2
HM2280	Hospitality Supervision	4	3	2
HM2420	Hospitality Facilities Management	4	4	0
	Elective	4	4	0

Semester 5		**Cr**	**Le**	**La**
HM2210	Hospitality Marketing	3	3	0
HM2520	Events Management for the Hospitality Industry	5	4	2
HN1200	Human Resource Management	3	3	1
HS1540	Emerging Trends in the Hospitality Tourism Industry	3	3	0
LW1130	Tourism/Hospitality Law	4	4	0
	Elective	3-4	3-4	0

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 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 two 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 required certifications) 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; for interpersonal relations and quality customer service, with a focus on leadership; and for 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.

Program Transferability
Graduates of the Hospitality Tourism Management program wishing to pursue additional post-secondary studies can apply for entry with advanced standing at a number of Canadian Universities that the College has established credit transfer agreements with. Please refer to the NL Department of Education's transfer guide (www.cna.nl.ca/transfer), or contact your intended university or college.

Entrance Requirements
Eligibility for admission to the Hospitality Tourism Management program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% average in nine Level 3000 credits or equivalent
2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science Transition Certificate
3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile) with an overall average pass mark of 60%.
4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year 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)*
- Senior Friendly™
- St. John Ambulance Standard First Aid
- World Host® Fundamentals
- WHMIS – Workplace Hazardous Materials Information System*
- Back Injury Prevention
- *Check online offerings

Note: Students should be aware that additional fees apply for the above certifications, field trips, tours and OJ1480. Additional expenses will also be incurred for the purchase of items of clothing which are required for the program.

School of Business and Information Technology Business

BUSINESS

Business Administration

CERTIFICATE

- **The Business Administration program is offered every alternate year at the Carbonear Campus, online through Distributed Learning and yearly at a variety of other campuses.**
- **One Year**
- **Varies**
- **Bay St. George, Corner Brook, Clarenville, Carbonear, Grand Falls-Windsor, Port aux Basques, Prince Philip Drive, and Distributed Campus Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3
OJ1100	Work Exposure (Certificate Only)			2wks

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Entrance Requirements

Academic:
Eligibility for admission to Business Administration/Business Management programs requires the applicant to meet one of the following four academic criteria:

1. High School
Provincial High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or English 3202 (60% minimum)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Five credits at the 3000 Level

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math Fundamentals: MA1040, MA1041

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 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.

4. Mature Student Status
Applicants who do not meet the education prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada
- The Payroll Association of Canada

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 (IPMA) – Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada
- The Payroll Association of Canada

BUSINESS

Business Administration (Accounting)

DIPLOMA

- **Carbonear Campus - Alternate intake**
- **Two Years**
- **September**
- **Bay St. George, Corner Brook, Clarenville, Carbonear, Grand Falls-Windsor, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
AC2220	Intermediate Financial Accounting I	5	3	5
AC2250	Managerial Accounting I	4	3	2
AC2231	Computerized Accounting II	3	2	2
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
MA1670	Statistics	4	4	1
Semester 5		**Cr**	**Le**	**La**
AC1350	Income Tax	4	3	2
AC3220	Intermediate Financial Accounting II	5	3	5
AC3250	Managerial Accounting II	4	3	2
AC2360	Principles of Internal Auditing	3	2	2
EP2150	Entrepreneurship	3	3	0
SD2360	Student, Career & Portfolio Development III	2	2	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1580	Work Exposure (Accounting)			6 wks

The Business Administration (Accounting) program has been developed to provide the student with the knowledge and skills required in the field of general financial accounting. The graduate will be able to provide complex information and comprehensive reports to management.

Throughout the program the student will develop a learning portfolio and career and educational plans.

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

Objectives

1. Prepare and analyze financial statements for internal and external decision making.
2. Use current technology to analyze results and generate appropriate reports.
3. Develop financial and budgetary plans

based on varying business objectives, changing business environments, and underlying business assumptions.
4. Demonstrate accounting skills needed to secure employment in an entry-level accounting position.
5. Demonstrate application of the Conference Board of Canada employability skills.

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.

Accreditation
Business Administration (Accounting) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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 (Accounting) program 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

Graduates may also wish to further their studies to achieve professional designations with:
- Certified General Accounts of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- Canadian Institute of Financial Planning
- The Payroll Association of Canada

BUSINESS
Business Administration (General)

DIPLOMA
- **Two Years**
- **Varies**

- **Corner Brook, Clarenville, Grand Falls-Windsor, Port aux Basques, Prince Philip Drive, and Distributed Learning Campuses**

COURSES

CODE	TITLE	Cr	Le	La (Hrs/wk)
Semester 1				
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2				
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)				
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 weeks semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter length. Refer to course outline.

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

Semester 4				
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
MA1670	Statistics	4	4	1
MR2300	Business Research	4	3	2
One of:				
AC2220	Intermediate Financial Accounting I	5	3	5
AC2250	Managerial Accounting I	4	3	2
One of:				
HN1100	Introduction to Industrial Relations	3	3	1
HN2130	Recruitment and Selection	3	3	1
HN2150	Training & Development	3	3	1
One of:				
MR1500	Consumer Behavior	3	3	0
MR1600	Professional Selling	4	3	2
Semester 5				
EP2150	Entrepreneurship	3	3	1
PS2340	Organizational Behavior	4	4	0
SD2370	Student, Career & Portfolio Development III	2	2	0
Elective	(minimum 3 credits)	3	3	0
One of:				
AC1350	Income Tax	4	3	2
AC3220	Intermediate Financial Accounting II	5	3	5
AC3250	Managerial Accounting II	4	3	2
One of:				
HN1400	Occupational Health & Safety	3	3	1
HN2100	Collective Agreement Administration	3	3	1
LW1210	Labour and Employment Law	4	3	2
One of:				
MR2200	Retailing	3	2	3
MR2350	E-Business	4	3	2
MR2400	Marketing Communications	4	3	2
Semester 6 (Intersession II)				
OJ1590	Work Exposure (General)			6 wks

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 the Business Administration (General) 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. Demonstrate the ability to effectively engage in research and information gathering processes.
2. Integrate general knowledge of accounting, human resources, and marketing, for application in a business environment.
3. Apply entrepreneurship skills for use in small to medium sized business environment.
4. Demonstrate application of the Conference Board of Canada employability skills.

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

Accreditation
Business Administration (General) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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.

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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

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 (IPMA) - Canada
- Certified General Accounts of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

BUSINESS

Business Administration (Human Resource Management)

DIPLOMA

- **Carbonear Campus - Alternate intake**
- **Two Years**
- **September**
- **Bay St. George, Clarenville, Carbonear, Grand Falls-Windsor, Prince Philip Drive, and Distributed Learning Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
HN1100	Industrial Relations	3	3	1
HN2130	Recruitment and Selection	3	3	1
HN2150	Training and Development	3	3	1
MA1670	Statistics	4	4	1
MR2300	Business Research	4	3	2
Semester 5		**Cr**	**Le**	**La**
AC2600	Managerial Accounting for HRM	4	3	2
HN1400	Occupational Health and Safety	3	3	1
HN2100	Collective Agreement Administration	3	3	1
LW1210	Labour and Employment Law	4	3	2
PS2340	Organizational Behavior	4	4	0
SD2340	Student, Career & Portfolio Development III	2	2	0
EP2150	Entrepreneurship	3	3	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1550	Work Exposure (HRM)			6 wks

The Business Administration (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 Management (Human Resource Management) programs is common.

Objectives

1. Examine and critique the key fundamentals of strategic human resource management and the employment related legislation (regulations and acts).
2. Propose and apply various human resource practices to effectively manage an organization's human resources.
3. Demonstrate effective research, negotiation, conflict resolution, and leadership skills for use in the business environment.
4. Demonstrate application of the Conference Board of Canada employability skills.

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.

Accreditation

Business Administration (Human Resource Management) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

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 (IPMA) - Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

BUSINESS

Business Administration (Marketing)

DIPLOMA

- **Two Years**
- **September**
- **Corner Brook, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
MA1670	Statistics	4	4	1
MR1500	Consumer Behaviour	3	3	0
MR1600	Professional Selling	4	3	2
MR2300	Business Research	4	3	2
Elective	(minimum 3 credits)	3	3	0
Semester 5		**Cr**	**Le**	**La**
EC1210	Macroeconomics	4	4	0
EP2150	Entrepreneurship	3	3	0
MR2200	Retailing	3	2	3
MR2350	E-Business	4	3	2
MR2400	Marketing Communications	4	3	2
PR2170	Project Management	2	2	1
SD2350	Student, Career & Portfolio Development III	2	2	0

Semester 6 (Intersession II)		Cr	Le	La
OJ1560	Work Exposure (Marketing)			6 wks

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. Analyze the marketing environment and develop, implement, and monitor a comprehensive marketing strategy.
2. Critically analyze and provide business solutions to marketing product, price, promotion, and distribution decisions.
3. Integrate ethical marketing strategies and tactics for application in both domestic and global marketing environments.
4. Create materials for use with a marketing strategy.
5. Demonstrate application of the Conference Board of Canada employability skills.

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.

Accreditation

Business Administration (Marketing) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

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 (IPMA) - Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

BUSINESS

Business Management (Accounting)

DIPLOMA

- **Three Years**
- **September**
- **Grand Falls-Windsor, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		Cr	Le	La
AC2220	Intermediate Financial Accounting I	5	3	5
AC2250	Managerial Accounting I	4	3	2
AC2231	Computerized Accounting II	3	2	2
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
MA1670	Statistics	4	4	1
Semester 5		**Cr**	**Le**	**La**
AC1350	Income Tax	4	3	2
AC3220	Intermediate Financial Accounting II	5	3	5
AC3250	Managerial Accounting II	4	3	2
AC2360	Principles of Internal Auditing	3	2	2
EP2150	Entrepreneurship	3	3	0
SD2360	Student, Career & Portfolio Development III	2	2	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1580	Work Exposure (Accounting)			6 wks

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

Semester 7		Cr	Le	La
AC2340	Principles of Auditing	4	3	3
EP2250	Small Business Development	4	3	2
FN2110	Business Finance	4	3	2
MN2600	Strategic Management	3	2	2
PS2340	Organizational Behaviour	4	4	0

Option Course (minimum 3 credits, selected from list below)

Semester 8		Cr	Le	La
AC3251	Managerial Accounting III	4	4	1
EC1210	Macroeconomics	4	4	0
EP2200	Business Planning	4	2	5
MA3700	Production & Operations Management	4	4	1
SD2361	Student, Career & Portfolio Development IV	1	1	0

Option Course (minimum 3 credits, selected from list below)

The student is required to complete all of the courses that are listed above.

Options will be selected from the following list by each campus after consultation with the students and/or local industry. Please note that all courses may not be available at each campus.

Option Courses		Cr	Le	La
AC2540	Oil and Gas Production Accounting	4	3	2
FN2111	Business Finance II	4	3	2
AC3270	Payroll and Commodity Taxes	4	3	2
HN2200	Strategic Compensation and Benefits	3	3	1
MN1520	Supervisory Leadership	4	4	0
FN2160	Investments - An Overview	4	4	0
BK1100	Banking Operations I	4	4	0

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. Prepare and analyze financial statements for internal and external decision making.
2. Use current technology to analyze results and generate appropriate reports.
3. Develop financial budgetary plans based on varying business objectives, changing business environments, and underlying business assumptions.
4. Demonstrate accounting skills needed to secure employment in an entry-level accounting position.
5. Integrate business concepts for effective business planning and strategic management.
6. Demonstrate application of the Conference Board of Canada employability skills.

Career Opportunities

Graduates may obtain employment in a variety of businesses, organizations and government departments including accountant, comptroller, auditor, business analyst, taxation officer, financial officer, administrative manager, and payroll officer.

Accreditation

Business Management (Accounting) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

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 (IPMA) - Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

BUSINESS

Business Management (Human Resource Management)

DIPLOMA
- **Three Years**
- **September**
- **Prince Philip Drive, and Distributed Learning Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
HN1100	Industrial Relations	3	3	1
HN2130	Recruitment and Selection	3	3	1
HN2150	Training and Development	3	3	1
MA1670	Statistics	4	4	1
MR2300	Business Research	4	3	2
Semester 5		**Cr**	**Le**	**La**
AC2600	Managerial Accounting for HRM	4	3	2
HN1400	Occupational Health and Safety	3	3	1
HN2100	Collective Agreement Administration	3	3	1
LW1210	Labour and Employment Law	4	3	2
PS2340	Organizational Behaviour	4	4	0
SD2340	Student, Career & Portfolio Development III	2	2	0
EP2150	Entrepreneurship	3	3	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1550	Work Exposure (HRM)			6 wks

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

Semester 7		**Cr**	**Le**	**La**
EP2250	Small Business Development	4	3	2
FN2110	Business Finance	4	3	2
HN2140	Attendance & Disability Management	3	3	1
HN2200	Strategic Compensation and Benefits	3	3	1
MN2600	Strategic Management	3	2	2
Elective	(minimum 3 credits)	3	3	0
Semester 8		**Cr**	**Le**	**La**
EP2200	Business Planning	4	2	5
HN2110	Dispute Resolution	3	3	1
HN2210	Human Resource Planning	3	3	1
HN3110	Current Topics in HRM & IR	3	3	1
MN3100	Business Ethics	3	3	1
MN3200	Performance Management	3	3	1
SD2341	Student, Career & Portfolio Development IV	1	1	0

The Business Management (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 Business Management (Human Resource Management) 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. Examine and critique the key fundamentals of strategic human resource management and the employment related legislation (regulations and acts).
2. Propose and apply various human resource practices to effectively manage an organization's human resources.
3. Demonstrate effective research, negotiation, conflict resolution, and leadership skills for use in the business environment.
4. Integrate business concepts for effective business planning and strategic management.
5. Demonstrate application of the Conference Board of Canada employability skills.

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 list of 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, and other business related occupations.

Accreditation
Business Management (Human Resource Management) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Northwood University, Michigan, USA

Graduates may also wish to further their studies to achieve professional designations with:
- Canadian Institute of Financial Planning
- Canadian Professional Sales Association
- CanadianPublic Relations Society
- International Personnel Management Association (IPMA) - Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

BUSINESS

Business Management (Marketing)

DIPLOMA
- **Three Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1260	Financial Accounting I	5	4	3
CM1240	Business Communications I	4	4	0
HN1230	Human Resource Management I	3	3	1
MA1400	Mathematics of Finance I	3	3	1
MC1240	Computer Applications I	3	2	2
MR1100	Marketing I	4	4	0
SD1340	Student, Career & Portfolio Development I	1	1	0
Semester 2		**Cr**	**Le**	**La**
AC2260	Financial Accounting II	5	4	3
CM1241	Business Communications II	4	4	0
HN1240	Human Resource Management II	3	3	1
LW1230	Business Law	3	3	0
MA2400	Mathematics of Finance II	3	3	1
MR2100	Marketing II	4	4	0
SD1341	Student, Career & Portfolio Development II	1	1	0
Semester 3 (Intersession)		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
MC1242	Computer Applications II	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
CM2300	Report Writing	2	2	0
EC1110	Microeconomics	4	4	0
MA1670	Statistics	4	4	1
MR1500	Consumer Behaviour	3	3	0
MR1600	Professional Selling	4	3	2
MR2300	Business Research	4	3	2
Elective	(minimum 3 credits)	3	3	0
Semester 5		**Cr**	**Le**	**La**
EC1210	Macroeconomics	4	4	0
EP2150	Entrepreneurship	3	3	1
MR2200	Retailing	3	2	3
MR2350	E-Business	4	3	2
MR2400	Marketing Communications	4	3	2
PR2170	Project Management	2	2	1
SD2350	Student, Career & Portfolio Development III	2	2	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1560	Work Exposure (Marketing)			6 wks

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

Semester 7		**Cr**	**Le**	**La**
EP2250	Small Business Development	4	3	2
FN2110	Business Finance	4	3	2
MN2600	Strategic Management	3	2	2
MR2450	Services Marketing	3	2	2
MR2800	Business-to-Business Marketing	3	2	2
Elective	(minimum 3 credits)	3	3	0
Semester 8		**Cr**	**Le**	**La**
EP2200	Business Planning	4	2	5
MR2620	Sales Management	4	4	0
MR2700	International Marketing	4	4	0
MR3100	Current Topics in Marketing	3	3	1
PS2340	Organizational Behaviour	4	4	0
SD2351	Student, Career & Portfolio Development IV	1	1	0
Elective	(minimum of 3 credits)	3	3	0

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. Analyze the marketing environment and develop, implement, and monitor a comprehensive marketing strategy.
2. Critically analyze and provide business solutions to marketing product, price, promotion, and distribution decisions.
3. Integrate ethical marketing strategies and tactics for application in both domestic and global marketing environments.
4. Create materials for use with a marketing strategy.
5. Integrate business concepts for effective business planning and strategic management.
6. Demonstrate application of the Conference Board of Canada employability skills.

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.

Accreditation

Business Management (Marketing) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

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 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
- University of New Brunswick, Saint John campus
- Okanagan College, British Columbia
- Lakehead University, Ontario
- Northwood University, Michigan, USA

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 (IPMA) - Canada
- Certified General Accountants of Canada (CGA)
- The Society of Management Accountants of Canada (CMA)
- The Payroll Association of Canada

BUSINESS

Office Administration

CERTIFICATE

- **One Year**
- **Varies**
- **Bay St. George, Burin, Corner Brook, Clarenville, Grand Falls-Windsor, Labrador West, Port aux Basques, Prince Philip Drive, St. Anthony, and Distributed Campus Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM1100	Writing Fundamentals	3	3	1
DM1200	Document Production I	6	4	6
EP1110	Introduction to Business	4	4	0
OF1100	Office Management I	3	3	1
Semester 2		**Cr**	**Le**	**La**
AC2100	Bookkeeping II	4	3	2
CM2110	Business Writing Fundamentals	3	3	0
CP2310	Electronic Spreadsheet Applications	3	2	2
DM1210	Document Production II	5	3	5
KB1150	Keyboarding I	1	1	1
OF1101	Office Management II	3	3	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
DM1300	Transcription I	3	3	1
CP2410	Micro Database Applications	3	2	2
OJ1130	Work Exposure (Certificate only)			2 wks

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

Objectives

1. Demonstrate a positive attitude in a business environment to help ensure successful integration into the workplace.
2. Independently organize and manage the activities of an administrative workplace environment for effective and efficient performance.
3. Demonstrate effective written and oral communication skills for use in the business environment.
4. Utilize effective interpersonal and teamwork skills to adapt to various business/community working environments.
5. Conduct research; analyze and present relevant data for use in a business environment.
6. Record financial transactions using generally accepted accounting principles for use in a business environment.
7. Utilize and integrate technology to produce business documents at an advanced level using standard document formatting guidelines.

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
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation
2. Comprehensive Arts and Science Certificate (College Transition Program)
3. Adult Basic Education
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year 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.**

BUSINESS

Office Administration (Executive)

DIPLOMA

- **Two Years**
- **Varies**
- **Bay St. George, Burin, Corner Brook, Clarenville, Grand Falls-Windsor, Labrador West, Port aux Basques, Prince Philip Drive, St. Anthony, and Distributed Learning Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM1100	Writing Fundamentals	3	3	1
DM1200	Document Production I	6	4	6
EP1110	Introduction to Business	4	4	0
OF1100	Office Management I	3	3	1
Semester 2		**Cr**	**Le**	**La**
AC2100	Bookkeeping II	4	3	2
CM2110	Business Writing Fundamentals	3	3	0
CP2310	Electronic Spreadsheets Applications	3	2	2
DM1210	Document Production II	5	3	5
KB1150	Keyboarding I	1	1	1
OF1101	Office Management II	3	3	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
DM1300	Transcription I	3	3	1
CP2410	Micro Database Applications	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
DM1301	Transcription II	3	2	2
DM2200	Document Production III	6	4	6
OF2100	Office Management III	3	3	1
Elective	(minimum 2-4 credits)	2-4	2-4	0
Semester 5		**Cr**	**Le**	**La**
CP2640	Desktop Publishing	4	3	2
DM2240	Document Production IV	5	3	5
KB1151	Keyboarding II	1	1	1
OF2101	Office Management IV	3	3	1
PS2340	Organizational Behaviour	4	4	0
OF2700	Capstone Project	2	2	0
Elective	(minimum 2-4 credits)	2-4	2-4	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1900	Work Exposure-Executive	C/I		6 wks

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
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation
2. Comprehensive Arts and Science Certificate (College Transition program)
3. Adult Basic Education
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Accreditation
Office Administration (Executive) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP) in all campus locations. ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

BUSINESS

Office Administration (Legal)

DIPLOMA

- **Two Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM1100	Writing Fundamentals	3	3	1
DM1200	Document Production I	6	4	6
EP1110	Introduction to Business	4	4	0
OF1100	Office Management I	3	3	1
Semester 2		**Cr**	**Le**	**La**
AC2100	Bookkeeping II	4	3	2
CM2110	Business Writing Fundamentals	3	3	0
CP2310	Electronic Spreadsheet Applications	3	2	2
DM1210	Document Production II	5	3	5
KB1150	Keyboarding I	1	1	1
OF1101	Office Management II	3	3	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
DM1300	Transcription I	3	2	2
CP2410	Micro Database Applications	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
AC2230	Computerized Accounting I	3	2	3
CM2200	Oral Communications	2	2	0
DM1310	Legal Transcription I	3	2	2
DM2210	Legal Document Production I	6	4	7
LW1100	Business Law	2	2	0
OF2500	Legal Office Procedures I	3	3	1
Semester 5		**Cr**	**Le**	**La**
DM2420	Legal Transcription II	3	2	2
DM3250	Legal Document Production II	6	4	7
KB1151	Keyboarding II	1	1	1
OF2530	Legal Office Procedures II	4	4	1
OF2700	Capstone Project	2	2	0
Elective	(minimum 2-4 credits)	2-4	2-4	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1910	Work Exposure-Legal	C/I		6 wk

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
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation
2. Comprehensive Arts and Science Certificate (College Transition program)
3. Adult Basic Education
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Accreditation
Office Administration (Legal) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP). ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

BUSINESS

Office Administration (Medical)

DIPLOMA
- **Two Years**
- **September**
- **Prince Philip Drive, and Distributed Learning Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM1100	Writing Fundamentals	3	3	1
DM1200	Document Production I	6	4	6
EP1110	Introduction to Business	4	4	0
OF1100	Office Management I	3	3	1
Semester 2		**Cr**	**Le**	**La**
AC2100	Bookkeeping II	4	3	2
CM2110	Business Writing Fundamentals	3	3	0
CP2310	Electronic Spreadsheet Applications	3	2	2
DM1210	Document Production II	5	3	5
KB1150	Keyboarding I	1	1	1
OF1101	Office Management II	3	3	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
DM1300	Transcription I	3	3	1
CP2410	Micro Database Applications	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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

Semester 4		**Cr**	**Le**	**La**
BL1330	Anatomy	4	4	0
CM2200	Oral Communications	2	2	0
DM1400	Medical Transcription I	3	2	4
DM2200	Document Production III	6	4	6
OF2400	Medical Office Management I	3	3	0
TM1100	Medical Terminology I	2	2	0
Semester 5		**Cr**	**Le**	**La**
DM1401	Medical Transcription II	4	3	3
DM2240	Document Production IV	5	3	5
KB1151	Keyboarding II	1	1	1
OF2300	MCP Billing	2	2	1
OF2401	Medical Office Management II	4	4	1
TM2100	Medical Terminology II	2	2	0
OF2700	Capstone Project	2	2	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1920	Work Exposure-Medical	C/I		6 wks

Students are required to complete CPR and Red Cross or St. John Ambulance Emergency First Aid in Semester 3 or 4.

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
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation
2. Comprehensive Arts and Science Certificate (College Transition program)
3. Adult Basic Education
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Accreditation
Office Administration (Medical) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP). ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

BUSINESS

Office Administration (Records and Information Management)

DIPLOMA
- **Two Years**
- **September**
- **Bay St. George, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
AC1100	Bookkeeping I	4	3	2
CM1100	Writing Fundamentals	3	3	1
DM1200	Document Production I	6	4	6
EP1110	Introduction to Business	4	4	0
OF1100	Office Management I	3	3	1
Semester 2		**Cr**	**Le**	**La**
AC2100	Bookkeeping II	4	3	2
CM2110	Business Writing Fundamentals	3	3	0
CP2310	Electronic Spreadsheet Applications	3	2	2
DM1210	Document Production II	5	3	5
KB1150	Keyboarding I	1	1	1
OF1101	Office Management II	3	3	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
DM1300	Transcription I	3	3	1
CP2410	Micro Database Applications	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.
Year 1 courses can be completed at campuses offering the Office Administration certificate program.

Semester 4		**Cr**	**Le**	**La**
CM2200	Oral Communications	2	2	0
DM2200	Document Production III	6	4	6
OF2100	Office Management III	3	3	1
RP1100	Introduction to Records Management	4	4	0
RP1200	Archives Principles	2	2	0
RP1300	Active and Semi-active Records	2	2	0
Elective	(minimum 2 credits)	2	2	0
Semester 5		**Cr**	**Le**	**La**
DM2240	Document Production IV	5	3	5
KB1151	Keyboarding II	1	1	1
PS2340	Organizational Behaviour	4	0	
RP1101	Management and Control of Records	4	4	0
RP1400	Information Security and Procedures	2	2	0
RP2200	Classification Systems	2	2	1
OF2700	Capstone Project	2	2	0
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1930	Work Exposure-RIM	C/I		6 wks

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
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation
2. Comprehensive Arts and Science Certificate (College Transition program)
3. Adult Basic Education
Adult Basic Education (Level III) Graduation with General College Profile (or Business-Related College Profile or Degree and Technical Profile)
4. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Accreditation
Office Administration (Records and Information Management) is accredited by the Accreditation Council for Business Schools and Programs (ACBSP). ACBSP is the leading specialized accreditation association for business education supporting, celebrating, and rewarding teaching excellence.

INFORMATION TECHNOLOGY

Computer Systems and Networking

DIPLOMA
- **Two Years**
- **September**
- **Corner Brook, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
MC1805	Software Applications	4	3	2
MA1520	Applied Mathematics for Computer Systems and Networking	3	3	1
CP1920	Computer Hardware and Troubleshooting I	4	3	2
CR1105	Network Fundamentals	4	3	3
CP3120	Command Line	3	2	2
SD1470	College, Career and Portfolio - Preparation Non Co-op	2	2	0
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
CP1360	Programming for Computer Systems Networking	4	3	2
CP1922	Computer Hardware and Troubleshooting II	4	3	3
CP1330	Windows Server Administration	4	3	3
CR1510	Web Site Development	3	2	3
CR1260	Client Service for the Computer Industry	2	2	1
Semester 3 (Intersession)		**Cr**	**Le**	**La**
CR2510	Linux Server Administration I	3	2	3
CP1280	Windows Client	3	2	3
EP1130	Business for Information Systems	3	3	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		**Cr**	**Le**	**La**
CM2200	Oral Communications	2	2	0
CP1331	Advanced Windows Enterprise Server	3	2	3
CR2230	Microsoft Exchange Server	4	3	3
CP2730	Project Management and Analysis	3	2	2
CR2401	Internetworking - Routing &			

	Switching Essentials	4	3	3
CR2511	Linux Server Administration II	3	2	3

Semester 5		**Cr**	**Le**	**La**
CR2901	Scaling Networks and VoIP	4	3	3
CR2950	Emerging Trends in IT Infrastructure	3	2	2
CR2240	Information Systems Security	4	3	2
CR2130	Enterprise Management using SMS	4	3	2
CR2970	Capstone Project	4	3	2
SD2410	Personal, Professional and Portfolio Development	2	2	1

Semester 6		**Cr**	**Le**	**La**
WT1185	Work Term	5	15 wks	

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
2. the skills required to interpret and effectively apply industry procedures and policies in the workplace
3. the social, interpersonal and communication skills necessary to be a productive member of a team
4. the self-awareness and reflective skills required to create, evaluate and modify personal growth and career plans

The College of the North Atlantic is a Cisco Networking Academy. Students have the opportunity to complete courses in the Academy program which provide a strong foundation in computer networking knowledge and skills utilizing the equipment of the industry's leading provider. As well, the College of the North Atlantic is the only accredited Cisco Academy Instructor Training Center in Atlantic Canada.

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
Network Specialist
Computer Support Technician
LAN Team Member
I.T. Support Technician
Help Desk Technician
Server Support Analyst/Technician
Help Desk Analyst
Technology Support Analyst

Entrance Requirements

Eligibility for admission to Computer Systems and Networking program requires the applicant to meet one of the following four academic criteria:

1. High School

Provincial High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or English 3202 (60% minimum)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. 5 credits from 3000 Level

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math Fundamentals: MA1040, MA1041

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 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.

4. Mature Student Status

Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

INFORMATION TECHNOLOGY

Health Informatics (Post Diploma)

POST DIPLOMA

- **Part-time Delivery**
- **One Year**
- **September**
- **Distributed Campus**

COURSES

CODE	*TITLE*			*Hrs/wk*
Semester 1		**Cr**	**Le**	**La**
HB1100	Introduction to Health Informatics	2	2	0
HB1130	Health Delivery Systems I	3	2	2
HB1170	Medical Process Terminology	3	3	1
HB1200	Health Information Networking	3	3	0
HB1240	Data Management	5	4	2
CM1370	IM Communications	4	4	0
HB1300	Research and Data in Health Care	4	3	2

Semester 2		**Cr**	**Le**	**La**
HB1131	Health Delivery Systems II	3	2	2
HB1400	Public Health, Population Health and Epidemiology	3	3	0
HB2100	Management Health Information Systems	4	3	2
HB2200	HIS Systems Analysis	4	3	2
PR2330	Project Management for HIS	3	2	2
HB1350	Data Quality and Risk Management	3	3	0
HB2160	Records Management for HI Professionals	3	2	2

Semester 3 (Intersession)		**Cr**	**Le**	**La**
HB2220	Leadership for HI Professionals	3	3	1
HB2260	Health Informatics Capstone	4	0	7

The Course and Lab hours are based on a 15-week semester. In intersession the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to the course outline.

Health Informatics draws from the fields of health care, information technology and information management to assist in the creation, modification or adoption of computer systems in healthcare. This process involves knowledge of the health system, healthcare processes, information systems and stakeholders needs.

The Health Informatics (HI) program is designed to provide the student with the knowledge and skills necessary to enter a variety of positions in the growing Health Informatics/eHealth sector and for career growth in this exciting field.

The program provides for the integration of case studies and simulations into the learning process so that the student gains knowledge and skills in:

- Management and analysis of health delivery and information systems
  - Medical process terminology
  - Network and data fundamentals
  - Business processes: leadership, risk management, project management and communication
  - Research, data and public health concepts

The student will use his/her knowledge and skills in the completion of a capstone project, wherein he/she will complete an in-depth analysis of a business case that deals with a Health Informatics issue in an organization. An understanding of how all of the components of Healthcare fit together; the importance of quality data and the importance of information privacy and security are threads that run throughout the courses of the program.

Note: A working knowledge of productivity software (Word and Excel) will be assumed. A student without these skills is advised to improve her/his skills prior to entering the program.

Objectives
The objective of the Health Informatics program is to develop a graduate with the ability to:

1. Use his/her knowledge and skills to work as an Health Informatics professional
2. Write and evaluate policies and procedures related to Health Informatics
3. Think critically about the use and interpretation of data
4. Analyze the management of health information systems
5. Comprehend and communicate to others the importance of risk management principles
6. Communicate effectively with both health and IT professionals
7. Discuss and apply procedures to assure the privacy and security of individual health information

Employment Opportunities
Depending upon the background of the graduate prior to entering the program, graduates of the program will have the knowledge and skills to fill roles such as: Clinical Informatics Specialist, Business Analyst, Privacy Specialist, Privacy and Data Access Lead on teams involved in the development of Information Technology based Health Care solutions.

Entrance Requirements
Degree OR Diploma (minimum 2 years) with a specialization in Health Sciences or Information Technology.

INFORMATION TECHNOLOGY
INFORMATION MANAGEMENT (POST DIPLOMA)

POST DIPLOMA
• One Year
• September
• Distributed Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
OP1400	Records and Information Management I	4	3	2
EP2130	Business Principles and Practices	4	3	2
CR1280	IM Computer Concepts	2	2	1
CM1370	IM Communications	4	4	0
CP1560	Data Management	5	4	2
PR2700	Project Management	4	3	2
Semester 2		**Cr**	**Le**	**La**
OP1401	Records and Information Management II	4	3	2
CP3470	IM Systems Analysis and Design	6	5	3
OP1600	Electronic Records Management	4	3	2
OP1320	Classification	4	3	2
CR1360	IM Security	4	3	2
Semester 3		**Cr**	**Le**	**La**
CR3540	Capstone Project	4	0	6
LW1280	Information Management Law	3	3	0

The Information Management professional organizes and manages all activities involved in the information life cycle. This is an on-line program designed to provide the student with the knowledge, skills and attitudes needed to function in this role.

The program is designed so that the student gains knowledge and skills in:
- the theory of records and Information Management (IM)
- the operation of IT infrastructure and its relation to IM
- information security and its relation to IM
- the legal environment that impacts IM
- project management
- analysis and design
- educational workshop design and delivery

The student will complete a capstone project where she/he will apply her/his knowledge and skills to analyze and design a solution to an IM problem. Effective communication and interpersonal skills are emphasized throughout the curricula.

Objectives
The objective of the Information Management program is to develop graduates with the ability to:
1. organize and manage all activities involved in the record life cycle
2. efficiently gather and analyze data required to inform the information management processes of an organization
3. conduct themselves professionally in a business environment
4. participate as a member of a team involved in information management policy development and implementation
5. advocate the importance of and advise on Information Management policies and procedures throughout the organization through education, training and consultation
6. utilize and integrate technology to manage enterprise records and content at an advanced level conforming to the Information Management policies

Academic Advising
Each student will be assigned an academic advisor to help guide you through the college experience. He or she is trained to advise you on college-related issues or to make mutually agreed upon referrals for you to other college professionals.

Students intending to complete the program on a part-time basis (less than four courses per semester) will be contacted by her/his advisor to create an academic plan that will enable them to complete the program. A part-time student must complete the program within five years from the date of program enrolment.

Employment Opportunities
Graduates of the Information Management program can expect to find employment as Information Management Analysts, Records Analysts, and Records Management Consultants in industries such as oil & gas, healthcare and in government agencies.

Due to the nature of this field, employers may require a clear Certificate of Conduct from the Royal Newfoundland Constabulary (RNC), the Royal Canadian Mounted Police (RCMP) or local provincial/municipal police force prior to hiring.

Entrance Requirements
Graduation from a recognized two or three year post-secondary diploma or degree, or a combination of other postsecondary work and industry experience acceptable to the College.

INFORMATION TECHNOLOGY
PROGRAMMER ANALYST (BUSINESS) CO-OP

DIPLOMA
• Three Years
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
CP1120	Fundamentals of Programming I	6	5	3
CP1190	HTML5/CSS3	3	2	2
MC1805	Software Applications	4	3	2
MA1900	Problem Solving for Information Technology	4	4	1
PD1100	College and Career Preparation	3	3	0
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
CP2130	Fundamentals of Programming II	4	3	3
CP2481	Database Programming	4	3	3
CP1880	Computer Systems Architecture	4	4	1
CP1200	Security for Programmers	2	2	0
CP1210	JavaScript	4	3	2
Semester 3		**Cr**	**Le**	**La**
WC1150	Work Term I	5	0	0
Semester 4		**Cr**	**Le**	**La**
AC1300	Accounting	4	3	2
CM2300	Reporting Writing	2	2	0
CP2280	Object-Oriented Programming in Java	4	3	3
CP3410	Fundamentals of Database Design	4	3	2
CP3421	Fundamentals of Systems Analysis and Design	4	3	2
PD2130	Personal and Professional Development	2	2	0
CP1290	Advanced JavaScript	1	1	2
Semester 5		**Cr**	**Le**	**La**
WC2150	Work Term II	5	0	0
Semester 6		**Cr**	**Le**	**La**
CM2200	Oral Communications	2	2	0
CP2560	Advanced J2SE Programming	4	3	3
CP1950	Object-Oriented Development with UML	4	3	3
CP1300	Workstation Administration	4	3	4
CP4411	SQL Using Oracle	4	3	3
Semester 7		**Cr**	**Le**	**La**
WC3150	Work Term III	5	0	0
Semester 8		**Cr**	**Le**	**La**
PR2460	Comprehensive Project	5	0	8
EP2400	Business Solutions	4	4	0
CP4471	Emerging Trends in Software	3	2	2
CP3561	Java Database and Web Component Development	4	3	3
PD2140	Work Term Seminar	P/F	1	0
Elective (minimum of three credits)		3	3	0

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 and current programming techniques. Emphasis is on database design

and programming, the traditional and object-oriented system development life cycles, and web application development. As well, learning strategies, ethics, industry and work place best practices, team building, communications and interpersonal skills are developed throughout the program via coursework and participation on project teams.

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.

Note: Mathematical, problem solving and logic skills are essential for program and career success. These skills are used and developed throughout the program.

Objectives
The aim of the Programmer Analyst (Business) Co-op program is to graduate a student with:

1. the theoretical knowledge and practical programming skills enabling her/him to function as an entry-level programmer in an object-oriented, database-oriented business programming environment
2. the skills required to interpret and effectively apply industry procedures and policies in the workplace
3. the social, interpersonal and communication skills necessary to be a productive member of a team
4. the self-awareness and reflective skills to create, evaluate and modify personal growth, learning plans and career plans

Accreditation
The Programmer Analyst (Business) Co-op program has been accredited by the Canadian Information Processing Society (CIPS) until 2013. The Co-op delivery method of the program has been accredited by the Canadian Association for Co-operative Education (CAFCE) until 2015.

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 job titles may include junior programmer analyst, junior developer, programmer, database programmer and web developer.

Entrance Requirements
Eligibility for admission to Programmer Analyst (Business) Co-op program requires the applicant to meet one of the following four academic criteria:

1. High School
Provincial High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or English 3202 (60% minimum)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)

2. **Comprehensive Arts and Science (CAS) Transition**
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math Fundamentals: MA1040, MA1041

3. **Adult Basic Education (ABE)**
Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 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.

4. **Mature Student Status**
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

INFORMATION TECHNOLOGY
SOFTWARE DEVELOPMENT

DIPLOMA
- **2 Years**
- **September**
- **Corner Brook Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
EP1130	Business for Information Systems	3	3	0
CP1850	Procedural Programming	6	5	3
MA1900	Problem Solving for Information Technology	4	4	1
CP1880	Computer Systems Architecture	4	4	1
CR1120	Introduction to the Field of IT and Ethics	1	1	0
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
CP3410	Fundamentals of Database Design	4	3	2
CP1930	Introduction to Systems Analysis and Design	5	4	2
CP1890	Object-Oriented Programming	4	3	3
CP1330	Windows Server Administration	4	3	3
Semester 3		**Cr**	**Le**	**La**
CR1510	Website Development	3	2	3
CP2280	Object-Oriented Programming in Java	4	3	3
Semester 4		**Cr**	**Le**	**La**
EP2400	Business Solutions	4	4	0
CP2560	Advanced J2SE Programming	4	3	3
CP2840	Programming with ADO.NET	4	3	3
CP3160	Multimedia Development	3	2	3
CP1950	Object-Oriented Development with UML	4	3	3
Semester 5		**Cr**	**Le**	**La**
CP4200	Rich Internet Application Development	3	2	3
CP4260	SQL Programming	4	3	3
CP3370	Software Development with ASP.NET	3	2	3
CP4280	Programming for Mobile Devices	3	2	3
CR2800	Security for Programmers	3	3	0
CM2200	Oral Communication Skills	2	2	0
Semester 6		**Cr**	**Le**	**La**
WT1190	Work Term	5	15 wks	

The Software Development two-year program focuses on the competencies required to design, implement and maintain software systems that operate in a secure networked environment containing stationary and mobile devices. The program combines theoretical and practical learning experiences in a team-oriented setting.

The program includes course work, team projects, and a 15-week work term. The program focuses on computer programming, database design and development, systems analysis, 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 Software Development.

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.

Objectives
The aim of the Software Development program is to graduate a student with:
1. the knowledge of the fundamental computing skills necessary to work effectively and efficiently in the Information Technology industry
2. the problem solving and programming skills in desktop, enterprise, and Internet environments
3. the ability to analyze, write, and maintain secure, customized computer applications based on user requirements
4. effective communication skills, a capacity for leadership, teamwork, quality assurance and co-operation in problem solving
5. the skills required to design and develop database applications

EMPLOYMENT OPPORTUNITIES
Software Development 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:
- Software Developer
- Web Developer
- Computer Programmer
- Database Developer

Entrance Requirements
Eligibility for admission to Software Development program requires the applicant to meet one of the following four academic criteria:

1. **High School**
Provincial High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or English 3202(60% minimum)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. 5 credits from 3000 Level

2. **Comprehensive Arts and Science (CAS) Transition**
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math Fundamentals: MA1040, MA1041

3. **Adult Basic Education (ABE)**
Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 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.

4. **Mature Student Status**
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

INFORMATION TECHNOLOGY
WEB DEVELOPMENT

DIPLOMA
• Two Years
• September
• Distributed Campus

COURSES

CODE	TITLE	Hrs/Wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Reporting Writing I	3	3	0
CP1120	Fundamentals of Programming I	6	5	3
CR1510	Website Development	3	2	3
CP1570	Networking for Programmers	2	2	0
MA1900	Problem Solving for Information Technology	4	4	1
CR1120	Introduction to the Field of IT and Ethics	1	1	0
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
CP3510	Database Design	3	2	2
CP2130	Fundamentals of Programming II	4	3	3
CR2510	Linux Server Administration I	3	2	3
EP1130	Business for Information Systems	3	3	0
CP3160	Multimedia Development	3	2	3
Semester 3		**Cr**	**Le**	**La**
CP2280	Object-Oriented Programming in Java	4	3	3
PR1100	Website Project I	2	0	5

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4		**Cr**	**Le**	**La**
CR1260	Client Service for Computer Industry	2	2	1
CP3370	Software Development with ASP.NET	3	2	3
CP1330	Windows Server Administration	4	3	3
CR2800	Security for Programmers	3	3	0
CP1410	Web Analysis and Design	4	3	2
CP2420	PHP	3	2	3
Semester 5		**Cr**	**Le**	**La**
EP2400	Business Solutions	4	4	0
CP3100	MVC Framework Development	4	3	2
CP2470	Web Server	3	2	3
CP3130	Content Management Systems	3	2	3
CR2170	Trends in Web Development	3	2	2
CP3150	Interface Design and Analytics	3	2	2
Semester 6		**Cr**	**Le**	**La**
PR1101	Website Project II	5	3	7

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length.

Web Development is a two-year program offered online through Distributed Learning. It provides the student with the skills needed to design, create and maintain database-driven web applications. Students will receive hands-on training in:

- Computer programming and secure coding
- Web site design and development for both large and small screens
- Multimedia development
- Database design and development
- Web server administration
- Web analytics
- Social media integration
- The latest trends in web development

Fundamental skills such as: technical communications, business solutions, and personal and career development round out the program. This diversity provides opportunities for the student to acquire the skills, professionalism and adaptability required to succeed in the dynamic and challenging field of Web Development.

Two major web site project courses will enable the student to demonstrate the application of knowledge and skills developed throughout the program by performing an in-depth analysis of a client's needs; designing a website that meets the client's needs; creating web pages, graphics and coding to support the design; implementing software to support the website; documenting the solution; and presenting the solution to team members and the client.

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. Students will graduate with a personal portfolio, including websites and multimedia they have designed.

Objectives
The aim of the Web Development program is to graduate a student with the ability to:
1. use the fundamental computing skills necessary to work effectively and efficiently in the Information Technology industry
2. demonstrate problem solving, design and programming skills to create interactive, secure, database-driven web sites based on user requirements
3. demonstrate effective communication skills, a capacity for leadership, teamwork, quality assurance and co-operation
4. design and create content-driven web sites

Employment Opportunities
Web Development graduates may find employment in both the private and public sectors in small, medium and large businesses. Graduates of the program will be able to fill roles in industry such as:

- Web Designer
- Web Developer
- Website Administrator/Developer

Entrance Requirements
Eligibility for admission to the Web Development program requires the applicant to meet one of the following four academic criteria:

1. **High School**
Provincial High School Graduation Certificate with 60% overall average in the following (or equivalent):
i. English 3201 or English 3202(60% minimum)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. 5 credits from 3000 Level

2. **Comprehensive Arts and Science (CAS) Transition**
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math Fundamentals: MA1040, MA1041

3. **Adult Basic Education (ABE)**
Adult Basic Education (Level III) Graduation with Business-Related College Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 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 outline above have been completed.

4. **Mature Student Status**
Applicants who do not meet the educational prerequisites for this program, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

SCHOOL OF ENGINEERING TECHNOLOGY AND NATURAL RESOURCES

ENGINEERING TECHNOLOGY

Architectural Engineering Technology

DIPLOMA
- **Three Years**
- **September**
- **Ridge Road Campus**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
CF2610	Building Materials I	2	2	1
DR1400	Wood Frame Construction1	1	0	
DR2150	Architectural Drawings	2	1	3
EG1240	Architectural Graphics I	2	1	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
BU2250	Electrical Systems	3	2	3
BU2300	Building Codes I	2	2	0
BU2410	Building Science I	3	3	0
CM2800	Oral/Written Communication Skills	3	3	0
DR3110	Working Drawings I	6	4	6
EG1241	Architectural Graphics II	3	2	4

Semester 5 (Winter)		Cr	Le	La
BU2301	Building Codes II	2	2	0
BU2411	Building Science II	3	3	0
CF2611	Building Materials II	3	3	1
DR3111	Working Drawings II	6	4	6
EG2240	Architectural Graphics III	2	1	3
MA2100	Mathematics	5	5	0

Semester 6 (Intersession)		Cr	Le	La
BU2260	Plumbing Systems	2	2	1
CG1700	Environmental Design	2	2	0
SD2100	Service Learning	1	1	0
CG1800	Building Site Development	4	3	4

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7 (Fall)		Cr	Le	La
BU2270	HVAC	5	4	3
CF3610	Building Materials III	3	3	0
CG3230	Procurement & Contract Administration	5	5	0
DR4110	Working Drawings III	4	2	6
MA1530	Statistics	2	2	1
PR2750	Capstone Project I (Seminar)	P/F	1	0

Semester 8 (Winter)		Cr	Le	La
BU3300	Building Specifications	3	3	1
CF3440	Structural Design	4	3	2
CG3320	Estimating for Buildings	4	3	3
DR4111	Working Drawings IV	4	2	6
LW1610	Management & Construction Law	2	2	0
PR2751	Capstone Project II	4	3	0

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 Architectural Engineering Technology Program has been developed in response to provincial needs with input from professionals associated with the design and construction of buildings. Projects and assignments are designed to be as close as possible to the type of work graduates will encounter when entering the workforce.

Every effort is made to expose the learner 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 learners to carry out their projects and assignments.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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
As an architectural engineering technologist, the graduate will have the knowledge and skill that will allow him/her to:

1. Prepare complete sets of architectural drawings and related documentation for residential and commercial construction/renovation projects.
2. Have a complete understanding of the basic architectural principles in building design and detailing.
3. Apply the principles of building science and construction engineering to analyze and solve technical problems for construction projects.
4. Understand the relationship between architectural, structural, mechanical, electrical, and environmental building systems.
5. Apply the principles of project management to planning, scheduling, and monitoring of project development.
6. Communicate effectively with clients, contractors, other building professionals and municipal authorities during the design and construction of the building project.
7. Apply knowledge of applicable codes, zoning bylaws, and regulations to the building project.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrical and Magnetic Theory, Engineering Graphics, Engineering Technology Awareness.

Specific education in various aspects (theory and principles) of the Architectural Engineering Technologist profession including building services, site supervision, project management and construction management.

Practical education in various aspects of working drawings, architectural utility systems, and architectural graphics layouts.

Career 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 progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
Biology: 3201
Physics: 3204
Chemistry: 3202
Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Chemical Process Engineering Technology (Co-op)

DIPLOMA
• Three Years
• September
• Ridge Road Campus

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
SE1500	Introduction to Occupational Health and Safety	2	2	0
PO1200	Introduction to Industrial Processes	2	1	2
MH1200	Mechanical Systems I	2	2	1
MH1210	Mechanical Systems II	2	2	1
CI2820	Process Control I (Basic Control Systems and Technology)	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
CM2800	Oral/Written Communication Skills	3	3	0
FM2100	Fluid Mechanics	3	3	1
CL1100	Chemical Engineering Calculations	5	5	1
CL1500	Chemical Reactors and Mixing	4	3	3
MH2330	Power Plant Components	5	4	2
CI2821	Process Control II (Level and Flow Measurement and Control)	4	3	2

Semester 5 (Winter)		Cr	Le	La
MA2100	Mathematics	5	5	0
TD3111	Thermodynamics	3	3	1
CH2450	Industrial Chemistry I	4	3	3
PO2300	Introduction to Separation Processes	3	2	3
MH2820	Power Plant Systems	4	4	1
CI3811	Process Control III (Pressure and Temperature Control)	3	2	2

Semester 6 (Spring)		Cr	Le	La
SE2150	Safety Certifications	P/F	0	0
SD2220	Introduction to the Workplace	1	1	0
SE2500	Occupational Health & Safety Program Elements	2	2	0
PR3150	Project Management and Financial Analysis	4	4	0
CI3812	Process Control IV (Advanced Process Control Strategies)	3	2	2

Learners in Chemical Process Engineering Technology (Co-op) complete SE2150, SD2220, SE2500, PR3150 and CI3812 (6 weeks) prior to beginning their Work Term.

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

WC1830	Work Term I (Minimum 11 weeks)	5	0	0

Semester 7 (Fall)		Cr	Le	La
PR2640	Technological Thesis I	P/F	1	0
MH4301	Power Plant Design Calculations	4	4	1
CH3450	Industrial Chemistry II	4	3	3
PO3100	Oil and Gas Processing I	4	3	3
MH4401	Refrigeration Systems	4	3	2
MH4510	Prime Movers	4	3	2
CI3200	Statistical Process Control	3	3	0

Semester 8 (Winter)		Cr	Le	La
WC1831	Work Term II	5	0	0

Semester 9 (Spring)		Cr	Le	La
PR2641	Technological Thesis II	5	5	0
EN3400	Environment Management and Protection	3	3	0
CF3200	Materials and Corrosion	3	3	1
SE3300	Process Safety/Risk Management	5	4	2
PO3101	Oil and Gas Processing II	4	3	2
CI3821	Process Analyzers	4	3	3

This program is currently under review and is subject to change.

Chemical Process 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 both the knowledge and practical skills necessary to begin their career as competent process operators and chemical engineering technologists.

The program covers safe practices, process operations, chemical engineering principles and regulatory processes, process stream analysis, instrumentation and process control. Learners will also acquire valuable work experience through the completion of two co-op work terms.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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).

Objectives
As a chemical process engineering technologist, the graduate will have the knowledge and skills that will allow him/her to:

1. Assist in safe and efficient design, operation, troubleshooting, and maintenance of chemical process equipment.
2. Monitor and optimize petroleum, petrochemical, water and wastewater treatment processes.
3. Establish and maintain a safe work environment by following and enforcing safety standards and procedures and adhering to established standards, practices, and procedures.
4. Work with other technologists, engineers and skilled trades persons to develop innovative solutions to problems in chemical process industries.
5. Work and communicate as members of a team with other professionals, as well as supervise the work of skilled professionals and trades persons in a variety of chemical processes and procedures.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrical and Magnetic Theory, Engineering Graphics, Engineering Technology Awareness.

Specific education in various aspects (theory and principles) of the chemical process control discipline including industrial chemistry, fluid mechanics, and power plant systems.

Practical education in various aspects of chemical process applications including process controls, chemical reactors, and separation processes.

Work exposure consisting of field experience, gained from compensated work terms, in the field of chemical processes.

Career Opportunities
Graduates of the Chemical Process Engineering Technology program can expect to find employment as process operators and technologists in areas such as oil & gas extraction and refining, offshore petroleum production installations, petrochemical industries, primary metal manufacturing, thermal power plants and water and waste treatment facilities

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note: Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering

Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Civil Engineering Technology (Co-op)

DIPLOMA

- **Three Years**
- **September**
- **Corner Brook, and Ridge Road Campuses**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
CB2420	Construction Methods	4	4	0
DR1220	Engineering Drawing	2	1	4
SU1200	Plane Surveying	3	1	5

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

SAFETY CERTIFICATIONS
Learners in Civil Engineering Technology (Co-op) will be required to complete the following certificate courses during the second year of the studies: Standard First Aid/Heart Start and WHMIS.

Semester 4 (Fall)		Cr	Le	La
BU2120	Building Codes & Services	4	4	0
CF2530	Strength of Materials I	4	3	2
CF2710	Materials & Testing I	4	3	2
CM2800	Oral/Written Communication Skills	3	3	0
MA2100	Mathematics	5	5	0
SU1210	Construction Surveying	4	3	3

Semester 5 (Winter)		Cr	Le	La
CA2500	Highway Technology	4	3	2
CF2531	Strength of Materials II	4	3	2
CF2711	Materials & Testing II	4	3	2
DR1240	CADD Drawings	2	1	4
MA1530	Statistics	2	2	1
WA1160	Fluid Mechanics	4	4	0
WA1230	Hydrology	2	2	0

Semester 6 (Spring)		Cr	Le	La
FT1340	Civil Engineering Technology Camp (Two week block delivery)	2	0	5

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

WC1460	Work Term (12 weeks minimum)	5	0	0

Semester 7 (Fall)		Cr	Le	La
CA2110	Structures I	4	3	2
CA2320	Urban Development I	4	3	2
CA2810	Soils & Foundations I	4	3	2
CG2330	Planning & Estimating I	4	3	2
EN3110	Environmental Engineering	4	4	0
LW1600	Construction Law	3	3	0
PR2250	Capstone Project I (Seminar)	P/F	1	0

Semester 8 (Winter)		Cr	Le	La
CA2111	Structures II	4	3	2
CA2321	Urban Development II	4	3	2
CA2811	Soils & Foundations II	4	4	0
CG2331	Planning & Estimating II	4	3	2
EC1750	Construction Economics	3	3	0
HR2230	Human Relations	3	3	0
PR2251	Capstone Project II	4	3	0

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, 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 (Co-op) graduates.

The Civil Engineering Technology (Co-op) program will enable graduates 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 for, and have the skills to contribute to, the cost effective and efficient planning of construction projects from concept to completion.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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. Analyze the structural reactions of engineering work.
2. Participate in the scheduling of civil engineering projects and monitor the work.
3. Assist in planning, designing, inspecting, supervising, and constructing civil engineering projects.
4. Plan and design municipal infrastructure projects.
5. Assist with designing, inspecting and troubleshooting of transportation infrastructure.
6. Design, calculate and test asphalt and concrete mixes to industry standards and specifications.
7. Carry out engineering survey and construction layouts using conventional survey instruments, GIS, and GPS systems.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrical and Magnetic Theory, Engineering Graphics, Engineering Technology Awareness.

Specific education in various aspects (theory and principles) of the civil discipline including strength of materials, structures, fluid mechanics, soils & foundations, building codes & services and planning & estimating.

Practical education in various aspects of the civil discipline including CADD drawings, material testing, highway technology, and construction surveying.

Work exposure consisting of field experience, gained from a compensated work term, in the field of civil engineering technology.

Career Opportunities
The learner, 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 offshore and on-shore structures and facilities, testing and inspection of structural components, estimation, sales, construction surveying, and project management.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note:
Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)

iii. Science (4 credits) two of which must be selected from:
Biology: 3201
Physics: 3204
Chemistry: 3202
Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Computing Systems Engineering Technology (Co-op)

DIPLOMA
• Three Years
• September
• Ridge Road Campus

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
CI1110	Signals & Measurements	3	2	2
CP1270	Programming Fundamentals	3	2	2
CP2650	Hardware Fundamentals	4	3	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
AE2330	Analog Electronics I	6	5	3
CP1340	Object Oriented Programming	4	3	2
DP1110	Digital Systems I (Logic)	4	3	2
MA2100	Mathematics	5	5	0
MP2140	Circuit Analysis I	4	3	2

Semester 5 (Winter)		Cr	Le	La
CM2800	Oral /Written Communication Skills	3	3	0
CE1210	Basic Communications Networks I	4	3	3
CP2530	Data Structures & Algorithms	4	3	3
DP2110	Digital Systems II (Interfacing)	5	4	3
CT2530	POSIX Operating Systems		3	3
1				
MA1530	Statistics	2	2	1

Semester 6 (Spring)		Cr	Le	La
CE3430	Network Cabling	4	3	3

Learners in Computing Systems Engineering Technology (Co-op) complete CE3430 (3 weeks) prior to beginning their Work Term.

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

WC1700	Work Term I (12 weeks minimum)	5	0	0

Semester 7 (Fall)		Cr	Le	La
AE3130	Active Circuit Applications	4	3	2
CE3371	Switching & Routing	4	3	2
CP3490	Software Engineering	3	2	3
CP3520	Databases	4	3	3
PR3150	Project Management and Financial	Analysis	4	4
0				
PR2760	Capstone Project I (Seminar)	P/F	1	0

Semester 8 (Winter)		Cr	Le	La
WC1701	Work Term II	5	0	0

Semester 9 (Spring)		Cr	Le	La
CE3381	Advanced Routing & Switching	4	3	2
CP3620	Web Programming	4	3	3
CP3800	Mobile Application Development	4	3	3
CP3830	Computer Graphics	3	2	2
DP3200	Embedded Controller Applications	4	3	2
PR2761	Capstone Project II	4	3	0

The Computing Systems Engineering Technology (Co–op) program prepares learners for the field of scientific and engineering computing. A combination of programming theory and practice, networking, and electronics ensures the graduate will be prepared to work in the emerging fields of cloud computing and mobile device application development such as smart phones and tablets. Graduates will obtain theoretical foundations as well as practical hands on experience with analog electronics, digital systems, including logic, microprocessor interfacing, and embedded microcontrollers and applications. Learners will work with mobile devices, robotic systems, and wireless control. Specialized skills in the software stream include, but will not be limited to, object-oriented programming, databases, networking, and modern web technologies. Graduates of this three year program receive the Diploma of Computing Systems Engineering Technology (Co–op).

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

Graduates enrolled in this program will also complete courses in the Cisco Networking Academy program which will place them on the path to Cisco certification at the CCNA level.

Note: This program may not be suitable for applicants who do not have normal colour perception.

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 CAFCE (Canadian Association for Cooperative Education) accredited.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Objectives
As engineering technologists, graduates of this program will have the knowledge and skills that will allow them to:

1. Analyze, build, implement, and maintain computing systems and applications.
2. Design, develop, and implement relational database management systems.
3. Develop applications using object-oriented programming methods and practices.
4. Design and develop applications for mobile devices such as smart phones and tablets.
5. Prepare a quality assurance plan for testing and evaluation of software.
6. Design and implement computing systems suitable for cloud computing applications.
7. Specify, select, design, build, and troubleshoot micro-processor or micro-controller based systems.

Curriculum
General Education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Learner Success.

Specific education in various aspects (theory and principles) of the computing engineering discipline including database design, Internet application development, embedded system development, graphical programming, and mobile application development, in addition to digital logic systems, microcontrollers, and IP networking.

Practical education in various aspects of the theory and principles of computing and programming.

Work exposure Laboratory and field experience, gained from compensated work terms, in the application embedded electronics and computing systems.

Career Opportunities
The graduate from the program will be a technologist who specializes in integrating computing technology into consumer and industrial products, who finds employment with hi-tech companies utilizing computers in new and innovative ways.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note: Learners will also be required to complete a number of non-credit co-op education seminars throughout the 3-year program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
Biology: 3201
Physics: 3204
Chemistry: 3202
Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Electrical Engineering Technology (Power & Controls) Co-op

DIPLOMA
- **Three Years**
- **September**
- **Ridge Road Campus**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
ET2100	Electrotechnology	3	2	2
AE1240	Electronic Devices	5	4	2
CI1310	Electrical/Electronic Fabrication Techniques	3	2	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
DR2320	Engineering Graphics for Electrical	2	1	2
MA2100	Mathematics	5	5	0
MP2300	AC Circuits	4	3	3
MP2910	DC Machines	4	3	3
DP1310	Introduction to Programmable Logic Controllers	4	3	3
PE2500	Electrical Practices	2	1	3

Semester 5 (Winter)		Cr	Le	La
MA1670	Statistics	4	4	1
CM2800	Oral/Written Communication Skills	3	3	0
DP2540	Advanced Programmable Logic Controllers	4	3	3
MP2350	Transformers	4	3	3
MP2920	AC Machines	4	3	3
PE2501	Electrical Practices	2	1	3

Semester 6 (Spring)		Cr	Le	La
MP2230	Power System Harmonics	2	2	1
AE2260	Electronic Power Devices and Circuits	5	4	2
MP1700	Control Engineering	2	2	1
PE3100	Electrical Practices	3	2	3

Learners in Electrical Engineering Technology (Power & Controls) Co-op complete MP2230, AE2260, MP1700, PE3100 (6 weeks) prior to beginning their Work Term.

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

WC1200	Work Term I (minimum 11 weeks)	5	0	0

Semester 7 (Fall)		Cr	Le	La
PR2560	Technical Thesis I	P/F	1	0
MP3250	Emergency Standby Systems and Alternate Energy Sources	3	3	0
MP3215	Power Systems: Analysis	4	3	3
MP3110	Motor Control Systems	4	3	3
CI1210	Instrumentation Controls & Automation	3	2	2
PE3101	Electrical Practices (Facility Design)	4	3	2
PR3150	Project Management and Financial Analysis	4	4	0

Semester 8 (Winter)		Cr	Le	La
WC1201	Work Term II	5	0	0

Semester 9 (Spring)		Cr	Le	La
PR2561	Technical Thesis II	5	5	0
MP3225	Power Systems: Analysis & Operation	4	3	3
MP3150	Power Devices & Motor Drives	4	3	3
CI3600	Industrial Process Control	4	3	3
PE4110	Electrical Practices (Facility Design)	4	3	3

SAFETY CERTIFICATIONS
In addition to the formal semester courses listed in the program of studies, learners in the Electrical Engineering Technology (Power & Controls) Co-op program are required to obtain a certificate of completion of Standard First Aid/ Heart Start over their three-year period of studies.

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 learners to gain invaluable experience with installation, operation and maintenance practices. This is further supplemented with real-world experience provided by two work terms.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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 an electrical engineering technologist, the graduate will have the knowledge and skill that will allow him/her to:
1. Evaluate, design and specify facility electrical systems such as power, lighting, heating, control and protection.
2. Design and specify electrical generation, transmission and distribution systems.
3. Design, test, analyze and commission industrial electrical power control systems.
4. Coordinate, plan, direct and interface with other electrical industry professionals as part of a technical support team.
5. Analyze, configure and assist in the electrical design of control systems in commercial and industrial applications employing Programmable Logic Controllers (PLC).
6. Design and specify electrical systems found in electrical utilities and industrial plants.
7. Maintain and troubleshoot electrical equipment such as motors, generators, transformers, protection and control devices.
8. Employ the use of power electronic circuits in the electrical design of commercial and industrial systems utilized by the electrical power industry

Apply knowledge of current applicable codes, practices and safety standards.

Curriculum
General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry,

Electrotechnology, Engineering Graphics and Technology Awareness.

Specific education in various aspects of the electrical power discipline including power systems, analysis, control systems, equipment and techniques and building electrical design.

Practical education in various aspects of the electrical workshop including shop tools, electrical wiring, installation and maintenance of electrical equipment and correct application of the Canadian Electrical Code.

Work exposure consisting of field experience, gained from compensated work terms, in the field of electrical engineering technology.

Career 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 progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note:
Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY
ELECTRONIC SYSTEMS ENGINEERING TECHNOLOGY (CO-OP)

DIPLOMA
• Two Years
• September
• Corner Brook Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1 (Fall)		**Cr**	**Le**	**La**
PH1140	Applied Physics	4	3	2
ET1140	AC/DC Fundamentals	9	8	4
MA1101	Mathematics	5	5	0
CM1460	Writing for the Workplace	2	2	0
CI1321	Electrical/Electronic Fabrication Techniques	3	2	3
Semester 2 (Winter)		**Cr**	**Le**	**La**
AE2360	Analog Electronics I	6	5	2
DP1110	Digital Systems I (Logic)	4	3	2
CE1210	Basic Communications Networks I	4	3	3
CT2300	Applied Programming	4	3	2
CI1110	Signals & Measurements	3	2	2

Certifications
In addition to the formal semester courses listed in the program of studies, learners in the Electronic Systems Engineering Technology (Co-op) program are required to obtain a certificate of completion of Standard First Aid/Heart Start and WHMIS prior to the work term in semester 3.

Semester 3 (Spring)		**Cr**	**Le**	**La**
CE3430	Network Cabling	4	3	3

Learners in Electronic Systems Engineering Technology (Co-op) complete CE3430 (3 weeks) prior to beginning their Work Term.

WC1310	Co-op Work Term	5	0	0
Semester 4 (Fall)		**Cr**	**Le**	**La**
EG2120	Applied Engineering Drafting	2	1	2
MA2100	Mathematics	5	5	0
CM2800	Oral/Written Communication Skills	3	3	0
AE2365	Analog Electronics II	5	4	2
DP2110	Digital Systems II (Interfacing)	5	4	3
CE2730	RF Transmission & Antennas	4	3	2
Semester 5 (Winter)		**Cr**	**Le**	**La**
MA1530	Statistics	2	2	1
PR3150	Project Management and Financial Analysis	4	4	0
AE3300	Industrial Electronics	4	3	2
DP3200	Embedded Controller Applications	4	3	2
CP2000	Embedded Linux	3	2	2
CE2280	Modulation and Encoding	5	4	2
PR2790	Capstone Project I (Seminar)	P/F	1	0
Semester 6 (Intersession)		**Cr**	**Le**	**La**
AE3301	Process Control	5	4	2
CE3110	Wireless Communications Systems	3	2	2
PR2791	Capstone Project II	4	3	0

The Course and Lab hours per week are based on a 15-week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

The Electronic Systems Engineering Technology (Co-op) program focuses on planning, designing, commissioning, servicing, troubleshooting, and decommissioning electronic systems. This general program enables graduates the opportunity to seek careers in a wide variety of technology areas, including: electronic communications systems, computer network systems, industrial control systems, surveillance and navigation systems.

The program is designed to provide graduates with the skills and knowledge required to implement and work with modern communication systems using digital and fiber optics principles, embedded microcontrollers, applications including robotic controls, artificial intelligence, wireless control and industrial controls and instrumentation. Thanks to the widespread proliferation of advanced and sophisticated systems around the world, the demand for well-qualified electronics technologists is, and will be, high for years to come. Graduates of this two year program receive the Diploma of Electronic Systems Engineering Technology (Co-op).

Graduates of this program, upon it's accreditation, automatically satisfy the academic requirement for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), and qualify for certification with the appropriate work experience and references. Students enrolled in this program are eligible for full student membership after the first year. Certification credentials are transferrable across provincial associations.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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).

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 an Electronic Systems Engineering Technologist, the graduate will have the knowledge and skill that will allow him/her to:

1. Demonstrate a high level of skill in the application of electronics principles.
2. Produce electrical and electronics drawings, layouts and reports.
3. Apply the skills and techniques to troubleshoot logic and digital circuits, and embedded microprocessor-based and microcontroller-based systems, including assembly and high-level language programs.
4. Design, assemble, maintain, and troubleshoot analog and digital communication systems.
5. Install, analyze and maintain industrial instrumentation and process control equipment.
6. Apply appropriate troubleshooting techniques to electronic circuits or systems and generate and perform test procedures.
7. Determine, select, recommend and justify the purchase of electronic equipment, components and systems.
8. Modify, maintain, repair and recommend electronic equipment and systems.
9. Design, build, test and troubleshoot electronic circuits, equipment, systems and subsystems.
10. Analyze and troubleshoot computer networks.
11. Apply current industry practices of project management and business principles.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Electrical and Magnetic Theory, Engineering Graphics, Engineering Technology Awareness.

Specific education in various aspects (theory and principles) of the Electronic Systems Engineering Technology profession including the theory and application of analog and digital electronics with specialized emphasis on Analog and Digital Communication Systems, Computer Programming, Microprocessor Interfacing Systems, Industrial Process Control Systems, and Networking.

Practical education employing labs and shops focused on installation, configuration, operation and maintenance training associated with digital communications, wireless communications systems, microcontrollers, computer networks, cabling systems, and industrial process control systems.

Career Opportunities
Job prospects for the electronics industry are expected to be strong in the foreseeable future. The Electronics Systems Engineering Technology program is designed to produce a well-rounded graduate who will be capable of working in a variety of electronic related fields. Graduates of the program will find rewarding employment both in the service and support side of the electronic industry as well as the consumer side. They will obtain employment in the areas of telecommunications, manufacturing sales, service, and support, computer sales, service and support, provincial and federal agencies, consulting firms, business equipment sales and service, industrial sales and service, aircraft surveillance and navigation, R&D and utility companies.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note: Learners will be required to complete one day non-credit educational seminars throughout the program in: Program Solving and Decision Making, Environmental Citizenship and Ethics, and Technology Awareness.

Entrance Requirements
Eligibility for admission to Electronic Systems Engineering Technology (Co-op) program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (70% minimum), 3201 (70% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209

Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

Note: Candidates who do not meet the math entrance requirements will have the opportunity to satisfy entrance requirements by successfully completing a two-week math bridging course, MA1700, which will be offered in August.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (70% minimum) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (70% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. **Mature Student Status**
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY
Electronics Engineering Technology (Biomedical)

DIPLOMA
• Three Years
• September
• Ridge Road Campus

COURSES

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
CI1110	Signals & Measurements	3	2	2
CI1310	Electrical/Electronic Fabrication Techniques	3	2	3
CT2300	Applied Programming	4	3	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
AE2330	Analog Electronics I	6	5	3
CE2280	Modulation and Encoding	5	4	2
DP1110	Digital Systems I (Logic)	4	3	2
MA2100	Mathematics	5	5	0
MP2140	Circuit Analysis I	4	3	2

Semester 5 (Winter)		Cr	Le	La
AE2331	Analog Electronics II	4	3	2
BL1300	Anatomy & Physiology	3	3	0
CG1200	Health Care and Safety I	2	1	2
CP2000	Embedded Linux	3	2	2
DP2110	Digital Systems II-Interfacing	5	4	3
ET2150	Advanced Circuit Analysis	5	5	0

Semester 6 (Intersession)		Cr	Le	La
CI1221	BET Electromechanical Systems	3	2	3
MA1530	Statistics	2	2	1
TM1111	Medical Terminology	2	2	0

Semester 7 (Fall)		Cr	Le	La
AE3130	Active Circuit Applications	4	3	2
CG1201	Health Care and Safety II	3	2	2
CI3400	Biomedical Instrumentation I	4	3	4
CM2800	Oral/Written Communication Skills	3	3	0
DP3200	Embedded Controller Applications	4	3	2
PR2830	Capstone Project I (Seminar)	P/F	1	0
PR3150	Project Management and Financial Analysis	4	4	0

Semester 8 (Winter)		Cr	Le	La
CE1210	Basic Communications Networks I	4	3	3
CI3411	Biomedical Instrumentation II	6	4	6
CI3510	Advanced Medical Systems	4	3	2
PR2831	Capstone Project II	4	3	0

Semester 9 (Intersession)		Cr	Le	La
WT1700	Biomedical Practicum		P/F	

Note: The final semester of year 3 is a 7 week practicum. As well, in the third year of the program, there are regular site visits to health care facilities. While the requirements for all Health Boards are not the same, it is standard practice for any government position to provide a letter of conduct from local law enforcement (typically RNC or RCMP). Due to the nature of any work in Health care and its inherent risk, it is

also required that health vaccination records be updated and any outstanding vaccinations be received prior to commencement of the practicum. As well any allergies or sensitivities should be identified at this time. These requirements are initiated and need to be completed during semester 8. (Winter semester, year 3)

A letter of conduct will also be required for registration in some courses in Semesters 7 and 8.

Health-care environments have become more dependent on electronic medical diagnostic and therapeutic equipment which must be operated and maintained with great accuracy. Graduates of this program are part of an integrated health care team who install and maintain this equipment as well as their supporting computer systems. Graduates also assist other health care professionals in the optimization of equipment usage. The coordinated use and maintenance of this equipment has to be done in accordance with applicable codes, statutes and associated regulations.

The Electronics Engineering Technology (Biomedical) Program is a biomedical engineering technology program with a strong foundation in electronics. Learners enrolled in this program also receive training in the areas of biomedical instrumentation, microprocessor applications in the health care setting, anatomy and physiology, chemistry, biochemistry, health care and safety. This comprehensive program concludes with a practicum where learners are provided with the opportunity to work in hospital-based biomedical departments or with medical equipment sales and service companies.

Accreditation
The Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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 skill that will allow him/her to:
1. Employ specialized biomedical test instrumentation including patient parameter simulators and analysers, pressure and flow measurement devices, electrosurgical analysers and electrical safety analysers.
2. Troubleshoot, maintain, and calibrate complex, electro-medical equipment utilizing industry recognized techniques and protocols.
3. Demonstrate proficiency in the safe operation of electro-medical devices including patient care monitoring systems, defibrillators, electrosurgery units, diagnostic medical imaging systems, clinical laboratory instrumentation, dialysis delivery systems, respiratory care devices and other diagnostic, therapeutic and patient care instruments.
4. Modify, design, and construct medical electronic devices through the application of electronic and patient data acquisition principles.
5. Apply an engineering based approach to problem solving with respect to medical equipment systems, to enable the graduate to readily upgrade their knowledge and skills.
6. Demonstrate an awareness of and concern for patient and staff safety in the health care environment.
7. Maintain and operate Linux-based instrumentation within a wireless networking environment.

Curriculum
General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Learner Success.

Specific education in the theory and application of analog and digital electronics with a specialized emphasis on biomedical instruments, equipment and techniques and the interconnected computer systems associated with a modern healthcare environment.

Practical education in a Health Care environment through curriculum integrated labs.

Work exposure consisting of field experience, gained from the biomedical practicum.

Career 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 progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Upon recognition as a P.Tech and supplemental relevant experience in the field of biomedical engineering technology the graduate may be eligible to write certification examinations to be recognized as a Certified Biomedical Engineering Technologist (CBET). In many jurisdictions of Canada this certification is a requirement for advanced practice of the profession.

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209

Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Engineering Technology (First Year)

DIPLOMA
- **Varies**
- **September**
- **Corner Brook, Carbonear, Gander, and Ridge Road Campuses**

COURSES

CODE	TITLE		Hrs/wk	
Semester 1 (Fall)		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
ET1100	Electrotechnology	4	3	2
MA1700	Mathematics*	4	3	2
PH1100	Physics	4	3	2
EG1110	Engineering Graphics	3	2	2
CH1120	Chemistry	4	3	2
SD1170	Technology Awareness I	P/NP	1	0

*Admission into the appropriate Mathematics course will be decided by the grade in high school math.

EITHER
Learners who received at least 70% in level III Math 3200 or a pass in Math 3201 can be exempted from MA1700
OR
Learners who received a combined average of 70% in 2201 and 3201, or a pass in both of 2200 and 3200 can be exempted from MA1700.

Note: Learners may apply for an exemption from MA1700 provided they meet the appropriate high school level in Mathematics as noted above.

Semester 2 (Winter)		Cr	Le	La
CH1121	Chemistry	4	3	2
PH1101	Physics	4	3	2
MA1101	Mathematics*	5	5	0
ET1101	Electrotechnology	4	3	2
CM1401	Technical Report Writing II	3	3	0
EG1430	AutoCAD Essentials	3	2	2
SD1171	Technology Awareness II	2	1	0

Selection Process
The college offers a common first year in the Engineering Technologies. This initiative allows learners to attend the first two semesters of an engineering technology program at the campus nearest their hometown. After completing the first two semesters, learners then enter the campus which offers the program of their choice to complete the seven week Intersession (May, June), 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 Intersession, and subsequent years of program study.

After successful completion of the first two semesters, learners progress to the Intersession in the program for which a seat has already been reserved. Any learner who, after registration, wishes to change his/her original program choice MUST apply for a Program Transfer (see below).

Transfer Process
If a learner 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 learner's weighted average at the end of semester one. In cases where the learner has been exempted from courses in the first semester, the mark(s) obtained by the learner at another postsecondary institution or high school will be used in calculating the weighted average.

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
Note: Students who received a combined average of 70% in high school Academic Mathematics 2201 and 3201, or a pass in both high school Advanced Mathematics 2200 and 3200 can be exempted from Math 1700. Students must apply for the exemption.
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209

Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Transferability
Currently there are a number of agreements in place with other colleges and universities where learners can obtain advanced standing into Engineering and Bachelor of Engineering Technology Programs.

• Memorial University – Bachelor of Technology
• Lakehead University – Bachelor of Engineering
• Memorial University – Bachelor of Engineering
• Cape Breton University – Bachelor of Engineering Technology
• Athabasca University – Bachelor of Science (Post Diploma)
• Camosun College - Engineering Bridge Programs for:
University of Victoria - Bachelor of Engineering
University of British Colombia – Bachelor of Engineering
• College of the North Atlantic – Other engineering technology programs (on a 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.

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
ENVIRONMENTAL ENGINEERING TECHNOLOGY - ADVANCED DIPLOMA

ADVANCED DIPLOMA
• One Year
• September
• Corner Brook Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1 (Fall)		**Cr**	**Le**	**La**
CH2715	Analytical Chemistry	4	3	3
EY2110	Ecology	4	3	2
EN2321	Occupational Health & Safety	3	2	2
EN1110	Soil Fundamentals	4	3	2
EN1520	Environmental Sampling Techniques	3	2	2
EN3111	Environmental Engineering I	4	3	2
Semester 2 (Winter)		**Cr**	**Le**	**La**
EN1210	Geomatics I	1	0	2
EN2300	Environmental Law	3	3	0
EN1220	Industrial Hygiene	4	3	2
EN1600	Environmental Assessment	3	2	2
EN3120	Environmental Engineering II	4	3	2
EN1531	Water Quality	4	3	2
PR3150	Project Management & Financial Assessment	4	4	0
PR1410	Capstone Project I (Seminar)	0	1	0
Semester 3 (Spring)		**Cr**	**Le**	**La**
EN2545	Water and Waste Water Treatment	4	3	2
EN1601	Environmental Assessment II	4	3	2
EN1230	Geomatics II (GIS)	3	2	3
EN3200	Environmental Impact Assessment	3	3	0
EN3300	Environmental Auditing	4	3	2
PR1420	Capstone Project II	4	3	0

Note: Learners will also be required to complete one-day non-credit educational seminars throughout the program in Surveying, Engineering Drawings and Professionalism at the Worksite.

CERTIFICATIONS
In addition to the formal semester courses listed in the program of studies, learners in the Environmental Engineering Technology - Advanced Diploma program are required to obtain a certificate of completion in Standard First Aid/Heart Start, Workplace Hazardous Materials and Information Systems (WHMIS), Transportation of Dangerous Goods (TDG), Power Line Hazards Awareness, Back Injury Prevention and the Pleasure Craft Operators Card.

The Environmental Engineering Technology-Advanced Diploma program recognizes the wide range of science and engineering back-

grounds associated with this industry and is structured to accommodate the needs of a diverse range of applicants. The combination of common core topics, management courses, specialty courses, industry-sponsored project and liberal studies courses provides a unique balance of skill sets that prepares candidates for a broad range of career opportunities. While many participants pursue this advanced diploma for the credential, others are seeking professional development to complement their existing professional and university credentials.

This accelerated program allows students who already have a university degree or college diploma to obtain the Environmental Engineering Technology – Advanced Diploma in one year.

The Environmental Engineering Technology - Advanced Diploma program is intended to provide the additional skills and knowledge that engineering and science graduates require to successfully work on environmental assignments such as contaminated sites, water treatment facilities, sustainability management, contaminant hydrogeology, integrated solid waste management, environmental impact assessment, air quality, climate change, resource management, green energy technology projects and health safety and environmental compliance. Environmental engineering technologists are on the front lines of environmental protection. They apply science, ecology and engineering to minimize the adverse impacts of human activity on the natural world. Graduates will have the skills to work in pollution monitoring, environmental audits, environmental management, site assessment and remediation, project management and waste management.

Accreditation
College of the North Atlantic will seek accreditation for this program from the Canadian Technology Accreditation Board (CTAB) under the mandate of the Canadian Council of Technicians and Technologists.

The college will also seek recognition for graduates including:
1. CCEP (Canadian Certified Environmental Practitioner) and CEPIT (Canadian Environmental Practitioner-in-training) through ECO Canada (Environmental Careers Organization).
2. Certified Environmental Site Assessor (C.E.S.A.) with the Association of Environmental Site Assessors of Canada (AESAC).

Students may also have the opportunity to obtain the certification as a Canadian Registered Safety Professional (CRSP) upon further studies.

Objectives
Graduates of the Environmental Engineering Technology- Advanced Diploma program, will have the knowledge and skills that will allow him/her to:
1. Perform and interpret environmental procedures for air and water pollution control, and hazardous waste management.
2. Apply basic principles of science and engineering to environmental processes.
3. Select, evaluate, operate, calibrate, test, troubleshoot and maintain instrumentation and analytical equipment common to the discipline.
4. Plan, design and implement environmental impact, assessment and remediation programs.
5. Understand the methods of recognition, evaluation and control of hazards to people, facilities, equipment and the environment.
6. Collect representative environmental samples, perform routine and specialized tests and interpret results, using current and relevant tools
7. Carry out work responsibilities adhering to the standards of professional conduct and principles of professional ethics.
8. Contribute to the development, implementation and maintenance of environmental management systems.
9. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined environmental engineering technology activities.
10. Establish and maintain a safe work environment by following and enforcing environmental and safety standards and adhering to established legislation, practices, and procedures.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Chemistry, Biology, Soils, Environmental Law, Environmental Sustainability and Occupational Health and Safety.

Specific education in various aspects (theory and principles) of the Environmental Engineering discipline including Environmental Sampling, Industrial Hygiene, Air and Water Pollution Control, Environmental Engineering, Geographic Information Systems (GIS), Environmental Processes and Auditing, and Environmental Impact, Assessment and Remediation .

Practical education in various aspects of Environmental Engineering applications including Health Safety and Environmental(HSE) Audits, Environmental Sampling, Environmental Analysis and Environmental Assessment procedures.

Graduates are able to enter the work force as highly skilled employees with the capability to manage environmental and municipal infrastructure projects and to analyze and remediate urban environments.

Career Opportunities
Graduates are prepared to take a proactive approach to all aspect of Environmental Engineering Technology and occupational health and safety management. They may find employment in a wide range of environmental careers, such as:
Environmental Consultants, Watershed Specialists, Environmental Engineering Technologists, Environmental Protection Officers, Groundwater Specialists, Industrial and Municipal Water/Wastewater Plant Operators, Landfill Site Technologist, Water Quality Specialists, Environmental Assessment Supervisor, Environmental Auditor, Industrial Hygienist, HSE advisor, Safety Coordinators, and Occupational Health and Safety Officers. Potential employment opportunities include health care, construction, waste management, oil and as, pulp and paper, mining, manufacturing, government, and engineering consulting firms.

Program Transferability
Graduates of the Environmental Engineering Technology - Advance Diploma program who wish to pursue additional post-secondary studies can apply for entry with advanced standing at a number of Canadian Universities.

Entrance Requirements
Eligibility for admission to the Environmental Engineering Technology – Advanced Diploma program requires the applicant to have a university degree with science courses, OR a college diploma in Engineering or Natural Resources, OR other post-secondary equivalency, to include course work in Calculus, Statistics, and Chemistry from an institution recognized by College of the North Atlantic, or a combination of other post-secondary work experience acceptable to the college.

Special Requirements
Because of the extensive field and laboratory exposure incorporated into this program, students will be required to obtain specialized clothing and equipment which includes a lab coat, safety glasses, graphics calculator, compass, CSA Safety Boots, CSA hard hat, rain gear, and other clothing appropriate for outdoor work.

ENGINEERING TECHNOLOGY

Geomatics/Surveying Engineering Technology (Co-op)

DIPLOMA
- **Three Years**
- **September**
- **Ridge Road Campus**

COURSES

CODE TITLE Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
SU1320	Plane Surveying I	4	3	4
EN1100	Environmental Science	2	2	1
SU1500	Cartography	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
FT1240	Surveying Field Camp	1	0	0
CM2800	Oral/Written Communication Skills	3	3	0
SU1321	Plane Surveying II	7	4	8
MA2100	Mathematics	5	5	0
SU1360	Graphics for Geomatics Engineering Technology	3	2	2
SU2500	Photogrammetry	4	3	2

Semester 5 (Winter)		Cr	Le	La
MA2180	Applied Geomatics Mathematics	4	4	1
SU1440	Geographic Information Systems (GIS) I	3	2	3
SU1540	Hydrography I	4	3	3
SU2320	Geodetic Surveying	4	3	3
SU2530	Cadastral Surveying I	4	3	2
CP1640	Visual Basic Applications for ACAD	2	1	3

Semester 6 (Spring)		Cr	Le	La
WC1300	Work Term I	5	0	0

Semester 7 (Fall)		Cr	Le	La
CA2900	Municipal Engineering	3	2	3
SU1441	Geographic Information Systems (GIS) II	4	3	3
SU2570	GPS and Remote Referencing	4	3	3
PR3150	Project Management and Financial Analysis	4	4	0
PR2270	Technical Thesis I	0	1	0
MA3130	Advanced Geomatics Mathematics	3	3	0
GE1230	Geology for Geomatics/Surveying ET	4	3	2

Semester 8 (Winter)		Cr	Le	La
WC1301	Work term II	5	0	0

Semester 9 (Spring)		Cr	Le	La
FT1260	Multidisciplinary Field Camp	1	0	0
PR2271	Technical Thesis II	5	5	0
SU1541	Hydrography II	4	3	3
SU1570	Remote Sensing	3	2	2
SU3300	Geodesy and Map Projections	4	3	3
SU3500	Adjustments	4	3	3
SU2531	Cadastral Surveying II	2	2	0

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/Surveying Engineering Technologists becomes apparent.

The three-year diploma level Geomatics/Surveying 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 learner obtains considerable field and office experience during labs, field camps, and work terms.

Accreditation
The Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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.

This program is also CAFCE (Canadian Association for Cooperative Education) accredited.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Objectives
Upon successful completion of the Geomatics/Surveying Engineering Technology program the graduate will be able to:
1. Collect, analyze, manage and distribute of spatial information as per standard industry practices.
2. Apply professional and quality assurance standards to execute Geomatics project activities for delivery in response to the need of the private and public industry.
3. Utilize industry standards and specifications to analyze the positional accurance of measurement systems in preparing land records and engineering drawings.
4. Utilize an appropriate mastery of the knowledge, techniques, skills, and modern tools of Geomatics.
5. Adapt to the emerging applications and equipment within the Geomatics field.
6. Apply 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, Physics, Chemistry, Electrotechnology, Computers, and Engineering Graphics.

Specific education in all aspects of Geomatics.

Practical education employing extensive field training to provide experience with instrumentation and software, through Surveying Camps and practical lab sessions.

Work exposure consisting of field experience, gained from compensated work terms, in the field of geomatics/surveying.

Career 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 both locally and internationally.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note: Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
Biology: 3201
Physics: 3204
Chemistry: 3202
Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY
Industrial Engineering Technology (Co-op)

DIPLOMA
- **40 Months**
- **September**
- **Ridge Road Campus**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3(Intersession)		Cr	Le	La
CG1500	Work Methods and Measurement	4	3	2
EG1520	Engineering Graphics for Mechanical Engineering Technologies	2	1	2
SP2410	Safety Engineering Technology	2	2	0
SP1210	Machine Shop Practice	2	1	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to

course outline.

Semester 4 (Fall)		Cr	Le	La
CF1100	Materials and 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 5 (Winter)		Cr	Le	La
WC1400	Work Term I	5	0	0

Semester 6 (Spring)		Cr	Le	La
CF1120	Materials and Processes	3	3	1
FM2201	Mechanics (Dynamics)	3	3	1
MA2100	Mathematics	5	5	0
SP2300	Quality Assurance	3	3	0
DE3300	Information Systems Design	3	2	2
TD2100	Thermodynamics3	3	1	
DE2350	Logistics and Project Management	3	3	1

Semester 7 (Fall)		Cr	Le	La
WC1401	Work Term II	5	0	0

Semester 8 (Winter)		Cr	Le	La
FM3200	Machine Design	3	3	1
PR3600	Technical Thesis (Seminar)	P/F	0	1
CG3400	Engineering Management	3	3	0
CI1240	Instrumentation, Motor Control and PLC		3	2
2				
FM3100	Fluid Power (Hydraulics/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 (Spring)		Cr	Le	La
WC2400	Work Term III	5	0	0

Semester 10(Fall)		Cr	Le	La
PR3725	Technical Thesis	4	1	2
CG3500	Production Planning	3	3	1
EC1700	Engineering Economics	2	2	0
DE3430	Computer Integrated Manufacturing	3	3	1
LW1500	Law and Ethics	3	3	0
SP1400	Facilities Engineering	3	2	2
AC2280	Accounting	4	4	0

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.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

This program is also a CAFCE (Canadian Association for Cooperative Education) accredited program.

Objectives
As an industrial engineering technologist, the graduate will have the knowledge and skill that will allow him/her to:

1. Analyse industrial operations, using industrial engineering principles, to improve productivity.
2. Optimize process designs that are both safe and productive while ensuring quality standards are met at minimal cost.
3. Employ problem solving and management strategies that are fundamental to success in various industry settings.
4. Create quality assurance / quality control procedures, in an industrial environment, to improve the effectiveness of the business.
5. Formulate efficiency improvement plans using lean manufacturing techniques.

Curriculum
General education consisting of Communication Skills, Mathematics, Physics, Chemistry, Electrotechnology, Computers, and Engineering Graphics (CAD).

Specific education in generic engineering technology consisting of computer based analysis and design, materials science, strength of materials, hydraulics and pneumatics, and shop processes.

Practical education employing labs and shops focused on industrial engineering technology such as ergonomics, work measurement, plant layout, facility planning, production planning, and computer integrated manufacturing.

Work exposure consisting of field experience, gained from compensated work terms, in the field of industrial engineering.

Career Opportunities
Graduates of this program may obtain employment in both the service and production sectors. Previous graduates have been successful in obtaining employment with oil and gas servicing, aerospace, fish processing, mining, ship building, manufacturing and health services industries.,

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note: Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Instrumentation and Controls Engineering Technology

DIPLOMA
• Three Years
• September
• Ridge Road Campus

COURSES

CODE	TITLE	Hrs/Wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
AE1260	Power Electronics	3	2	2
CI1310	Electrical/Electronic Fabrication Techniques	3	2	3
CI1350	Basic Process Automation	2	1	2
ET2100	Electrotechnology	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
CE1210	Basic Communications Network I	4	3	3

CI2100	Pressure Level Measurement and Control	4	3	3
DP1110	Digital Systems I (Logic)	4	3	2
MA2100	Mathematics	5	5	0
MP2170	AC Circuits and Machines	4	3	3

Semester 5 (Winter)		**Cr**	**Le**	**La**
CE2810	Industrial Communication Systems	4	3	2
CI2230	Flow and Temperature Measurement and Control	4	3	3
DP2430	Digital Interfacing	4	3	2
DP3110	PLC	4	3	3
DR2350	Engineering Graphics for Instrumentation	2	1	2
MP3170	Industrial Motor Controls	4	3	2

Semester 6 (Intersession)		**Cr**	**Le**	**La**
CE2940	HMI & SCADA	4	3	2
CI2120	Final Control Elements and Instrument Air Systems	3	2	2
PE2730	Industrial Instrumentation Practices	2	1	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7 (Fall)		**Cr**	**Le**	**La**
CI1520	Process Analyzers I	4	3	2
CI2300	Advanced Control Strategies	4	3	3
CI3860	DCS	4	3	3
CM2800	Oral/Written Communication Skills	3	3	0
PR2740	Capstone Project I (Seminar)	P/F	1	0
PR3150	Project Management and Financial Analysis	4	4	0

Semester 8 (Winter)		**Cr**	**Le**	**La**
CI2250	Hydraulics for Instrumentation	1	1	1
CI3110	Safety Shutdown and Machine Monitoring Systems	4	3	2
CI3822	Process Analyzers II	4	3	3
MA2101	Mathematics	5	5	0
PE2240	Hazardous Areas	3	2	2
PR2741	Capstone Project II	4	3	0

Safety Certifications

In addition to the formal semester courses listed in the program of studies, learners in the Instrumentation and Controls Engineering Technology program are required to obtain a Standard First Aid/Heart Start certificate over the three-year period of studies.

Graduates of the program will receive a "Hazardous Areas Training Certificate." This certification is industry recognized and is designed for personnel carrying out installations, inspection and maintenance of electrical apparatus in potentially hazardous explosive areas in the onshore and offshore oil and gas industries.

The International Society of Automation (ISA) defines instrumentation as "the art and science of measurement and control". It involves using and/or working with instruments used to measure, record, and control process variables (such as level, flow, temperature, and pressure). Complex process control and measurement systems are found in the oil and gas industries, chemical processing industry, food processing operations, power generation, and the pulp and paper industry. Control systems are becoming increasingly used in automating industrial processes to improve productivity, conserve entry, and reduce pollution. This has created a strong demand for trained instrumentation professionals. As our provincial industrial sector grows, instrumentation and controls continues to be an extremely important field of technology.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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 troubleshoot and maintain process automation field and control room devices and systems such as distributed control systems (DCS), programmable logic controllers (PLC), and emergency shutdown systems.
2. Design and program control system interfaces, human machine interfaces (HMI) and graphical interfaces.
3. Use basic engineering principles and knowledge of industrial control systems to help design the control and safety systems for an industrial process.
4. Apply principles of process control to analyze the performance of industrial processes.
5. Apply concepts of measurement and sensor selection to specify, install, configure, calibrate, troubleshoot, and maintain various process instruments commonly used in industry, including electronic transmitters, pneumatic devices, and control valves.
6. Maintain, calibrate, and troubleshoot various analytical instruments and analyzer sampling systems found in industrial process.
7. Demonstrate an understanding of industry standards, best practices, and workplace procedures related to safety and professionalism.
8. Prepare technical reports and presentations for effective communications in the workplace.

Curriculum

General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, and Technology Awareness.

Specific education focuses on various aspects of process measurement and control, including process control system design incorporating programmable control systems (PLC / DCS / ESD), human machine interfaces (HMI), and machine control and condition monitoring. Specific emphasis is also placed on industrial process analyzers and analyzer sampling systems.

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.

Career Opportunities

Instrumentation and Controls Engineering Technologist is a very multifaceted career choice. It prepares graduating learners for opportunities in employment locally and internationally in industries such as oil and gas, chemical processing, pulp and paper, power generation, food processing, and manufacturing. Typical positions for a graduate are instrumentation technologist, technical sales/service representative, consultant, plant maintenance person, testing & commissioning technologist, instrument designer, or control systems technologist.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Entrance Requirements

Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School

High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C

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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Mechanical Engineering Technology

DIPLOMA
• Three Years
• September
• Ridge Road Campus

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
EG1520	Engineering Graphics for Mechanical Engineering Technology	2	1	2
MH1130	HVAC Fundamentals	2	2	1
MH1200	Mechanical Systems	2	2	1
SP2450	OHS Management Systems	4	4	0
SP1200	Machine Shop Practice	1	0	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		Cr	Le	La
CF1100	Materials and Processes	3	3	1
CF2540	Mechanics of Solids	3	3	1
EC1700	Engineering Economics	2	2	0
MA2100	Mathematics	5	5	0
MH2330	Power Plant Components	5	4	2
SP1730	CNC Machining I	3	3	1
TD2100	Thermodynamics	3	3	1

Semester 5 (Winter)		Cr	Le	La
CF1120	Materials and Processes	3	3	1
FM2100	Fluid Mechanics	3	3	1
FM3100	Fluid Power (Hydraulics/Pneumatics)	3	3	1
MA2130	Applied Mathematics	5	5	0
MH2820	Power Plant Systems	4	4	1
MH2801	HVAC Systems	3	3	1
SP1400	Facilities Engineering	3	2	2

Semester 6 (Intersession)		Cr	Le	La
WT1460	Work Placement	5	0	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7 (Fall)		Cr	Le	La
CF2511	Strength of Materials	3	3	1
CI1210	Instrumentation Controls & Automation	3	2	2
FM2201	Mechanics (Dynamics)	3	3	1
MH4401	Refrigeration Systems	4	3	2
MH3320	Building System Design	4	4	1
SP2300	Quality Assurance	3	3	0
TD2120	Thermodynamics	3	3	1

Semester 8 (Winter)		Cr	Le	La
CG3400	Engineering Management	3	3	0
CI1211	Instrumentation Controls & Automation	3	2	2
FM3200	Machine Design	3	3	1
MH4301	Power Plant Design Calculations	4	4	1
MH4510	Prime Movers	4	3	2
MH4600	Plant Systems Design	3	3	0
PR3722	Technical Thesis	4	1	2
TD3100	Applied Thermodynamics (Refrigeration and Air Conditioning)	3	3	1

This program is currently under review and is subject to change.

Mechanical Engineering Technologists develop a diverse technical background, good "hands-on" skills, and excellent people skills. These attributes make them well suited to employment in a wide variety of industries in both field and management related roles.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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
Through this program of study, graduates are equipped with the technical knowledge and "hands-on" skills required for:
1. The design, installation, implementation, 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.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Computers, Engineering Graphics, Technology Awareness, and Learner Success.

Specific education consisting of discipline-specific courses such as Mechanics, Strengths, Thermodynamics, , Machine Design, , Hydraulics and Pneumatics, Economics, Engineering Management, Quality Assurance, Maintenance, Machining Process Controls and Technological Thesis (Design Project).

Practical education employing labs and shops focused on Engineering Graphics, Materials & Processes, Machine Shop Practices, and Computer Numerical Control (CNC).

Work exposure consisting of field experience, gained from a minimum seven week work placement which provides learners the opportunity to gain valuable related work experience.

Career 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.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY

Mechanical Engineering Technology (Manufacturing) Co-op

DIPLOMA

- **3 Years**
- **September**
- **Ridge Road Campus**

COURSES Semester 1 and 2 - Refer to Engineering Technology (First Year)

CODE	TITLE	Hrs/wk		
Semester 3 (Intersession)		**Cr**	**Le**	**La**
CG1500	Work Methods and Measurement	4	3	2
EG1520	Engineering Graphics for Mechanical Engineering Technologies	2	1	2
SP1200	Machine Shop Practice	1	0	3
MA1670	Statistics	4	4	1

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		**Cr**	**Le**	**La**
CF1100	Materials and Processes	3	3	1
CM2800	Oral/Written Communication Skills	3	3	0
CF2540	Mechanics of Solids	3	3	1
SP2450	OHS Management Systems	4	4	0
SP1730	CNC Machining I	3	3	1
SP1830	Metrology and Quality Control	4	3	2
MA2100	Mathematics	5	5	0

Semester 5 (Winter)		**Cr**	**Le**	**La**
CI1240	Instrumentation, Motor Control and Programmable Logic Controls	3	2	2
CF1120	Materials and Processes	3	3	1
FM2100	Fluid Mechanics	3	3	1
FM3100	Fluid Power (Hydraulics/Pneumatics)	3	3	1
TD2100	Thermodynamics	3	3	1
SP2360	Quality Control and Reliability	2	1	2
SP1731	CNC Machining II	4	3	2

Semester 6 (Spring)		**Cr**	**Le**	**La**
WC1900	Work Term I	5	0	0

Semester 7 (Fall)		**Cr**	**Le**	**La**
EG2130	Engineering Graphics	3	2	2
LW1500	Law and Ethics	3	3	0
PR3630	Technical Thesis (Seminar)	P/F	0	1
FM3200	Machine Design	3	3	0
DE3430	Computer Integrated Manufacturing	3	3	1
CG3500	Production Planning	3	3	1
DR3720	Tool Design I	3	3	1
DR3810	Advanced Processes	3	2	3

Semester 8 (Winter)		**Cr**	**Le**	**La**
WC1901	Work Term II	5	0	0

Semester 9 (Spring)		**Cr**	**Le**	**La**
FM2201	Mechanics (Dynamics)	3	3	1
SP2300	Quality Assurance	3	3	0
PR3150	Project Management and Financial Analysis	4	4	0
PR3724	Technical Thesis	4	1	2
FM3220	Machine Design	3	3	1
SP1400	Facilities Engineering	3	2	2
DR3721	Tool Design II	3	2	2

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.

Learners 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.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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 CAFCE (Canadian Association for Cooperative Education) accredited.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Objectives
Upon the successful completion of the Mechanical Engineering Technology (Manufacturing) Co-op program the graduate will be able to:
1. Utilize Computer Aided Design and Computer Aided Manufacturing (CAD/CAM) software as per industry standards.
2. Design mechanical components/assemblies and create engineering drawings and specifications through the use of 2D and 3D CAD and Modeling software.
D3. evelop electro-pneumatic and other automation systems, through hands-on practical experience with programming and operating Computer Numerical Control (CNC) equipment, Robotics, Programmable Logic Controllers (PLC's).
4. Operate Computer Integrated Manufacturing (CIM) systems drawing on the knowledge learned through core-engineering concepts of materials science, strength of materials, and machine design.
5. Apply quality assurance standards and practical quality control techniques in precision measurement.
6. Manage projects, resources and people in a supervisor role through the use of problem solving and related skills.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Computers, Engineering Graphics, Technology Awareness, and Learner Success.

Specific education consisting of discipline specific courses such as Mechanics, Strengths of Materials, Materials and Processes, Machine Design, Hydraulics and Pneumatics, Engineering Management, Quality Assurance, Maintenance,

Practical education employing labs and shops focused on Computer Numerical Control (CNC), Tool Design, and Computer Integrated Manufacturing.

Work exposure consisting of field experience, gained from compensated work terms, in the field of manufacturing.

Career Opportunities
Career opportunities for graduates of this program exist with consulting firms, manufacturing firms, shipbuilding yards, oil & gas servicing industry, food processing plants, research institutions and government departments.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

Note:
Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
- Biology: 3201
- Physics: 3204
- Chemistry: 3202
- Earth Systems: 3209

Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of

the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

ENGINEERING TECHNOLOGY
Petroleum Engineering Technology (Co-op)

DIPLOMA
- **Three Years**
- **September**
- **Ridge Road Campus**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Intersession)		Cr	Le	La
FT1630	Petroleum Operations Practical	P/F 2 wks		
GE1520	Physical Geology	3	2	2
CI2250	Hydraulics	1	1	1
SP2455	Petroleum OHS Management	3	3	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

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 4 (Fall)		Cr	Le	La
CH2330	Petroleum Organic Chemistry	3	2	2
MA2100	Mathematics	5	5	0
CM2800	Oral/Written Communication Skills	3	3	0
FM2102	Fluid Mechanics	3	3	1
GE1502	Petroleum Geology I	4	3	2
CF2540	Mechanics of Solids	3	3	1
CI1240	Instrumentation Motor Control & PLC	3	2	2

Semester 5 (Winter)		Cr	Le	La
MA1670	Statistics	4	4	1
TD2100	Thermodynamics	3	3	1
GE2510	Petroleum Geology II	4	3	2
PM2130	Drilling	4	3	2
PM2222	Production	4	3	2
PM2321	Reservoir Estimates	4	3	2

Semester 6 (Spring)		Cr	Le	La
WT1400	Work Term	5	0	0

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7 (Fall)		Cr	Le	La
PR3150	Project Management & Financial Analysis	4	4	0
TD2130	Heat Transfer & Flow Assurance	3	3	1
PM2140	Well Planning	4	3	2
PM2520	Oil Facilities	3	3	1
PM2230	Completions	4	3	2
PM2330	Reservoir Analysis	4	3	2
PR2880	Capstone Project I (Seminar)	P/F	1	0

Semester 8 (Winter)		Cr	Le	La
CH2335	Petroleum Chemistry	3	2	2
PR3110	Petroleum Risk Assessment	2	2	1
PM2420	Logging and Formulation Evaluation	5	4	3
PM2530	Gas Facilities	3	3	1
PM2600	Intervention	4	3	2
EN3400	Environmental Management & Protection	3	3	0
PR2881	Capstone Project II	4	3	0

Semester 9 (Intersession)		Cr	Le	La
PM2402	Production Logging & Applications	3	2	2
CF3201	Materials & Corrosion	3	3	1
Elective		2	1	3

The Course and Lab hours per week are based on a 15 week semester. The Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Electives:		Cr	Le	La
PM2180	Well Control	2	1	3
PM2185	Facilities Operations	2	1	3
PM2190	Reservoir Simulation	2	1	3

Note:
Students will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

Oil and gas exploration and development to supply Canada's growing industrial and domestic requirements has increased rapidly during the past decade. The sustained discoveries of oil and gas along the East Coast coupled with continued oil and gas discoveries on the Grand Banks of Newfoundland and Labrador in the Arctic Regions renews Canada's commitment to become self-sufficient in its fossil energy needs. The three year CTAB Accredited Petroleum Engineering Technology (Co-op) Diploma is designed to train technologists for aspects of the oil and gas industry and is supported by the increased interest in sustainable methods of further enhancing science and technology to develop these reservoirs.

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.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

Objectives
As a petroleum engineering technologist, the graduate will have the knowledge and skill that will allow him/her to:

1. Demonstrate the knowledge, skills and attitudes required to participate in finding solutions to sustainable Oil and Gas development.
2. Construct and interpret maps and sections using surface geology, subsurface (drill hole) geology and geophysical data.
3. Interpret topographic maps & profiles, geologic maps & sections, and seismic data to assist in land-based and offshore resource exploration and development.
4. Analyze drill cuttings, drill core, and data from open-hole & cased-hole logging tools in order to evaluate reservoir formations in terms of porosity, permeability, fluid saturation and net pay.
5. Assist in planning, designing, inspecting, supervising, and constructing oil and gas wells.
6. Assist in estimating petroleum reserves and optimizing productivity using petroleum engineering principles.
7. Select, operate, troubleshoot and maintain the equipment associated with the separation of the produced gas/oil/water fluids.

Curriculum
General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Computers, Engineering Graphics, Technology Awareness, and Learner Success.

Specific education consisting of technical courses covering Mechanics, Fluid Mechanics, Thermodynamics, Materials and Processes, Instrumentation and Capstone Project.

Practical education employing labs and shops focused on Drilling, Production, Facilities, Reservoir and Geology.

Work exposure consisting of field experience, gained from a minimum twelve week work term which provides students the opportunity to gain valuable related work experience.

Career Opportunities
Graduates 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 and transportation.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech) upon completion of a Professional Practice and Ethics Exam.

ENGINEERING TECHNOLOGY
Process Operations Engineering Technology

DIPLOMA
- **Three Years**
- **September**
- **Corner Brook Campus**

COURSES

CODE	TITLE	Hrs/wk

Semester 1 and 2 – Refer to Engineering Technology (First Year)

Semester 3 (Intersession)	Cr	Le	La

MA1530	Statistics	2	2	1
SE1320	Industrial Safety	1	1	1
SE2500	OHS Program Elements	2	2	0
MH1330	Industrial Boiler Systems	5	4	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		**Cr**	**Le**	**La**
CI1440	Process Controls	3	2	2
FM2320	Fluid Mechanics	4	3	2
MA2100	Mathematics	5	5	0
MC1850	Spreadsheet Applications	1	0	2
MT2420	Mineral Processing I	2	2	0
PE2430	Plant Electrical Systems	3	2	2
TD2100	Thermodynamics I	3	3	1

SAFETY CERTIFICATIONS
Learners in Process Operations Engineering Technology will be required to complete certifications in the following area: Standard First Aid/Heart Start prior to the commencement of Semester 5.

Semester 5 (Winter)		**Cr**	**Le**	**La**
CH2700	Analytical Chemistry	4	3	3
CI1210	Instrumentation Controls & Automation	3	2	2
MT2421	Mineral Processing II	3	3	1
PE2800	Industrial Mechanical Systems	4	3	2
SI2320	Materials Science	3	3	1
TD3110	Heat Transfer	3	3	1

Semester 6 (Intersession)		**Cr**	**Le**	**La**
ES2320	Pulping & Papermaking	6	6	0
ES2301	Petroleum Refining	4	3	3

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7 (Fall)		**Cr**	**Le**	**La**
CI1401	Industrial Controls	4	3	2
CI2520	Process Control Operations	4	3	3
CM2800	Oral/Written Communication Skills	3	3	0
EN2601	Environmental Abatement-Water	4	3	2
PR2780	Capstone Project I (Seminar)	P/F	1	0
PR3150	Project Management & Financial Analysis	4	4	0
SP2350	Quality Assurance & Control	3	3	1

Semester 8 (Winter)		**Cr**	**Le**	**La**
CI2620	Process Optimization	4	3	2
EN2640	Environmental Abatement-Air & Solid Waste	4	3	2
ES3300	Petroleum Refining Support Systems	3	2	2
MT2660	Chemical Processing of Ores	4	3	2
PR2781	Capstone Project II	4	3	0
PS2340	Organizational Behaviour	4	4	0

The Process Operations Engineering Technology program is designed to prepare graduates to work in the operation and optimization of modern Industrial Process plants. The program focuses on the science involved in the process of converting raw materials into value added products in automated production lines. The curriculum focuses on processes associated with mineral processing, petroleum refining and pulping & papermaking and the processes associated with the treatment of environmental by-products. The program also provides the principles to prepare graduates to be flexible for employment in process industries in general.

Typically, the graduates will work as process technologists and supervisors in mineral processing, petroleum, and pulp & paper related industries. They will graduate with the knowledge and skills needed to optimize manufacturing processes, improve product quality, and reduce costs.

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland Labrador (AETTNL), as well as any similar association in Canada.

Upon completion of this program graduates may choose to further their education by completing a bachelor degree in technology or engineering at one of several institutions that have articulation agreements with College of the North Atlantic.

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
As a process operations engineering technologist, the graduate will have the knowledge and skill that will allow him/her to:
1. Apply process principles, to achieve optimal performance of a wide range of industrial processes with special emphasis on mineral processing, oil & gas and pulp & paper industries
2. Apply the principles of quality and process control for the identification of process problems and mitigation measures
3. Perform relevant Quality Assurance and Quality Control and statistical analysis in accordance with appropriate standards
4. Analyze and solve technological problems related to operation of industrial processes
5. Apply basic principles of science and engineering to environmental processes
6. Select, operate, maintain, and troubleshoot process equipment utilizing the application of engineering principles

Curriculum
General education
Consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Computers, Engineering Graphics, Technology Awareness, and Learner Success.

Specific education in Process Optimization, Quality Management, and Environmental Abatement of industrial processes. 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, and associated technology.

Practical education employing labs and shops focused on manufacturing processes and associated systems.

CAREER OPPORTUNITIES
Career opportunities for graduates of this program exist with process industries including mineral processing plants, oil & gas refining, petrochemical plants, pulp and paper mills and specialty chemical companies. As all process industries have common unit operations , graduates possess the skills required to perform in many other processing facilities other than those identified here.

Entrance Requirements
Eligibility for admission to an Engineering Technology program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3.

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% MINIMUM) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051

Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Graduates with two years of progressive work experience may be eligible to receive the designation of Professional Technologist (P. Tech).

ENGINEERING TECHNOLOGY

Safety Engineering Technology (Post Diploma) Co-op

POST DIPLOMA
- **1 Year**
- **Varies**
- **Ridge Road Campus**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1				
SE1020	Occupational Health & Safety - Loss Control	3	3	0
SE1030	Occupational Hygiene I (Chemical Agents)	4	3	2
SE1070	Human Factors Engineering	3	3	1
SE1060	Workplace Safety Legislation	4	4	0
SE2050	Emergency Preparedness Planning	2	2	0
SE1400	Auditing OHS&E Management Systems	3	3	0
SE1440	Business Side of Occupational Health & Safety	4	4	0
SE1470	Workers' Compensation and Disability Management	3	3	0
Semester 2		**Cr**	**Le**	**La**
WC1250	Work Term	5	5	0
Semester 3		**Cr**	**Le**	**La**
SE2020	Accident Prevention Engineering and Technology	3	3	0
SE2010	Systematic Safety Management	3	3	0
SE1010	Fire Protection	3	3	0
SE2040	Environmental Protection	3	3	0
SE2000	Occupational Hygiene II (Physical Agents)	4	3	2
SE2300	Quality Management Systems	3	3	0
SE2310	Management of Computer Technology and Databases	4	3	2
SE2320	Risk Management	3	3	0

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 learner conducts a comprehensive on-the-job identification, analysis and evaluation of the various stages necessary to initiate or upgrade an existing safety program.

OBJECTIVES

A graduate of the Post Diploma in Safety Engineering Technology (Co-op), the graduate will have the knowledge and skill that will allow him/her to:

1. Understand the methods of recognition, evaluation and control of hazards to people, facilities, equipment and the environment.
2. Develop and implement programs, systems, procedures and techniques to reduce the losses associated with accidents and occupational disease in industry, government and the service sector.

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.

Career 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 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.

Note: Learners will also be required to complete a number of non-credit co-op education seminars throughout the program (resume writing, job search skills and interview preparation).

ENGINEERING TECHNOLOGY

Welding Engineering Technician

DIPLOMA
- **Two Years**
- **September**
- **Burin Campus**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1 (Fall)				
CM1400	Technical Report Writing I	3	3	0
ET1100	Electrotechnology	4	3	2
MA1700	Mathematics*	4	3	2
PH1100	Physics	4	3	2
EG1110	Engineering Graphics	3	2	2
CH1120	Chemistry	4	3	2
SD1170	Technology Awareness I	0	1	0

*Admission into the appropriate Mathematics course will be decided by the grade in high school math.

EITHER

Learners who received at least 70% in level III Math 3206 or a pass in Math 3205 can be exempted from MA1700

OR

Learners who received a combined average of 70% in 2201 and 3201, or a pass in both of 2200 and 3200 can be exempted from MA1700.

Note: Learners may apply for an exemption from MA1700 provided they meet the appropriate high school level in Mathematics as noted above.

Semester 2 (Winter)		**Cr**	**Le**	**La**
CF1100	Materials & Processes	3	3	1
CM1401	Technical Report Writing II	3	3	0
EG1430	AutoCAD Essentials	3	2	2
ET1101	Electrotechnology	4	3	2
MA1101	Mathematics	5	5	0
SD1171	Technology Awareness II	2	1	0
WD1440	SMAW Fundamentals	4	2	6

SAFETY CERTIFICATIONS

Learners in Welding Engineering Technician will be required to complete certifications in the following areas: Standard First Aid/Heart Start and WHMIS prior to the commencement of Semester 3.

Semester 3 (Intersession)		**Cr**	**Le**	**La**
MP2710	Welding Power Sources	2	2	1
SP1320	Radiation Safety	2	2	1
WD1450	SMAW Processes	4	2	6

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4 (Fall)		**Cr**	**Le**	**La**
CF1101	Materials & Processes	3	3	1
CF2560	Strength of Materials	4	4	0
EG1310	Applied CAD	1	0	2
MC1850	Spreadsheet Applications	1	0	2
SP2110	NDT-MT & RT	3	2	2
EG1321	Drawing Interpretation	1	0	3
WD2620	Wire Feed Arc Welding	4	2	6

Semester 5 (Winter)		**Cr**	**Le**	**La**
SP1450	Quality Management Systems	3	3	0
PR3150	Project Management & Financial Analysis	4	4	0
SP2120	NDT-PT & UT	3	2	2
WD2650	GTAW Processes	4	2	6
WD2680	Welding Standards & Codes	2	2	0
WD2300	Welding Failure Analysis	3	2	2
WD2450	Welding Metallurgy	2	2	1

Semester 6 (Intersession)		**Cr**	**Le**	**La**
DR3310	CAD/CAM	2	2	1
WD3120	Cost Analysis Project	5	2	8
SD1070	Ethics & Law	1	1	0

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Welding engineering technicians create and manage quality control and quality assurance systems associated with welding processes and procedures that are governed by industry standards and codes. This program is designed to develop learners' skills and knowledge associated with this profession.

Graduates will also acquire the skills to perform the visual and non-destructive testing quality control processes associated with a welding quality management system.

The program is supported by modern shop and laboratory facilities for instruction in Welding, Materials, Science, Non-destructive Testing and Computer Aided Design/Computer Aided Manufacturing (CAD/CAM).

Graduates completing this program are automatically eligible for membership in the Association of Engineering Technicians and Technologists of Newfoundland and Labrador (AETTNL), as well as any similar association in Canada.

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 accredited technology programs are recognized internationally by the signatories of the Dublin Accord.

NOTE: There are specific vision requirements that are required by the Canadian General Standards Board prior to completing final certification in each discipline. Please refer to the following link for the requirements: http://www.nrcan-rncan.gc.ca/mms-smm/ndt-end/eli-adm/vis-vis-eng.htm

Objectives
As a welding engineering technician, the graduate will have the knowledge and skill that will allow him/her to:
1. Manage welding quality management systems
2. Interpret and apply standards and codes
3. Determine welding inspection procedures
4. Execute welding inspection and non-destructive testing procedures as defined by standards, codes and related specifications
5. Interpret and evaluate test results
6. Verify procedures and welder or welding operator qualifications
7. Prepare and maintain inspection records and reports
8. Set up equipment, lay out work to specifications and weld to prescribed standards

Curriculum
General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness, and Learner Success.

Specific education in the theory and application of welding processes, procedures, and weldments.

Practical education employing labs and shops focused on Welding, Materials, Science, Non-destructive Testing and Computer Aided Design/Computer Aided Manufacturing (CAD/CAM).

Work exposure consisting of field experience, gained from an optional one week work exposure, in the field of welding engineering technology.

Career Opportunities
The learner, upon graduation, may find employment with contractors, metal fabricators, quality assurance/quality control consultants, welding inspection firms, suppliers, oil & gas exploration/production/processing facilities and any other group that must comply with standards associated with the welding industry.

Graduates with two years of progressive work experience may be eligible to receive the designation of Certified Technician (C. Tech) upon completion of a Professional Practice and Ethics Exam.

External Certifications
The learner, upon graduation, will be eligible to sit the certification examinations for the following: (Note: Fees for these examinations are not included in tuition/supply fees.)
- CSA W178.2 Welding Inspection Level 1
- CSA W47.1 Welder/Welder Operator Qualification
- Canadian Nuclear Safety Commission
  - Certified Exposure Device Operator
- CAN/CGSB 48.9712
  - Radiography (RT) Level I
  - Ultrasonic Inspection (UT) Level I
  - Magnetic Particle Inspection (MT) Level II
  - Liquid Penetrant Inspection (PT) Level II

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science (4 credits) two of which must be selected from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
Note: The remaining two Science credits to be chosen from the highest Science mark in level 1, 2 or 3

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math (60% minimum) MA1040, MA1041
ii. Two Science courses chosen from one of the following three combinations:
a. Introductory Biology: BL1020, BL1021
b. Introductory Chemistry: CH1030, CH1031
c. Introductory Physics: PH1050, PH1051
Note: It is strongly recommended that CAS learners who intend to enroll in Engineering Technology programs complete both of the Chemistry courses and both of the Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English (60% minimum) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (60% minimum) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

NATURAL RESOURCES

Fish and Wildlife Technician

DIPLOMA
• Two Years
• September
• Corner Brook Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
BL1120	Biology I	3	2	3
CM1400	Technical Report Writing I	3	3	0
EN2120	Environmental Citizenship	3	3	0
MA1100	Mathematics	5	4	2
MC1080	Introduction to Computers	2	2	0
SU1150	Field Navigation	3	2	3
GE1420	Physical Environments	3	2	3

*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
OR
Students who received a combined average of 70% in 2201 and 3201, or a pass in both of 2200 and 3200 can be exempted from MA1100.
Students must apply for the exemption.

Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
CS2630	Wilderness Survival	1	1	1
FR1330	Natural Resource Measurements I	3	2	3
BL1400	Fish and Wildlife Biology	4	3	2
EY2210	Silvics/Dendrology I	3	2	3
MA1670	Statistics	4	4	1
SU1550	Remote Sensing	3	2	3

Semester 3 (Intersession I)		**Cr**	**Le**	**La**
FT1410	Fish & Wildlife Field Camp	P/F	2 wks	
RM1400	Wildlife Techniques I	4	3	2
RM1500	Fisheries Techniques I	4	3	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		**Cr**	**Le**	**La**
EY1200	Ecosystem Ecology	2	1	3
FT1430	Fish and Wildlife Camp II	P/F	1 wk	
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
SU1710	Forest Surveying	3	2	3
SU3210	Geographic Information Systems	2	1	3

Semester 5		**Cr**	**Le**	**La**
EY2510	Population Ecology	3	2	2
HR2200	Human Relations	2	1	2
LW2211	Law Enforcement	4	3	2
PR2660	Technical Project and Presentation	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		**Cr**	**Le**	**La**
OJ1301	On-the-Job Training	P/F	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 in the following areas over the two-year period:
- Canadian Firearm Safety Course / Hunter Education
- Paddle Canada (Introduction to Lake Canoeing)
- Pleasure Craft Operators Card
- Standard First Aid & CPR/AED
- WHMIS/OHS
- ATV Safety Training
- Wilderness First Aid
- Trapper Education Certificate
- Snowmobile Safety

NOTE: Students should be aware that additional fees and expenses apply for most of these certifications and for field camps, tours and On-the-Job Training. Students will be required to hold valid certifications for the above courses prior to graduation.

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 of the Forest Resources Technician program.

With increasing emphasis on sustainable development, integrated resource management policy and ecosystem based management across Canada and around 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 courses with the Forest Resources Technician program, is designed to enable students with a specific interest in fish and wildlife to participate in studies directed 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 and parks and interpretation programs. Graduates are employed with governmental and private agencies in fields ranging from forestry technicians to fisheries observers.

Program Transferability

Graduates of the Fish and Wildlife Technician program, who wish to pursue additional post-secondary studies, can apply for entry with advanced standing at a number of Canadian Universities that the college has established credit transfer agreements with. Please refer to the NL Department of Education's transfer guide (www.cna.nl.ca/transfer), or contact your intended university or college.

Accreditation And Recognition

To ensure a consistently high standard of training and education, College of the North Atlantic's Fish and Wildlife Technician program is accredited by the North American Wildlife Technology Association (NATWA).

Entrance Requirements

Academic:

Eligibility for admission to the program requires the applicant to meet one of the following four academic criteria:

1. High School

High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
Note: Students who received a combined average of 70% in high school Academic Mathematics 2201 and 3201, or a pass in both high school Advanced Mathematics 2200 and 3200 can be exempted from Math 1100. Students must apply for the exemption.
iii. Science – (4 credits) two of which must be chosen from:
- Biology: 3201
- Physics: 3204
- Chemistry: 3202
- Earth Systems: 3209
- Environmental Science 3205

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math : MA1040, MA1041
ii. Two Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Fish and Wildlife, Forest Resources Technician, Natural Resources Technician or Northern Natural Resources Technician program complete BL1020 and BL1021.

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status

Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Special Requirements

Because of the extensive field exposure incorporated in this program, the students are required to acquire the following equipment and clothing: compass, axe, snowshoes, rubber boots, hiking boots, chest wader, good quality rainwear, neoprene gloves and other clothing appropriate for outdoor work.

NOTE: Because of the extensive field components incorporated in this program, participation in activities that are physically demanding will be required.

NATURAL RESOURCES

Forest Resources Technician

DIPLOMA

- **Two Years**
- **September**
- **Corner Brook Campus**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
BL1120	Biology I	3	2	3
CM1400	Technical Report Writing I	3	3	0
EN2120	Environmental Citizenship	3	3	0
MA1100	Mathematics I	5	4	2
MC1080	Introduction to Computers	2	2	0
SU1150	Field Navigation	3	2	3
SU1710	Forest Surveying	3	2	3

*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
OR
Students who received a combined average of 70% in 2004 and 3204, or a pass in both of 2205 and 3205 can be exempted from MA1100.
Students must apply for the exemption.

Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
EY2210	Silvics/Dendrology I	3	2	3
FR1330	Natural Resource Measurements I	3	2	3
FR1400	Wood Products	2	1	2
MA1670	Statistics	4	4	1
SU3210	Geographic Information Systems (GIS)	2	1	3
LW2210	Natural Resources Policy & Law	4	4	0

Semester 3 (Intersession I)		**Cr**	**Le**	**La**
FR1230	Forest Fire Management	3	2	3
FR2340	Forest Hydrology	3	2	3
FT1400	Forestry Field Camp	P/F 2 wks		

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4		**Cr**	**Le**	**La**
EY2211	Silvics/Dendrology II	3	2	2
FR1560	Timber Harvesting I	2	1	2
FR1331	Natural Resource Measurements II	2	1	3
FR2350	Forest Entomology/Pathology	3	2	3
FR2360	Silviculture	3	2	3
FT1401	Forestry Camp/Tour	P/F 1 wk		
GE1300	Soil Fundamentals	3	2	3
SU1550	Remote Sensing	3	2	3

Semester 5		**Cr**	**Le**	**La**
FR1561	Timber Harvesting II	4	3	3
FR2430	Wildlife Management	3	2	3
HR2200	Human Relations	2	1	2
LW2211	Law Enforcement	4	3	2
MN1800	Integrated Resource Management	4	3	3
PR2660	Technical Project & Presentation	2	1	2

Semester 6 (Intersession II)		**Cr**	**Le**	**La**
OJ1300	On-the-Job Training	P/F 3 wks		

Certifications

In addition to the formal semester courses listed in the program of studies, students in the Forestry Resources Technician program are required to obtain certification in the following areas over the two-year period:

- ATV Safety Training
- Canadian Firearm Safety Course / Hunter Education
- Paddle Canada (Introduction to Lake Canoeing)
- Pleasure Craft Operators Card
- Standard First Aid & CPR/AED
- WHMIS/OHS
- Snowmobile Safety

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.

Students graduating from the Forest Resources Technician program can complete the Fish and Wildlife program with one additional year. Interested students must begin their studies in the first Technical Intersession of the Fish and Wildlife Technician program.

The Forest Resources Technician program provides a strong foundation in the skills and knowledge required for a career in the natural resources industry. The program strives for innovative training that reaches beyond the classroom with a strong emphasis is on "real life" experiences. Students will be versed in ecosystem management opportunities and challenges and they will be able to use their acquired skills to evaluate and present sustainable management solutions. The program may also inspire individuals to pursue further studies in forestry or other related areas of concentration.

OBJECTIVES

1. Demonstrate the knowledge, skills and attitudes required to participate in finding solutions to forest management problems and challenges.
2. Identify forest ecosystem issues, challenges and alternate solutions.
3. Demonstrate assessment and evaluation techniques involved in forest resource protection, management and utilization.
4. Identify current preventive measures, treatments and practices used in forest resource protection, management and utilization.
5. Demonstrate effective procedures and practices in the use of field and office equipment to assess and analyze natural resources data.

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 all across Canada.

Program Transferability

Graduates of the Forest Resources Technician program, who wish to pursue post-secondary studies, can apply for entry with advanced standing at a number of Canadian Universities that the College has established credit transfer agreements with. Please refer to the NL Department of Education's transfer guide (www.cna.nl.ca/transfer), 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

Academic:
Eligibility for admission to the program requires the applicant to meet one of the following four academic criteria:

1. High School

High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English (2 credits) (minimum 60%) from: 3201 or 3202
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
Note: Students who received a combined average of 70% in high school Academic Mathematics 2201 and 3201, or a pass in both high school Advanced Mathematics 2200 and 3200 can be exempted from Math 1100. Students must apply for the exemption.
iii. Science – (4 credits) two of which must be chosen from:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
• Environmental Science 3205

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. Math : MA1040, MA1041
ii. Two Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Fish and Wildlife, Forest Resources Technician, Natural Resources Technician or Northern Natural Resources Technician program complete BL1020 and BL1021.

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Degree and Technical Profile including the following courses (or equivalent):
i. English 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status

Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

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, logger boots, good quality rainwear, and other clothing appropriate for outdoor work.

Note: Because of the extensive field components incorporated in this program, participation in activities that are physically demanding will be required.

NATURAL RESOURCES

GIS Applications Specialist (Post Diploma)

POST DIPLOMA
• One Year
• September
• Corner Brook Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
GS1110	Cartographic Concepts	3	2	2
GS1210	GIS Database Principles	2	1	2
GS1320	Principles of GIS	3	2	2
GS1410	Problem Solving and Programming	3	2	3
GS1510	Remote Sensing and Image Analysis	2	1	3
GS1710	Web Programming	3	2	2
GS2310	Project Planning and Management	2	1	2
Semester 2		**Cr**	**Le**	**La**
GS2110	Customization of GIS Applications	3	2	2
GS2210	Database Design and Development	2	1	2
GS2410	Spatial Analysis and Applications	3	2	2
GS2510	Spatial Statistics	3	2	2
GS2710	Web GIS Development	3	2	2
GS2910	Advanced Remote Sensing	3	2	2
GS3410	Spatial Database Applications	3	2	3
Semester 3 (Intersession)		**Cr**	**Le**	**La**
GS3110	Advanced Topics in Geomatics	2	1	2
GS1610	Surveying and Mapping	3	2	3
GS3210	Major GIS Project	5	3	6

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. 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
Applicants must have graduated from a recognized college or university with a diploma and/or degree in a relevant program area. Related program areas 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.

Employment Opportunities
Program graduates are prepared to work in positions as diverse as GIS programmers/analysts, applications specialists/consultants, ecosystem IT managers, utilities managers, database managers, GIS systems operators, and land information managers.

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.

SCHOOL OF HEALTH SCIENCES

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.

Health Sciences Programs Education Regulations
1. 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.
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.

2. Medical Laboratory Sciences, Medical Radiography, Respiratory Therapy:
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.

3. Course Pass Marks:
a. Semester 1 and 2 for Medical Laboratory Sciences, Medical Radiography, Respiratory Therapy – 50%
b. Rehabilitation Assistant, Diagnostic Ultrasonography, Medical Laboratory Assistant, and semester 3 onwards for Medical Laboratory Sciences , Medical Radiography , Respiratory Therapy – 60%.
c. Primary Care Paramedicine – 70% for paramedic-specific courses; 60% for all other courses.
d. Promotion to clinical training for Medical Laboratory Sciences (semester 7), Medical Radiography (semester 6), and Respiratory Therapy (semester 7): Students must have passed all courses in the previous semesters and have a minimum G.P.A. of 2.00 to be promoted to the clinical training portion of their program.

4. Students may be required to withdraw from the program at any time if, in the opinion of the Campus Administrator, they are unlikely to profit from continued attendance.

5. Students enrolled in accredited Health Sciences programs will be permitted a maximum of one additional year to complete their program of studies. Students 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.

Health Sciences Programs Admission Requirements
Academic entrance requirements are listed separately for each program. Before final acceptance into a Health Sciences program is granted, the applicant must also submit the following documentation:

1. Current Certificate of Conduct obtained from the Royal Newfoundland Constabulary, the Royal Canadian Mounted Police, or local provincial/municipal forces, including the "Vulnerable Sector Check". Applicants with a criminal offence listed on their Certificate of Conduct may be denied access to clinical training sites, which could delay or even prevent graduation from the program.

2. Immunization Record, obtained from a Public Health nurse in the applicant's area. The record must document the following vaccinations:
i. DPT (Diphtheria, Polio, Tetanus)
ii. MMR (Measles, Mumps, Rubella)
iii. Varicella (Chickenpox)
iv. Hepatitis B
The applicant is responsible for ensuring that all immunization requirements are fulfilled, and the immunization record complete, before submission. Certain vaccinations require a series of immunizations over a period of time; it is therefore important to start the process as early as possible.

3. The College's Health Assessment Form, which includes:
i. Section A: Family medical history, to be completed by the applicant.
ii. Section B: Medical history and physical examination, to be completed by a physician.
iii. Section C: Immunization requirements, to be completed by a physician.

For Section C, the applicant must present their immunization record to the physician, who will then order the required laboratory tests including:
• A blood test, to determine the applicant's immunization status to MMR, Varicella, and Hepatitis B . If the blood test indicates insufficient immunity, the applicant will be advised to obtain the appropriate vaccine(s) from a health care practitioner, and to ensure their immunization record is updated accordingly.
• A tuberculin skin test, to determine if the applicant has been exposed to tuberculosis. A two-step test is required for applicants who have not been tested before; a one-step test is sufficient in all other cases. If the tuberculin test is positive the applicant will be required to have a chest x-ray.
The applicant is responsible for ensuring that all medical requirements are fulfilled, and the documentation complete, before submission. The applicant is also responsible for all associated costs (vaccinations, laboratory testing, physician fees, certificate of conduct fees, etc.).

Health Sciences Clinical Training Practicums
All Health Sciences programs include mandatory clinical training components (practicums). Students will be assigned to affiliated hospital / clinical sites, and will be responsible for meeting the site's pre-employment requirements. Detailed instructions will be provided by program faculty prior to the start of each practicum. Failure to meet the requirements may result in the student being denied access to the clinical site, which could, in turn, affect graduation from the program.
Students may request to complete a clinical training practicum at a site that is not currently offered as an affiliated site. In these cases the College will make every effort to accommodate the request but it is important to note that it will not always be possible to do so. A legal agreement with the requested institution must first be established, and this lengthy process cannot always be accomplished in the requested time frame. The earlier a request is made, the greater the likelihood of success.

HEALTH SCIENCES
Diagnostic Ultrasonography

POST DIPLOMA
• Thirteen Months
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
UL4110	Ultrasound Physics	4	4	0
UL4310	Basic Scanning I	P/F	0	14
UL4420	Abdomen	4	4	0
UL4430	Abdomen Pathology	2	2	0

Note: UL4310 has a Clinical Component of 2.5 hours per week for 9 weeks.

Semester 2		**Cr**	**Le**	**La**
UL4210	Obstetrics	6	6	0
UL4230	Gynecology	2	2	0
UL4311	Basic Scanning II	P/F	0	3
UL4610	Clinical Training	P/F 3 days/ wk		

Semester 3 (22 weeks, May-October)		**Cr**	**Le**	**La**
UL4510	Superficial Structures	2	2	0
UL4611	Clinical Training	P/F	21 wks	

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In semester 3, the Lecture and Lab hours will be adjusted to account for the clinical training component.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

Ultrasonography encompasses the medical use of sound waves to evaluate internal anatomy in real time and to produce diagnostic images. With the continuously expanding applica-

tions 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 Competency Profile of Sonography Canada.
2. To apply the learned academic knowledge in clinical practice.
3. To prepare students in the ability to perform and complete the clinical competencies required by Sonography Canada.
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 Health Authority. Graduates of the program will be eligible to write the certification examinations set by the American Registry of Diagnostic Medical Sonographers (ARDMS) and the examinations set by Sonography Canada.

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 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 meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the "Health Sciences Programs Admission Requirements" section of the Calendar for details.

HEALTH SCIENCES
Home Support Worker / Personal Care Attendant

CERTIFICATE
- **30 Weeks**
- **September**
- **Corner Brook, Clarenville, Carbonear, Grand Falls-Windsor, Happy Valley-Goose Bay, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
HW1000	Introductory Concepts	4	4	0
CM1110	Communication & Documentation	3	3	0
HW1010	Personal Care	4	3	4
HW1020	Home Support Basics	3	2	2
HW1030	Practicum I	4	4 wks	
Semester 2		**Cr**	**Le**	**La**
HW1040	Body Systems & Diseases	4	4	0
HW1050	Growth & Development	2	2	0
HW1060	Mental Health & Social Issues	3	3	0
HW1070	Nutrition & Pharmacology	3	2	2
HW1080	Special Populations	4	4	0
HW1090	Practicum II	4	4 wks	
HW1100	Preceptorship	2	2 wks	

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. The actual lecture and lab hours during both semesters will be adjusted to account for the clinical training component.

Note: In order to graduate from the HSW/PCA program, students must also successfully complete two external certifications:
1. HCP Standard First Aid/CPR Level C (16 hours)
2. Canadian Restaurant & Foodservices Association, National Food Safety Training Program (8 hours)

As integral members of the interdisciplinary healthcare team, Home Support Workers / Personal Care Attendants are responsible for providing support to clients in all aspects of daily living through companionship, physical, spiritual and psychosocial care. Through the use of classroom instruction, skills development laboratories and supervised practicums, the HSW/PCA program provides learners with the necessary skills to work with clients of all age groups across a variety of settings.

OBJECTIVES
Upon successful completion of the HSW/PCA program, students will be able to:
1. Utilize a problem solving approach to provide assistance and support that promotes the physical, emotional, psychosocial and spiritual health and well-being of residents, clients and families.
2. Communicate effectively with clients, residents, families and other members of the health care team.
3. Contribute to promoting and maintaining a safe environment for self, clients, residents, family and others.
4. Work in an ethical, responsible and accountable manner, maintaining safe, competent practice.
5. Support the dignity, uniqueness and fair treatment of residents, clients, family and others.

Entrance Requirements
Eligibility for admission to the Home Support Worker / Personal Care Attendant program requires the applicant to meet one of the following criteria:

1. High School
Provincial High School Graduation Certificate

2. Adult Basic Education (ABE)
Adult Basic Education (Level III)

3. Mature Student Status
Applicants who do not meet the educational prerequisites for this program, are 21 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

Applicants must also:
1. Provide an acceptable certificate of conduct, including vulnerable sector check (Canada wide police check current within six months of being accepted into the program).

2. Submit a preadmission medical report signed by a qualified medical doctor verifying fitness (physical and other) to undertake the program. This includes verification that the applicant has met immunization requirements and TB screening as required for the industry.

In addition to the above, please note:
1. Computer skills are required to be successful in the HSW/PCA program. Therefore, it is recommended that applicants possess basic computer skills including keyboarding, use of word processing software programs, data base software programs, utility software programs, e-mail and internet. Applicants not possessing these skills will be provided assistance through the College as needed.

2. Students may be expected to incur costs associated with completion of external certification courses (HCP Standard First Aid/ CPR Level C and Canadian Restaurant & Foodservices Association, National Food Safety Training Program).

HEALTH SCIENCES
Medical Laboratory Assistant

CERTIFICATE
- **Prince Philip Drive start date September 28, 2015**
- **One Year**
- **September**
- **Grand Falls-Windsor Campus and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
ML1000	General Laboratory Knowledge	3	2	2
ML1010	Orientation & Med Lab Skills	3	2	2
ML1020	Basic Laboratory Calculations	2	2	0
MC1130	Computer Studies	2	2	0
TM1130	Medical Terminology	3	3	0
BL1600	Human Biology	4	3	2
SD1530	Change in the Workplace	3	3	0
Semester 2		**Cr**	**Le**	**La**
ML1030	Practical Clinical Chemistry	3	2	2
ML1040	Practical Hematology	3	2	2
ML1050	Practical Microbiology	3	2	2
ML1060	Practical Histotechnology/Cytology	3	2	2
ML1070	Specimen Collection	3	2	2
CM2200	Oral Communications	2	2	0
Semester 3 (Intersession)		***Cr***	***Le***	***La***
ML1080	Clinical Practicum	6	6 wks	

In Semester 3 students will be assigned to one of the program's affiliated clinical locations.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

Medical Laboratory Assistants are medical laboratory professionals who collect patient specimens, perform pre-analytical procedures to prepare them for analysis, and do data entry, clerical and reception duties. As an integral member of the health care team, the medical laboratory assistant is part of the front line laboratory staff and is often the first person with

whom patients and clients interact. The profession therefore requires strong communication and organizational/time management skills as well as professional conduct.

Objectives
1. To provide the academic knowledge outlined in the Canadian Society for Medical Laboratory Science (CSMLS) competency profile, and to apply the learned knowledge in clinical practice.
2. To provide the knowledge and skills necessary to perform pre-analytical clinical laboratory procedures.
3. To develop the ability to communicate effectively with the patient and other members of the health care team.
4. To maintain a high level of professional conduct in the performance of duty.

Curriculum
This is a 36 week program, which includes training at the College as well as clinical placements at various hospitals/clinics throughout Newfoundland and Labrador. Semesters 1 and 2 (15 weeks each in duration) take place at the College whereas Semester 3 consists of a 6-week clinical placement. Graduates of the program will be eligible to write the certification examination set by the Canadian Society for Medical Laboratory Science.

Accreditation
The program at the Grand Falls-Windsor Campus is accredited by the Canadian Medical Association.

ENTRANCE REQUIREMENTS
Eligibility for admission to the Medical Laboratory Assistant program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
1. English 3201 or 3202 (minimum 60%)
2. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
3. Science (4 credits) chosen from two of:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209
4. Electives (2 additional credits) chosen from any of the remaining 3000 level courses offered in the Senior High School Program.

2. **Comprehensive Arts and Science (CAS) Transition**
Comprehensive Arts and Science (Transition) Certificate with the following courses:
1 English (minimum 60%): CM1060, CM1061
2 Math (minimum 60%): MA1040, MA1041
3 Four Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Medical Laboratory Assistant program complete the Biology and Chemistry courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
1 English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2 Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
3 Science from two of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Students meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the 'Health Sciences Programs Admission Requirements' section of the calendar for details
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HEALTH SCIENCES

Medical Laboratory Sciences

DIPLOMA
• Three Years
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
or				
CM1120	Critical Reading and Writing I	4	4	0
MA1700	Mathematics	4	3	2
or				
MA1100	Mathematics	5	4	2
PH1100	Physics	4	3	2
or				
PH1120	Introductory Physics I	5	4	3
CH1200	Chemistry	4	3	3
or				
CH1135	Chemistry	6	5	3
BL1500	Biology	4	3	3
or				
BL1170	Principles of Biology I	5	4	3
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
or				
CM1145	Critical Reading and Writing II (Context, Substructure, Style)	4	4	0
MA1670	Statistics	4	4	1
PH1200	Physics	4	3	2
or				
PH1121	Introductory Physics II	5	4	3
CH1201	Chemistry	4	3	3
or				
CH1136	Introductory Chemistry II	5	4	3
BL1501	Biology	4	3	3
Semester 3 (Intersession I)		**Cr**	**Le**	**La**
BL2100	Biology	2	1	2
PS1100	Psychology I	2	2	0
or				
PS1150	Introduction to Psychology I	4	4	0
CH2200	Chemistry	2	3	3
or				
CH1150	Introductory Chemistry III	6	5	3
PS1420	Health Care Organization and Structure	3	3	0

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4		**Cr**	**Le**	**La**
BL2400	Microbiology	4	3	4
CH2340	Biochemistry	2	2	0
ML1200	Hematology	4	3	3
ML1300	Introduction to Histological Technique	3	2	2
ML2400	Introduction to Blood Group Systems	3	2	2
ML1120	Immunology	2	2	0
CH2250	Clinical Chemistry	3	2	2
Semester 5		**Cr**	**Le**	**La**
BL2421	Clinical Microbiology	5	4	3
CH2511	Clinical Chemistry	4	3	2
ML1221	Hematology	4	3	2
ML1320	Introduction to Biological Staining	4	3	2
ML1510	Introduction to Transfusion Science	4	3	2
Semester 6 (Intersession II)		**Cr**	**Le**	**La**
BL3410	Clinical Microbiology	2	0	3
CH3510	Clinical Chemistry	2	0	3
ML2210	Hematology	2	0	3
ML2310	Histology	2	0	3
ML2510	Transfusion Science	2	0	3

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Semester 7		**Cr**	**Le**	**La**
SD1660	Clinical Practicum	2		2 wks
Semester 8		**Cr**	**Le**	**La**
BL3411	Clinical Microbiology	3	0	6
CH3511	Clinical Chemistry	3	0	6
ML2211	Hematology	3	0	6
ML2311	Histology	3	0	6
ML2511	Transfusion Science	3	0	6
SD1680	Ethics in Health Care	3	3	0
Semester 9		**Cr**	**Le**	**La**
BL4410	Clinical Microbiology	3	3 wks	
CH4510	Clinical Chemistry	3	3 wks	
ML3210	Hematology	3	3 wks	
ML3310	Histology	3	3 wks	
ML3510	Transfusion Science	3	3 wks	
Semester 10		**Cr**	**Le**	**La**
SD2610	Interdisciplinary Studies One week per discipline	5	5 wks	

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, Dr. G. 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. Smaller rural sites may also be utilized in Semester 7.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

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 judgment/decision-making ability.

Objectives
1. To provide the academic knowledge outlined in the Canadian Society for Medical Laboratory Science (CSMLS) competency profile, and to apply the learned knowledge in clinical practice.
2. To provide the basic knowledge and skills necessary to perform clinical laboratory procedures.
3. To develop the ability to communicate effectively with the patient and with other members of the health team.
4. 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 emphasis is placed upon practical training with clinical experience being 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.

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
Eligibility for admission to the Medical Laboratory Sciences program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
1. English 3201 or 3202 (minimum 60%)
2. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
3. Science (4 credits) chosen from two of:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
1. English (minimum 60%): CM1060, CM1061
2. Math (minimum 60%): MA1040, MA1041
3. Four Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Medical Laboratory Sciences program complete the Biology and Chemistry courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
3. Science from two of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Students meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the 'Health Sciences Programs Admission Requirements' section of the calendar for details.

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.

HEALTH SCIENCES
Medical Radiography

DIPLOMA
• Three Years
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
CM1400	Technical Report Writing I	3	3	0
or				
CM1120	Critical Reading and Writing I	4	4	0
MA1700	Mathematics	4	3	2
or				
MA1100	Mathematics	5	4	2
PH1100	Physics	4	3	2
or				
PH1120	Introductory Physics I	5	4	3
CH1200	Chemistry	4	3	3
or				
CH1135	Chemistry	6	5	3
BL1500	Biology	4	3	3
or				
BL1170	Principles of Biology I	5	4	3
Semester 2		**Cr**	**Le**	**La**
CM1401	Technical Report Writing II	3	3	0
or				
CM1145	Critical Reading and Writing II (Context, Substructure, Style)	4	4	0
MA1670	Statistics	4	4	1
PH1200	Physics	4	3	2
or				
PH1121	Introductory Physics II	5	4	3
CH1201	Chemistry	4	3	3
or				
CH1136	Introductory Chemistry II	5	4	3
BL1501	Biology	4	3	3
Semester 3 (Intersession I)		**Cr**	**Le**	**La**
BL2100	Biology	2	1	2
PS1420	Health Care Organization & Structure	3	3	0
PS1100	Psychology I	2	2	0
or				
PS1150	Introduction to Psychology I	4	4	0
PH1201	Physics	2	2	1

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4		**Cr**	**Le**	**La**
MX2102	Radiographic Anatomy and Pathology	4	4	0
MX2110	Radiographic Technique	5	4	2
MX2200	Image Recording	4	3	2
MX2310	Apparatus and Accessories	3	3	0
MX2410	Patient Care and Safety	3	3	0
PH2200	Radiation Physics	3	3	0
SD1620	Clinical Orientation	P/F	0	3
Semester 5		**Cr**	**Le**	**La**
MX2103	Radiographic Anatomy and Pathology	5	5	0
MX2120	Radiographic Technique	5	4	2
MX2201	Image Recording	4	3	2
MX2301	Apparatus and Accessories	5	4	4
MX2500	Radiation Protection & Radiobiology	3	3	0
SD1621	Clinical Orientation	P/F	0	3

Clinical Year (May-April)

Semester 6 (Intersession II)		**Cr**	**Le**	**La**
MX1510	Clinical Radiography Orientation	16	16 wks	
SD1680	Ethics in Health Care	3	3	0
Semester 7		**Cr**	**Le**	**La**
MX3250	Clinical Radiography	16	16 wks	
Semester 8		**Cr**	**Le**	**La**
MX3260	Clinical Radiography	16	16 wks	

Students rotate through the sites of Eastern Regional Health Authority.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

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: 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 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 Health Authority. Students will follow a rotation schedule designed to provide broad clinical exposure to the different radiographic specialties.

Graduates of the program 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
Eligibility for admission to the Medical Radiography program requires the applicant to meet one of the following four academic criteria:

1. High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or 3202 (minimum 60%)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science – (4 credits) chosen from two of:
• Biology: 3201
• Physics: 3204
• Chemistry: 3202
• Earth Systems: 3209

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
1. English (minimum 60%): CM1060, CM1061
2. Math (minimum 60%): MA1040, MA1041
3. Four Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Medical Radiography program complete the Biology and Physics courses.

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
3. Science from two of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Students meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the 'Health Sciences Programs Admission Requirements' section of the calendar for details.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

HEALTH SCIENCES
Practical Nursing

DIPLOMA
• 16 Months
• September
• Corner Brook, Clarenville, Carbonear, Grand Falls-Windsor, and Happy Valley-Goose Bay Campuses

Semester 1
September to December (15 weeks)
Course Hours per Semester

	Theory	Clinical	Lab	Total Hours
N101 Introduction to Nursing	36			36
				72
N102 Anatomy & Physiology I	36			
				36
N103 Therapeutic Relationships	36	12		48
N105 Gerontological Nursing	36			36
N107 Professional Development I	18			18
N108 Pharmacology I	24		18	42
CN101 Introduction to Nursing Practice (LTC)	80		80	
TOTAL	186	80	66	332

Semester 2 January to April (15 weeks)
Course Hours per Semester

	Theory	Clinical Lab		Total Hours
N201 Mental Health	36			36
N202 Anatomy & Physiology II	36			36
N204 Health Assessment	36		20	56
N206 Medical-Surgical Nursing I	36	25	61	
N208 Pharmacology II	24	15		39
Clinical Blocks				
CN204 Mental Health Nursing Practice	80	80		
CN206 Medical-Surgical Nursing Practice I	80	80		
TOTAL	168	160	60	388

Semester 3 May to August (15 weeks)
Course Hours per Semester

	Theory	Clinical	Lab	Total Hours
N301 Community Health Nursing	36		8	44
N302 Maternal-Child Health Nursing	36		4	40
N306 Medical-Surgical Nursing II	36			36
N307 Professional Development II	18			18
N300 Advanced Skills			15	15
Clinical Blocks				
CN301 Community Health Nursing Practice	80	80		
CN302 Maternal-Child Health Nursing Practice	80	80		
CN305 Pharmacology and Leadership Nursing Practice in the Gerontological Setting		80		80
CN306 Medical-Surgical Nursing Practice II		80		80
TOTAL	126	320	27	473

Semester 4 September to December (15 weeks)
Course Hours per Semester

	Theory	Clinical	Lab	Total Hours
N401 Leadership Seminars/ SIM Labs/Review/ Resume Writing Workshop (optional)	10		30	40
CN401 Nursing Practice for Professional Development		192		192
CN402 Preceptorship		320		320
TOTAL	10	512	30	552

Total Program Hours	Theory	Clinical	Lab	Total
	490	1072	183	1745

College of the North Atlantic brokers the Practical Nursing program from the Centre for Nursing Studies, delivering it in regions, outside St. John's, with a demonstrated labor market need. To access information for the offering in St. John's please refer to www.centrefornursingstudies.ca.

This program is designed to prepare graduates to provide nursing services for clients across the lifespan in institutional and community based settings within the approved scope of practice for licensed practical nurses in Newfoundland and Labrador. It introduces the learner to the role of practical nurse in promoting, protecting, restoring, maintaining and supporting the health status of individuals across the health and developmental continuum.

The program encompasses classroom work supplemented with skills lab and nursing practice components.

Pnbursary
The Province of Newfoundland and Labrador provides a Practical Nursing Bursary Program for students enrolled in the 16-month Practical Nursing program. The program provides up to a $5,000 bursary to selected students, which covers the education program costs. For more information visit the Department of Health and Community Services website.

To receive a paper application package by mail, please contact the appropriate campus:

Carbonear Campus
Contact Person: Barbara Robichaud

Phone: (709) 596-8910

Clarenville Campus
Contact Person: Louise Carpenter
Phone: (709) 466-6901

Corner Brook Campus
Phone: (709) 637-8530
Fax: (709) 634-2126

Grand Falls-Windsor Campus
Phone: (709) 292-5600
Fax: (709) 489-5765

Happy Valley-Goose Bay Campus
Contact Person: Catherine Morgan
Phone: (709) 896-6304

Application Process
This program is designed to prepare graduates to provide nursing services for clients across the lifespan in institutional and community based settings within the approved scope of practice for licensed practical nurses in Newfoundland and Labrador.

Applicants are asked to complete all documentation contained in the Practical Nurse Application package available by contacting Learner Services.

Only completed application packages will be considered.

HEALTH SCIENCES

Primary Care Paramedicine

DIPLOMA

- **NOTE: Applications to this program will be considered for entry beginning with September 2016 Fall intake. Prince Philip Drive Campus - September intake; Bay St. George Campus - January intake**
- **68 Weeks**
- **Varies**
- **Bay St. George, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
BL1180	Anatomy & Physiology	5	5	0
PS1420	Health Care Organization & Structure	3	3	0
TM1130	Medical Terminology	3	3	0
CM1250	Communications in the Workplace	3	3	0
PA1210	Health & Fitness I	2	1	3
PA1370	Pharmacology I	2	2	0
PA1125	EMS Basics	5	4	4
Semester 2		**Cr**	**Le**	**La**
SD1680	Ethics in Health Care	3	3	0
CM1270	Communications in Health Care	3	3	0
PA1211	Health & Fitness II	2	1	3
PA1520	Mental Health	3	2	2
PA1371	Pharmacology II	3	2	3
PA1230	Airway Management	2	1	3
PA1280	Cardiovascular Emergencies	4	3	2
Semester 3 Intersession		**Cr**	**Le**	**La**
PA1290	Community Paramedicine	2	1	2
PA1430	Medical Emergencies	5	4	2

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester.

Semester 4		**Cr**	**Le**	**La**
PA1440	Clinical	3	3 wks	
Semester 5		**Cr**	**Le**	**La**
PA2000	Traumatology	5	3	5
PA2005	Obstetrics & Pediatrics	3	2	3
PA1515	Special Populations	2	2	0
PA1415	Interagency Relations	3	2	2
PA2020	Simulation Lab	3	0	0
Semester 6		**Cr**	**Le**	**La**
PA2025	Practicum	14	14 wks	

Provision of emergency medical services (EMS) is a unique and vital community service. Paramedics are highly skilled members of a health care team who function in the realm of EMS, initiating medical treatment for individuals in urgent and non-urgent situations. Based on sound knowledge, paramedics demonstrate rational problem solving abilities and excellent decision-making skills. This program addresses not only the operational/procedural skills of the primary care paramedic, but also ethical and professional behaviors such as effective communication. Mental/physical fitness and healthy lifestyles are emphasized throughout the program, as paramedics must be fit to perform the requirements of the occupation.

This is a challenging program that provides the student with extensive classroom and clinical/practicum experience. Graduates of this program will be prepared to work in a competent and skillful manner providing pre-hospital care in accordance with the national standards for paramedics.

Objectives
Upon successful completion of the Primary Care Paramedic program, students will be able to:
1. Demonstrate required skills, knowledge, and abilities, as prescribed by the Paramedic Association of Canada National Occupational Competency Profile with consistency, independence, timeliness, accuracy, and appropriateness.
2. Integrate assessment, diagnostic, and treatment procedures into the holistic management of patients in the out-of-hospital setting.
Use critical thinking and problem-solving skills that promote logical and independent decision-making in the provision of paramedic care.
3. Maintain a level of physical and mental health necessary to perform the bona fide occupational requirements.
4. Communicate effectively and work collaboratively with other members of the health care team to serve patients and employers with the highest degree of competence.
5. Reflect professionalism through personal deportment and public interactions.
6. Demonstrate ethical behaviour, empathy and respect for individuals.

Accreditation
This program is accredited by the Canadian Medical Association.

Entrance Requirements
PLEASE NOTE: Effective for the 2015-2016 academic year, admission to the Primary Care Paramedicine program will change from the current 'first-come-first-served' model to a competitive entry process.

Eligibility for admission to the Primary Care Paramedicine program requires the applicant to meet one of the following four academic criteria:

1.High School
High School Graduation Certificate with a 60% overall average in the following (or equivalent):
I. English: 3201 or 3202 (minimum 60%)
II. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
III. Two Science courses:
• Biology: 3201
• Chemistry: 3202

2. Comprehensive Arts and Science (CAS) Transition
Comprehensive Arts and Science (Transition) Certificate with the following courses:
I. English (minimum 60%): CM1060, CM1061
II. Math (minimum 60%): MA1040, MA1041
III. Four Science courses:
Biology: BL1020, BL1021
Chemistry: CH1030, CH1031

3. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
I. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
II. Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
III. Science :
Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
Chemistry 1102, 2102A, 2102B, 2102C, 3102A, 3102B, 3102C

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.

4. Mature Student Status
Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause

Additional Entrance Requirements
• Current CPR (Level HCP)
• Current First Aid Certificate (Standard)
• Class 05 Learner (Level 1) Driver's License (minimum)
• Current Certificate of Conduct
• Immunization Record
• Health Assessment Form (including a pre-physical fitness activity check)

(See the "Health Sciences Program Admission Requirements" section of the calendar for details).

Note: Employers in land ambulance may require that Paramedics have a class 04 driver's license which can be obtained through a Provincial Motor Vehicle Registration Office.

Additional Information
Students will be expected to travel and incur costs associated with clinical/practicum placements. Placement sites are limited and students will be assigned based on availability.

HEALTH SCIENCES

Rehabilitation Assistant (OTA & PTA) (DL)

DIPLOMA
- **2 Years**
- **September**
- **Distributed Campus**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1				
BL1390	Anatomy and Physiology	5	4	3
TM1130	Medical Terminology	3	3	0
CM1270	Communications in Health Care	3	3	0
TA1141	Orientation to Rehabilitation	4	4	0
TA1601	Introduction to Clinical Skills	2	1	3
TA1610	Clinical Orientation Placement	P/F 1 wk		
Semester 2				
TA2140	Disease, Injury and Intervention I	4	4	0
TA2221	Communication Disorders in Rehabilitation	2	2	0
PS1130	Psychology I	3	3	0
TA1231	Human Movement and Kinesiology	4	3	2
TA1612	Advanced Clinical Skills	3	2	3
Semester 3				
TA2141	Disease, Injury and Intervention II	4	4	0
TA2521	Mental Health Concepts & Techniques	2	2	0
TA1701	Clinical Placement I	2	2 wks	

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4				
SD1680	Ethics in Health Care	3	3	0
PS1420	Health Care Organization & Structure	3	3	0
TA1511	Introduction to Gerontology	2	2	0
TA2671	Therapeutic Skills I for OTA	5	4	3
TA2685	Therapeutic Skills I for PTA	5	4	3
Semester 5				
TA2741	Clinical Placement II for OTA	5	5 wks	
TA2751	Clinical Placement II for PTA	5	5 wks	
TA2615	Therapeutic Skills II for the Rehabilitation Assistant (OTA and PTA)	6	5	4

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In semester 5 the Lecture and Lab hours will be adjusted to account for the clinical training component.

Semester 6				
TA2710	Clinical Placement III for Rehabilitation Assistant (OTA and PTA)	6	6 wks	

Rehabilitation Assistants provide a vital supporting role in the delivery of efficient and effective rehabilitation services. They work as members of a health care team, under the supervision of and in collaboration with Occupational Therapists and Physiotherapists. Rehabilitation Assistants are involved with the safe and proficient delivery of activities that have been established as a treatment plan for clients coping with temporary or permanent limitations in occupational performance and / or functional movement. The role of the Rehabilitation Assistant varies depending on the practice setting, which includes rehabilitation facilities, hospitals, long-term care facilities, community settings, and private practices. The Rehabilitation Assistant works with individuals, families, or groups, helping clients achieve optimal levels of physical, psychosocial and/or cognitive abilities.

Objectives

1. To provide the academic knowledge and skills outlined in the competency profiles for Physiotherapist Assistants (Canadian Physiotherapy Association) and Occupational Therapist Assistants (Canadian Association of Occupational Therapists).
2. To apply the learned academic knowledge and skills in clinical practice.
3. To develop effective communication skills and professional behaviors.
4. To perform delegated therapeutic skills safely and effectively under the supervision of an Occupational Therapist or Physiotherapist.
5. To provide the community with skilled Rehabilitation Assistants who can serve their employers and clients with the highest degree of competence.

Curriculum

The curriculum for this program encompasses six (6) semesters. Students may enroll on a full or part-time basis. 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 structured 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 hands-on laboratory sessions and structured clinical placements. These activities take place as close as possible to the student's home location; however, in some cases travel may be necessary. Clinical placements are limited and students will be notified of available locations in their area. Program Transferability
Graduates of College of the North Atlantic's Occupational Therapist Assistant or Physiotherapist Assistant Certificate program may apply to enter Semester 4 of the Rehabilitation Assistant (OTA and PTA) program to receive dual certification. Graduates with one certification (OTA or PTA) from another institution are also eligible for advanced standing into the Rehabilitation Assistant program; entry point will be determined on a case-by-case basis.

Entrance Requirements

Eligibility for admission to the Rehabilitation Assistant program requires the applicant to meet one of the following four academic criteria:

1. High School

High School Graduation Certificate with a 60% overall average in the following (or equivalent):
i. English 3201 or 3202 (minimum 60%)
ii. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
iii. Science – (2 credits) chosen from one of:
Biology: 3201
Physics: 3204
Chemistry: 3202
Earth Systems: 3209
iv. Electives (2 additional credits) chosen from any of the remaining 3000 level courses offered in the Senior High School Program.

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
i. English (minimum 60%): CM1060, CM1061
ii. Math (minimum 60%): MA1040, MA1041
iii. Two Science courses chosen from one of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051
Note: It is strongly recommended that CAS students who intend to enroll in the Rehabilitation Assistant (OTA/PTA) program complete both of the Introductory Biology courses.

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
i. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
ii. Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
iii. Science from one of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status

Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Students meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the 'Health Sciences Programs Admission Requirements' section of the calendar for details.

HEALTH SCIENCES

Respiratory Therapy

DIPLOMA
- **Three Years**
- **September**
- **Prince Philip Drive Campus**

COURSES

CODE	TITLE	Cr	Le	La
Semester 1				
CM1400	Technical Report Writing I	3	3	0
or				
CM1120	Critical Reading and Writing I	4	4	0
MA1700	Mathematics	4	3	2
or				
MA1100	Mathematics	5	4	2
PH1100	Physics	4	3	2
or				
PH1120	Introductory Physics I	5	4	3
CH1200	Chemistry	4	3	3
or				
CH1135	Chemistry	6	5	3
BL1500	Biology	4	3	3
or				
BL1170	Principles of Biology I	5	4	3
Semester 2				
CM1401	Technical Report Writing II	3	3	0
or				
CM1145	Critical Reading and Writing II (Context, Substructure, Style)	4	4	0
MA1670	Statistics	4	4	1
PH1200	Physics	4	3	2
or				
PH1121	Introductory Physics II	5	4	3
CH1201	Chemistry	4	3	3

or				
CH1136	Introductory Chemistry II	5	4	3
BL1501	Biology	4	3	3

Semester 3 (Intersession I)		Cr	Le	La
BL2100	Biology	2	1	2
PS1420	Health Care Organization and Structure	3	3	0
PS1100	Psychology I	2	2	0
or				
PS1150	Introduction to Psychology I	4	4	0
CH2200	Chemistry	2	3	3
or				
CH1150	Introductory Chemistry III	6	5	3

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Semester 4		Cr	Le	La
BL2330	Cardiopulmonary Physiology	4	4	0
BL2340	Cardiopulmonary Pathophysiology	4	4	0
BL2410	Microbiology	3	3	0
RT2200	Gas Supply & Control	5	4	3
RT2300	Pharmacology	3	3	0
RT2450	Respiratory Therapy Procedures	4	4	3
SD1610	Clinical Skills I	P/F	0	3

Semester 5		Cr	Le	La
RT2230	Mechanical Ventilators	4	3	3
RT2220	Mechanical Ventilation	4	3	3
RT2310	Anesthesia	3	3	0
RT2451	Neonatal/Pediatric Respiratory Care I	3	2	2
RT2500	Cardiopulmonary Diagnostics	4	3	4
SD1611	Clinical Skills II	P/F	0	3

Semester 6(Intersession II)		Cr	Le	La
RT3401	Comprehensive Respiratory Care	2	2	0
SD1680	Ethics in Health Care	3	3	0
RT2452	Neonatal/Pediatric Respiratory Care II	3	2	2
RT3450	Clinical Skills III	3	0	8

Course Lecture (Le) and Lab (La) hours per week are based on a 15 week semester. In intersession the Lecture and Lab hours will be adjusted to reflect the shorter semester length.

Clinical Year (August-June)

Semester 7		Cr	Le	La
RT1610	Clinical Orientation	1	1 wk	
RT3510	Clinical Practicum I	15	15 wks	

Semester 8		Cr	Le	La
RT3520	Clinical Practicum II	15	15 wks	

Semester 9		Cr	Le	La
RT3530	Clinical Elective	7	7 wks	

During the third year of the program students will rotate through various training sites of the Eastern Regional Health Authority (RIHA). For the clinical elective course, students may have the opportunity to avail of training placements with other RIHA's within the Province of Newfoundland and Labrador.

Students must possess valid First Aid / Cardiopulmonary Resuscitation (CPR) certification to be eligible for graduation from the college.

The field of Respiratory Therapy is diverse. Respiratory Therapists (RT's) are healthcare professionals involved in the assessment, diagnosis, and treatment of many cardiopulmonary disorders. RT's are integral members of the health care team, working in hospital Intensive Care Units, Operating Rooms, Emergency Departments, Delivery Rooms, Pulmonary Function Laboratories, and Medical and Surgical wards. RT's may also work in the community setting as homecare therapists, educators, or medical/pharmaceutical representatives. Respiratory Therapists must be able to communicate effectively, possess excellent interpersonal and critical thinking skills, and have the ability to exercise good judgement in critical medical situations.

Objectives

To provide the academic knowledge outlined in the National Alliance of Respiratory Therapy Regulatory Bodies National Competency Profile (NCP).

1. To apply the learned academic knowledge in clinical practice.
2. To develop a sense of professionalism and responsibility.
3. To demonstrate an adequate understanding of the Registered Respiratory Therapists' role and responsibilities within the health care team.
4. To provide the community with trained personnel who can serve their employers and clients with the highest degree of competence.

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 will be eligible to write the National Certification Examination administered by the Canadian Board for Respiratory Care (CBRC). 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.

Accreditation

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.

Graduates may also pursue further studies in the areas of Anaesthesia Assistant, Cardiovascular Perfusion, or Sleep Medicine.

ENTRANCE REQUIREMENTS

Eligibility for admission to the Respiratory Therapy program requires the applicant to meet one of the following four academic criteria:

1. High School

High School Graduation Certificate with a 60% overall average in the following (or equivalent):
1. English 3201 or 3202 (minimum 60%)
2. Mathematics (4 credits) chosen from:
Advanced: 2200, 3200 (50% minimum in each course)
Academic: 2201 (50% minimum), 3201 (60% minimum)
3. Science (4 credits) chosen from two of:
- Biology: 3201
- Physics: 3204
- Chemistry: 3202
- Earth Systems: 3209

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with the following courses:
1. English (minimum 60%): CM1060, CM1061
2. Math (minimum 60%): MA1040, MA1041
3. Four Science courses chosen from two of the following three combinations:
a. Biology: BL1020, BL1021
b. Chemistry: CH1030, CH1031
c. Physics: PH1050, PH1051

Note: It is strongly recommended that CAS students who intend to enroll in the Respiratory Therapy program complete the Biology and Chemistry courses.

3. Adult Basic Education (ABE)

Adult Basic Education (Level III) Graduation with Degree and Technical Profile (overall 60% average) including the following courses (or equivalent):
1. English (minimum of 60%) 3101A, 3101B, 3101C or 3102A, 3102B, 3102C
2. Mathematics (minimum of 60%) 1104A, 1104B, 1104C, 2104A, 2104B, 2104C, 3104A, 3104B, 3104C
3. Science from two of the following sections:
a. Biology 1101, 2101A, 2101B, 2101C, 3101A, 3101B, 3101C
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 (and appropriate grades) may be eligible for admission to the program provided the appropriate selection of courses including those outlined above have been completed.

4. Mature Student Status

Applicants who do not meet the entrance requirements, are 19 years of age or older, and have been out of school for at least one year may be considered on an individual basis under the Mature Student Clause.

Students meeting academic entrance requirements are accepted on a first come first served basis. Before final acceptance is granted, additional documentation must be submitted; see the 'Health Sciences Programs Admission Requirements' section of the calendar for details.

HEALTH SCIENCES
X-RAY SKILLS FOR MEDICAL LABORATORY TECHNOLOGISTS

POST DIPLOMA
• 5 Semesters
• May
• Prince Philip Drive Campus

COURSES

CODE	TITLE	Hrs/wk		
Semester 1		**Cr**	**Le**	**La**
PH1070	X-Ray Skills Physics	2	2	0
LX1000	Digital Imaging I: Capture, Display, and Archiving	5	5	0
LX1010	Apparatus & Accessories	3	3	0
Semester 2		**Cr**	**Le**	**La**
LX1020	Radiographic Anatomy & Pathology	4	4	0
LX1030	Radiobiology & Protection	3	3	0
LX1040	Digital Imaging II: Quality Management	3	3	0
LX2000	Clinical I	P/F	0	3 hr/wk
Semester 3		**Cr**	**Le**	**La**
LX1050	Radiographic Technique	6	6	0
LX1060	Patient Care & Safety	2	2	0
LX2010	Clinical II	P/F	0	3 hr/wk
Semester 4		**Cr**	**Le**	**La**
LX1070	Simulated Practical Radiography	5	0	7 wks
Semester 5		**Cr**	**Le**	**La**
LX1080	Clinical Radiography	16	0	16 wks

Course Lecture (Le) and Lab (La) hours per week are based on a 15-week semester

The X-Ray Skills for Medical Laboratory Technologists program is a five semester post-diploma program offering training in basic radiography to Medical Laboratory Technologists who are presently practicing in one of the four regional health authorities in the province of Newfoundland and Labrador. It emphasizes a practical approach to developing the knowledge and skills necessary to perform limited general radiography. Students learn how to interpret requisitions from requesting physicians, provide quality patient care, and operate sophisticated radiation emitting devices to produce images of the skeletal, digestive, respiratory or urinary systems. Combined Laboratory and X-Ray (LX) Technologists practice within the standards set by the provincial Scope of Practice.

The program begins by providing students with the theory of x-ray production, equipment use, and image optimization. Students then go on to study radiographic anatomy, positioning techniques and radiation safety and quality procedures. Theoretical learning is supplemented by practical clinical exposure during the second and third semesters. The fourth semester concentrates on providing a correlation between theory and patient care through seven weeks of intensive simulation procedures. Finally, students advance to a sixteen week clinical radiography placement where they participate in work-integrated learning under the direct supervision of a registered medical radiography technologist. Students gain experience by applying theoretical and practical concepts and, following attainment of clinical competence, are ready to practice as entry level Combined Laboratory and X-Ray (LX) Technologists.

Program Objectives

Upon successful completion of the X-Ray Skills for Medical Laboratory Technologists program, students will be able to:

1. Practice within the standards of the Combined Laboratory and X-Ray (LX) Technologist Scope of Practice NL.
2. Operate general diagnostic imaging equipment and correctly position patients to produce quality images that assist in diagnosis.
3. Follow radiation protection practices and legislation to minimize risk to patients, staff and visitors.
4. Maintain and assess radiographic, accessory, and image processing equipment for quality assurance and mitigation of potential risks.
5. Provide general patient care, assessments, and transfers as needed.
6. Practice independent judgment and critical thinking in the performance of duties.
7. Perform administrative and clerical duties using computer technology while ensuring compliance with legal, quality and privacy standards.

Entrance Requirements

Entrance requirements for the X-Ray Skills for Medical Laboratory Technologists program are as follows:

- Graduation from an accredited program in Medical Laboratory Technology
- Current registration with the Canadian Society for Medical Laboratory Science (CSMLS)
- Employed at a Regional Health Authority within the province of Newfoundland and Labrador as a Medical Laboratory Technologist

SCHOOL OF INDUSTRIAL TRADES

INDUSTRIAL TRADES

Aircraft Maintenance Engineering Technician

DIPLOMA

- **Two Years**
- **September**
- **Gander Campus**

COURSES

CODE	TITLE	
Semester 1		**Hrs**
MA1070	Structural Repair Shop Mathematics	30
MA1072	Aircraft Maintenance Mathematics	30
GM1120	General Maintenance Procedures (M, E, S)	30
GM1130	Aircraft Servicing (M, E)	25
GM1140	Standard Workshop Practices (M, E, S)	55
PE1100	Basic Electronics (M, E)	55
PT1115	Reciprocating Engine Fundamentals (M, E)	20
PT1110	Reciprocating Engine Fundamentals (M)	35
AF1130	Aircraft Structures & Materials (M, E, S)	55
PE1140	Basic AC Electronics (M, E)	55
PE1200	Basic Aircraft Electrical Systems (M, E)	55
Semester 2		**Hrs**
PH1300	Physics for Aircraft Maintenance	60
PE2100	Analog Electronics (M, E)	55
GM1320	Aircraft Weight & Balance (M, E)	25
GM1420	Non-Destructive Testing (M)	30
AV1220	Basic Aircraft Instruments I (M, E)	55
AS2120	Aircraft Hydraulics & Pneumatic Systems (M)	25
AS2125	Aircraft Hydraulics & Pneumatic Systems (M, E)	30
GM1550	Maintenance Regulations (M, E, S)	55
TS1550	WHMIS	6
AS2520	Reciprocating Engine Fuel Metering (M)	55
AV1320	Aircraft Communications Equipment (M, E)	55
Semester 3		**Hrs**
AS2225	Aerodynamics & Flight Controls (M, E)	25
AS2220	Aerodynamics & Flight Controls (M)	30
AF1240	Aircraft Structural Repair (M, E, S)	55
DP1840	Motors, Generators & Starting Systems (M, E)	55
AS2165	Aircraft Landing Gear Systems (M, E)	30
AS2160	Aircraft Landing Gear Systems (M)	25
Semester 4		**Hrs**
EG1160	Technical Graphics	60
PT2120	Reciprocating Engine Systems (M)	55
PT2210	Turbine Engine Maintenance (M, E)	55
AS2335	Aircraft Systems, (M, E)	30
AS2330	Aircraft Systems (M)	25
AV2220	Aircraft Instruments II (M, E)	55
PT2240	Turbine Engine Systems (M)	55
AV1500	Basic Navigation I (M, E)	31
AV1510	Navigation Systems Installation (E)	24
AF1270	Composite Materials (M, S)	55
PE1300	Battery Maintenance (M, E)	25
PE1350	Electrical Power Systems (M, E)	30
Semester 5		**Hrs**
CM2160	Communications Essentials	45
SD1710	Job Search Techniques	15
PE2140	Digital Electronics (M, E)	55
AV2170	Pulse Navigation Systems (M, E)	25
AV2180	Integrated Navigation Systems Installation (E)	30
AS2415	Propellers and Systems (M, E)	20
AS2410	Propellers and Systems (M)	35
AF1280	Stress Skin Repair/Modification (M, E)	25
AF1290	Non-Metallic Structures (M)	12
AV2310	Major Communications Radio Install (E)	55
GM1570	Corrosion Control (M, E, S)	18
RW3140	Rotary Wing Aircraft (M)	55
Semester 6		**Hrs**
RW3141	Rotary Wing Aircraft Systems (M)	55
AV3110	Monitoring and Digital Systems (E)	55
AV2510	Auto Flight Theory (M, E)	25
AV2540	Auto Flight Ramp Testing (M)	15
AV2570	Auto Flight Troubleshooting (E)	15
PT2121	Reciprocating Engine Overhaul (M)	55

Program Description

This two-year Aircraft Maintenance Engineering Technician program offers training in the inspection, maintenance, and repair of aircraft and aircraft components. Some of the duties include:

- Perform aviation safety and airworthiness inspections
- Troubleshoot and repair fixed wing aircraft and helicopters
- Safely perform ground handling and routine inspections
- Perform power plant and structural repairs
- Troubleshoot and repair aircraft systems and avionics

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.

Outcomes

1. Demonstrate safety practices in the aviation industry.
2. Demonstrate skills and knowledge required to work in the aircraft maintenance field.
3. Develop and strengthen the related knowledge and skill in subjects which complement and support the technical training.
4. Demonstrate positive attitudes and behavior that will enable me to become successful in the industry.
5. Meet the requirements for three Aircraft Maintenance Engineer licenses: M1-Small aircraft, M2- Large aircraft and E-Avionics

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation Certificate with a 60% average in nine level 3000 credits, or equivalent, including Mathematics (4 credits) chosen from:
i. Advanced: 2200, 3200 (50% minimum in each course)
ii. Academic: 2201 (50% minimum), 3201 (60% minimum)

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate with MA1040 (Math Fundamentals 1) and MA1041 (Math Fundamentals II).

3. Adult Basic Education

Adult Basic Education (Level III) Graduation with a Degree and Technical Profile (or Business Related College Profile), including the following courses (or equivalent):
i. Mathematics: 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.

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older, and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities

Graduates may find employment in the following areas:
Fixed wing airlines
- Helicopter operators
- Rotary commercial airlines
- Aircraft manufacturers
- Repair and overhaul companies
- Private operators
- Flying schools
- Government departments

INDUSTRIAL TRADES

AIRCRAFT MAINTENANCE ENGINEERING TECHNICIAN - ADVANCED DIPLOMA (EASA)

ADVANCED DIPLOMA

- **15 Weeks**
- **September**
- **Gander Campus**

COURSES

CODE	TITLE	
Semester 1		**Hrs**
PH1030	Physics Refresher for EASA Module 2	60
CM1030	Essay Writing for EASA Exams	6
MA1150	Math Refresher for EASA Module 1	18
PE1220	EASA Module 3, 4, 5 Refresher	24
PE1230	EASA Module 5 Top Up	24
GM1340	EASA Module 6 Top Up	12
GM1350	EASA Module 7 (A) Top Up	24
GM1360	EASA Module 6, 7 (A), 8 Refresher	24
GM1230	Human Factors EASA Module 9	25
GM1700	Legislation EASA Module 10	35
AF1170	EASA Module 11 (A) Top Up	42
AF1180	EASA Module 11 (A) New Technologies	30
AF1190	EASA Module 11 (A) Refresher	24
PT1200	EASA Module 15 Top Up	54
PT1210	EASA Module 15, 17 (A) Refresher	24

This program is designed to provide a course of study that will prepare graduates for employment under the regulations for European Aviation Safety Agency (EASA) certification as an Aircraft Maintenance Engineer. Some of the duties of graduates include:

- Perform aviation safety and airworthiness inspections
- Troubleshoot and repair fixed wing aircraft and helicopters
- Safely perform ground handling and routine inspections
- Perform power plant and structural repairs
- Troubleshoot and repair aircraft systems and avionics

Objectives

1. Prepare students for EASA certification exams
2. Strengthen exam and essay writing techniques
3. Review content in the Aircraft Maintenance Engineering Program
4. Practice exams for EASA certification
5. Complete EASA certification exams
6. Demonstrate safety practices in the aviation industry
7. Demonstrate skills and knowledge required to work in the aircraft maintenance field
8. Develop and strengthen the related knowledge and skill in subjects which complement and support the technical training
9. Demonstrate positive attitudes and behavior that will enable graduates to become successful in the industry

Entrance Requirements

Eligibility for admission requires the applicant to meet the following academic criteria:

1. AMET Diploma (2009-Present) CNA

Graduation from College of the North Atlantic Aircraft Maintenance Engineering Technician program 2009 to present

Career Opportunities
- International aircraft servicing companies
- Aircraft servicing companies
- National aircraft companies
- Regional aircraft companies
- Aircraft refurbishing groups

INDUSTRIAL TRADES
Aircraft Structural Repair Technician

CERTIFICATE
- **One Year**
- **September**
- **Gander Campus**

COURSES

CODE	TITLE	
Semester 1		**Hrs**
MA1070	Structural Repair Shop Mathematics (M,E,S)	30
GM1550	Maintenance Regulations (M,E,S)	55
GM1120	General Maintenance Procedures (M,E,S)	30
GM1105	Aircraft Plumbing (S)	25
GM1140	Standard Workshop Practices (M,E,S)	55
AF1130	Aircraft Structures & Materials (M,E,S)	55
AF1240	Aircraft Structural Repair (M,E,S)	55
AF1220	Aircraft Structures, Wood, Fabric, Tubular (S)	78
AF1400	Specialized Processes and Fixtures (S)	60
Semester 2		**Hrs**
EG1160	Technical Graphics (M,E,S)	60
SD1710	Job Search Techniques	15
AF1250	Aircraft Stress Skin Repair (S)	60
GM1570	Corrosion Control (M,E,S)	18
GM1580	Corrosion Control (S)	42
AF1270	Composite Materials (M,S)	55
AF2110	Aircraft Maintenance Fundamentals (S)	60
AF1500	Windshields, Windows and Lenses (S)	49
GM1600	Structural Damage/Repair and Assembly (S)	72
TS1550	WHMIS	6
Semester 3		**HrS**
AF1340	Advanced Composite Materials (S)	60
GM1525	Sheet Metal Fabrication (S)	120
TS1530	Standard First Aid	13

Learners will receive Transport Canada credit towards the "S" license upon completion of the program.

Program Description
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. Some of the duties include:
- Use specialized tools and equipment
- Employ recognized techniques for maintenance repair and fabrication
- Perform repairs using wood, fabric, sheet metal and composite materials

Outcomes
Demonstrate positive attitudes and behaviors that will enable me to become successful in the industry.
1. Develop techniques, standards and practices of structural repair that conforms to Transport Canada guidelines for the occupation.
2. Provide a broad overview of aircraft maintenance and repair functions with specific emphasis on safety practices in the industry.
3. Demonstrate safe work practices and personal protection.
4. Meet the requirements to become an Aircraft Maintenance Engineer category "S" - Structural Repair.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, 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 centers
- Helicopter overhaul facilities
- Regional and national airlines

INDUSTRIAL TRADES
Automotive Service Technician

CERTIFICATE
- **Nine Months**
- **September**
- **Bay St. George, Gander, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
SV1105	Safety in the Shop	12
SV1125	Gaskets, Seals and Bearings	30
SV1130	Electrical and Electronic Principles	90
SV1157	Service Information Systems and Trade Related Documents	12
SV1165	Hand Tools	30
SV1177	Shop Tools & Equipment	24
SV1187	Fasteners, Tubing & Fittings	6
SV1197	Lubrication and Fluids Servicing	24
SV1217	Tire Wheels and Hubs	24
SV1227	Steering Systems	60
SV1256	Suspension I	48
SV1287	Drive Shafts and Axle Shafts	30
SV1306	Engine Principles (Gasoline and Diesel)	90
SV1310	Cooling Systems	30
SV1377	Batteries	18
SV1385	Starting Systems	30
SV1395	Charging Systems	30
SV1551	Body Components and Trim	18
SV1600	Ignition Systems	30
SV1642	Brake Systems I (Non-ABS)	60
SV1680	Preventative Maintenance Inspections (PMI)	18
SV1690	Accessory Drive Systems	18
SV1700	Hybrid Systems I	24
SV1710	Gas Metal Arc Welding GMAW (MIG)	30
WD1301	Oxy-Fuel Welding/Cutting	30
AM1100	Math Essentials	30
AM1220	Mechanical Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade. For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
SV2018	Vehicle Management Systems	48
SV2156	Body Electrical, Options and Accessories	48
SV2221	Emission Control Systems	30
SV2236	Gasoline Fuel Systems	42
SV2850	Fuel Delivery	18
SV2860	Instrumentation and Information Displays	12
SV2870	Lighting and Wiper Systems	30
SV2880	Hybrid Systems II	12

Block 3	**Advanced Level**	**HrS**
SV3000	Braking Systems II (ABS)	30
SV3010	Manual Transmissions and Transaxles	48
SV3020	Clutches	30
SV3030	Transfer Cases and Four-Wheel Drive/All Wheel Drive	30
SV3040	Drive Axles, Differentials and Final Drive Assemblies	30
SV3050	Automotive Transmissions Transaxles	72

Block 4	**Advanced Level**	**Hrs**
SV4000	Engine Removal and Installation	12
SV4010	Engine Diagnostics and Repair	60
SV4020	Intake and Exhaust Systems	24
SV4030	Diesel Fuel Systems Diagnostics and Repair	24
SV2040	Suspension Systems II	30
SV4050	Heating, Ventilation and Air Conditioning	30
SV4060	Restraint Systems	30
SV4070	Electronic Power Steering	12
SV4080	Ozone Depletion Substances	6
SV4090	Provincial Government Inspections	1

Program Description
Automotive Service Technicians adjust, test and repair engines, steering systems, braking systems, drive trains, vehicle suspensions, electrical systems and air conditioning systems, and do wheel alignments. Some of the duties include:
- Repair, rebuild and service specific parts
- Diagnose using testing equipment
- Dismantle and reassemble damaged parts
- Prepare scheduled maintenance
- Interact and advise customers

Note: This program may not be suitable for applicants who do not have normal color perception.

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Diagnose and repair engine systems.
3. Diagnose and repair engine support systems.
4. Diagnose and repair vehicle management systems.
5. Diagnose and repair drive line systems.
6. Diagnose and repair electrical systems and components.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
• Garages
• Service Stations

INDUSTRIAL TRADES

Baker

CERTIFICATE
• Eight Months
• Varies
• Bay St. George, and Bonavista Campuses

COURSES

CODE	TITLE	Hrs
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
CK1000	The Professional Cook	15
CK1100	Kitchen Safety	10
CK1106	Hygiene and Sanitation Awareness	10
CK1115	Kitchen Tools and Equipment	10
CK1120	Weights and Measures	10
CK1126	Basic Cooking Methods and Principles	30
CK1130	Receiving and Storage	10
CK1231	Introduction to Baking	18
CK1236	Yeast Products	24
CK1241	Pies, Tarts, Flans and Fillings	30
CK1245	Quick Breads	10
CK1253	Basic Cakes	30
CK1255	Cookies and Squares	20
OT1230	Workplace Exposure	60
AM1100	Math Essentials	30
AM1150	Cook Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
*CK1870	Specialty Cakes	60
*CK1880	Specialty Pastries and Fillings	60
*CK1890	Specialty Cookies, Squares and Quick Breads	60
*CK1900	Specialty Yeast Raised Products	60
*CK1910	Specialty Cold Desserts	60
*CK1920	Specialty Hot Desserts	60

***For learners who have successfully completed the Cook certificate (Plan of Training as of March 2011) these courses will enable the learner to receive a Baker certificate.**

PROGRAM DESCRIPTION
The Baker program offers training in how to prepare and bake breads, cakes, cookies, pastries, pies and other baked goods. Some of the duties include:
• Weigh, measure and mix ingredients according to recipes
• Cut and form dough, prepare fillings
• Use ovens to bake products
• Decorate baked goods
• Purchase stock and rotate ingredients and supplies
• Maintain public health standards are met

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Develop menus.
3. Practice and maintain sanitary standards.
4. Develop production schedules.
5. Assemble and finish bakery products.

Entrance requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Specialty shops
• Hotels
• Restaurants
• Bakery manufactures
• Self employed

INDUSTRIAL TRADES
Cabinetmaker

CERTIFICATE
• Nine Months
• September
• Port aux Basques Campus

COURSES

CODE	TITLE	
Block 1 Entry Level		**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
AK1100	Blueprint I – Basic	75
AK1120	Blueprint II – Intermediate	60
AK1130	Construction Safety	40
AK1200	Hand Tools	45
AK1210	Fasteners and Adhesives	30
AK1220	Materials	45
AK1230	Portable Power Tools	45
AK1240	Common Stationary Equipment	60
AK1250	Joint Fabrication and Assembly	45
AK1260	Laminating	45
AK1290	Basic Casework	75
AK1301	Wood Finishing I	80
AK1320	Industry Codes and Practices	45
AK1330	Installation Procedures	45
AM1100	Math Essentials	30
AM1120	Cabinetmaker Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 3-4 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
AK1270	Specialty Stationary Equipment	60
AK1302	Wood Finishing II	50
AK1310	Stairs	90
AK2100	Blueprint III (Advanced)	40

Block 3	**Advanced Level**	**Hrs**
AK1282	High Production Equipment	60
AK2102	Blueprint IV (CAD)	60
AK2202	Advanced Casework and Design	120

Program Description
Cabinetmakers build and repair custom or production-type fixtures and furniture made of wood or wood substitutes. Some of the duties include:
• Read specifications and drawings
• Create layouts and patterns
• Set up and operate woodworking equipment
• Cut, shape, mould and assemble components made of wood or wood substitutes
• Sand, stain, polish and apply veneers

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Use tools and equipment safely.
3. Interpret engineering drawings.
4. Machine components using automated equipment.
5. Plan sequence of operations.
6. Prepare layout operations.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Furniture manufacturers
• Cabinet making shop
• Interior finishing firms
• Residential developers

INDUSTRIAL TRADES
Carpenter

CERTIFICATE
• Nine Months
• September
• Clarenville, Carbonear, and Happy Valley-Goose Bay Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
AJ1111	Carpentry Fundamentals	74
AJ1160	Blueprint Reading	45
AJ1170	Residential Estimating	30
AJ1201	Layout & Footings	80
AJ1211	Wall Forms	80
AJ1221	Floor and Wall Framing	90
AJ1231	Exterior Finish	60
AJ1310	Roof Fundamentals	80
AJ1410	Interior Fundamentals	60
AJ1501	Interior Trim	60
AJ1601	Stair Fundamentals	60
AJ1760	Chain Saw Safety	4
AJ2430	Scaffolding	45
HE1620	Powerline Hazards	4
LA1100	Confined Space Awareness	6
LA1110	Fall Protection Awareness	6
AM1100	Math Essentials	30
AM1130	Carpenter Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.
For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
AJ1121	Rigging	30
AJ2340	Advanced Roof Framing	120
AJ2420	Post and Beam	30

Block 3	**Advanced Level**	**Hrs**
AJ2100	Advanced Blueprint Reading	60
AJ2220	Structural Formwork	90
AJ2230	Concrete Stair Forms	30

Block 4	**Advanced Level**	**Hrs**
AJ2501	Cabinets and Shelving	60
AJ2600	Interior Finish Stairs	60
AJ2800	Renovations	120

Program Description
Carpenters use hand and power tools in residential and commercial construction in accordance to National Building Codes. Some of the duties include:

• Read and interpret blueprints, drawings and sketches
• Calculate requirements and specifications
• Prepare layouts
• Use measuring tools
• Cut, shape and assemble and join materials
• Build and install foundations, floor beams, subfloors, walls and roof systems
• Install doors, stairs, moldings and hardware trims
• Operate hand and portable power tools
• Utilize various construction products
• Complete construction projects for stairs, concrete, floors, walls and roofs

Outcomes
1.Demonstrate safe work practices and personal protection.
2. Use tools and equipment safely.
3. Interpret drawings and specifications.
4. Solve problems and keep a construction project on schedule.
5. Use various types of scaffolding.
6. Apply National Building Code standards and energy efficient concepts

ENTRANCE REQUIREMENTS
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment on the following areas:
• General contractor
• Custom woodworking shops
• Building suppliers
• Residential and commercial construction
• Industrial Maintenance

INDUSTRIAL TRADES
Commercial Driver

CERTIFICATE
• Four Months
• Varies
• Bay St. George Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
DV1100	Commercial Driver Essential Skills	18
DV1110	Commercial Driver Orientation	6
DV1120	Codes and Regulations	12
DV1130	Vehicle Operation Safety	12
DV1140	Logbook (Hours of Service)	6
DV1210	Trip Planning	12
DV1230	Engine and Drivetrain Principles	6
DV1240	Tires, Rims and Wheels	6
DV1260	Trailer Coupling	6
DV1270	Tractor Trailer Operation-In the Yard	85
DV1280	Tractor Trailer Operation-On the Road	135
DV1290	Preventative Maintenance	4
DV1300	Trailers	4
DV1310	Safe Load and Securement	12
DV1320	Driver Health and Nutrition	4
DV1330	Professional Driver Improvement for Commercial Drivers	6
HE1600	Air Brakes	15
HE1620	Powerline Hazards	4
HE1630	Transportation of Dangerous Goods	6

Program Description
This program offers training in the safe and effective operation of Tandem trucks and Tractor Trailer units. Some of the duties include:
• Perform preventive maintenance, defensive driving, and fuel conservation
• Deliver cargo and materials
• Interpret and communicate instructions through dispatch
• Maintain a truck log and keep records of transported materials
• Clean, inspect and service vehicle
• Perform trailer operations and demonstrate defensive driving skills
• Perform pre, post and on route inspections

The program also offers certification in the Transportation of Dangerous Goods (TDG), Air Brakes (9A), WHMIS, First Aid, Powerline Hazards and Professional Driver Improvement Course (PDIC). There will be classroom, yard, off and on and highway training with low learner to instructor ratios. This program offers a three week (90 hour) work placement.

Students successfully completing the program qualify for a Class 1 license with Class 3 and 9A endorsements.

Outcomes
1. Demonstrate defensive driving techniques, proper economical vehicle operation, and emergency procedures.
2. Demonstrate knowledge of types of trucks, power trains, engines, drive lines, brake systems, tires and trailers.
3. Demonstrate techniques to drive on course roads, through town and on the Trans Canada Highway.
4. Demonstrate knowledge of proper freight handling procedures and methods of preparing and handling documentation connected with transfers of cargo and monies.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

5. Driver's License and Medical
i. Hold a valid Newfoundland and Labrador Class 5 driver's licence.
ii. Minimum of 2 years driving experience.
iii. Provide a current Driving Abstract record showing no more than 4 demerit points.
iv. Class 1 driver's permit.
v. Provide a satisfactory medical certificate in accordance with the Highway Traffic Act and meet the required vision standards. Certificate cannot be more than 6 months old.

6. Age Requirement
Must be 18 years of age on or before course completion.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
• Trucking companies
• Manufacturing and distribution companies
• Retail outlets
• Moving companies

INDUSTRIAL TRADES
Construction / Industrial Electrician

CERTIFICATE
• One Year (1107 hours)
• September
•Baie Verte, Bay St. George, Bonavista, Burin, Corner Brook, Carbonear, Happy Valley-Goose Bay, Labrador West, Seal Cove, and St. Anthony Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1520	WHMIS	6
TS1530	Standard First Aid	14
ER1101	Hoisting, Lifting and Rigging	18
ER1105	Access Equipment	12
ER1112	Tools and Equipment	15
ER1140	DC Theory	30
ER1151	Series and Parallel DC Circuits	45
ER1161	Introduction to the Canadian Electrical Code	24
ER1170	Voltage Drop & Power Loss	30
ER1180	Single Phase Theory	60
ER1190	Three Phase Theory	30
ER1202	Drawings, Schematics & Specifications	30
ER1212	Electrical Drawings and Schematics	30
ER1221	Conduit, Tubing and Fittings	30
ER1231	Conductors and Cables	30
ER1242	Fundamental Wiring	60
ER1250	Protective Devices	30
ER1262	Transformers	60
ER1271	Single Phase Service Entrance	30
ER1281	Three Phase Service Entrance	30
ER1341	Fire Alarms	20
ER1371	Distribution Equipment	17
ER1411	Safety	30
ER1570	Grounding and Bonding	6
ER1580	Job Planning	6
ER1590	Introduction to Communication and Trade Documentation	6
ER2001	Raceway, Wireways and Busways	30
ER2011	Lighting Systems and Controls	25
ER2022	Single-Phase Motors	30
ER2134	Communication Systems	20
ER2142	Security Systems	10
ER2351	Electric Surface Heating Systems	15
ER2391	Fiber Optics	18
OT1150	Work Term	80
AM1100	Math Essentials	30
AM1160	Electrician Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.
For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level (Construction/Industrial)**	**Hrs**
ER1301	DC Motors and Controls	20
ER2031	Three Phase Motors	30
ER2042	Discrete Control Devices	12
ER2051	Motors, Starters and Controls I	42
ER2055	Motors, Starters and Controls II	18
ER2074	Power Supply and Rectifiers	58
ER2241	DC Generators	10
ER2251	AC Generators	20
ER2710	Heating, Ventilation and Cooling Systems	15
ER2720	Heating, Ventilation and Cooling System Controls	18

Block 3	**Advanced Level (Construction)**	**Hrs**
ER2500	Explosion Proof Equipment	30
ER3100	Distribution System Conditioning	30
ER3120	High Voltage Breakers and Starters	15
ER3140	High Voltage Wiring	15
ER3160	Exit/Emergency Lighting Systems	10
ER3180	Emergency Stand-by Units	25
ER3200	Cathodic Protection Systems	6
ER3220	Building Automation Systems	15
ER3240	Introduction to Commissioning	6
ER3360	Introduction to Programmable Logic Controllers	22
ER3380	Introduction to Programmable Logic Controller Programming	30
ER3400	Drives	30
ER3420	Alternative Power Systems	6

Block 3	**Advanced Level (Industrial)**	**Hrs**
ER2500	Explosion Proof Equipment	30
ER4100	Distribution System Conditioning	30
ER4120	High Voltage Breakers and Starters	15
ER4140	High Voltage Writing	15
ER4160	Exit/Emergency Lighting Systems	10
ER4180	Emergency Stand-by Units	25
ER4200	Cathodic Protection Systems	6
ER4220	Building Automation Systems	15
ER4240	Introduction to Commissioning	6
ER4260	Digital Electronics	30
ER4280	Pneumatic Control Systems	30
ER4300	Hydraulic Circuits and Control Systems	6
ER4320	Vibration Analysis	6
ER4340	Environmental Control Systems	15

Block 4	**Advanced Level (Industrial)**	**Hrs**
ER4360	Introduction to Programmable Logic Controllers	22
ER4380	Introduction to Programmable Logic Controller Programming	30
ER4400	Drives	30
ER4420	Alternative Power Systems	6
ER4440	Introduction to Analog Devices	20
ER4460	Analog Devices	90
ER4480	Process Control	42

Program Description
The Construction/Industrial Electrician program trains you to install, alter and maintain electrical systems that are designed to provide heat, light, power, control, signals or fire alarms for all types of buildings and structures. Some of the duties include:
• Read and interpret electrical, mechanical and architectural drawings
• Determine code specifications for writing layouts
• Cut, thread, bend, assemble and install conduits
• Position, maintain and install distribution and control equipment
• Safely test circuits to ensure integrity

OUTCOMES
1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.
3. Analyze electrical theory and its application to lighting, power and control equipment. Interpret instructions given in plans and specifications pertaining to electrical installations.
4. Demonstrate problem solving skills involving electrical systems.
5. Conduct trouble shooting to maintain electrical systems and equipment.

Note: This program may not be suitable for applicants who do not have normal color perception.

ENTRANCE REQUIREMENTS
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Residential electrical companies
• Industrial electrical companies
• Mining
• Pulp and Paper
• Oil and gas

INDUSTRIAL TRADES
Cook

CERTIFICATE
• Nine Months
• Varies
• Bay St. George, Bonavista, Burin, Happy Valley-Goose Bay, Prince Philip Drive, and Seal Cove Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6

TS1530	Standard First Aid	14
CK1000	The Professional Cook	15
CK1050	Food Presentation	12
CK1101	Health and Safety	18
CK1107	Personal Hygiene and Kitchen Sanitation	10
CK1115	Kitchen Tools and Equipment	10
CK1120	Weights and Measures	10
CK1126	Basic Cooking Methods and Principles	30
CK1130	Receiving and Storage	10
CK1147	Pulses, Grains and Nuts	18
CK1150	Pastas and Dumplings	10
CK1156	Stocks and Glazes	24
CK1165	Soups	30
CK1177	Principles of Meat Cooking and Handling	30
CK1178	Poultry	60
CK1188	Seafood	30
CK1195	Salad and Salad Dressings	35
CK1204	Sandwiches	20
CK1210	Dairy Products	30
CK1226	Breakfast Cookery and Eggs	30
CK1231	Introduction to Baking	18
CK1237	Bread Products	24
CK1241	Pies, Tarts, Flans and Fillings	30
CK1245	Quick Breads	10
CK1256	Cookies	20
CK1290	Fish	30
CK1310	Vegetables and Fungi	30
CK1320	Fruits	12
CK1340	Potatoes	30
CK1350	Sauces	30
CK1450	Beef and Pork	60
OT1230	Workplace Exposure	60
AM1100	Math Essentials	30
AM1150	Cook Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 3-4 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	Advanced Level	Hrs
CK1183	Veal and Lamb Preparation and Cooking	45
CK1187	Fish and Seafood Specialty Dishes	45
CK1246	Specialty Breads	30
CK1272	Desserts and Sauces	42
CK1261	Pastries	30
CK1460	Marinades, Rubs and Brines	12
CK1281	Menu Planning	36

Block 3	Advanced Level	Hrs
CK2500	Specialty Icings and Meringues	24
CK2510	Specialty Cakes	30
CK2520	Chocolate	18
CK2600	Charcuterie	45
CK2610	Aspices, Jellies and Glazes	12
CK2700	Game	45
CK1206	Appetizers, Hors D'oeuvres & Accompaniments	36
CK1286	Menu Costing	30

Program Description
This program provides training in the preparation and presentation of a variety of food for a variety of groups. Some of the duties include:
• Estimate food requirements using menus
• Retrieve food from storage and suppliers
• Wash, peel and cut vegetables
• Prepare, season and cook foods
• Evaluate nutritional values and sanitation standards

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Develop menus.
3. Practice and maintain sanitary standards.
4. Develop production procedures.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Hotels
• Restaurants
• Catering firms
• Cafeterias
• Health care institutions
• Specialty food outlets
• Work camps

INDUSTRIAL TRADES
Hairstylist

CERTIFICATE
• Ten Months
• Varies
•Bay St. George, and Gander Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
HT1120	Salon Fundamentals	64
HT1210	Styling I	90
HT1211	Styling II	90
HT1300	Cutting I (Hairdressing)	90
HT1301	Cutting II (Barbering)	90
HT1420	Chemically Waving and Relaxing Hair	135
HT1510	Color Fundamentals	90
HT1511	Hair Coloring	60
HT1620	Introduction to Aesthetics	65
HT2500	Lightening & Toning	90
OJ1500	Workplace Exposure	90
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AM1100	Math Essentials	30
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 2-3 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2		Hrs
HT2320	Advanced Cutting-Female/Male	90
HT2410	Advanced Perming	60
HT2510	Advanced Colouring	60

Program Description
Male and female hairstylists cut and style hair to suit their clients face and lifestyle. Some of the duties include:
• Cut, trim, color, wave and style hair, wigs and hairpieces
• Shave, trim and shape beards and moustaches
• Suggest appropriate hairstyles
• Maintain supplies and equipment
• Self-educate on new hairstyles and fashions

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.

OUTCOMES
1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.
3. Demonstrate the skills required to style, cut and color hair.
4. Prepare clients for services.
5. Perform reception duties.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Hair salons
• Hair shows
• Sales representative

INDUSTRIAL TRADES

Heavy Duty Equipment Technician

CERTIFICATE

- **Nine Months**
- **Varies**
- **Bay St. George, Happy Valley-Goose Bay, and Placentia Campuses**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
SV1101	Safety	30
SV1110	Ozone Depleting Substances	7
SV1121	Gaskets and Seals	5
SV1131	Electrical and Electronic Principles	55
SV1141	Introduction to Hydraulics	30
SV1151	Service Information Systems	25
SV1166	Tools and Equipment	30
SV1181	Fasteners, Tubings, Hoses and Fittings	30
SV1190	Lubrication and Fluid Servicing	30
SV1201	Start, Move and Park Vehicle	5
SV1211	Tires, Rims and Wheels	25
SV1261	Vehicle Hydraulic Brake Systems	60
SV1271	Basic Air Brake Systems	60
SV1281	Drive Lines	25
SV1301	Cutting, Heating and Welding	30
SV1303	Engine Principles	45
SV1310	Cooling Systems	30
SV1331	Intake and Exhaust Systems	25
SV1361	Diesel Fuel Supply Systems	25
SV1365	Non-Diesel Fuel Systems	25
SV1370	Batteries	15
SV1401	Gauges	11
SV1451	Steering Systems	30
SV1491	Conventional Lighting Circuits	15
SV1501	Wiring Harnesses and Accessories	15
SV1800	Hoisting and Lifting	15
SV1810	Preventative Maintenance	5
SV1820	Bearings	6
SV1830	Metallurgy	5
SV2381	Hydraulic Fittings, Piping, Tubing and Hoses	25
SV2391	Reservoirs, Coolers and Filters	15
WD2330	MIG Welding	30
AM1100	Math Essentials	30
AM1220	Mechanical Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 5-6 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
SV1291	Drive Axle Assemblies	45
SV1380	Starting Systems	30
SV1386	Starting Aids	15
SV1391	Charging Systems	30
SV1840	Heating and Ventilation Systems	15
SV2310	Electric Brakes	15
SV2400	Hydraulic Pumps and Motors	30
SV2661	Electronic Ignition Systems	30
SV2670	Air Conditioning Systems	30

Block 3	**Advanced Level**	**Hrs**
SV1245	Wheel and Axle Alignment	25
SV1251	Front and Rear Suspensions	40
SV2291	Tracked Steering Systems	30
SV2301	Track-Type Undercarriage	40
SV2371	Final Drives	15
SV2411	Control Valves	10
SV2420	Hydraulic Cylinders	15
SV2431	Accumulators	10
SV2451	Hydrostatic Drives	25
SV2461	Hydraulic Systems Diagnostics and Testing	15
SV2510	Blades, Buckets and Cutting Edges	15

Block 4	**Advanced Level**	**Hrs**
SV2265	Vehicle Management Systems	60
SV2350	Torque Converters	30
SV2365	Automatic/Power Shift	35
SV2571	Engine Brakes and Retarders	20
SV2651	Electronically-Controlled Diesel Fuel Injection Systems	45
SV2771	Emission Control Systems	20
WD2320	SMAW Welding	30

Block 5	**Advanced Level**	**Hrs**
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**	**Hrs**
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

Program Description

This program is designed to provide you with the skills and knowledge required for employment in the field of Heavy Duty Equipment Technician. Some of the duties include:

- Interpret work orders and technical manuals
- Maintain, clean and lubricate equipment
- Diagnose faults and malfunctions
- Adjust, repair or replace defective parts
- Performance test repaired equipment
- Follow manufactures specifications and legislated regulations

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Use hand tools and equipment.
3. Analyze and process information.
4. Diagnose and repair engines and engine support systems.
5. Diagnose and repair steering, suspension and brake systems.
6. Diagnose and repair hydraulic and pneumatic systems.

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:

i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3.Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES

Graduates may find employment in the following areas:

- Repair shops
- Maintenance companies
- Transportation companies
- Construction companies

INDUSTRIAL TRADES

Heavy Equipment Operator

The Bonavista and St. Anthony offerings are on a shared-delivery model with Bay St. George campus. The academic and theory components (15 weeks) of the program are taught at the home campus, while the practical (7 weeks) take place at Bay St. George.

- **Six Months**
- **Varies**
- **Bay St. George, Bonavista, Placentia, and St. Anthony Campuses**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1520	WHMIS	6
TS1530	Standard First Aid	14
HE1101	Equipment Operation Safety	12
HE1120	Grades & Stakes	30
HE1201	Equipment Maintenance	55
HE1301	Regulation/Emergency Procedures	45
HE1600	Air Brakes	15
HE1610	Professional Driver Improvement Course (PDIC)	15
HE1620	Powerline Hazard	4
HE1630	Transportation of Dangerous Goods	6
HE1640	Trenching Safety	4
OL1600	Traffic Control Person	4
AM1100	Math Essentials	30
AM1170	Heavy Equipment Operator Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

Three Courses from the following:

HE1501	Bulldozers	80
HE1511	Graders	80
HE1521	Backhoes	80
HE1531	Front End Loader	80
HE1541	Tandem Dump Trucks	80
HE1551	Off Highway Trucks	80
HE1561	Excavators	8

Program Description

This program provides training in the safe and effective operation of Heavy Duty Earth Moving Equipment. Some of the duties include:

- Explore the operation of heavy equipment
- Perform preventative maintenance
- Develop skills necessary to become proficient in the use of the following heavy equipment

Equipment Categories

Tractor/Bulldozer
Front End Loader
Grader
Dump Truck (Off-Highway and Tandem)
Tractor/Loader/Backhoe
Excavator

Outcomes
1. Demonstrate knowledge of machine capabilities and industry expectations.
2. Develop servicing procedures and techniques to maximize the life span of construction equipment.
3. Demonstrate skills in basic machine maneuvering, control and operation in work simulated projects.
4. Demonstrate knowledge of standards for road construction as well as other municipal projects.
5. Demonstrate safe work practices and personal protection.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate
4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.
AND

5. Driver's License and Medical
i. Students selecting the Equipment Category – Dump Truck (Tandem), must have a valid Newfoundland and Labrador Class 5 driver's license for one year prior to the commencement of the program.
ii. Satisfactory medical report for Class 03 is required by the Department of Works, Services and Transportation.

Note: Learners must provide a valid medical certificate in accordance with the Highway Traffic Act and meet the require vision standards. Certificate cannot be more than six months old.

Employment Opportunities
Graduates may find employment in the following areas:
• General contractors
• Paving companies
• Pipeline companies
• Logging
• Mining
• Landscaping

INDUSTRIAL TRADES
Industrial Mechanic (Millwright)

CERTIFICATE
• Nine Months
• September
• Baie Verte, Corner Brook, Happy Valley-Goose Bay, Labrador West, and Placentia Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
MS1230	Hand Tools	20
MW1240	Portable Power Tools	20
MW1251	Blueprint Reading and Sketching	15
MW1261	Equipment Assembly Blueprints	15
MW1270	Mechanical Installation Blueprints	15
MW1281	Schematics Advanced	15
MW1291	Rigging	30
MW1360	Shafts and Shaft Alignment	20
MW1450	Drills, Taps and Reamers	30
MW1460	Measuring and Layout	60
MW1470	Piping Components	30
MW1511	Power Metal Saws	15
MW1521	Pedestal Grinders	15
MW1530	Bearings	40
MW1541	Fasteners	9
MW1550	Metallurgy	30
MW1580	Static and Dynamic Seals	30
MW1591	Couplings and Clutches	20
MW1610	Belt and Chain Drive Systems	45
MW1640	Gear Drive Systems	50
MW1650	Lubrication Practices	20
MW1670	Non-positive Displacement Pumps	40
MW1690	Positive Displacement Pumps	50
MW1730	Electrical Fundamentals	30
MW2150	Hydraulics I	30
WD1330	Oxy-Fuel Welding	30
OT1190	Workplace Exposure	90
AM1100	Math Essentials	30
AM1180	Industrial Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
MW1560	Coupling Alignment	45
MW1660	Material Handling Systems	60
MW2160	Hydraulics II	35
MW2170	Pneumatics	40
WD1380	Electric Arc Welding	60

Block 3	**Advanced Level**	**Hrs**
MW1620	Metal Lathes	100
MW1630	Milling Machines	40
MW2180	Compressors	40
MW2190	Machinery Installation and Alignment	60

Block 4	**Advanced Level**	**Hrs**
MW1480	Tanks, Fans and Blowers	30
MW1680	Dynamic Balancing	45
MW1740	Preventive and Predictive Maintenance	35
MW2210	Prime Movers I	45
MW2220	Prime Movers II	45
MW2230	Vibration Analysis	40

Program description
The Industrial Mechanic (Millwright) program offers the training required to become a mechanic for stationary industrial machinery. Some of the duties include:
• Read and interpret diagram, schematics and service manuals
• Operate rigging equipment and dollies to move equipment
• Fit, align, attach and connect: bearings, gears, shafts, motors, couplings & belts
• Test, align and adjust equipment
• Perform predictive and operational maintenance
• Employ vibration analysis
• Service and repair hydraulic, pneumatic and programmable logic controls
• Perform tack welds

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.
3. Interpret drawings, plans, and be able to layout and develop projects according to specifications.
4. Perform assigned tasks following quality and production standards required in industry.
5.Plan for installation and maintenance of components and systems.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Mining
• Forestry
• Oil and gas
• Private companies
• Manufacturing
• Government maintenance departments

INDUSTRIAL TRADES
Instrumentation and Control Technician

CERTIFICATE
• Nine Months
• September
• Burin, Gander, and Seal Cove Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**

TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
ER1111	Tools and Equipment	45
ER1140	DC Theory	30
ER1151	Series and Parallel DC Circuits	45
ER1170	Voltage Drop and Power Loss	30
ER1390	Safety	30
ER1201	Drawings, Schematics and Specifications	30
ER1420	Introduction to Pressure Measurement and Calibration	70
ER1430	Flow Measurement	110
ER1440	Level and Density Measurement	50
ER1450	Temperature Measurement	60
ER1460	Wireways, Conduit, Electrical Metallic Tubing (EMT) and Fittings	15
ER1490	Material Handling Equipment	15
ER1500	Communication and Trade Documentation	9
ER1510	Conductors and Cables	30
ER1520	Tubing and Piping Systems	30
ER1530	Introduction to Fluids	25
ER1711	Signal Transmission Systems	30
ER1733	Electronics (Circuits and Components)	90
ER2470	Pneumatic Supply Systems I	25
ER2480	Pneumatic Supply Systems II	25
AM1100	Math Essentials	30
AM1190	Instrumentation and Control Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	Advanced Level	Hrs
ER1741	On-Off Control Devices	40
ER2430	Hydraulic Supply Systems I	30
ER2450	Hydraulic Supply Systems II	30
ER2460	Compressors	25
ER2490	Final Control Elements	50
ER2530	Single Phase Theory	45
ER2540	Power Supplies	10

Block 3	Advanced Level	Hrs
ER2550	Job Planning	6
ER2560	Process Analyzers I (Solids and Liquids)	40
ER2570	Process Analyzers II (Gases)	20
ER2580	Equipment Monitoring Devices	40
ER2590	Drives and Motors	40
ER2600	Trade Related Computer Use	10
ER2610	Human Machine Interface Systems	30
ER2670	Safety and Security Systems	24

Block 4	Advanced Level	Hrs
ER2620	Basic Process Control	65
ER2630	Advanced Process Control	65
ER2640	Programmable Logic Controller Systems	50
ER2650	Distributed Control Systems	45
ER2660	Supervisory Control and Data Acquisition Systems	15

Program Description
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. Some of the duties include:
• Repair, maintain, calibrate, adjust and install industrial measuring and controlling instrumentation
• Ensure plant machinery is safe and operating correctly
• Regulate water flow and air quality
• Monitor and calibrate instruments
• Read and interpret circuit diagrams, blueprints and schematics
• Inspect, test, diagnose faults
• Write maintenance reports
• Repair, calibrate components and instruments
• Perform schedule preventative maintenance
• Observe safe repair procedures according to regulated standards

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Interpret drawings, codes, standards and government regulations.
3. Use tools and measuring equipment.
4. Conduct new installations.
5. Use and maintain analyzers
6. Use and maintain various types of field mounted equipment.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Hydro Power Generation
• Mining, Petrochemical, and Natural Gas
• Industrial and Commercial Manufacturing
• Industrial Construction
• Industrial Instrument Servicing
• Pulp and Paper Processing

INDUSTRIAL TRADES
Machinist

CERTIFICATE
This program is offered through a dual campus delivery model (Prince Philip Drive Campus in St. John's and Placentia Campus). Transportation to and from Placentia from St. John's will be provided.
• Nine Months
• September

• Prince Philip Drive Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health & Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
MW1190	Machine Shop Safety	15
MW1370	Basic Layout	15
MW1380	Hand and Power Tools	30
MW1390	Hand Threading and Reaming	30
MW1761	Precision Measurement I	30
MW1771	Basic Drawings	30
MW1781	Cutting Fluids, Coolants, Lubricants & Solvent	15
MW1791	Machinable Materials	9
MW1801	Precision Measurement II	30
MW1841	Hoisting, Lifting and Rigging	15
MW1851	Drills and Drill Presses	45
MW1861	Introduction to Conventional Lathes	45
MW1871	Basic Conventional Lathe Operations	60
MW1881	Conventional Lathe Drilling, Boring, Reaming, Tapping and Die Threading	30
MW1900	Taper Turning	30
MW1911	Basic Threading	60
MW1921	Introduction to Milling Machines	72
MW1951	Reciprocating Machines	45
MW1961	Machine Cutting Tools	15
MW2061	Computer Numerical Control (CNC) Machine Tools	15
MW2071	Computer Numerical Control Operation I	45
MW2081	Mechanical Components	15
MW2121	Oxy-Fuel Cutting and Welding	30
MW2300	Power Sawing Equipment	30
MW2310	Introduction to Grinding and Abrasives	15
MW2320	Heat Treatment	15
MW2340	Reconditioning	15
MW2370	Material Testing	15
AM1100	Math Essentials	30
AM1180	Industrial Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	Advanced Level	Hrs
MW1811	Advanced Drawings	30
MW1931	Advanced Conventional Lathe Operation	105
MW1941	Job Planning	15
MW1991	Quality Inspection	15
MW2350	Precision Layout	30
MW2360	Horizontal/Universal Milling Machine Operation	45

Block 3	Advanced Level	Hrs
MW1981	Gears and Gear Cutting	45
MW2000	Vertical Milling Machine Operation	85
MW2010	Boring Mills	5
MW2021	Abrasives Finishing	10
MW2031	Cylindrical Grinders	35
MW2041	Cutter and Tool Grinder	20
MW2101	Surface Grinders	40

Block 4	Advanced Level	Hrs
MW2090	Bevel, Helical and Worm Gears	95
MW2110	Electrical ARC Welding	45
MW2141	Computer Numerical Control (CNC) Operation 2	100

Program Description
The Machinist program is designed to train individuals in the knowledge, skills, and experience necessary to set up and operate precision

metal cutting and grinding machines such as lathes, milling machines, drills, shapers, boring mills and grinders. A variety of equipment is used to manufacture, install, operate, adjust and repair machine tools and other machines in common use. Duties of a machinist include: study specifications, charts, drawings or sample parts to determine the machining operating to be performed, calculate dimensions and tolerances, and prepare working sketches if necessary, set up and operate tools, which may be computer numerically controlled, to perform precision machining operations. Work could either be in job shops or production jobs. In job shops, you will make a wide variety of repair parts for different types of machinery and industrial equipment in different situations. In production shops, you will produce parts using mass production methods including CNC machining and other tools.

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Interpret specifications, charts, drawings or sample parts to determine the machining operation required.
3. Select workplace materials.
4. Calculate dimensions and tolerances, and prepare sketches if necessary.
5. Set up and operate tools.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Comprehensive Arts and Science (CAS) Transition

Comprehensive Arts and Science (Transition) Certificate

3. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

4. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

5. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Manufacturing
• Mining
• Aviation
• Machine shops
• Pulp and Paper
• Private shops

INDUSTRIAL TRADES
Metal Fabricator (Fitter)

CERTIFICATE
• Nine Months
• September
• Burin Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
WD1165	Hand, Measuring and Layout Tools	15
WD1170	Hand and Power Cutting Tools	15
WD1175	Drilling and Threading Tools	15
WD1180	Grinding and Finishing	12
WD1185	Bending and Rolling	4
WD1270	Shielded Metal Arc Welding (SMAW)	30
WD1340	Gas Metal Arc Welding (GMAW) Fillet Weld	15
WD1600	Oxy-Fuel Cutting, Welding, Heating and Gouging	45
WD1610	SMAW (Sheet Metal Arc Welding) I	30
WD1620	SMAW II – Fillet Weld all Positions	60
WD1630	GMAW (Gas Metal Arc Welding) I	15
WD1660	Blueprint Reading I (Basic)	30
WD1670	Blueprint Reading II (Welding Symbols)	30
WD1680	Metallurgy, Expansion & Contraction Control	30
WD1700	Stationary Powered Shearing	6
WD1710	Iron Worker Operation	12
WD1720	Jigs and Fixture Fabrication	15
WD1730	Fabrication Fundamentals	15
WD2430	Material Handling, Rigging and Scaffolding	35
WD2440	Blueprint Reading IV (Shop Drawings)	15
SF1400	Press Brake Operation	45
SF1410	Roll Forming Equipment and Operation	45
SF1420	Basic Layout Operations	20
SF1430	Basic Parallel Line Development	30
SF1440	Basic Radial Layout	30
SF1450	Basic Triangulation Layout	30
SF1460	Basic Plate Development	120
SF1470	Basic Assembly and Fitting	40
AM1100	Math Essentials	30
AM1230	Metal Fabrication Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses**.**

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 3-4 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
WD1640	GTAW (Gas Tungsten Arc Welding) I	15
WD1650	Plasma Arc Cutting and Gouging	10
WD1690	Quality Control	30
WD1740	FCAW (Flux Core Arc Welding) I	15
WD1750	FCAW II – Weld Plate (Flat and Horizontal)	15
WD1760	Air-Arc Cutting and Gouging	10
WD1770	Submerged Arc Welding Setup	4
WD2410	Stud and Spot Resistance Welding	4
WD2420	Blueprint Reading III (Advanced/CAD)	15
SF1490	Structural Components and Detailing Practices	25
SF1500	Pressure Vessel & Pipe Drawing Interpretation	10
SF1510	Advanced Parallel Line Development	40
SF1520	Oxy-Fuel Optical Tracer	6
SF1530	CNC Cutting Machine	6
SF1540	Finishing and Shipping	6
SF1550	On-Site Installation	6
SF1560	Job Planning	6

Block 3	**Advanced Level**	**Hrs**
SF1700	Truss and Girder Fabrication	20
SF1710	Advanced Radial Layout	40
SF1720	Advanced Triangulation Layout	30
SF1730	Advanced Assembly and Fitting	60
SF1740	Advanced Plate Development	80

Program Description
This program is designed to prepare you for employment opportunities in the field of Structural Fitting. Metal fabricators make and repair parts used in the construction of buildings, bridges, tanks, towers, boilers, pressure vessels and other structures and products. Some of the duties include:
• Layout, cut and fabricate structural steel
• Interpret engineering drawings and blueprints
• Plan and sequence tasks
• Construct patterns and templates
• Rig, hoist and move materials
• Tack weld, bolt, and rivet components
• Install fabricated components

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Interpret sketches, shop & fabrication drawings.
3. Use and maintain tools.
4. Prepare work area and equipment schedule.
5. Prepare final products for finish.

ENTRANCE REQUIREMENTS
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
• Ironworking
• Manufacturing
• Heavy equipment
• Construction
• Mining
• Oil and Gas
• Aviation
• Ship building
• Welding shops

INDUSTRIAL TRADES
Mining Technician

DIPLOMA
• Two Years
• September
• Labrador West Campus

COURSES

CODE	TITLE	Hrs
Semester 1		
TS1520	WHMIS	6**
TS1510	Occupational Health and Safety	6**
TS1530	Standard First Aid	14**
MS1230	Hand Tools	20**
MW1240	Portable Power Tools	20**
MW1541	Fasteners	9**
MW1291	Rigging	30**
MW1251	Blueprint Reading and Sketching	15*
MW1261	Equipment Assembly Blueprints	15**
MW1460	Measuring and Layout	60**
MW1511	Power Metal Saws	15*
MW1521	Pedestal Grinders	20**
AM1100	Math Essentials	30**
AM1180	Industrial Math Fundamentals	30**
MC1060	Computer Essentials	15**
MT1110	Introduction to Mining	45
CM2160	Communication Essentials	45**
MT1420	Heavy Equipment Simulator I	20
Semester 2		
MA1240	Mathematics	75
SD1760	Workplace Essentials	45**
MW1450	Drills, Taps and Reamers	30**
MW1650	Lubrication Practices	20**
MW1580	Static and Dynamic Seals	30**
MW1530	Bearings	40**
MW1610	Belt and Chain Drive Systems	45**
MW1640	Gear Drive Systems	50**
MW1670	Non-positive Displacement Pumps	40**
MW1690	Positive Displacement Pumps	50**
MT1430	Heavy Equipment Simulator II	20
Semester 3 (Intersession)		
*WT1520	Work Term 7 Weeks	210**

Semester 4

MT2440	Mineral Processing I	45
HR2140	Human Relations	45
MT1250	Equipment Reliability Concepts	45
AP1101	Introduction to Apprenticeship	15**
MW2150	Hydraulics I	30**
MW1591	Couplings and Clutches	20**
MT1270	Engine Fundamentals	30
MW1270	Mechanical Installation Blueprints	15**
MW1281	Schematics Advanced	20**
MW1730	Electrical Fundamentals	30**
MW1470	Piping Components	30**
WD1330	Oxy-Fuel Welding	30**
MW1550	Metallurgy	30**
MW1360	Shafts and Shaft Alignment	20**
Semester 5		
MT2441	Mineral Processing II	45
MW1560	Coupling Alignment	45***
MW1660	Material Handling Systems	60***
MW2160	Hydraulics II	35***
MW2170	Pneumatics	40***
WD1380	Electric Arc Welding	60***
MT3440	Mineral Processing III	45
MT2140	Surface Mining	45
MT2150	Ethical Mining	20
OT1190	Workplace Exposure	90*

*Learners who complete the requirements WT1520 (Work Term) will be eligible to be exempt from OT1190 (Workplace Exposure).

**Courses required for completion of Entry Level Industrial Mechanic-Millwright with a 70% minimum pass mark.

***Courses required for Block II of Entry Level Industrial Mechanic-Millwright with a 70% minimum pass mark.

Program Description
Mining is a growing, ever changing industry that requires individuals to be trained in safely operating and maintaining mine/mill equipment. The Mining Technician functions as part of a mining team. Some of the duties include:
• Operate and maintain production equipment
• Read and interpret diagram, schematics and service manuals
• Operate rigging equipment and dollies to move equipment
• Fit, align, attach and connect: bearings, gears, shafts, motors, couplings and belts
• Test, align and adjust equipment
• Perform predictive and operational maintenance
• Employ vibration analysis
• Service and repair hydraulic, pneumatic and programmable logic controls
• Perform tack welds
• Apply mineral processing and mining processes

Mining Technician graduates will receive an Industrial Mechanic (Millwright) certificate, a Mining Technician diploma, and credit for the completion of Block II of IM-Millwright. Graduates will be eligible to receive a Certificate for Entry Level Industrial Mechanic- Millwright after semester four, and a Mining Technician Diploma for completion of semester five.

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment. Interpret drawings, plans, and be able to layout and develop projects according to specifications.
3. Perform assigned tasks following quality and production standards required in industry. Plan for installation and maintenance of components and systems.
4. Apply technical skills learned in an industrial environment during a work term.
5. Evaluate Mining and Mineral processes.
6. Perform heavy equipment operations in a mine environment through simulation.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
You may find employment as part of the Operations and Maintenance Teams in a mining environment or as an Industrial Mechanic (Millwright) apprentice. Employment rates for Mining Technician graduates have been strong with 80-90% of current graduates finding employment in the local area. This demand for workers is expected to continue. The current market for Mining Technicians in Newfoundland and Labrador includes the following:
• Mineral Processing Plants
• Mines underground and above ground
• Come By Chance Oil Refinery
• Hebron Project
• Long Harbor Processing Plant
• Lower Churchill Project

INDUSTRIAL TRADES
Mobile Crane Operator

CERTIFICATE
• Seven Months
• Varies
• Bay St. George Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
MB1041	Shop Fundamentals for Mobile Crane Operator	60
MB1101	Mobile Crane Operation Safety	75
MB1111	Mobile Crane Maintenance	60
MB1130	Mobile Crane Operations	60
MB1140	Mobile Lattice Boom Cranes	60
MB1150	Mobile Hydraulic Boom Cranes	60
MB1200	Hydraulics and Applications to Crane Control	15
MB1231	Class 3 Driver's License for Mobile Crane Operators	90
MB1261	Rigging for Mobile Crane Operators	60
AP1101	Introduction to Apprenticeship	15
AM1100	Math Essentials	30
AM1340	Hoisting Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding suitable work experience totaling 5400 hours.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Program Description
This program exposes you to the safe and efficient operation of Mobile Cranes. Some of the duties include:
• Become proficient in the use of 50 ton Lattice Boom Crawler, 30 Rough Terrain and 18 ton Boom Truck
• Perform safe operations and routine maintenance for mobile cranes
• Proficiently assemble and disassemble mobile cranes

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Assess site hazards.
3. Operate equipment safely.
4. Recognize and evaluate conditions which are potentially hazardous to safe machine operation.
5. Interpret and apply load chart and related documentation.
6. Interpret and apply visual and audio communication.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
Mathematics MA3107A, MA3107B, MA3107C
Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.
AND

5. Driver's License and Medical
i. A valid Newfoundland and Labrador driver's license – minimum of full Class 5. Must be held for a minimum of one year.
ii. Department of Transportation Medical for a Class 3 license including colour perception, visual acuity and hearing tests. A depth perception test is also required.

Employment Opportunities
Graduates may find employment in the following area:
• Construction
• Industrial
• Mining
• Cargo
• Railways

INDUSTRIAL TRADES
Motor Vehicle Body Repairer (Metal And Paint)

CERTIFICATE
• Nine Months
• September
• Prince Philip Drive Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
AB1600	Trade Related Documents	12
AB1610	Safety	12
AB1620	Tools and Equipment	45
AB1630	Fasteners and Adhesives	12
AB1641	Vehicle Construction	16
AB1651	Pre/Post Repair Vehicle Inspection	12
AB1660	Metallurgy	30
AB1671	Cutting and Heating	30
AB1680	Gas Metal Arc Welding (GMAW [MIG])	45
AB1690	Resistance Spot Welding	15
AB1701	Metal Working I (Mild Steel)	55
AB1711	Body Fillers and Abrasives	40
AB1721	Corrosion Protection	40
AB1732	Surface Preparation (Cleaning, Stripping and Masking)	85
AB1750	Stationary Glass	30
AB1760	Moveable Glass and Hardware	30
AB1780	Cleaning and Detailing	30
AB1790	Upholstery, Trim and Hardware	30
AB1801	Refinishing I	75
AB1811	Batteries	10
AB1820	Primers, Surfaces and Sealers	40
AB2811	Non-Structural Components	60
AM1100	Math Essentials	30
AM1240	MV Body Repair Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15
OT1220	Workplace Exposure	60

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
AB2700	Metal Working II (Aluminum)	45
AB2711	Electronic Fundamentals	75
AB2720	Position Arc Welding (GMAW)	30
AB2730	Restraints Systems	30
AB2740	Structural Components	60

Block 3	**Advanced Level**	**Hrs**
AB1741	Non-Metal Repair	60
AB2800	Refinishing II	75
AB2821	Electrical and Electronic Repairs	60
AB2830	Damage Analysis of Conventional Frames and Unitized Bodies	45

Block 4	**Advanced Level**	**Hrs**
AB2901	Mechanical Systems and Components	68
AB2910	Steering Suspension and Braking Systems	75
AB2920	Unitized Body Repairs	30
AB2930	Conventional Frame Repair	30
AB2940	Damage Analysis and Estimating Costs	30
SV1110	Ozone Depletion	7

Program Description
This program is designed to assist you in develop sufficient basic skills and knowledge to enter the labor force as an apprentice Mechanic in Motor Vehicle Body Repairer (Metal and Paint). Some of the duties include:
• Repair and replace vehicle structures and body parts
• Remove and install interior and exterior finishes
• Hammer out dents, buckles and other defects
• Operate soldering equipment and plastic filler
• Remove damaged fenders, panels and grills
• Weld replacement parts
• Straighten frames and underbodies
• File, grind, mask and tape body surfaces in preparation for painting

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Use tools and equipment.
3. Determine the type of paint; plan refinishing system; remove, prepare, seal and mask; apply coatings to vehicle.
4. Demonstrate correct use of chemicals within the shop environment.
5. Compute cost estimates for completing repairs.
6. Manage customer needs, complaints, questions and special challenges.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Garages
• Service Stations

INDUSTRIAL TRADES
Non-Destructive Testing Technician

CERTIFICATE
• One Year
• September
• Port aux Basques Campus

COURSES

CODE	TITLE	Hrs
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
ND1110	Liquid Penetrant Inspection	80
ND1130	Materials and Process	95
ND1210	Magnetic Particle Inspection	100
ND1310	Industrial Ultrasonics I	110
ND1311	Industrial Ultrasonics II	110
ND1410	Industrial Radiography I	80
ND1411	Industrial Radiography II	80
ND1500	Radiation Safety and CEDO	60
DR1770	Basic Drawing and Sketching for NDT	30
SP2330	Quality Assurance/Quality Control	30
WD1290	SMAW for NDT	30
MA1081	Math Fundamentals in NDT	30
AM1100	Math Essentials	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15

Program Description
Non-Destructive Testing Technician graduates are employed to accurately test items for potential flaws/failures using the following NDT test methods: Liquid Penetrant Inspection, Magnetic Particle Inspection, Ultrasonic Testing and Radiography Testing. The program will prepare you to write the National Exams that are required by the Canadian General Standards Board.

Some of the duties include:
• Employ accurate testing inspection methods on materials and equipment
• Test using magnetic particle inspection, liquid penetrant inspection, ultrasonic testing and radiography testing

Note: There are specific vision requirements that are required by the Canadian General Standards Board prior to completing final certification in each discipline. Please refer to the following link for the requirements: http://www.nrcan.gc.ca/mining-materials/non-destructive-testing/8576

The Canadian General Standards Board exam fees are not included in tuition/supply fees.

Subject Descriptions

Magnetic particle Inspection (MPI) trains students to use small magnetic particles (i.e. iron filings) to detect flaws in components. For this method to be used the component must be made of ferromagnetic material such as iron, nickel, cobalt, or some of their alloys.

Liquid Penetrant Inspection (LPI) trains students to recognize surface flaws in components that appear as a result of capillary action. Flaws become apparent when a colored or fluorescent dye bleeds out of the component to reveal a crack in its surface.

Ultrasonic Testing (UT) trains students to use high frequency sound energy to conduct examinations and make measurements in materials to determine surface or internal cracks or flaws in the materials.

Radiography Testing (RT) trains students to send radioactive energy through a material enabling a negative (Photo) to be produced for that material illustrating internal flaws or cracks.

Outcomes

1. Perform Liquid Penetrant Inspection.
2. Perform Magnetic Particle Inspection.
3. Carry out Ultrasonic Inspection.
4. Carry out Radiographic Inspection.
5. Demonstrate knowledge of Quality Assurance, Control Documentation and Reporting Systems for various industrial sectors.
6. Develop attitudes conducive to the successful application of skills on the job.
7. Develop an awareness and concern for good safety practices in the work place.
8. Develop academic skills and knowledge in mathematics, communications and science.
9. Distinguish among various properties of metals with respect to their impact on NDT methods.

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Laboratory

Time will be split between practical applications and the classroom throughout the program to assist the trainees in developing self-confidence/skills to carry out Non-Destructive Testing certification exams.

Employment Opportunities

Graduates may find employment in the following areas:
- Oil and Gas
- Construction
- Aerospace
- Nuclear
- Automotive
- Welding and Steel Production

INDUSTRIAL TRADES

Plumber

CERTIFICATE
• Nine Months
• September
• Bonavista, and Grand Falls-Windsor Campuses

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
PF1020	Job Site Safety	9
PF1340	Tools and Equipment	75
PF1350	Blueprint I (Basic Residential)	30
PF1360	Blueprint II (Advanced Residential/Light Commercial)	30
PF1370	Rigging	39
PF1380	Introduction to Fuel Brazing and Cutting	45
PF1390	Pipe and Tubing Fundamentals	15
PF1401	Steel Piping	60
PF1410	Copper Piping	45
PF1425	Plastic Piping	75
PF1440	Piping Valves	30
PF1450	Hydronic Heating I	60
PF1610	Cast Iron Piping	18
PF1620	Non-Metallic Piping	6
PF1630	Water Service	6
PF1640	Hot and Cold Water Supply	30
PF1650	Hot Water Storage Tanks and Heaters	18
PF1660	Water Treatment Systems	6
PF1670	Residential Sanitary Drainage	60
PF1680	Residential Venting	45
PF1691	Storm Systems	13
PF1700	Commercial Drainage, Waste and Venting I	21
PF1710	Residential Appliances, Fixtures and Trim	30
PF1720	Rural Waste Disposal	15
PF1731	Introduction to Electric Welding & Cutting	24
PF2110	Aluminum Piping	9
AM1100	Math Essentials	30
AM1260	Pipe Trade Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 3-4 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
PF2100	Blueprint III (Heavy Commercial / Industrial)	30
PF2121	Hydronic Heating II	54
PF2130	Introduction to Electricity	15
PF2150	Introduction to Gas Piping I (Low Pressure)	30
PF2170	Medical Gas Systems	21
PF2271	Commercial Drainage, Waste and Venting II	30
PF2280	Commercial Appliances, Fixtures and Trim	30
PF2550	Historic Piping	6
PF2560	Food Processing Systems	6
PF3100	Fire Protection	18

Block 3	**Advanced Level**	**Hrs**
PF2310	Cross Connection Control Devices	45
PF2320	Introduction to Gas Piping II (High Pressure)	30
PF2350	Renewable Energy Systems	21
PF2510	Compressed Air and Vacuum Systems	21
PF2520	Chilled Water Systems	12
PF2541	Rural Water Supply	39
PF2571	Commercial Drainage, Waste and Venting III	30
PF2580	Industrial / Commercial Appliances, Fixtures and Trim	18
PF2590	Lawn Sprinkler Systems	6
PF2601	Swimming Pool Systems	6
PF3130	Commissioning	12

Program Description

This program prepares you to install and repair pipes, fixtures and other plumbing equipment for water distribution and waste water disposal in residential, commercial and industrial buildings. Some of your duties include:
- Read blueprints, drawings and specifications for plumbing systems
- Examine water supply networks, waste and drainage systems
- Install, repair and maintain domestic, commercial or industrial fixtures and systems
- Connect, bead, thread and join pipes
- Leak test utilizing air and water

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Plan work activity.
3. Use and maintain hand and portable power tools and equipment.
4. Interpret plans and specifications and prepare layouts and working drawings.
5. Prepare components and fixtures according to specifications and assume responsibility for the end product.

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities

Graduates may find employment in the following areas:
- Construction contractors

• Plumbing repair shops

INDUSTRIAL TRADES

Power Engineer 4th Class

CERTIFICATE
- **One Year**
- **September**
- **Corner Brook Campus**

COURSES

CODE	TITLE	Hrs
Semester 1		
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
PW1101	Applied Mathematics	30
PW1111	Applied Science	50
PW1121	Industrial Drawings and Legislation	25
PW1150	Work Safety & Environment I	40
PW1160	Work Safety & Environment II	40
PW1200	Power Engineering Maintenance I	20
PW1230	Power Engineering Operations I	40
PW1240	Power Engineering Operations II	40
CM2160	Communication Essentials	45
MC1060	Computer Essentials	15
AM1100	Math Essentials	30
Semester 2		
PW1221	Power Engineering Operation Equipment	50
PW1301	Electrical Principals	40
PW1311	Boiler Controls and Instrumentation	40
PW1330	Heating and Boiler Systems I	45
PW1340	Heating and Boiler Systems II	45
PW1401	Auxiliary Systems	40
PW1411	Refrigeration Systems	60
PW1421	Air Conditioning Systems	50
PW1430	Power Engineering Maintenance II	40
SD1760	Workplace Essentials	45
Intersession		
OJ1650	Work Job Placement 4 weeks	120
PW1441	Power Engineering & Industrial Applications	40

Program Description
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 may be 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.

This program is intended to prepare the learner for entrance into the Power Engineering field at the 4th class level. Upon successful completion of the program requirements a learner is eligible to write an Inter Provincial Certification Exam for Power Engineer 4th Class that is conducted by the Department of Advanced Education and Skills (DAES). Graduates of the program will receive a 6 month credit from the Department of Advanced Education and Skills towards firing time as a 4th Class Power Engineer. Learners will be required to complete the practical requirements and utilize the Practicum Guide endorsed by the DAES.

This program includes a 4-week on the job training experience that learners will be able to complete the practical requirements. Graduates of the program are expected to work in varying temperatures, environments, confined spaces, may be required to perform climbing, use hand and power tools, various specialty testers, and perform preventative maintenance of the equipment.

Outcomes
1. Demonstrate the practical skills necessary for a 4th Class, Power Engineer.
2. Develop and practice proper safety procedures.
3. Demonstrate problem solving skills and good work practices.
4. Utilize essential skill training to enhance their career experience and opportunities.
5. Gain knowledge of control documentation and reporting systems in Power Engineering environments.
6. Prepare for a provincial examination in Power Engineering 4th Class part "A" and "B".

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
- Municipal buildings
- Provincial buildings
- Federal buildings
- Health care institutions
- Educational institutions
- Manufacturing
- Mining
- Fishery
- Pulp and Paper
- Oil and Gas

INDUSTRIAL TRADES

Powerline Technician (Operating)

CERTIFICATE
- **Nine Months**
- **September**
- **Bay St. George, Happy Valley-Goose Bay, Seal Cove, and St. Anthony Campuses**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
ER1140	DC Theory	30
ER1151	Series and Parallel DC Circuits	45
OL1250	Access Equipment	6
OL1130	Power and Energy	6
OL1140	Inductance and Capacitance	10
OL1150	Transmission Systems	5
OL1160	Steel Structure Climbing	6
OL1170	Job Planning	6
OL1180	AC Theory	6
OL1190	AC Circuits	24
OL1240	Series and Parallel Circuits	10
OL1601	Traffic Control Person	4
OL1631	Safety	14
OL1641	On and Off Road Equipment	10
OL1681	Tools and Equipment	40
OL1691	Pole Climbing	30
OL1701	Drawings, Specifications and Standards	15
OL1714	Single-Phase Circuits	10
OL1715	Distribution Lines	30
OL1721	Conductors and Cables	30
OL1725	Overhead Distribution Structures	240
OL1741	Sagging Conductors	10
OL1751	Tree Trimming	6
OL1771	Aerial Devices and Hydraulics	30
OL1781	Transmission Structures	5
OL1791	Grounding and Bonding	30
OL1811	Transformers	30
OL1821	Street Lighting Systems	25
OL1835	Overhead Distribution Systems	30
OL1851	Rigging, Hoisting and Lifting	30
AM1100	Math Essentials	30
AM1270	Powerline Technician Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15
OT1161	Work Term	60

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

APPRENTICESHIP
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
OL2521	Three-Phase Theory	60
OL2532	Transformer Banking	60
OL2632	Underground Distribution Systems	120

Block 3	**Advanced Level**	**Hrs**
OL3700	Live Line work	240

Block 4	**Advanced**	**Hrs**
OL4000	Power Transformers	25
OL4010	Three-Phase Metering	30
OL4020	Voltage Regulation and Control Devices	30
OL4030	Line Protective Devices	60
OL4040	Line Capacitors	20
OL4050	Substations, Switching Stations and Terminals	60
OL4060	Single-Phase Metering	15

Program Description
The Powerline Technician (Operating) program will prepare you to build and repair overhead and underground power lines used to conduct electricity from generating plants to the customer. Some of the duties include:
- Erect and maintain steel, wood or concrete poles, towers and guy wires
- Install, maintain and repair overhead and underground powerlines, cables, insulators, lighting arrestors and switches
- Repair or replace transformers and street lighting
- Splice, solder and insulate conductors
- Diagnose power distribution and transmission faults

Outcomes
1. Demonstrate safe work practices and personal protection.

2. Interpret occupational documents.
3. Use and maintain tools and equipment.
4. Use and maintain electrical distribution systems and their equipment

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3.Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

5. Class 5 License
All entrants must have a valid class 5 license prior to entry into the Powerline Technician Program. Motor Vehicle Regulations require persons to have a valid Class 5 for a minimum of 12 months prior to applying for a Class 3 license.

Employment Opportunities
Graduates may find employment in the following areas:
• Utility companies
• Private contractors

INDUSTRIAL TRADES
Process Operator

CERTIFICATE
• Eight Months
• September
• Placentia Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health & Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
OR1100	Safety	18
OR1110	Environmental Awareness	12
OR1150	Hoisting, Lifting and Rigging	30
OR1160	Tools and Equipment	12
OR1170	Piping and Instrumentation Drawings	24
OR1200	Electrical Fundamentals	30
OR1210	Process Measurement	90
OR1220	Process Analyzers	60
OR1230	Final Control Elements	60
OR1300	Basic Process Control	150
OR1311	HMI and Process Control Systems	12
OR1320	Pumps	18
OR1330	Introduction to Process Operations	30
LA1100	Confined Space Awareness	6
LA1110	Fall Protection Awareness	6
PH1020	Physics	72
CH1020	Chemistry	72
AM1100	Math Essentials	30
AM1280	Process Math Essentials	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15
Block 2	**Hydrometallurgical Refining**	**Hrs**
OR2100	Introduction to the Hydrometallurgical Process	30
OR2110	Feed Preparation and Handling	12
OR2120	Neutralization	30
OR2200	Pressure Oxidative Leaching	18
OR2210	Solvent Extraction and Cadmium Removal	30
OR2220	Electrowinning	18
OR2230	Water Effluent and Residue Treatment	12
Block 2	**Mineral Processing**	**Hrs**
OR2300	Mineral Processing I	62
OR2310	Mineral Processing II	18
OR2320	Mineral Processing III	70

An apprentice is required to complete one of the two blocks listed. (Subject to the industry s/he is employed.)

Block 3	**Common Advanced Courses**	**Hrs**
OR2400	Advanced Control Systems	90
OR2410	Advanced Process Control	66
OR2420	Troubleshooting Techniques	18
OR2440	Work Planning	6

Program Description
Process Operator training is essential for safe, incident-free start-up and operation of plant facilities. The process operator emphasizes the safety requirements and hazards associated with material being processed. The operator will also deal with environmental issues. The program will focus on consistent and efficient plant operation and the importance of meeting both production requirements and product quality specifications while operating the process as efficiently as possible. Some of the duties include:
• Monitor, review and control plant operations
• Maintain production record variables for volume, yield and consumption
• Sample and test chemicals
• Recommend corrective production procedures

OBJECTIVES
1. Demonstrate positive attitudes and behaviors.
2. Evaluate and control plant operations.
3. Create and maintain adequate records as required.
4. Demonstrate safe work practices and personal protection.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Mineral Processing
• Oil and Gas
• Pulp and Paper
• Food and Beverage Production
• Natural Gas Processing

INDUSTRIAL TRADES
Refrigeration & Air Conditioning Mechanic

CERTIFICATE
• Nine Months
• September
• Ridge Road Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
RF1160	Safety Orientation	12
RF1170	Hand/Power Tools and Fasteners	20
RF1210	Tube, Pipe, Fittings, Soldering and Brazing	40
RF1220	Refrigeration Fundamentals	80
RF1230	Refrigeration Tools and Instruments	35
RF1240	Refrigerants, Oils and Refrigerant Management	35
RF1250	Refrigeration System Valves and Accessories	35
RF1260	Leak Testing, Evacuation and Charging	30
RF1270	Electrical Fundamentals	40
RF1280	Single and Three Phase Motor Fundamentals	30
RF1310	Electrical Components	20
RF1320	Control Fundamentals	30
RF1330	Air Conditioning Fundamentals	15
RF1340	Rigging Techniques	20
RF1350	System Analysis with Pressure Enthalpy Diagrams	35
RF1360	Compressors	30
RF1370	Condensers	20
RF1380	Evaporators	25
RF1390	Metering Devices	30
RF1400	Automatic Flow Controls and Application	30
RF1410	System Ancillary Components	25
RF1440	Refrigerant Recovery and Recycling Procedures	10
RF1450	Refrigeration and A/C Installation I	30
RF1460	Troubleshooting Techniques	20
RF1470	Industry and Relevant Codes	15
RF1480	Control Circuits and Wiring Diagrams	30
RF1490	Motor Controls, Relays and Transformers	30
RF1510	Air Conditioning Equipment	20
RF1520	Refrigeration Load Calculations	30
AM1100	Math Essentials	30
AM1290	Refrigeration Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
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 Troubleshooting Wiring Diagrams	30
RF1760	Basic Electronics	15

Block 3	**Advanced Level**	**Hrs**
RF1580	Psychometrics	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 Balancing	15
RF1630	Control Applications and Components	25
RF1660	Air Conditioning Load Calculations	15
RF1670	Duct Systems and Design	25
RF1680	Humidification and Dehumidification Equipment	15
RF1690	Installation of Air Conditioning Equipment	20
RF1700	Air Conditioning System Troubleshooting	20

Block 4	**Advanced Level**	**Hrs**
RF1650	Industrial System Components	25
RF1710	Energy Management and Indoor Air Quality	20
RF1720	Chillers and Chiller Systems	30
RF1730	Multiplex Refrigeration Systems	35
RF1740	Specialty Systems (Ultra-low, Cryogenic)	15
RF1750	Control Application and Components	15
RF1770	Wiring Diagrams	30
RF1780	Specialized Control Systems	30
RF1790	Industrial Refrigeration Systems	40

Program Description
Refrigeration and air conditioning mechanics plan, prepare and lay out any cooling systems or heat-cooling system that is used in a residential, commercial, institutional or industrial refrigeration setting. Some of the duties include:
• Install and start up refrigeration and air cooling systems
• Service, repair and replace refrigeration and air conditioning piping and components Interpret blueprints and verbal instruction
• Assemble and install refrigeration and air conditioning components
• Install and calibrate controls
• Perform leak detection, record keeping and performance test

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Interpret mechanical and architectural drawings, acts, codes, standards, legislation, and service and operating manuals.
3. Use and maintain tools and equipment.
4. Arrange for refrigeration and air conditioning installation and maintenance.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates will find employment in the following areas:
• Installation companies
• Service companies

INDUSTRIAL TRADES

Renovation Technician

CERTIFICATE/DIPLOMA
• Two Years
• September
• Grand Falls-Windsor Campus

COURSES

CODE	TITLE	Hrs
Semester 1 - 15 weeks		**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
AJ1221	Floor and Wall Framing	90
AM1100	Math Essentials	30
HE1620	Powerline Hazards	4
AJ1160	Blueprint Reading	45
AJ1111	Carpentry Fundamentals	74
AJ1201	Layout & Footing	80
AJ1211	Wall Forms	80
LA1100	Confined Space Awareness	6
MC1060	Computer Essentials	15
Semester 2 - 15 weeks		**Hrs**
AJ1410	Interior Fundamentals	60
SD1760	Workplace Essentials	45
AJ1501	Interior Trim	60
CM2160	Communication Essentials	45
AJ2430	Scaffolding	45
AJ1310	Roof Fundamentals	80
AJ1760	Chainsaw Safety	4
LA1110	Fall Protection Awareness	6
AM1130	Carpenter Math Fundamentals	30
AJ1231	Exterior Finishes	60
AP1101	Introduction to Apprenticeship	15
Semester 3 (Intersession) - 3 weeks		**Hrs**
AJ1601	Stair Fundamentals	60
AJ1170	Residential Estimating	30
Semester 4 - 6 weeks		**Hrs**
OJ1860	Job Placement I	180

Prior Learning Assessment Recognition (PLAR) exemptions are available for this course subject to evidence of suitable work experience.

After the successful completion of the above listed courses, the student may exit with the Carpenter Certificate.

Semester 5 - 15 weeks		**Hrs**
RV1250	Renovators Basic Plumbing	30
RV1260	Renovators Basic Electrical	30
RV1160	Renovation I	30
RV1161	Renovation II	30
RV1170	Basement Renovations	30
RV1200	Green Renovating	30
RV1320	Foundation Systems	30
RV1351	Flooring	45
RV1230	Project Manager I	40
RV1101	Decks and Fences	45
RV1231	Project Manager II	40
RV1300	Residential Estimating II	30
Semester 6 - 8 weeks		**Hrs**
RV1360	Special Trims	40
RV1341	Cabinet Layout/Design	60
RV1270	Renovators Basic HVAC	30
RV1400	Demolition and Waste Management	30
RV1120	Building Systems	30
RV1140	Accommodated Construction	30
Semester 6 (continued) - 6 weeks		**Hrs**
OJ1861	Job Placement II	180

Prior Learning Assessment Recognition (PLAR) exemptions are available for this course subject to evidence of suitable work experience.

Program Description
This two year diploma program will provide students with hands on experience and knowledge pertaining to the world of home and light commercial building renovation. Building systems, efficient building techniques, energy conserving systems, sustainable building approaches, estimating and project management are some of the topics students of the Renovation Technician program will cover.

Graduates will have the skills required to work in a variety of residential and commercial building construction settings focusing on renovation projects. Students will learn to recognize hazardous materials and the need for proper waste disposal strategies, as well as proper use of both non-renewable and renewable energy sources.

Learners in the Renovation Technician program will receive a Certificate for Carpenter upon completion of the Carpenter Entry Level courses in Semesters 1, 2 and 3, providing an opportunity to register as a first-year carpenter apprentice. A Diploma in Renovation Technician will be awarded for completion of all courses listed in Semesters 1 through 6.

Outcomes
1. Practice safety work procedures.
2. Manage a renovation project as it relates to core and sub trade practices.
3. Demonstrate problem solving skills, good work practices, strong communication skills, and utilize practical hands on experience gained directly from job placements in industry.
4. Perform with carpenter skills and knowledge in construction techniques related to building sciences, green technologies, waste management, estimation/budgeting and scheduling.
5. Solve problems with associated trades in the areas of electrical, HVAC, plumbing, painting, plastering, masonry and drafting.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education (ABE)
Adult Basic Education (Level III) Graduation with General College Profile (or Business Related College Profile or Degree and Technical College Profile). It is strongly recommended that courses include the following:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an Individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES
Graduates may find employment in the following areas:
• General contractors
• Commercial contractors
• Private contractors

INDUSTRIAL TRADES

Sheet Metal Worker

CERTIFICATE

- **Seal Cove - Start Date Varies**
- **Nine Months**
- **September**
- **Burin, and Seal Cove Campuses**

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
SL1101	Safety	6
SL1111	Tools and Equipment	60
SL1121	Hoisting, Lifting and Rigging	18
SL1131	Fabrication Fundamentals	30
SL1141	Metallurgy	10
SL1151	Drafting, Pattern Development and Layout	30
SL1161	Blueprint Reading	30
SL1180	Sheet Metal Fundamentals	3
SL1241	Layout and Fabrication Parallel Lines	90
SL1251	Layout and Fabrication Radial Lines I	90
SL1261	Layout and Fabrication Triangulation I	60
SL1280	Plasma Arc Cutting	12
SL1350	Oxy-Acetylene Welding and Cutting	30
SL1430	Shielded Metal Arc Welding (SMAW)	45
SL1440	Introduction to Gas Metal Arc Welding (GMAW)	30
SL1450	Introduction to gas Tungsten Arc Welding (GTAW)	60
SL1630	Layout and Fabrication Triangulation II	60
SL1741	Air Quality Management	60
SL1770	Soldering	30
OT1191	Work Term	60
AM1100	Math Essentials	30
AM1300	Sheet Metal Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
SL2100	Trade Related Documents	15
SL2130	Advanced Gas Metal Arc Welding	30
SL2160	Layout and Fabrication - Triangulation III	120
SL2200	Fabrication (Air and Material Handling)	60
SL2230	Chimneys, Breeching and Venting	15
Block 3	**Advanced Level**	**Hrs**
SL3100	Layout and Fabrication	90
SL3130	Installation	60
SL3150	Advanced Gas Tungsten Arc Welding	90
Block 4	**Advanced Level**	**Hrs**
SL1720	Advanced Layout and Fabrication	90
SL4100	Job Planning	15
SL4200	HVAC Systems	60
SL4230	Adjusting and Balancing	15
SL4240	Metal Roofing and Architectural Metal	30
SL4260	Maintenance and Repair	15
SL4280	Specialty Products	15

Program Description

Sheet Metal Workers fabricate, assemble, install and repair sheet metal products. You will use many types of metal including black and galvanized steel, copper, brass, nickel, stainless steel, aluminum and tin place to make products such as: pollution control systems, dust collection and control systems, air-slides, material blowers, heating, ventilating and air conditioning systems, solar heating and cooling systems, metal showcases, metal cabinets, flashing, coping, troughing and roof drainage systems. Some of the duties include:

- Lay out, measure and mark dimensions and reference lines
- Utilize drawings and templates
- Use laser and plasma cutting equipment, numerical controlled and computerized equipment
- Cut, drill, punch, bend and shape sheet metal using hand and power shears and snips
- Fasten components using bolts, screws, cement, rivets, adhesives, solder, or welding
- Install and repair sheet metal products in accordance with building code requirements

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools, machines and equipment.
3. Use scaffolds, hoists, slings and ladders.
4. Determine project requirements.
5. Develop patterns using various methods.
6. Fabricate parts using hand tools, power tools, and power operated equipment.

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:

i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities

Graduates may find employment in the following areas:

- Plumbing, Heating & Air Conditioning Companies
- Steel Producers
- Metal Producers
- Exterior Construction firms

INDUSTRIAL TRADES

Small Equipment Service Technician

CERTIFICATE

- **Ten Months**
- **Varies**
- **Bay St. George Campus**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
TS1191	Shop Fundamentals	120
TS1220	Precision Measurement	30
WD1250	Oxy-Fuel Cutting and Heating	30
WD1320	Gas Metal Arc Welding	30
MP1440	Electrical and Electronic Basic Principles	90
SR1120	Service Information Systems	30
SR1130	Engine Operations	45
SR1140	Lubrication Systems	45
SR1220	Small Equipment Engines	90
SR1230	Small Equipment Starting and Charging Systems	75
SR1240	Ignition Systems	60
SR1320	Gasoline Engine Air and Fuel Delivery Systems	30
SR1330	Gas Injection Systems	60
SR1340	Carburetted Fuel Systems	60
SR1420	Small Equipment Cooling Systems	45
SR1431	Emission Control Systems	30
AM1100	Math Essentials	30
AM1360	Power Sport Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
SR2100	Lawn & Garden Equipment Servicing Fundamentals	45
SR2200	Snowmobile Servicing Fundamentals	60
SR2300	Motorcycle & ATV Servicing Fundamentals	60
SR2400	Marine Equipment Servicing Fundamentals	75
Block 3	**Advanced Level**	**Hrs**
SR1500	Small Equipment Transmissions	120
SR2310	Motorcycle & ATV Troubleshooting & Repair	120
Block 4	**Advanced Level**	**Hrs**
SR2110	Lawn & Garden Equipment Troubleshooting & Repair	80
SR2210	Snowmobile Troubleshooting & Repair	80
SR2410	Marine Equipment Troubleshooting & Repair	80

Program Description

The Small Equipment Service Technician program is designed to enable you to learn the knowledge and skills associated with the repair and maintenance of recreational equipment such as snowmobiles, ATVs, motorcycles, personal water craft and outboard motors, and fuel-powered tools such as chainsaws and lawnmowers. Some of the duties include:

- Review and interpret work orders and technical manuals
- Inspect engines, motors and other mechanical components using test devices
- Diagnose and isolate faults
- Repair or replace components using hand tools
- Performance test repaired equipment
- Perform scheduled maintenance and advise customers on repair cost

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.

3. Interpret schematics and wiring diagrams.
4. Identify major engine components.
5. Maintain and repair lubricant systems.
6. Maintain and repair light duty engines.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Rental dealerships
• Recreational dealerships
• Independent garages
• Service stations
• Repair shops
• Manufacturing companies

INDUSTRIAL TRADES
Steamfitter / Pipefitter

CERTIFICATE
• Nine Months
• September
• Clarenville Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
PF1340	Tools and Equipment	75
PF1350	Blueprint I (Basic Residential)	30
PF1360	Blueprint II (Advanced Residential/Light Commercial	30
PF1370	Rigging	39
PF1380	Introduction to Fuel Brazing and Cutting	45
PF1390	Pipe and Tubing Fundamentals	15
PF1400	Steel Piping	90
PF1410	Copper Piping	45
PF1421	Plastic Piping	43
PF1440	Piping Valves	30
PF1450	Hydronic Heating I	60
PF1541	Low Pressure Steam	96
PF1550	Pipe Template Development	75
PF1560	Pipe Layout and Fitting Fabrication	72
PF1571	Introduction to Electric Welding and Cutting	60
PF2110	Aluminum Piping	9
AM1100	Math Essentials	30
AM1260	Pipe Trade Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship
Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 4-5 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
PF2100	Blueprint III (Heavy Commercial / Industrial)	30
PF2121	Hydronic Heating II	54
PF2130	Introduction to Electricity	15
PF2150	Introduction to Gas Piping I (Low Pressure)	30
PF2161	Standpipe Systems	6
PF2170	Medical Gas Systems	21
PF2350	Renewable Energy Systems	21
PF2701	Instrumentation	30
PF2711	Pipe and Tube Bending	21
PF2720	Specialty Steamfitting / Pipefitting Systems	12

Block 3	**Advanced Level**	**Hrs**
PF2740	Valves	30
PF2750	High Pressure Steam	75
PF2900	Pumps	45
PF2930	Compressed Air Systems	45
PF2960	Hydraulic Systems	45

Block 4	**Advanced Level**	**Hrs**
PF2310	Cross Connection Control Devices	45
PF2320	Introduction to Gas Piping II (High Pressure)	30
PF2760	Refrigeration	30
PF2770	Stainless Steel and Specialty Piping	27
PF2780	Blueprint IV	39
PF2790	Advanced Rigging	39
PF2800	Controlled Bolting, Testing and Commissioning	30

Program Description
Steamfitter/Pipefitters repair and maintain pipe and steam systems. Some of the duties include:
• Determine required pipe and tools necessary to complete a layout and sequence of tasks
• Create detail sketches for pipe and equipment fabrication and installation
• Measure, cut, thread, groove, bend, assemble and install metal, plastic and fiberglass pipes, valves and fittings and join sections
• Perform performance leak tests and pipe securement
• Perform maintenance and replacement of worn components
• Perform pipeline construction
• Safely layout, assemble, fabricate, maintain and repair piping systems
• Perform blueprint reading for piping and tubing
• Perform maintenance on low pressure steam and heating and cooling systems

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.
3. Perform common installation processes.
4. Plan lifts.
5. Hoist loads.
6. Install high and low pressure process steam systems.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Construction contractors
• Manufacturing Plants
• Utility Companies
• Oil and Gas Refineries
• Industrial Plants
• Pulp and Paper Mills
• Thermal and Steam Generating Plants
• Chemical Plants

INDUSTRIAL TRADES
Truck and Transport Mechanic

CERTIFICATE
• Nine Months
• Varies
• Bay St. George Campus

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
SV1101	Safety	30
SV1110	Ozone Depleting Substances	7
SV1121	Gaskets and Seals	5
SV1131	Electrical and Electronic Principles	55
SV1141	Introduction to Hydraulics	30
SV1151	Service Information Systems	25
SV1166	Tools and Equipment	30
SV1181	Fasteners, Tubing, Hoses and Fittings	30
SV1190	Lubrication and Fluid Servicing	30
SV1201	Start, Move and Park Vehicle	5
SV1211	Tires, Rims and Wheels	25
SV1261	Vehicle Hydraulic Brake Systems	60
SV1271	Basic Air Brake Systems	60
SV1281	Drive Lines	25
SV1301	Cutting, Heating and Welding	30
SV1303	Engine Principles	45
SV1310	Cooling Systems	30
SV1331	Intake and Exhaust Systems	25
SV1361	Diesel Fuel Supply Systems	25
SV1365	Non-Diesel Fuel Systems	25
SV1370	Batteries	15
SV1401	Gauges	11
SV1451	Steering Systems	30
SV1491	Conventional Lighting Circuits	15
SV1501	Wiring Harnesses and Accessories	15
SV1800	Hoisting and Lifting	15
SV1810	Preventative Maintenance	5
SV1820	Bearings	6
SV1830	Metallurgy	5
SV2381	Hydraulic Fittings, Piping, Tubing and Hoses	25
SV2391	Reservoirs, Coolers and Filters	15
WD2330	MIG Welding	30
AM1100	Math Essentials	30
AM1220	Mechanical Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45

MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

APPRENTICESHIP

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 5-6 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
SV1291	Drive Axle Assemblies	45
SV1380	Starting Systems	30
SV1386	Starting Aids	15
SV1391	Charging Systems	30
SV1840	Heating and Ventilation Systems	15
SV2310	Electric Brakes	15
SV2400	Hydraulic Pumps and Motors	30
SV2661	Electronic Ignition Systems	30
SV2670	Air Conditioning Systems	30

Block 3	**Advanced Level**	**Hrs**
SV1245	Wheel and Axle Alignment	25
SV1441	Front Axles and Suspension Systems	45
SV1461	Rear Axles and Suspension Systems	60
SV1480	Dual Air Brake Systems	45
SV2691	Frames and Chassis	25
SV2781	Trailer Coupling Devices	20
SV2728	Trailers	20

Block 4	**Advanced Level**	**Hr**
SV2265	Vehicle Management Systems	60
SV2350	Torque Converters	30
SV2365	Automatic/Power Transmissions	35
SV2571	Engine Brakes and Retarders	20
SV2651	Electronically Controlled Diesel Fuel Injection Systems	45
SV2771	Emission Control Systems	20
WD2320	SMAW Welding	30

Block 5	**Advanced Level**	**Hrs**
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**	**Hrs**
SV2721	Manual Transmissions	65
SV2725	Power Take-Offs	30
SV2726	Anti-Lock Braking and Traction Control Systems	50
SV2727	Cab Components	20
SV2729	Engine Clutches	15
SV2741	Transfer Cases	15
SV2761	Gasoline Fuel Injection Systems	3

Program Description

This program is designed to provide you with the skills and knowledge required for employment in the field of Truck and Transport Mechanic. Some of your duties include:

- Interpret work orders and technical manuals
- Maintain, clean and lubricate equipment
- Diagnose faults and malfunctions
- Adjust, repair or replace defective parts
- Performance test repaired equipment
- Follow manufacturers' specifications and legislated regulations

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Use and maintain tools and equipment.
3. Follow work orders, prepare estimates, and interpret technical manuals.
4. Write service reports; diagnose problems and record service analysis

Entrance Requirements

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:

i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status

Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

EMPLOYMENT OPPORTUNITIES

Graduates may find employment in the following areas:

- Repair shops
- Maintenance companies
- Transportation companies
- Construction companies

INDUSTRIAL TRADES

Welder

CERTIFICATE

- **Nine Months**
- **Varies**
- **Baie Verte, Burin, Corner Brook, Happy Valley-Goose Bay, Labrador West, Placentia, and Prince Philip Drive Campuses**

COURSES

CODE	TITLE	
Block 1	**Entry Level**	**Hrs**
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
WD1190	Tools and Equipment	60
WD1360	MCAW (Metal Core Arc Welding)	18
WD1390	Safety	6
WD1430	Hoisting, Lifting, Rigging and Access Equipment	30
WD1602	Oxy-Fuel Cutting, Heating and Gouging	60
WD1610	SMAW (Shielded Metal Arc Welding) I	30
WD1620	SMAW II – Fillet Weld all Positions	60
WD1631	GMAW (Gas Metal Arc Welding) I	18
WD1641	GTAW (Gas Tungsten Arc Welding) I Set-up	18
WD1651	Plasma Arc Cutting and Gouging	12
WD1661	Blueprint Reading I (Basic)	30
WD1670	Blueprint Reading II (Welding Symbols)	30
WD1682	Metallurgy	18
WD1691	Quality Control	15
WD1701	Stationary Machinery	12
WD1721	Jigs and Fixtures	12
WD1741	FCAW (Flux Core Arc Welding) I	18
WD1790	Work Planning	6
WD1801	SMAW (Shielded Metal Arc Welding) III	120
WD1815	Fillet and Groove Weld	6
WD1821	GMAW II – Fillet Weld all Positions, Mild Steel	18
WD1832	GMAW (Gas Metal Arc Welding) III	30
WD1871	Build Up of Metal Parts	12
WD1892	FCAW II – Fillet and Groove Weld	80
WD1900	Air Carbon Arc Cutting and Gouging	15
AM1100	Math Essentials	30
AM1320	Welding Math Fundamentals	30
CM2160	Communication Essentials	45
SD1760	Workplace Essentials	45
MC1060	Computer Essentials	15
AP1101	Introduction to Apprenticeship	15
OT1150	Workplace Exposure	80

A certificate from College of the North Atlantic will be awarded upon successful completion of entry level courses.

Apprenticeship

Upon completion of the entry level certificate program, a graduate may pursue Red Seal Certification by finding employment, registering as an "Apprentice" and completing the following Advanced Level training and required work experience. The apprenticeship may take 3-4 years and would lead to Journeyperson status in the trade.

For more information regarding apprenticeship refer to www.aes.gov.nl.ca

Block 2	**Advanced Level**	**Hrs**
WD2142	SMAW 4	30
WD2411	Stud Welding and Resistance Spot Welding	6
WD2501	SMAW V - Alloy Steels	6
WD2521	GMAW (Gas Metal Arc Welding) V	30
WD2531	GMAW 5 Aluminum and Stainless Steel	18
WD2542	GTAW 3 Alloy and Non-Ferrous Metals	30
WD2552	FCAW 3 - Pipe and Tubing all Positions	30
WD2561	SAW (Submerged Art Welding)	6
WD2740	MCAW	30
WD2840	GTAW 2 Fillet Weld	24
WD2910	Layout and Template Development	30

Block 3	**Advanced Level**	**Hrs**
WD3010	GTAW 4 Fillet	30
WD3020	Shop Drawings and Structural Components	30
WD3030	GTAW 5 Pipe and Tubing	75
WD3040	SMAW 6 Pipe	105

Program Description

Welders join and server metals in beams, girders, vessels, piping and other metal components make metal parts used in construction and manufacturing plants, and weld parts, tools, machines and equipment. Some of the duties are:

- Develop patterns in given layouts, blueprints and work orders
- Clean and check for defects and shape component parts
- Examine blueprints and work orders
- Perform welding of various metals

Outcomes

1. Demonstrate safe work practices and personal protection.
2. Interpret drawings and develop layout patterns for projects.
3. Use and maintain tools and equipment.
4. Follow required codes, specifications and standards.
5. Employ various welding methods using SMAW, GMAW, FCAW and GTAW

ENTRANCE REQUIREMENTS

Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School

High School Graduation

2. Adult Basic Education

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:

i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades

Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
• Machine shops
• Fabrication plants
• Garages
• Production plants
• Shipyard
• Oil and Gas

INDUSTRIAL TRADES

Welder / Metal Fabricator (Fitter)

DIPLOMA
• Two Years
• September
• Port aux Basques Campus

COURSES

CODE	TITLE	Hrs
TS1510	Occupational Health and Safety	6
TS1520	WHMIS	6
TS1530	Standard First Aid	14
WD1185	Bending and Rolling	4
WD1190	Tools and Equipment	60
WD1360	MCAW I	18
WD1390	Safety	6
WD1430	Hoisting, Lifting, Rigging & Access Equipment	30
WD1602	Oxy-Fuel Cutting, Heating, Gouging & Welding	60
WD1610	SMAW - Set-up and Maintain Arc	30
WD1620	SMAW - Fillet Welds	60
WD1631	GMAW - Set-up and Maintain Arc	18
WD1641	GTAW - Setup	18
WD1651	Plasma Arc Cutting and Gouging	12
WD1661	Blueprint Reading I (Basic)	30
WD1670	Blueprint Reading II (Welding Symbols)	30
WD1680	Metallurgy, Expansion and Contraction	30
WD1691	Quality Control	15
WD1701	Stationary Machinery	12
WD1710	Iron Worker Operation	12
WD1721	Jigs and Fixture Fabrication	12
WD1730	Fabrication Fundamentals	15
WD1741	FCAW - Setup	18
WD1790	Work Plan	6
WD1801	SMAW - Groove Welds all Positions	120
WD1815	Fillet & Groove Weld	6
WD1821	GMAW - Fillet Welds all Positions	18
WD1832	GMAW - Groove Welds	30
WD1871	Building Up Metal Parts	12
WD1892	FCAW - Fillets and Grooves	80
WD1900	Air Carbon Arc	15
WD2430	Material Handling, Rigging and Scaffolding	35
WD2440	Blueprint Reading IV (Shop Drawing)	15
SF1400	Press Brake Operation	45
SF1410	Roll Forming Equipment and Operation	45
SF1420	Basic Layout Operations	20
SF1430	Basic Parallel Line Development	30
SF1440	Basic Radial Layout	30
SF1450	Basic Triangulation Layout	30
SF1460	Basic Plate Development	120
SF1470	Basic Assembly and Fitting	40
ND1110	Liquid Penetrant Inspection II	80
ND1130	Materials and Process	95
ND1210	Magnetic Particle Inspection II	100
OT1150	Workplace Exposure	80
MC1060	Computer Essentials	15
AM1100	Math Essentials	30
AM1230	Metal Fabrication Math Fundamentals	30
AM1320	Welding Math Fundamentals	30
SD1760	Workplace Essentials	45
AP1101	Introduction to Apprenticeship	15
CM2160	Communication Essentials	45

Program Description
Welder/Metal Fabricator contains components of the Welder, Metal Fabricator and Non-Destructive Testing Technician programs.At the end of the two years you will have two entry level certificates. Some of the duties include:
• Develop patterns or follow directions in given layouts, blueprints and work orders
• Clean and check for defects and shape component parts
• Examine blueprints and work orders
• Perform weld of various metals using different processes in accordance to codes and standards
• Layout, cut and fabricate structural steel
• Study engineering drawings and blueprints
• Plan the sequence of tasks required to efficiently cut metal
• Rig, hoist and move materials
• Tack weld, bolt and rivet components
• Install fabricated components in the final product
• Assemble and fit metal sections and plates to form complete units or sub units
• Employ accurate testing inspection methods on materials and equipment
• Test using magnetic particle inspection, liquid penetrant inspection

Outcomes
1. Demonstrate safe work practices and personal protection.
2. Interpret shop drawings, sketches and fabrication drawings.
3. Follow required codes, specifications and standards.
4. Prepare work area and equipment schedule.
5. Prepare final products for finish.
6. Demonstrate welds using SMAW, GMAW, FCAW and GTAW.
7. Perform liquid penetrant and magnetic particle non-destructive testing inspections.
8. Perform welds of various metals.

Entrance Requirements
Eligibility for admission requires the applicant to meet one of the following academic criteria:

1. High School
High School Graduation

2. Adult Basic Education
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:
i. Mathematics MA3107A, MA3107B, MA3107C
ii. Science 3101, 3102, 3103

3. Comprehensive Arts and Science (CAS) Trades
Comprehensive Arts and Science (Trades) Certificate

4. Mature Student Status
Applicants who do not meet the educational prerequisites, are 19 years of age or older and have been out of school for at least one year, may be considered on an individual basis under the Mature Student Clause.

Employment Opportunities
Graduates may find employment in the following areas:
•Machine shops
• Fabrication plants
• Production plants
• Oil and Gas
• Mining
• Ship Yards

AC1100 - Bookkeeping I •
Bookkeeping I is a study of the fundamental principles and the mechanics of bookkeeping, including the recording, classifying, and summarizing of financial data for a service business. The course also includes the control of cash and petty cash, banking procedures, and completing the accounting cycle. This course emphasizes the national accounting standards (private enterprise Generally Accepted Accounting Principles - GAAP).

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 •
This course introduces the student to accounting concepts, including: the basics of the double-entry accounting system including adjusting entries; financial statement preparation; accounting for payroll; accounting for a merchandising company; and the basics of the internal control of cash. This course emphasizes the national accounting standards (private enterprise GAAP).

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 •
The student is introduced to the basic principles of the Canadian Income Tax. Emphasis is placed on computing taxable income and taxes payable for individuals. The course includes basic tax planning ideas for individuals.
Prerequisite(s): AC2260

AC2100 - Bookkeeping II •
Bookkeeping II involves the application of accounts receivable and accounts payable, and the study and application of the generally accepted accounting principles within merchandising firms. The course involves using special journals, end-of-the-year adjustments for depreciation, accruals, bad debts, closing entries, financial statements, and payroll. This course emphasizes the national accounting standards (private enterprise Generally Accepted Accounting Principles - GAAP).
Prerequisite(s): AC1100

AC2220 -
Intermediate Financial Accounting I •
This course is designed to build on the knowledge the student 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, MC1241

AC2230 - Computerized Accounting I •
This course introduces the student to the elements of integrated computerized financial accounting software (such as Simply Accounting by Sage). The student will explore integrated software systems, general ledger, payables, receivables, payroll and inventory. The student will have the opportunity to apply the skills through various applications.
Prerequisite(s): AC1260 or AC2100

AC2231 - Computerized Accounting II
This course completes the study of computerized accounting systems started in AC2230 Computerized Accounting I. The student will learn how to use computerized accounting software to: perform bank reconciliations, enter foreign currency transactions, perform project allocations, budgeting, departmental accounting, timing and billing. Furthermore the student will learn to use spreadsheets for analyzing, planning and decision making for intermediate accounting and managerial accounting content through the use of comprehensive case studies and simulations.
Prerequisite(s): AC2230

AC2250 - Managerial Accounting I •
This course is designed to provide the student with knowledge in accounting techniques needed by management for planning and control, decision making, performance evaluation and preparation of internal reports.
Prerequisite(s): AC2260, MC1241

AC2260 - Financial Accounting II •
This course introduces the student to the principles and procedures needed to account for long-term assets (including capital assets, intangible assets, and investments), liabilities, and equities, and to the concepts of financial reporting and decision making for both partnerships and corporations. In this course the student will explore property, plant, equipment &intangibles; current and long-term liabilities; partnership accounting; corporate organization, transactions and reporting; bonds as liabilities and investments; equity investments; statement of cash flows; and analyzing financial statements. This course emphasizes the national accounting standards (private enterprise GAAP).
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 both auditing theory and practice.
Prerequisite(s): AC3220

AC2360 - Principles of Internal 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 both auditing theory and practice. The course will introduce students to the practice of internal audit and the auditor's decision-making process.
Prerequisite(s): AC2220
Co-requisite(s): AC3220

AC2540 - Oil and 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): AC2260

AC2600 - Managerial Accounting for Human Resource Managers •
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. The student will explore 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 operations; and pricing of products and services. The student will have the opportunity to apply their skills through practical learning.
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 Financial Accounting. The content presents an in-depth study of the liabilities and owner's equity side of the Statement of Financial Position; there is also an in-depth study of the Statement of Cash Flows.
Prerequisite(s): AC2220

AC3250 - Managerial Accounting II •
This course is designed to build on the knowledge gained in Managerial Accounting I by having the student apply their previous knowledge of cost behaviour 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

AC3251 - Managerial Accounting III
Managerial accounting involves the internal generation, communication, and interpretation of information for both operational and strategic decision-making purposes. This course is designed to provide the student with knowledge in accounting techniques required

by management for planning and control, decision making, performance evaluation and preparation of internal reports. Increased focus on how modern cost management and cost performance measurement techniques can be used in the strategic function of business. Critical thinking and a strategic approach to cost accounting are now given greater prominence alongside the technical coverage.
Prerequisite(s): AC3250

AC3270 - Payroll and Commodity Taxes
This course introduces the basic principles of payroll administration and of commodity taxes. The student will be able to account for and file the required reports for payroll and commodity taxes.
Prerequisite(s): AC2230

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

AE1260 - Power Electronics
This course introduces the student to solid state electronics for industrial power supplies and On/Off control of high current devices.

AE2260 - Electronic Power Devices & 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

AE2330 - Analog Electronics I
This course will include the description, operation, and application of simple electronic components and their use in linear power supplies, small signal amplifiers, and power amplifiers. An introduction to frequency response is also covered. Design and troubleshooting skills are emphasized.
Co-requisite(s): MP2140

AE2331 - Analog Electronics II
This course provides further study of transistor amplifiers, with emphasis on frequency response characteristics. Also included is a study of oscillators and power control using thyristors.
Prerequisite(s): AE2330

AE2360 - Analog Electronics I
This course will include the description, operation, and application of fundamental electronic components with particular emphasis on semiconductor theory. Analysis of electronic circuits utilizing diode equivalent circuits will be introduced, and expanded to bipolar transistor DC biasing and the analysis of amplifier systems.
Prerequisite(s): ET1140

AE2365 - Analog Electronics II
This course is a detailed examination of analog applications of advanced transistor circuits and operational amplifiers, with emphasis on circuit analysis, applications, circuit simulation, and troubleshooting. Also included is the analysis and troubleshooting of IC power supply linear and switching regulators, as well as thyristors and representative power control circuits.
Prerequisite(s): AE2360

AE3130 - Active Circuit Applications
The purpose of this course is to provide the learner with an understanding of the operation of integrated circuit amplifier circuits, active filters, and switching power supplies. The theory covered in class will be applied and validated during the laboratory periods.
Prerequisite(s): AE2330

AE3300 - Industrial Electronics
This course is designed to introduce the student to the various types of motor and power control devices. This will provide the student with an understanding of the electronic components and systems used to control discrete industrial processes and variable speed drives. Also, it will provide the fundamental concepts and application of programmable logic controllers.
Prerequisite(s): AE2365

AE3301 - Process Control
This course will introduce the student to various types of open-loop and closed-loop feedback control and will provide the student with an understanding of the components and systems which are used to control industrial processes.
Prerequisite(s): AE3300

AF1130 - Aircraft Structures and Materials (M, E, S)
This M, E, and S course will provide the student with the 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.

AF1170 - EASA Module 11 (A) Top Up
This course is designed to cover items from EASA module 11A that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in; doors and emergency exits, air supply, cabin equipment and furnishings along with water and waste systems.

AF1180 - EASA Module 11 (A) New Technologies
This course is designed to cover items from EASA module 11A that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in integrated modular avionics and cabin systems.

AF1190 - EASA Module 11 (A) Refresher
This course is designed to prepare the student to write the EASA module exam for module 11A, through the use of practice exercises and review lessons.

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.

AF1240 - Aircraft Structural Repair (M, E, S)
This M, E, & S course will provide the student 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 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.

AF1340 - 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 manufacturers' standards.
Prerequisite(s): AF1240

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

AH1010 - Aboriginal Health Initiatives
This course has been specifically developed to examine health issues which directly affect First Nations' and northern communities. Emphasis will be placed upon person health and wellness; human body systems will be examined, as well careers in Health care and related fields.

AH1060 - Personal Skills Development I
This course is meant to examine and promote living skills necessary for aboriginal student success in post-secondary environments. This course will focus upon the creation of a healthy self-concept, sound financial sense, and an awareness of good nutrition and healthy eating habits. It shall also explore ways to manage emotions and the connection between emotional balance and general well-being.

AH1061 - Personal Skills Development II
The purpose of this course is to examine and promote the living skills necessary for aboriginal student success in post-secondary environments. This particular course will explore effective communication and decision making skills, healthy interpersonal relationships, and issues related to parenting and child development.
Prerequisite(s): AH1061

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.

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. Learner's 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.

AJ2700 - Restoration Joinery I
This introductory course teaches learners the theory and practice of repairing, reproducing and installing architectural millwork. Learners will produce and install quality millwork, using traditional and contemporary techniques. Major topics include: safety measures, period moldings, trim carpentry techniques, reproducing wood mouldings, moulding repair, baseboard installation, crown moulding installation, door trims, window trims.
Prerequisite(s): AJ1110

AJ2710 - Restoration Joinery II
This second-level course continues to teach learners the theory and practice of repairing, reproducing and installing architectural millwork. Learners 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

AJ2720 - Restoration Joinery III
This third-level course continues to teach learners the theory and practice of repairing, reproducing and installing architectural millwork. Learners 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

AM1100 - Math Essentials •
This course 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 knowledge of math relating to on-the-job skills and practices. This course is transferable between entry level training blocks in various trade programs.

AM1110 - Math Fundamentals
This course provides theoretical and practical orientation to core math skills in a trade specific environment. This course is not transferable between entry level training blocks in various trade programs, and is not eligible for Prior Learning Assessment.

AP1101 - Introduction to Apprenticeship •
Most trades programs require the learner to enter into an apprenticeship program. This course will provide an introduction to how to become a registered apprentice, the steps to complete an apprenticeship program and the responsibilities of the various stakeholders. Practical projects will introduce the learner to the Provincial Apprenticeship and Trades Certification, the Red Seal web sites. These sites provide essential information on the apprenticeship program.

AS2120 - Aircraft Hydraulics and Pneumatics Systems (M)
This M course will enable learners 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 learners with the basic knowledge of aircraft hydraulic and pneumatic systems design and function. Aircraft plumbing systems will also be covered.
Co-requisite(s): AS2120

AS2160 - Aircraft Landing Gear Systems (M)
This is an M course to enable learners to perform inspection, trouble shooting, repair and maintenance on Aircraft Landing Gear and related systems.
Prerequisite(s): AS2125
Co-requisite(s): AS2165

AS2165 - Aircraft Landing Gear Systems (M, E)
This is an M and E course to provide learners 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 learner 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 learner 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 - Aircraft Systems (M)
This M course is designed to provide the learner 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 learner 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 only 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 learner with the knowledge of aircraft fuel systems, fuel metering systems, their design, components, function, operation, and maintenance.
Prerequisite(s): PT1115

AV1220 - 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

AV1500 - Basic Navigation I (M, E)
This M and E course provides learners 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 System Installation (E)
This E course is designed to give the learners practical experience in installing Avionic Navigation equipment on aircraft. Learners 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 learners 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 learners practical experience in installing integrated avionics navigation equipment on aircraft. It involves designing a system that will share a navigation display. Learners will gain procedural knowledge of the steps involved in designing and implementing systems installation procedures including associated regulatory supporting documentation. Learners 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 learners 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 only course prepares the learner 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 only course will have the learners 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 learners trouble shoot 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 Analogue 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.

BK1100 - Banking Operations I
This course is designed to familiarize students with the main principles and guidelines that characterize the banking industry and then provide them with a basic understanding of the operations and transactions conducted in a bank setting.

BL1020 - Introductory Biology I: Biology at the Microscopic Level •
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: Biology at the Macroscopic Level •
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): BL1020

BL1060 - Biology for Aboriginal Students
The purpose of this course is to provide aboriginal students with a broad survey of the discipline of Biology. Topics will be explored using both traditional First Nation's and scientific frameworks, emphasis being balanced between Traditional Ecological Knowledge (TEK), as well as the scientific method. This course will introduce students to the study of plants, animals and food systems; ethno-botany will be introduced to complement the 'system of scientific classification'. A laboratory component will allow students to conduct experiments that will further their understanding of plant and animal life.

BL1120 - Biology I
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.

BL1175 - Principles of Biology I
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 is an introduction to the science of biology, covering the fundamentals of biological concepts for successive courses including: basic biochemistry, introduction to cells and cellular organization, an introduction to cellular transport, an introduction to metabolism and enzymes, nucleic acid structure, replication and its functions, viruses and an introduction to prokaryotic organisms,

Protists and Fungi. Transferable to MUN Biology 1001.

BL1176 - Principles of Biology II
This is the second in a series 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 concentrates on the structure and function of the Plant Kingdom and the Animal Kingdom using the flowering plant and various invertebrates and vertebrates as examples. Transferable to MUN Biology 1002.
Prerequisite(s): BL1175 or BL1600 or MUN Biology 101

BL1180 - Anatomy and Physiology
This course is designed to enable learners to acquire a comprehensive knowledge of gross anatomy and physiology of the major systems of the human body. In addition, learners will be instructed on the general principles of pathophysiology to facilitate understanding of the body's reaction to trauma and illness.

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.

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.

BL1390 - Anatomy and Physiology •
This course is an introduction to the structure of the human body and its systems with emphasis on the muscular, skeletal and nervous systems. In particular, this course provides the learner with the necessary knowledge base as it relates to anatomy and physiology in order to work as a Rehabilitation Assistant (Occupational/Physiotherapy Assistant).

BL1400 - Fish and Wildlife Biology •
This course requires the use of resource references, 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 information 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

BL1500 - Biology
This is an introductory biology course with emphasis being 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 procaryotes; 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.

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

BL1600 - Human Biology
This 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 it 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.

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

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 pathophysiologic 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 micro-organisms, host-parasite relationships and diagnostic immunology.
Prerequisite(s): Completion of all third semester courses

BL2410 - Microbiology
An introductory course covering the basic aspects of microbiology with emphasis on the role of micro-organisms 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 at 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

BU2120 - Building Codes and Services
This course will provide learners with the knowledge and skills to address questions regarding public safety, fire safety, plumbing systems and ventilation systems. Learners will use various codes and standards to solve design problems for new and existing structures.
Prerequisite(s): DR1220
Co-requisite(s): DR1240

BU2130 - Service Learning
This course is an introduction to service learning. It explains the purpose and structure of the service learning approach to education. It also presents an overview of health and safety as it relates to building construction sites. Learners will learn about the key components needed in the delivery

of formalized service learning, and proper health and safety practices while working on community projects.

BU2250 - Electrical Systems
This course is comprised of lectures and labs designed to introduce the learner to building electrical systems. Design concepts and procedures are studied, with direct applications in the preparation and production of electrical systems drawings.
Prerequisite(s): PH1101, ET1101
Co-requisite(s): DR3110

BU2260 - Plumbing Systems
Plumbing Systems is a course designed to introduce learners 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 the advances to areas of water supply and distribution, sanitary drainage, storm drainage and fire protection. The course includes a detailed study of code requirements and the preparation of computerized working drawings.
Prerequisite(s): PH1101, DR3111
Co-requisite(s): CG1800

BU2270 - HVAC
This course is designed to introduce the learner to building heating, ventilation and air conditioning (HVAC) systems. The course begins with an introduction to historical and contemporary HVAC systems emphasizing current energy conservation. Climate, comfort, passive and active design strategies are discussed, with a detailed study of building heat gain and building heat loss.
Prerequisite(s): BU2260
Co-requisite(s): DR4110

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): DR3110

BU2301 - Arch Building Codes II
This course is a continuation of BU2300 - Building Codes I and concentrates on the safety requirements of buildings covered by Part 3 in the National Building Code of Canada. It is designed to help the learner interpret and apply regulations through a series of practical exercises.
Prerequisite(s): BU2300

BU2410 - 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.
Co-requisite(s): DR3110

BU2411 - 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 the enclosure. It examines the way different wall and roof assemblies perform. Learners 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): BU2410
Co-requisite(s): DR3111

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. Learners are expected to analyse 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): CG3230, DR4110

CA2110 - Structures I
This is the first of two courses in the application of fundamental design concepts in structural design using Canadian design standards. This course prepares the learner to analyse and design basic steel and timber structural elements. Topics include: material properties, design of tension and compression members, beams, columns, and connections.
Prerequisite(s): CF2531

CA2111 - Structures II
This is the second of two courses in the application of fundamental design concepts in structural design using Canadian design standards. This course prepares the learner to analyse and design basic cast-in-place reinforced concrete structural elements including beams and one-way slabs, columns, foundations and walls. Flexural behavior, shear, compression, serviceability and bond and anchorage requirements are considered.
Prerequisite(s): CA2110

CA2320 - Urban Development I
This course is designed to provide the learner with an opportunity to apply learned theory to the design of an actual subdivision for given lot sizes, dwelling standards, zoning, and other internal and external site factors. This course also includes identification of local design regulations and the preparation of computerized drawings.
Prerequisite(s): SU1210

CA2321 - Urban Development II
This course is designed to provide the learner with an understanding of municipal water and wastewater distribution systems. Water quality parameters and piping network systems will be examined in detail. This course also includes identification of local design regulations and the preparation of computerized drawings.
Prerequisite(s): WA1230

CA2500 - Highway Technology
This course enables the learner to plan and design highway transportation systems according to local standards. Learners will be required to complete a major highway design project utilizing design software. The project comprises of route selection, design of horizontal and vertical alignment including super-elevation, preparation of plans, profiles and cross-sections, calculation of earthwork quantities, and environmental protection measures using current civil design software.
Prerequisite(s): CB2420
Co-requisite(s): WA1160

CA2810 - Soils & Foundations I
This is an introductory course in soil mechanics in which learners will acquire knowledge about the various types of soils used in the design and construction of civil projects. Identification, classification, and formation of soils will be addressed and learners will become familiar with the standard tests and procedures used to evaluate soils and their engineering properties.
Prerequisite(s): CF2711

CA2811 - Soils & Foundations II
This course will build on the knowledge acquired in CA2810 and will introduce the learner to the field of Geotechnical Design. Learners will be required to determine and analyse the effects of soil properties on bearing capacity, slope stability of soils, consolidation, and settlement. Aspects covered include: shallow foundations, pile capacity and design, foundation settlement, and slope stability.
Prerequisite(s): CA2810

CA2900 - Municipal Engineering
An introduction to zoning bylaws and zoning in general. Criteria are examined 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): SU1321

CB2420 - Construction Methods
Construction methods will help learners 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 and marine construction, with emphasis placed on specifying the best equipment or process for the situation.
Prerequisite(s): MA1101

CD2100 - Community Development
This is an introductory course to the field of community development. It introduces students to the major concepts, principles and challenges of the community development field. The course allows students to take a critical look at conventional approaches to development, as well as theoretical influences on current community development practice. Learners explore the diversity of roles and occupations within the field and become aware of ethical considerations and skills that are needed to successfully work in the field.

CD2300 - Community Economic Development
This is an introductory course to the field of community economic development. The course 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 structures and strategies for facilitating community economic development. The course then introduces students to the methods of community planning and how they may be applied to the community economic development process.

CD2400 - Managing in the VNP Sector
This course is an introduction to financing and managing in community economic development enterprises. It introduces various strategies for building community economies and for financing community economic development ventures. It examines the challenges of managing human and natural resources in the volunteer and non-profit (VNP) sector and introduces financial concepts and management instruments.

CE1210 - Basic Communications Networks I
This course introduces learners to the concept of networking using a top-down approach. Throughout this course learners will examine the role and operation of networks including applications, protocols, devices, and media. Learners will also be introduced to wireless networks. This course provides the learner with significant practical experience in networking. Upon completion of this course the learner should have a reasonable understanding of topics such as how Local Area Networks function, the role of IP addressing, and how data is reliably transported between hosts across the Internet. Learners will be expected to construct a simple network and apply appropriate IP addresses and to configure connectivity between a wireless LAN client and a wireless access point.

CE2280 - Modulating and Encoding
This course is designed to provide learners with a foundation in the fundamental methods of modulating or encoding analog and digital signals for transmission over a modern communication system. The methods for the transmission of analog and digital signals across an analog medium are covered as well as the methods for transmitting analog and digital signals across a baseband digital medium. The impact of noise on these methods is also discussed.
Prerequisite(s): MA1101, CI1110
Co-requisite(s): AE2330 or AE2300

CE2730 - RF Transmission & Antennas
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 or ET2100 or ET1151

CE2810 - Industrial Communication Systems
This specialized course introduces the student to industrial communication protocols and systems for process control and automation systems in an industrial environment. The lab component is designed to enhance the theoretical lecture component by implementing communication methods, networks, and troubleshooting skills.
Prerequisite(s): CE1210

CE2940 - HMI & SCADA
The course provides learners with a comprehensive analysis of Human Machine Interface (HMI) development using commercial HMI software for monitoring and controlling automated machines and processes from custom designed graphical user interfaces. Learners will be introduced to the Supervisory Control and Data Acquisition (SCADA) system for process and utility industries.
Prerequisite(s): CE2810

CE3110 - Wireless Communications Systems
This is an advanced electronic communications course focusing on modern wireless communication systems. It provides a background in radio wave propagation. A systems-level approach to the architecture, design, and operation of VHF and UHF mobile radio systems, cellular telephone systems, microwave and satellite-based communications systems is presented.
Prerequisite(s): CE2280, CE2730

CE3371 - Switching & Routing
This course continues the learner's education in IP-based communications. In this course the learner will explore concepts in LAN design, the operation and configuration of LAN switches, virtual Local Area Networks (VLANs), IP routing, and LAN security.
Prerequisite(s): CE1210

CE3381 - Advanced Routing & Switching
This course continues the learner's education in Internet Protocol (IP)-based communications with the concept of growing an IP network. In this course the learner will be introduced to LAN redundancy, link aggregation, wireless LANs, and advanced routing concepts.
Prerequisite(s): CE1210

CE3430 - Netw5ork Cabling
This course will provide the learner 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 and the type of testing and documentation required to certify performance and trouble-shoot the installation.
This course focuses on the physical layer of the OSI Network Model and includes the electrical and mechanical aspects of interfacing to the transmission medium and the 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 best practices.
Prerequisite(s): CE1210

CF1100 - Materials & Processes
The purpose of this course is to provide learners with knowledge of the behaviour and characteristics of common engineering materials and an understanding of basic industrial processes. This is to enable learners to select suitable materials and fabrication methods for the design and manufacture of parts to ensure successful service.

CF1101 - Materials & Processes
The purpose of this course is to familiarize the learner with production and fabrication processes and practices used in the industrial environment. The course provides an overview 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 environments. A continuation of 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 include metal removal, joining processes, and casting processes.
Prerequisite(s): CF1100, CF1160

CF2511 - Strength of Materials
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

CF2530 - Strength of Materials I
This is the first of two courses in the study of statics and strength of materials in preparation for further study in design-oriented courses. Learners will learn to analyze forces in structures and basic requirements to ensure safety of structures under applied loads. Major topics include: statics, basic concepts in strength of materials, centroids and moments of inertia, design properties of materials, direct stress, deformation and design, and torsional shear stress and torsional deformation. Laboratories include tensile, compression and shear testing of various engineering materials.
Prerequisite(s): MA1101; PH1101
Co-requisite(s): MA2100

CF2531 - Strength of Materials II
This is the second of two courses in the study of statics and strength of materials in preparation for further study in design-oriented courses. Learners will learn to calculate and plot shearing forces and bending moments in beams, analyze shear stress, bending stress and deflections in statically determinate and statically indeterminate beams, analyze stresses in columns and connections, calculate combined stress in members subject to bending and direct stresses, and calculate stresses in welded and bolted connections. Laboratories include testing of beams, columns and connections under applied loads.

Prerequisite(s): CF2530

CF2540 - Mechanics of Solids
This course is included in the Industrial, Mechanical, Mechanical (Manufacturing) and Petroleum Engineering Technology programs' curriculum as an Engineering science. It is part of a core of courses that introduce 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 is carried out on general force systems, reactions, free body diagrams; trusses and frames; centroids and second moments of area; shear force and moments in beams; stresses in beams and beam design.
Prerequisite(s): PH1101, MA1101

CF2560 - 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; PH1100
CF2610 - Building Materials I
This course examines the properties, limitations, and application of wood and concrete as it relates to building design and construction.

CF2611 - Building Materials II
This course examines the properties, limitations, and applications of a number of different building materials. It is designed to help learners assess and select suitable materials for a variety of situations found in buildings.
Prerequisite(s): CF2610

CF2710 - Materials and Testing I
This course has been designed to provide the learner with a working and hands on 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 learner 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 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, DR1220

CF2711 - Materials and Testing II
This course has been designed to provide the learner with the working and hands on 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 CF2710, Materials and Testing I. It will provide the learner with a hands-on approach to the testing, selection, use and application of common building materials, such as asphalt and aggregate; and tested under laboratory conditions. Wherever possible, in lab work, will be supplemented with field trips, videos and guest lectures.
Prerequisite(s): CF2710

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

CF3201 - Materials and Corrosion
This course provides the learner with an introduction to physical and mechanical properties of common materials used in the petroleum and chemical processing industry. It will examine the production of steel and effects of pressure and temperature on steel alloy systems. It is designed to familiarize the learner with the major factors that influence industrial material selection. Learners will also examine corrosion and means by which corrosion is controlled and monitored in industry.
Prerequisite(s): CH1121

CF3440 - Structural Design
This course is an introduction to structural design and strength of materials. Emphasis is placed on calculations leading to the selection of structural members based on shear forces, bending moments, and deflection produced by static loads, with an application towards architecture and building construction.
Prerequisite(s): MA2100, PH1101

CF3610 - Building Materials III
This course examines the properties, limitations, and application of a number of different building materials. It is designed to help learners assess and select suitable materials for a variety of situations found in buildings.
Prerequisite(s): CF2611

CG1200 - Health Care and Safety I
This course serves as an introduction to the hospital environment, its organization and management. Learners 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, will be stressed.

CG1201 - Health Care and Safety II
This course serves to familiarize the learner 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. This will be done in the context of an overall quality management system. Learners will also become familiar with fire, micro-biological, infection control and environmental safety issues as they relate to the hospital environment.
Prerequisite(s): CG1200
Co-requisite(s): CI3401

CG1400 - Production Coordination
This course will expose students to the operation of a production room. Students will become competent in the use of the CAD system, costing for production jobs, and the application of lean manufacturing techniques to produce a product according to industry standards. In addition, students will develop skills in employee-employer relations.
Prerequisite(s): TX1210

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. It also provides the student with the basic tools used in a lean manufacturing enterprise.
Prerequisite(s): EG1430

CG1700 - Environmental Design
This course will introduce learners to the fundamentals of architectural design with emphasis on applying basic architectural principles, conventions and sustainable building practices. It will also further develop the learner's understanding of architectural practice.

CG1800 - Building Site Development
This is a two part course that teaches learners the requirements of building site development. The first section is an introduction to surveying while the second section deals with the actual site development. Knowledge of each major topic will be gained through both theory and practical work, including field work.
Prerequisite(s): DR3111
Co-requisite(s): BU2260

CG2160 - Lean Methods
This is an introductory course that provides the learner 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

CG2330 - Planning & Estimating I
This course is an introduction to the disciplines of cost estimating, project management, scheduling and planning for construction purposes.
Prerequisite(s): CB2420

CG2331 - Planning & Estimating II

This course is a continuation of CG2330 - Planning & Estimating I. Learners will use commercially available computer software to prepare construction cost estimates and schedules. This course will also provide the learner with the opportunity to apply technical material studied in earlier courses of the Civil Engineering Technology (Co-op) Program to the construction management process.
Prerequisite(s): CG2330

CG3230 - Procurement & Contract Administration
This course examines the fundamentals of economics, types of businesses, and the administrative process as it relates to design construction projects. It is designed to help learners understand their role in the economics and administration of the design and construction industry.

CG3320 - Estimating for Buildings
This course is designed to provide learners with a basic understanding of the various types of estimates commonly used in the building design and construction industry. This course addresses both elemental cost analysis and building construction estimating. Computer-generated spreadsheet applications are used.
Prerequisite(s): DR4110, BU2270

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 topics of planning and approaching them as an integrated production plan, interpreting 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) 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

CH1031 - Introductory Chemistry II
Introductory Chemistry II is a Comprehensive Arts and Science (CAS) 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

CH1060 - Chemistry for Aboriginal Students
The purpose of this course is to provide aboriginal students with an introduction to the discipline of chemistry. First, the role of chemistry in modern society will be examined from a First Nations' perspective. Then, introductory concepts will be introduced. These will include: mater, atomic structure, the periodic table, chemical bonding, and nomenclature.

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.

CH1121 - Chemistry
This course will develop further the fundamental concepts of chemistry, with emphasis on those relevant to the chemistry of materials and to the processes of polymer chemistry, thermochemistry, chemical reaction rates and equilibrium, electrochemistry, metals and alloys.
Prerequisite(s): CH1120

CH1135 - Chemistry
This is an introductory course in chemistry dealing with the fundamental laws of chemistry, physical and chemical changes the quantum mechanical model of the atom, the electronic structure and the periodic table, the significant figures and scientific notations, measurements and units, writing and balancing chemical equations including redox equations, stoichiometry and stoichiometric calculations, gases and gas law calculations and thermochemistry and thermochemistry calculations. This course is transferable to MUN Chemistry1010.
Prerequisite(s): None, but high school chemistry is recommended. However, mathematical skills are required, and students with low marks in high school Level III academic mathematics (less than 70%) are strongly recommended to upgrade their mathematics background before undertaking this course
Co-requisite(s): None, but a mathematics course is strongly recommended

CH1136 - Introductory Chemistry II
Transferable to MUN Chemistry 1011.
This is a continuation of CH1135. 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, rates of reaction, chemical equilibrium, acid-base equilibria, precipitation equilibria and electrochemistry. Major topics include: physical properties of matter, molecular geometry, rates of reaction, chemical equilibrium, acid-based equilibria, precipitation equilibria, redox reactions and electrochemistry.
Prerequisite(s): CH1135 or MUN Chemistry 1010

CH1140 - General Chemistry I
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 to reactions in aqueous solution; gases; thermochemistry; the quantum mechanical model of the atom; periodic properties of the elements; chemical bonding I –basic Concepts; chemical bonding II additional aspects, valence bond theory and molecular orbital theory; liquids, solids and intermolecular forces;. Transferable to MUN Chemistry 1050.
Prerequisite(s): At least 65% in high school Chemistry 3202. Students must have a strong background in pre-university chemistry. The main objective of this course is not to re-teach core chemical concepts but to build on them. Students with a weak chemistry background are advised to register for Chemistry 1135.

CH1141 - General Chemistry II
Transferable to MUN Chemistry1051. 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 visualizing 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; entroph and free energy, electrochemistry, descriptive chemistry.
Prerequisite(s): CH1140 and MA1130 or MA2100, or MUN Chemistry 1050 and Mathematics 1000 or 1081.

CH1150 - Introductory Chemistry III
This course is designed to prepare students who have completed Introductory Chemistry II (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. Introductory Chemistry III is transferable to MUN Chemistry 1031.
Prerequisite(s): CH1136 or MUN Chem 1011.

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, stoichiochemistry, and 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): Completion of all third semester courses.
Co-requisite(s): CH2340

CH2330 - Petroleum Chemistry I
The course provides a foundation in organic chemistry that is required by petroleum technologists working in the upstream oil and gas industry. It also covers many of the standard chemical tests used in the oil and gas industry for analyzing crude oils.
Prerequisite(s): CH1121

CH2335 - Petroleum Chemistry
This course is designed to provide petroleum technology learners with a foundation of physical, inorganic and analytical chemistry as applied to the petroleum industry. Emphasis will be placed on the development of analytical and laboratory skills.
Prerequisite(s): CH2330

CH2340 - Organic Biochemistry
This is an introductory course in 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.

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 immunoassays.
Prerequisite(s): CH2340, CH2250

CH2700 - Analytical Chemistry
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, and dissolved oxygen). Learners are also exposed to sampling and statistical treatment of data.
Prerequisite(s): CH1120 or CH1030 and CH1031

CH2715 - Analytical Chemistry
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, and dissolved oxygen). Learners are also exposed to sampling and statistical treatment of data.

CH3450 - Industrial Chemistry II
This course is designed to provide learners 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

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

CI1110 - Signals & Measurements
This course will introduce the learner to the fundamental concepts of signals and measurements. Learners in the course will learn how to identify different types of signals, select the appropriate test equipment, take measurements, and interpret and report results.
Prerequisite(s): ET1101 or ET1140

CI1210 - Instrumentation Controls & Automation
This course provides a comprehensive treatment of sensors and methods of measuring automated process variables. The learner will be introduced to the underlying concepts and operation of industrial measurement devices and control systems.

CI1211 - 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): CI1210

CI1221 - BET Electromechanical Systems
This course is intended to introduce the learner to the basic building blocks of pneumatic and electromechanical systems and assemblies used in biomedical diagnostic and therapeutic devices. Although most of these primary devices will be discussed in relation to health care instrumentation, they have application and use in many commercial and industrial systems. This course will provide the learner with information needed to better understand the complex pneumatic and electromechanical systems utilized in medical devices.
Prerequisite(s): CI1110, AE2331

CI1240 - Instrumentation, Motor Control and PLC
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, including motor operations, programmable logic controllers (PLC) and ladder logic.

CI1310 - 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

CI1321 - 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.
Co-requisite(s): ET1140

CI1350 - Basic Process Automation
In this course the participants will run existing processes to determine the types of devices used to measure level, flow and other parameters within a plant and how the final control elements interact with the automation control system.

CI1401 - Industrial Controls II
As industrial process technologists, graduates must understand how industrial controllers work. While they are not expected to maintain the industrial controllers, it is important that the learner 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. Also introduced are variable speed drive technologies, with an emphasis on variable frequency (AC) drives and applications. The learner applies the concepts learned to specific systems, processes and equipment found in manufacturing operations.
Prerequisite(s): CI1400 or CI1440; PE2430

CI1440 - Process Controls
This course introduces the learner to the field of Industrial Process Control. Specific emphasis is placed on the analog and digital building blocks used in the various stages of a process control system. The underlying mathematical principles of process control will be investigated and applied to specific industrial processes.
Co-requisite(s): MA2100

CI1520 - Process Analyzers I
This course will examine the role of chemical analyzers in monitoring and controlling industrial processes. Statistical principles will be applied to process analyzer systems and the validation of process analyzers. The operating principles of electrochemical analyzers will be studied and learners will learn to calibrate, install and troubleshoot these analyzers as well as perform routine maintenance on them. The operating principles of a variety of physical property analyzers will be studied and learners will perform routine calibration, maintenance and troubleshooting procedures on these analyzers. Factors affecting corrosion and the use of analyzers in the prevention and measurement of corrosion will also be studied.
Prerequisite(s): CH1121, CI2230

CI2100 - Pressure and Level Measurement and Control
This is the second core instrumentation course designed to reinforce the basic instrumentation concepts previously covered. The various types of transmitters used to measure pressure and level will be covered in detail. The control section of the course will show how the transmitters are used in a control loop.
Prerequisite(s): CI1350

CI2120 - Final Control Elements and Instrument Air Systems
This course focuses on the various types of control valves and damper operators as well as the auxiliary devices used to position and supply power to the actuator. The final section of the course covers how Instrument Air is produced for an industrial plant.
Prerequisite(s): CI1350

CI2230 - Flow and Temperature Measurement and Control
This course develops further understanding of types of control strategies and introduces students to the principles and operation of flow and temperature control systems, with an introduction to cascade and feed forward control systems.
Prerequisite(s): CI2100

CI2250 - Hydraulics
This introductory course is designed to acquaint the learner with the design and operation of industrial hydraulic systems. It includes a review of the selection and integration of the components used to build and control hydraulic circuits. Operational control and troubleshooting of basic circuits is an integral component of the course.

CI2300 - Advanced Control Strategies
This course covers advanced PID control strategies with an emphasis on boiler control.
Prerequisite(s): CI2230

CI2520 - Process Control Operations
This course provides the learners 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".
Prerequisite(s): CI1210

CI2620 - Process Optimization
This course introduces the learner 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 learner 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 industrial operations.
Prerequisite(s): CI2520

CI2820 - 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

CI2821 - 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): CI2820

CI3110 - Safety Shutdown and Machine Monitoring Systems
This course covers basic shutdown systems on boilers and then covers the safety shutdown systems found in the oil and gas industry. The course also introduces software that can be used for process and optimization.
Prerequisite(s): CI2300

CI3200 - 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

CI3400 - Biomedical Instrumentation I
This course will introduce learners to the fundamental principles inherent in the collation of bioelectric signals and familiarize them with aspects of electrodes, filters, amplifiers and transducers. Learners will also be introduced to instrumentation related to cardiac measurement and defibrillation, non-invasive blood pressure monitoring, medication infusion systems, physiotherapy modalities, and electroencephalograms. Laboratory exercises will incorporate extensive investigation of the sub-assemblies used in selected biomedical equipment. This will also include site visits to local health care facilities.
Prerequisite(s): AE2301 or AE2331, CI1110, Certificate of completion of Government of NL PHIA course, Signed and witnessed Confidentiality Agreement, Current letter of conduct and vulnerable sector clearance

CI3411 - Biomedical Instrumentation II
This course is intended to broaden the learners' knowledge of medical instrumentation by introducing more sophisticated systems such as multi-parameter patient monitoring systems, central station monitoring, instrumentation, operating room systems such as electrosurgery units and laser surgical tools, as well as an introduction to medical imaging devices.
Prerequisite(s): CI3400, CG1200, Certificate of completion of Government of NL PHIA course, Signed and witnessed Confidentiality Agreement, Current letter of conduct and vulnerable sector clearance

CI3510 - Advanced Medical Systems
This course is intended to broaden the learners' knowledge of medical instrumentation by introducing more sophisticated systems such as: hemodialysis systems, respiratory instrumentation, pulmonary function equipment as well as water treatment and oxygen generation systems.
Prerequisite(s): CI3400, Certificate of completion of Government of NL PHIA course, Signed and witnessed Confidentiality Agreement, Current letter of conduct and vulnerable sector clearance

CI3600 - 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): CI1210

CI3811 - 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): CI2821

CI3812 - Process Control IV (Advanced Process Control Strategies)
This course covers advanced PID Control strategies with an emphasis on boiler control.
Prerequisite(s): CI3811

CI3821 - 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): CI3811

CI3822 - Process Analyzers II
The operating principles, calibration and limitations of various types of oxygen, flammable and toxic gas sensors are examined. The principles of operation of various compositional and light based analyzers are studied. Utilizing a variety of analyzers, the various interactions of materials and electromagnetic radiation as applied to analysis will be studied. The roles of the sampling handling and conditioning system as part of analysis will be examined. In laboratories learners will set up, calibrate and trouble shoot various gas, compositional and spectroscopic analyzers detectors.
Prerequisite(s): CI1520

CI3860 - DCS
The purpose of this course is to familiarize the learner with the distributed control systems (DCS) and Safety Instrumented System (SIS) used by the processing industries. Learners will also learn Functional Block Diagram (FBD) programming language that is widely being used in DCS as well as Process Automation Systems (PAS).
Prerequisite(s): CE2810, CI2230

CJ2110 - Canada's Justice System
This course provides students with an overview of Canada's Criminal Justice System. The course gives students and understanding of the philosophy and principles underlying the Canadian system and then provides them with knowledge of the entire criminal process from arrest to criminal procedures to sentencing to punishment to community reintegration.

CJ2120 - Canadian Criminology
This course presents an overview of crime and criminal behaviour in Canadian society. Theories and concepts from the field of criminology will be examined to help students understand crimes such as homicide, sexual assault, prostitution, business crime, and mental illness.
Prerequisite(s): CJ2110

CJ2210 - 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 legislation dealing with youth crime, 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.
Prerequisite(s): None

CJ2420 - Canada's Correctional Population
This course overviews Canada's correctional system and provides students with information on the evolution of Canada's correctional institutions. Students are introduced to special categories of offenders and various classification, case management and treatment options for these offenders. The purpose and practice of segregation procedures will also be discussed.
Prerequisite(s): CJ2110

CK1870 - Specialty Cakes
This course requires the use of baking utensils and equipment, and baking supplies. It involves preparing speciality cakes. It includes information on types of sponges and cakes, and preparation techniques.

CK1880 - Specialty Pastries and Filings
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 speciality pastries and fillings and preparation techniques.

CK1900 - Specialty Yeast-Raised Products
This course in yeast breads requires the use of baking utensils and equipment, and supplies. It involves the preparation of speciality yeast raised products. It includes information on temperature guides, types of speciality yeast-raised breads and preparation techniques.

CK1910 - Specialty Cold Desserts
This course in desserts requires the use of baking utensils and equipment, and baking supplies. It involves the preparation of speciality cold desserts. It includes information on types of speciality cold desserts and cooking methods.

CK1920 - Specialty Hot Desserts
This course in desserts requires the use of baking utensils and equipment, and baking supplies. It involves the preparation of speciality hot desserts. It includes information on types of speciality hot desserts and cooking methods.

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 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): PO1200
Co-requisite(s): CL1100

CM1010 - Communications I for Aboriginal Students
This course has been developed for aboriginal students using culturally relevant materials. The academic focus of this course will be the advancement of reading and writing skills. The writing process will be covered in detail, as will basic grammar and structural mechanics. To develop a variety of reading strategies, students will examine and interpret a number of culturally relevant texts, including informational, graphic, and literary texts (poetry, short fiction and a novel) written by aboriginal writers.

CM1011 - Communications II for Aboriginal Students
This course has been developed for aboriginal students using culturally relevant materials written by First Nations' writers. In this course, reading comprehension will continue to be enhanced through an exploration of dramatic and non-fictional texts (including aboriginal life-writing/memoir). The essay will be examined in detail and the writing process applied to its structure.
Prerequisite(s): CM1010

CM1012 - Communications III for Aboriginal Students
This course has been developed for aboriginal students using culturally relevant materials. Its focus will be the development of research paper writing and oral presentation skills. The emphasis will be upon the processes involved in the critical analysis of contemporary aboriginal culture, as well as the effective presentation of findings. Students will learn skills relevant to research, exposition and speaking publicly.
Prerequisite(s): CM1011

CM1030 - Essay Writing for EASA Exams
This course will provide the student with a knowledge of essay writing that will enable them to write accurate technical essays as answers for exam questions.

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 - Writing Essentials •
Writing Essentials is an introductory course designed to review writing fundamentals including grammar, punctuation, spelling, and usage. Students will apply principles of writing in sentence and paragraph construction.

CM1110 - Communication & Documentation
This course focuses on developing and maintaining respectful relationships through effective oral and written communication. The learner will practice a variety of effective communication strategies that will be used within the diverse long term care and community support services sector. Emphasis is also placed on the development of documentation skills including the fundamentals of medical terminology as it relates to documentation.
Prerequisite(s): HW1000, HW1010, HW1020

CM1120 - Critical Reading and Writing I
This course is 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. This course is transferable to MUN English 1080 or 1000.
Prerequisite(s): Minimum of 60% in Language 3101 and a minimum of 60% in Thematic Literature 3201 or 3202, Literary Heritage 3202, or English 3201 (to meet Memorial's admission requirements)

CM1135 - Critical Reading and Writing II (Fiction)
This course is an introduction to such prose narrative forms as the novel, the novella, the story sequence, and the autobiography. The course continues the emphasis on critical reading and writing begun in CM1120: analyzing texts, framing and using questions, constructing essays, organizing paragraphs, conducting research, quoting and documenting, and revising and editing. This course is transferable to MUN English 1101 or English 1001.
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.

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.

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.
Prerequisite(s): CM1240 or equivalent

CM1250 - Communications in the Workplace
This course will provide students with essential workplace communication skills. Topics covered include the communication process, effective writing, business correspondence, informal reports, oral presentations and job search techniques.

CM1270 - Communications in Health Care •
This course is designed to enable the student to communicate clearly, concisely and correctly in both written and oral forms in the health care setting. Emphasis is placed on medical documentation and oral communication with health care professionals, clients and families.

CM1370 - IM Communications •
This course gives the student the knowledge and skills to design and conduct workshops, design and conduct interviews, design and administer questionnaires and to draft policies and procedures. The examples used and the deliverables created will apply to the field of Information Management.

CM1400 - Technical Report Writing I •
This course is designed to teach technology students the fundamentals of technical reporting. 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.
Prerequisite(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.

CM1460 - Writing for the Workplace
This course is designed to introduce students to written communication in the workplace and provide considerable practice in writing clear, concise summaries that are properly documented. The intent is to provide ample in-class opportunities to review writing

fundamentals and improve writing skills using workplace applications.

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.

CM1680 - Writing for the Screen
Students will acquire advanced skills in critical narrative development, formal presentation, and the screenwriting craft. It expands on previously covered material on film direction, pre-production and narrative fundamentals to create a detailed creative synopsis or "treatment" and a screenplay in a prescribed format.

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.

CM2110 - Business Writing Fundamentals •
Business Writing Fundamentals gives students the opportunity to apply the principles of effective business writing. Applications include letters, memos, e-mail and informal business report writing. This course also allows students to explore job search techniques.
Prerequisite(s): CM1100

CM2130 - Workplace Writing •
Students will be introduced to the principles and practices of effective written communications applicable to their program of study. They will understand the importance of well-developed writing skills; the purpose of various types of correspondence; examine the principles of effective writing; examine standard formats for letters and memos; write effective letters and memos; examine the fundamentals of informal reports and the report writing procedure, and develop an effective resumé.

CM2160 - Communication Essentials
This course is designed to introduce learners to the principles of effective communication including letter, memos, short report writing, oral presentations and interpersonal skills. Learners will apply the principles using trade specific examples.

CM2200 - Oral Communications • ®
In this course, students will develop interpersonal, oral communication, and presentation skills in a team-based environment.

CM2300 - Report Writing •
This course will stress skill development in planning, researching and documenting, preparing graphic aids, proofreading and editing, and completing formal reports.

CM2800 - Oral/Written Communication Skills
This course will provide learners with instruction in the areas of writing 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. Learners will learn relevant skills for researching, organizing, writing and presenting technical information.
Prerequisite(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): MA1900

CP1190 - HTML5/CSS3
After completing this course the student will be trained in the essential concepts of HTML5 and CSS3. The student will begin with developing a basic web page and move on to developing a basic website. Then the student will work with cascading style sheets, create tables and create web page forms.

CP1200 - 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): CP1120

CP1210 - JavaScript
This course introduces the student to the fundamentals of JavaScript programming and the use of JavaScript as the third pillar of modern web page/web site design. The student will use the basic programming constructs to add functionality to a page and to manipulate the Document Object Model (DOM). Finally, the student will use AJAX and JSON to perform data transfers from the client to the backend server and vice versa.
Prerequisite(s): CP1190, CP1120

CP1270 - Programming Fundamentals
The 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.

CP1280 - Windows Client
This course is intended to provide the skills necessary to provide a stable, secure, and efficient desktop environment for Windows client operating systems. Topics include updates, network configuration, operating system optimization, and preserving user settings across multiple versions of the Windows operating system.
Prerequisite(s): CR1100, CP3120

CP1290 - Advanced JavaScript
This course enhances the student's knowledge of JavaScript programming. The course covers the jQuery, jQuery UI and jQuery Mobile libraries. As well, the course will cover the use of the APIs for YouTube, Twitter, Flickr and Google Maps.
Prerequisite(s): CP1210

CP1300 - Workstation Administration
This course provides students with the knowledge and skills required by a developer to administer and maintain a development environment on a workstation that is connected to a network domain. The focus is on workstations functioning in a Windows and/or Linux environment(s).
Prerequisite(s): CP1200, CP1880

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 or CP1570 or CP1880

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 learners a thorough grounding in the principles of object oriented programming. Additional topics include exception handling design and implementation of Java applications with Swing graphical user interface and multithreading in the Java programming environment.
Prerequisite(s): CP1270

CP1360 - Programming for Computer Systems and 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.

CP1410 - Web Analysis and Design •
This course introduces students to the concepts of systems analysis and design for the Web. It gives a fundamental overview of the Web site development process, and details the iterative cycle of planning, analysis, design and development, and testing. Emphasis is placed on designing an effective, user-centered, accessible Web site.
Prerequisite(s): CR1510

CP1560 - Data Management •
This course includes the fundamental 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 technologies.

CP1570 - Networking for Programmers •
This course will provide an introduction to network communication media, topology, protocols and software architecture. The course will present the model of information communication that speaks to the business environment in particular. The OSI model, TCP/IP and the WAN protocols will be discussed. Topics include: requirements for the business communication media, network topologies, LAN, WAN, Wireless WAN, distributed applications, OSI Model, and TCP/IP.

CP1640 - Visual Basic Applications for ACAD
This course is designed to give the student exposure to programming logic and data linking between graphics information and text/numerical data. The student will develop the ability to reduce an algorithm into linear components for solution by computer. The course will concentrate on utilizing Visual Basic algorithms to perform surveying functions which automate the drafting process. Menu customization will also be covered to complete the ACAD customization.
Prerequisite(s): SU1320
Co-requisite(s): SU1321

CP1850 - Procedural Programming
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 of choice. The student should also be able to analyze, design, develop, code and debug a solution to a programming problem based on the introductory programming concepts introduced in this course.
Prerequisite(s): None
Co-requisite(s): MA1900

CP1880 - Computer Systems Architecture
This is an introductory course in computer architecture focusing on high level components and interconnections in a computer system. The major topics to be covered are: CPU organization, primary memory, secondary memory, I/O components and networking. The focus of the course will be the effect of the components on the development of software.

CP1890 - Object-Oriented Programming
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 an object oriented programming language. This course uses object oriented technologies using a selected development environment to aid the student in developing a GUI solution to business problems.
Prerequisite(s): CP1850 or CP1120 or CP1810

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.

CP1922 - Computer Hardware and Troubleshooting II
This course is designed to expose the student to another level of components of a computer system and the methods of troubleshooting those components. The student will learn how to evaluate, install, configure, troubleshoot and specify all basic components such as I/O devices, Input Devices, Output Devices, multimedia devices, printers, scanners, notebooks, PDAs and PCs on a network (both wired and wireless). The student will be exposed to topics such 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 the traditional methodology. Its emphasis is on the methods and products of each phase of the SDLC rather than on a formalized methodology. Discussion of structured methods is interwoven. All phases of the life cycle are dealt with using structured methods.
Prerequisite(s): CP1850 or CP2130 or CP3210

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 Modeling Language (UML) the Unified Process. The course is laboratory oriented allowing the student to develop real design for use with Object Oriented and traditional programming languages. It reviews all phases from an object oriented approach but concentrates on the various types of UML modeling.
Prerequisite(s): CP1930 or CP3421

CP2000 - Embedded Linux
This course will provide the learner with an introduction to the Linux operating system and its use in electronic instrumentation. The learner will be instructed in the use of the command line environment as well as the maintenance and support of embedded Linux.

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

CP2280 - Object-Oriented Programming in Java •
This is a course in 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 or CP1850

CP2310 - Electronic Spreadsheet Applications •
This course will introduce students to the concepts and applications of electronic spreadsheets. Students will create, format and print enhanced worksheets and graphs, and will incorporate functions and macros into their spreadsheets. They will also use database features to manipulate data.

CP2410 - Micro Database Applications •
This course introduces the student to the concepts and applicants of database. Students will create, modify and update a database as well as database forms and reports for use in a business environment. They will also perform database functions and use database commands.
Prerequisite(s): None

CP2420 - PHP •
This hands-on PHP programming course uses open source software, PHP, and a database, to provide the student with the applied skills to build professional-quality, database-driven Web sites. By integrating PHP and the database with XHTML and CSS frameworks, the student will develop the skills to build interactive Web sites with authentication and security. The student will expand the functionality of a comprehensive Web site project that can be directly translated or easily modified to be used as a real-world Web application.
Prerequisite(s): CR1570, CP1120, CR1510, CP3510

CP2470 - Web Server •
This course will introduce the student to skills and concepts that are essential to setting up and maintaining an Internet presence. Topics include web site administration, server installation, domain name services, web server management, web server programming environment, extending web server services, securing the web environment, and monitoring the web environment.

Prerequisite(s): CP1570

CP2481 - 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 in a Microsoft SQL Server environment.
Prerequisite(s): CP1120

CP2530 - Data Structures & Algorithms
This course builds on the foundation provided by Programming Fundamentals and Object Oriented Programming. It introduces the fundamental concepts of algorithm analysis and design as well as dynamic data structures. Prerequisite discrete mathematics concepts are introduced as appropriate.
Prerequisite(s): CP1340

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 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

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. Using web design software, students will create and modify a multiple page website for use in a business environment.
Prerequisite(s): DM2200 or MC1240

CP2650 - Hardware Fundamentals
This course prepares learners to work with computing devices commonly found in enterprise. Learners will be introduced to safety and effective tool use. Learners will examine client computing options including mobility. Learners will examine how client computing is supported in the enterprise through study of server technologies including storage and virtualization.

CP2730 - Project Management and Analysis
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

CP2840 - Programming with ADO.NET
This course is designed to give the student advanced skills in the computer programming process. This course uses the ADO.NET framework to aid the student in developing solutions to business problems. It incorporates skills required in the programming field such as: using collections, XML, and data access and reporting using ADO.NET.
Prerequisite(s): CP1890, CP3410

CP3100 - MVC Framework Development •
This course will introduce the student to skills and concepts that are essential to develop and maintain a Model-View Controller MVC framework based web application. Upon completion of this course the student will be able to create powerful database-driven websites quickly in a scalable, re-usable, repeatable way.
Prerequisite(s): CP2420

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.

CP3130 - Content Management Systems •
Content Management Systems support the process of collecting and publishing content on the web. They also provide a platform for many "community" features, such as comments, discussion and chat. Students will learn a process for identifying content types and establishing a workflow for editing and approving content. Students will then configure a content management system to meet a client's needs.
Prerequisite(s): CP1410, CP2420

CP3150 - Interface Design and Analytics •
This course is an advanced study of Web site interface design. The student will learn best practices for designing a usable, visually-appealing Web site which has been optimized for both large and small screens. Emphasis is placed on adherence to Web standards and accessibility guidelines. Students will also learn how to effectively use Web analytics to refine the site design.
Prerequisite(s): CP1410

CP3160 - Multimedia Development •
This course introduces students to the basic concepts and techniques used in multimedia systems, media formats, communication of multimedia, and the publication of multimedia-filled websites. This course encourages students to be creative and original when developing their work. At the end of the course, students will have a professional portfolio of multimedia and a client website.

CP3370 - Software Development with ASP.NET •
This course introduces students to multi-tier web application development using ASP.NET. The focus is on developing web applications with distinct presentation, application and storage tiers through project-based course work. The course will build upon user interface and database development concepts learned in previous courses and how to add business logic to the application tier for large scale application development.
Prerequisite(s): CP2130 or CP1890

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.

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 SDLC 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

CP3470 - IM Systems Analysis and Design •
The IM Systems Analysis and Design course presents an overview of the complete system development life cycle (SDLC) of IM related projects. It gives a fundamental overview of the effective analysis and design of business-related problems. It also concentrates on requirements definition, feasibility and design considerations utilizing the traditional SDLC methodology and methodology that is unique to IM.
Prerequisite(s): EP2130, OP1400, CR1280, CP1560, CM1370

CP3490 - Software Engineering
The course introduces learners to the principles of software engineering, object oriented modeling and analysis of large software systems using unified modeling language (UML) and different phases of software life cycle: requirements, analysis, design, implementation and testing. Development of a significant software system is a crucial part of the course.
Prerequisite(s): CP2530

CP3510 - 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. The theoretical concepts are put into practice using current database architectures and technology.

CP3520 - Databases
The course introduces learners to the principles of database design and implementation as well as administration of database management systems. Discrete mathematics prerequisites are introduced as appropriate. Development of significant database system is a crucial part of the course.
Prerequisite(s): CP2530
Co-requisite(s): CP3490

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
The course is designed to give learners a thorough understanding of Web technologies. Topics include client-server architecture and protocols. Server side topics include JavaScript and PHP scripting languages, AJAX, Java servlets and security.
Prerequisite(s): CP3490, CP3520, CE1210

CP3800 - Mobile Application Development
The course introduces learners to application development for mobile devices and is structured around tools, frameworks and programming language(s). Topics include Model-View-Control paradigm, Objective-C, views (scroll, web, image, table), view controllers, application settings, documents and core data, OpenGL ES and core location and map it.
Prerequisite(s): CT2530, CP3490
Co-requisite(s): CP3830

CP3830 - Computer Graphics
The course introduces learners to basic algorithms and programming skills in computer graphics using C programming language and OpenGL libraries.
Prerequisite(s): CT2530

CP4200 - Rich Internet Application Development
This course is designed to provide students with the skills required to build rich and engaging web sites. The student will construct sophisticated interfaces, expose applications for APIs.
Prerequisite(s): CR1510, CP2560

CP4260 - SQL 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, query, and manipulate databases in a relational environment using SQL, SQL*PLUS, and PL/SQL. This course can be done using a variety of platforms.
Prerequisite(s): CP3410

CP4280 - Programming for Mobile Devices
This course is designed to give students an introduction to building applications for mobile devices. It is designed for first-time mobile developers. This course teaches students how to build, develop, and code J2ME applications.
Prerequisite(s): CP2560

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

CP4470 - Emerging Trends in Industry
Through directed research students will explore emerging trends in the digital animation field. The topics covered are 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.

CP4471 - Emerging Trends in Software
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.

CR1105 - Network Fundamentals
This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

CR1120 - Introduction to the Field of IT and Ethics
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. 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.

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.

CR1280 - IM Computer Concepts •
This course is designed to expose the student to the fundamentals of computing/IT concepts, associated terminology, and emerging issues and technologies as they pertain to Information Management. The students are exposed to a full range of topics that focus on storage devices, peripheral devices, networks and the Internet, security, and file formats.

CR1360 - IM 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 CompTIA, including General Security Concepts, Communication Security, Infrastructure Security, Basics of Cryptography and Operational and Organizational Security. In the labs students will be exposed to the techniques and tools that can be used to protect personal computers from attacks via the web.
Prerequisite(s): CR1280

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.

CR1530 - Web Design I
Students will gain the skills necessary to design and develop a basic website, with an emphasis on 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.

CR1531 - Web Design II
Students will gain the skills necessary to modify and develop client-side websites. Students will focus on design issues as opposed to programming skills and will be introduced to intermediate programming in HTML and basic CSS and will learn how to develop sophisticated page layouts and images for websites.
Prerequisite(s): CR1530

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

CR2170 - Trends in Web Development •
This course covers trends in web 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 web development.
Prerequisite(s): Successful completion of all courses in Semesters 1-3 of the Web Development program

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 CompTIA, including general security concepts, communication security, infrastructure security, basics of cryptography and operational and organizational security.
Prerequisite(s): CR1100, CP1330, CR2510

CR2401 - Internetworking - Routing & Switching Essentials
This course builds upon the knowledge gained in CR1105, Network Fundamentals about IP-based communications. It describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPng, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.
Prerequisite(s): CR1105

CR2510 - Linux Server Administration I •
This course is the first of two courses that deal 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

CR2530 - Web Design III
Students will gain the skills necessary to work as part of a team and develop more advanced websites. Students will be working on more complex projects where the role of the designer is to work with clients, audiences and team members to develop more sophisticated design solutions.
Prerequisite(s): CR1531, GA1351

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 or CP1570 or CP1880; CP1120 or CP1850

CR2901 - Scaling Networks and VoIP
This course builds upon the student's understanding in Internet Protocol (IP)-based communications with the concept of growing an IP network. The student will be introduced to LAN redundancy, link aggregation, wireless LANs and advanced routing concepts. The student will also be introduced to the Voice over Internet Protocol (VoIP).
Prerequisite(s): CR2401

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, CP1922

CR3540 - 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 an IM project, under the supervision of a faculty supervisor, and will perform the following: (1) an in-depth analysis of a business case that deals with an information management issue in an organization; (2) the creation and presentation of an analysis document; (3) the creation and presentation of a project plan; (4) the creation and presentation of a design document; (5) a presentation of their solution.
Prerequisite(s): CP3470, OP1600, OP1320, CP1560, PR2700, OP1401
Co-requisite(s): LW1270

CS1120 - Leadership Skills
This course introduces the concepts of group dynamics, team development, goals, group structures and communication in groups. Skills in team development, and in resolving conflicts and controversy in groups are practiced.

CS1121 - Leadership Skills II
This course is the second of three leadership courses designed to help students 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): CS1120

CS2121 - 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): CS1121

CS2220 - 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 basic counseling strategies, and apply interviewing skills in a variety of situations, through the extensive use of role-playing, case studies, and report-writing.
Prerequisite(s): HR1120

CS2340 - Introduction to Social Research
This course provides students with an introduction to social research. Students explore the meaning, value, ethics, and steps of social research. Various types of social research are reviewed and students actively partake in the research process through the completion of a research project.

CS2420 - 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 acquire the appropriate knowledge and skills through the completion of a series of programs, workshops and/or certifications.

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.

CS2630 - 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 wilderness survival basics, trip planning and management, emergency survival skills, wilderness hazards and ground search and rescue techniques. 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

CT2300 - Applied Programming
This is a course designed to introduce the technology learner to the concepts of problem solving using computer programming. The course will be taught using a high level language such as C or C++. Learners will write programs to solve problems within their related disciplines and will learn the concepts of troubleshooting and problem solving. The course covers the following areas: structured programming concepts, data types, decision statements, loop and iteration procedures, Input/Output procedures, and files.
Prerequisite(s): MA1101 or CE1140, ET1151

CT2530 - POSIX Operating Systems
The course introduces learners to the fundamentals of operating systems including process, memory, I/O management, file system and virtualization. Examples will be taken from UNIX. C programming language is overviewed as well as shell scripts.
Prerequisite(s): CP1340
Co-requisite(s): CE1210

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.

DE3430 - 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; FM3100; CI1240

DM1200 - Document Production I •
This course includes keyboarding, file management and basic document formatting. Keyboarding speed on unseen straight copy material is developed to 25 net words per minute for three (3) minutes. Students will use Microsoft word processing software to produce the following documents: notices, announcements, signage, basic correspondence, basic tables, and basic reports. Note: Students must achieve a typing speed of 30 net words per minute for five minutes in order to pass KB1150. Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.

DM1210 - Document Production II •
This course further develops proficiency in document production using intermediate word processing applications. Students will also apply skills in the production of intermediate business correspondence, tables, forms and reports and reinforce their skills in file management. Note: Students must achieve a typing speed of 30 net words per minute for five minutes in order to pass KB1150. Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.
Prerequisite(s): DM1200

DM1300 - Transcription I •
This course introduces skills in machine transcription and/or using transcription software, and reinforces grammar and punctuation skills. Emphasis is placed on applying proofreading and language skills: grammar, punctuation, and spelling. Decision-making skills are introduced through the transcription of basic business documents.
Prerequisite(s): DM1200 and CM1100

DM1301 - Transcription II •
This course is designed to further develop skills in machine transcription and/or using transcription software. Emphasis is placed on accuracy and speed as well as grammar, punctuation, and spelling competency. Documents will be transcribed from various business environments. Decision-making skills are improved in the transcription of complex unarranged material.
Prerequisite(s): DM1300

DM1310 - Legal Transcription I
This course helps students increase their competency in machine transcription and/or using transcription software. Emphasis is placed on accuracy and speed of transcription as well as on grammar, punctuation, and word usage competency. Decision-making skills are enhanced through the transcription of legal documents for general legal procedure, civil litigation and incorporation.
Prerequisite(s): DM1300
Co-requisite(s): DM2210 and OF2500

DM1400 - Medical Transcription I •
This course introduces the student to a basic understanding of medical transcription software and rules of medical transcription, and the development of the students' skills to transcribe medical correspondence and reports.
Prerequisite(s): DM1300 and DM1210
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. Transcription drills will be used to enhance proficiency in medical transcription with speed and accuracy.
Prerequisite(s): DM1400 and TM1100
Co-requisite(s): TM2100

DM2200 - Document Production III •
This course combines keyboarding development, document production, and word processing to improve proficiency in document production. Keyboarding speed on unseen straight copy material is developed to a minimum of 35 net words per minute for five minutes. Students will reinforce their skills in the production of advanced business

correspondence, tables, reports and specialized business documents. Students will also use Microsoft PowerPoint software to prepare presentations. Note: Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.
Prerequisite(s): DM1210

DM2210 - Legal Document Production I
This course combines keyboarding development, word processing concepts, and legal document processing for general legal procedures, civil litigation and incorporation. Keyboarding skills will be reviewed and developed to 35 net 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 DM1210 Document Production II will be further enhanced. Note: Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.
Prerequisite(s): DM1210
Co-requisite(s): OF2500

DM2240 - Document Production IV •
This course combines keyboarding development and document formatting using a project/simulation approach. Students will be expected to develop and use critical thinking and decision-making skills, and to process and produce documents at an advanced level using Microsoft Office. Students will also perform tasks that require the integration of various software packages i.e.; word processing, database, spreadsheets, presentations, electronic mail and calendar. Note: Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.
Prerequisite(s): DM2200, CP2310 and CP2410

DM2420 - Legal Transcription II
This course continues to increase competency in machine transcription and/or using transcription software. Emphasis is placed on accuracy and speed of transcription of business correspondence and legal documents presented in an unarranged, office-style manner. Throughout dictation of the material, the dictator makes editing decisions, phones may ring, and other interruptions may occur. Decision-making skills are further refined through transcription of legal documents for real estate, wills and estates, and family law.
Prerequisite(s): DM1310
Co-requisite(s): DM3250 and OF2530

DM3250 - Legal Document Production II (Real Estate, Wills, Estates and Family Law)
This course builds on DM2210 - Legal Document Production I and incorporates many of the basic legal formats learned. This course will introduce students to documents required by a legal practice when handling real estate transactions for both the vendor and the purchaser and will further develop word processing and legal document production skills for wills, estates and family law. Students will produce correspondence, legal documents, and legal precedents required in real estate, wills and estates law, and family law. Using a case approach, students will follow and interpret instructions and produce documents while using check lists to assess priorities and manage time. The students will further develop a precedent file using state-of-the-art equipment and software. Note: Students must achieve a typing speed of 40 net words per minute for five minutes in order to pass KB1151.
Prerequisite(s): DM2210
Co-requisite(s): OF2530

DP1110 - Digital Systems I (Logic)
This course introduces learners to the field of digital electronics. They will be taught design and diagnosis techniques applicable to digital electronics.
Prerequisite(s): ET1101 or ET1140

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 & operation and ladder logic programming & troubleshooting.
Prerequisite(s): ET1101

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

DP2110 - Digital Systems II (Interfacing)
This course provides the learner with knowledge of the hardware and software associated with digital systems and interfacing requirements for communication from a PC to external environments. Advanced FPGA technologies will be used to interface hardware devices. Interfacing using pneumatics will be used to expand the knowledge of interfacing from electronics to mechatronics.
Prerequisite(s): DP1110, CT2300 or CP1270

DP2430 - Digital Interfacing
This course provides the learner with knowledge of the hardware associated with digital systems and interfacing requirements for communication from a PC to external environments. Interfacing to pneumatic systems will also be introduced.
Prerequisite(s): DP1110, AE1260

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 programming and troubleshooting.
Prerequisite(s): DP1310

DP3110 - PLC
This course introduces the learner to the general concepts and programming techniques for digital, analog and peer to peer communications associated with programmable logic controllers (PLC) used in the instrumentation applications.
Prerequisite(s): MP3170, CE2810

DP3200 - Embedded Controller Applications
The course will reveal why microcontrollers exist in so many products today. It explains the basics in microcontroller design through actual applications and will describe the differences between microcontrollers and microprocessors. Instruction is given in different techniques for making the best use of the microcontrollers' resources. Hands-on experience is provided in the lab environment.
Prerequisite(s): CT2300 or CP1250 or CP1270, DP2410 or DP2110

DR1111 - Drafting - Basic Drawing and Sketching
This drafting course requires the use of basic drawings, specifications, bills of materials, drawing instruments and facilities, and CAD software and hardware. It involves reading basic drawings and diagrams, sketching, interpretation of specifications, and operating the CAD system. It includes information on sketching techniques, types of drawings, and CAD commands.

DR1220 - Engineering Drawing
Through participation in this course, learners will acquire drafting and design skills that will enable them to design a basic wood-frame structure to the requirements of the National Building Code, Part 9. Learners will acquire the ability to sketch floor plans, main sections, and elevations. Furthermore, learners will be expected to produce a partial set of working drawings of a wood-frame construction (residential) structure using AutoCAD.
Prerequisite(s): EG1110, EG1430

DR1240 - CADD Drawings
Through participation in this course, learners will acquire computer drafting skills that will enable them to lay out a variety of engineering drawings (mechanical, civil, and architectural) to industry standards. Specifically, learners will acquire the ability to draw floor plans, sections, details, and elevations, as well as some basic mechanical and structural working drawings.
Prerequisite(s): DR1220

DR1400 - Wood Frame Construction
This course is an introduction to wood frame practices and materials with emphasis on foundation, floor, wall and roof construction of residential buildings.

• Available through Distributed Learning ⊗ Available through correspondence

Prerequisite(s): EG1430

DR1770 - Basic Drawing and Sketching for NDT
This course provides an introduction to orthographic projections sketching, sectional and primary views. It also introduces the techniques of plan reading and drawing. This course provides training for a NDT Technician Certification. This includes both in class practical training.

DR2150 - Architectural Drawings
This course is an introduction to Architectural Drawing conventions and applications which focuses on the rationale used in producing the technical drawings needed for conventional wood-frame construction. Emphasis is placed on general drawings such as floor plans and elevations in this course.
Prerequisite(s): EG1430
Co-requisite(s): DR1400

DR2320 - Engineering Graphics for Electrical
This course follows the Engineering Graphics course completed in the first year of Engineering Technology. It covers 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

DR2350 - Engineering Graphics for Instrumentation
This course follows the Engineering Graphics course completed in the first year of Engineering Technology. It covers the more advanced commands used in the AutoCAD drafting package, with application examples from across the Instrumentation and Controls Engineering Technology curriculum that require the use of AutoCAD.
Prerequisite(s): EG1430

DR3110 - Working Drawings I
This course is an introduction to building construction techniques, architectural working drawings and detailing. It is designed to enable the learner to become involved in the creation and proper use of working drawings. Course material takes the form of lectures, projects, and analysis of such projects.
Prerequisite(s): EG1240, DR2150
Co-requisite(s): BU2300, BU2410

DR3111 - Working Drawings II
This is a course dealing with larger buildings of masonry construction. It is designed to enable the learner to become a functional part of a group involved in the creation and proper use of working drawings. Course material takes the form of lectures, group projects, and group analysis of such projects.
Prerequisite(s): DR3110, BU2300, BU2410
Co-requisite(s): BU2301, BU2411

DR3310 - CAD/CAM
This is an introductory course in manufacturing technology. In this course, learners are introduced to fundamentals of computer-aided design and manufacturing (CAD/CAM). Emphasis is placed on theory and practice in the metal fabrication industry through computerized numerical control (CNC) shape cutting.
Prerequisite(s): EG1310

DR3720 - Tool Design I
This course is an introduction to tool design and tool making practices. It will provide the student with the basic knowledge required to design simple types of tooling required within the Manufacturing industry.
Prerequisite(s): CF1120
Co-requisite(s): EG2130

DR3721 - Tool Design II
The continuation of DR3720 Tool Design I, this course will expand on tool designing methods used in the sheet metal and plastic industries. The course will allow students to create tool design drawings for sheet metal and plastic components. Hands-on lab application will use a Vacuum Former, Injection Molder and Rapid Prototyper.
Prerequisite(s): DR3720, EG2130

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, project-based delivery using the CNC mill, lathe, Wire EDM 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): SP1731
Co-requisite(s): DR3720

DR4110 - Working Drawings III
This is the third course in a series of working drawing courses. The focus is on larger structures with a variety of building envelopes including glass and metal curtain walls and composite metal panel systems. Learners are required to solve technical problems based on theory and knowledge gained in other courses. More emphasis is placed on details than in other courses.
Prerequisite(s): DR3111

DR4111 - Working Drawings IV
This is the fourth in a series of working drawing courses. The course uses the same building as in Working Drawings III. Students are required to solve technical problems based on theory and knowledge gained in other courses. This course focuses on details of technical design problems not incorporated in previous working drawing courses.
Prerequisite(s): DR4110

DT1100 - Drone Technology
This course will teach students drone technology. They will explore the current and future technology, uses and the legal and ethical ramifications of using unmanned aerial vehicles.

EC1110 - Microeconomics •
The course objectives are to develop an understanding of the economic institutions and environment under a market system of exchange and the response made to decisions arrived at by individuals, businesses, and governments. Specifically, the course examines business organizations and why the attitudes of buyers and sellers determine the prices, quantities, and distribution of the output of goods and services.

EC1120 - Understanding the Economy
Students learn how the provincial, national and global economies function and how they are connected. Once they have completed this course, students will be able to explain major economic theories and how they affect fiscal and monetary policies – and how, in turn, these policies affect individuals, households, businesses and communities. They will be able to relate a solid base of economic knowledge to current economic affairs.

EC1140 - Introduction to Microeconomics
Transferable to MUN Economics 2010. This course is intended to prepare the student to take additional courses in economics which make use of Microeconomics tools of analysis. 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, perfect competition in the short-run and in the long-run monopoly.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test of MUN Mathematics 1090.

EC1150 - Introduction to Macroeconomics
Transferable to MUN Economics 2020. This course is designed to introduce students to macroeconomics. 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 national product, national expenditure components, business cycles and fiscal policy. The emphasis is on Canadian examples where possible.
Prerequisite(s): High School Level III Academic Mathematics or Advanced Mathematics and acceptable score on Mathematics Placement Test or MUN Mathematics 1090.

EC1210 - Macroeconomics •
This course is designed to introduce students to the principles of macroeconomics, including the physical and monetary aspects of international trade; money, banking, and monetary policy; the gross national product, national expenditure components, business cycles, and fiscal policy. The emphasis is on a problem solving approach and Canadian examples where this is possible.

EC1700 - Engineering Economics
This course covers the basic principles of engineering economy with application to engineering economic decision-making.

• Available through Distributed Learning ⊗ Available through correspondence

The various methods for economic analysis of alternatives are investigated as well as depreciation methods and income tax consequences.
Prerequisite(s): MA1101

EC1750 - Construction Economics
This course will give the learner the knowledge necessary to make decisions based on economic alternatives. It will introduce the learner to the fundamentals of cash flow equivalences and methods of comparison for different alternatives. It will take into account depreciation and the effect of inflation on the evaluation of alternatives. The learner will also be able to compare public sector projects based on benefit-cost analysis.
Prerequisite(s): MA1101

EE1180 - Curriculum I
This course offers an in-depth exploration of play as an integral component of quality early learning and child care programs. Students will learn about the theory, function and value of play. There will be an emphasis on developing and refining basic skills that help the adult engage in quality play experiences with children. Students will explore play with sand, water, blocks, and manipulatives. Students will also be introduced to the management of time, routines and transitions to ensure quality play experiences for children.

EE1181 - Curriculum II •
The student will develop knowledge of the major theoretical models and approaches currently being used in early learning and child care curriculum. In accordance with provincial standards, the students will develop a working knowledge of the emergent curriculum approach. Students will learn to develop and maintain a developmentally appropriate learning environment as the basis of the emergent curriculum. The student will develop basic skills in the planning, facilitation, documentation and reflection of experiences within an emergent curriculum. A child-centred, active learning approach to curriculum is emphasized. Throughout this course the unique learning styles, individual differences and interests among children will be emphasized and used as a basis for individualizing the curriculum.
Prerequisite(s): EE1180

EE1290 - Positive Behaviour Guidance •
This course provides a foundation for understanding and guiding children's behaviour. Students will learn the principles of guidance and strategies needed to guide behaviour in positive ways. The focus will be on understanding behaviour and implementing techniques that foster positive relationships and self-esteem, and create opportunities for learning.

EE1340 - Child Development I •
This is an introductory course in child development. Students will learn terminology related to child development as a foundation for advanced exploration of developmental stages in childhood. Students will also explore the basic principles of child development and learning. An introduction to the concept of child observation is provided as a foundational concept for the study and practice of early childhood education.

EE1341 - Child Development II •
This is a course in child development that focuses on increasing students' understanding of developmental milestones and growth patterns in toddlerhood and early childhood (2 to 6 years of age).
Prerequisite(s): EE1340

EE1360 - Observation •
The early childhood education student must be committed to the goal of supporting and enhancing children's development. Becoming a skilled observer is a reliable way to collect valid information about each child's skills, abilities, and their interests and needs. Students will develop knowledge and skills to purposefully observe, record, and interpret child behaviour. Through practical application of a variety of methods to gather observational data, the student's knowledge of children's development, interests, and needs will be enhanced. Students will be able to select appropriate observation methods, interpret and analyze their findings, and apply this knowledge to planning a developmentally appropriate program.
Prerequisite(s): EE1340

EE1420 - Creative Experiences I •
This introductory course will provide students with a foundation for creating early learning and child care curriculum. Students will learn about developmentally appropriate experiences in creativity, art, literature and dramatic play. Using a hands-on, participatory approach, students will be provided with opportunities to explore and experiment with related mediums and materials. Students will cultivate a personal sense of wonder and inquiry. The goal is for the student to develop practical play skills that can be applied throughout the early learning environment.

EE1421 - Creative Experiences II •
This introductory course will provide students with a foundation for creating early learning and child care curriculum. Students will learn about developmentally appropriate experiences in music, movement, outdoor play, science, and numeracy. Using a hands-on, participatory approach, students will be provided with opportunities to explore and experiment with music, movement, nature, science, and numeracy. Students will cultivate a personal sense of wonder and inquiry. The goal is for the student to develop practical play skills that can be applied throughout the early learning environment.

EE1440 - Family Studies I •
This introductory course in family studies provides students with a basic understanding of the modern Canadian family as a foundation for learning about partnerships between parents and early childhood educators. It stresses the significance of positive relationships. Students will become familiar with strategies that promote parent-educator partnerships and communication to create and maintain family-centered and culturally sensitive early childhood education.

EE1441 - Family Studies II •
Effective responses to families' needs require an understanding of the demands and stresses on families. Students will learn about a number of family stressors, methods families use to cope, and supports that may be provided for children and families.
Prerequisite(s): EE1440

EE1480 - Inclusion I •
This is an introductory course on the philosophy, principles, and appropriate practices of inclusion in early childhood programs. Students will learn about the characteristics of inclusive environments, the roles of those involved, and the use of Individual Support Service Plans.
Prerequisite(s): EE1360, EE1340

EE1481 - 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): EE1480, EE1181, EE1341

EE1870 - Community Resources •
Strong connections with the community are essential to quality early learning and child care programs. Students will reflect on the importance of community to the health and wellbeing of children and their families. The concept of empowering families to utilize community supports is introduced. Students will identify a broad range of community resources, with opportunities for in-depth examination of specific community resources such as health care professionals, family resource centres, and non-profit organizations. Students will develop the competencies necessary to utilize these resources to support their work as early childhood educators.

EE2180 - Curriculum III •
This advanced curriculum course provides students with the opportunity to participate in an in-depth exploration of approaches to curriculum. Students will be able to explain the primary theories related to development and learning, as well as advanced curriculum models. Students will have an opportunity to relate this knowledge to advanced planning, facilitation and documentation strategies, including webbing, the Project Approach, and learning stories.
Prerequisite(s): EE1181

EE2255 - Advanced Behaviour Guidance
This course offers a more in-depth exploration of guidance theory and its application to the study of children with emotional and behavioural challenges. Students will learn about possible causes and resulting challenges for children. Students will develop practical skills in the prevention and management of challenging behaviour in a team approach. The

goal is to develop the skills and an inventory of resources so that educators are able to effectively support children with behavioural challenges.
Prerequisite(s): EE1290

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, menu planning, and working in partnership with parents and the community.
Prerequisite(s): EE2180

EE2340 - Child Development III •
This is an advanced course in child development. Students will examine primary theories related to child development and learning as a foundation for advanced curriculum planning. Students will have an opportunity to examine the sequential progression of primary developmental skills from birth to age 12 years. The focus is on developing a working knowledge of the theories, principles, and stages of child development for application in early learning and child care curriculum.
Prerequisite(s): EE1341

EE2350 - Professional Practice •
This course bridges the student to the profession of Early Childhood Education. Students will examine the roots of the early childhood education field as a basis for the study of the current state of early childhood education in Newfoundland and Labrador, Canada and internationally. Students will develop a strong sense of professionalism as an early childhood educator. The goal is to enhance the student's capacity to envision and advocate for advances in the sector as an early childhood educator.

EE2470 - Infant Development & Care •
This is an introductory course in infant care. It focuses on the unique needs of infants and how these needs can be met through a developmentally appropriate approach to programming and responsive care during the first two years of life. This approach takes into consideration the developmental needs and individual and cultural differences among infants, as well as the critical role of the infant-educator relationship. Particular attention is paid to the various roles of the educator in the design, planning, implementation, and evaluation of a developmentally appropriate physical, social-emotional, and cognitive environment for infants. The importance of establishing positive relationships and open communication patterns with parents will be highlighted in the course.
Prerequisite(s): EE2340, EE1360

EE2500 - School-Age Development and Care •
This is an introductory course in school-age care. Students will develop knowledge and skills for 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 for school-age children.
Prerequisite(s): EE1341, EE1181

EG1110 - Engineering 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.

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.

EG1240 - Architectural Graphics I
This course is taken concurrently with DR2150 - Architectural Drawings and is a continuation of EG1430 - AutoCAD Essentials. It is designed to provide the learner with a greater knowledge of CAD and provide an introduction to 3D visualization basics related to Architectural Working Drawings.
Prerequisite(s): EG1110, EG1430
Co-requisite(s): DR2150

EG1241 - Architectural Graphics II
This course is designed to introduce the learner to Building Information Modeling (BIM) concepts and working knowledge of related software. Learners will use 3D design visualization and incorporate all building related information into one working model. From these modeling techniques, learners will focus on development of presentation graphics, working with shadows and sun studies and completing simple renderings.
Prerequisite(s): EG1240
Co-requisite(s): DR3110

EG1310 - Applied Cad
This is an applied CAD-based drafting course designed to provide learners with the ability to interpret and prepare mechanical and structural drawings which extend the principles presented in EG1110 and EG1430.
Prerequisite(s): EG1430

EG1321 - Drawing Interpretation
This course is designed to provide the learners with the ability to interpret and prepare drawings used in specialized areas of mechanical engineering. Learners will prepare and interpret assembly, piping, welding drawings and P&ID.
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 designed in a pedagogical format by presenting the fundamental concepts at the beginning and moving toward the more advanced and specialized features of AutoCAD. It is also designed with the understanding that the student has the engineering graphics fundamentals necessary to apply the AutoCAD software. Applications and examples have an inclination towards many different technology disciplines.
Prerequisite(s): EG1110

EG1520 - Engineering Graphics for Mechanical Engineering Technologies
This intermediate level course is designed to provide students with the ability to interpret and prepare drawings used in specialized areas of mechanical engineering. Students will prepare and interpret Assembly Drawings, Fluid Power Schematics, Sheet Metal Developments, Piping Drawings, Welding Drawings and P & ID diagrams. The development and use of AutoCAD Symbol Libraries and Attribute Extraction will also be studied.
Prerequisite(s): EG1430

EG2120 - Applied Engineering Drafting
This course will cover drafting and design skills enabling students to design basic circuit components, apply them to circuit analysis and interpret blueprint drawings for Electronic System Engineering Technologists. Students will design a Printed Circuit Board using electronic CAD simulation software.

EG2130 - Engineering Graphics
This is an advanced course in computer aided drafting and design. Parametric 3D CAD software is used for both virtual prototyping of mechanical systems and development of related working drawings. The command tools commonly used for 2D sketch development, 3D feature creation, part assembly, 2D drawing generation, 2D drawing annotation, and 3D simulation are explored. For 2D drawing annotation, particular emphasis is placed on the command tools used for geometric dimensioning and tolerancing.
Prerequisite(s): EG1430

EG2240 - Architectural Graphics III
This is a three part course that allows the learner to explore the world of advanced CAD. The first section is designed to give the learner the ability to customize and extend the many

features of CAD according to individual needs. The second section introduces the learner to attributes, data extraction, and data linking between graphics information and text/ numerical data. The final section includes the concepts and procedures in the presentation of animated drawings and virtual images which are used for client presentation drawings.
Prerequisite(s): EG1241
Co-requisite(s): DR3111

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.

EH1102 - Concepts and Methods in Earth Sciences
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 design 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 or MUN Earth Sciences 1000

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.

EL1160 - Leisure Arts
This is an introductory course focusing on various art techniques. Students will experience using basic materials and techniques in drawing, ceramics, metal, painting, and photography. This course is not suitable for students enrolled in Visual Arts or Textiles: Craft and Apparel Design programs and therefore cannot be taken as an elective in those programs.

EL1180 - Anthropology of War & Aggression •
This course is divided into two parts. Part one looks at the origins of aggression. Are we born aggressive? Does our social environment influence how our aggressiveness is expressed? To this end we will examine the works of Konrad Lorenz, Raymond Dart, Derek Freeman, K.E. Moyer, Colin Turnbull, Margaret Mead, E. Richard Sorenson, Patricia Draper, Edward O. Wilson, W.D. Hamilton, and others. We then look at how aggression is viewed and expressed in various cultures and examine the act of war. Why do societies go to war? How has warfare changed throughout history? How has our own culture of warfare changed in recent years? This course is transferable to MUN War and Aggression 2260.

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.

EL1360 - Introduction to Anthropology
Transferable to MUN Anthropology 1031. This course is an introduction to the field of social and cultural anthropology. Taking a cross-cultural approach to the study of society and culture, the focus of this course will be on the global issues of ecology, technology, economy, politics, kinship and ideology. This course will also examine linguistic anthropology, but the emphasis will be on how we use language for human communication rather than on formal linguistics. We will consider how human societies go about solving some of the fundamental problems of human existence. How do we make a living? What forms of social organizations do we take part in and why? How do we think about the universe and our place in it? We will compare some of the social and cultural systems we have in our society with those found in other societies. In this manner we can hope to learn valuable lessons about how people from other cultures attempt to solve existential problems and at the same time see our own social and cultural formations in a new and more critical light.

EL1420 - Introductory French I
Transferable to MUN French 1500. This is an introductory course designed for students with little or no previous knowledge of French and for students who wish to review basic vocabulary and structure. The course uses mainly the present tense, but also includes an introduction to the past tense (passé compose with "avoir"). EL1420 has a 500-word vocabulary, and covers the most common situations of daily life.

EL1430 - Introductory French II
Transferable to MUN French 1501. This course teaches the use of past tenses and more advanced structures. Students begin to read short texts which are faithful to the original, to write longer compositions, and to explore more complex situations.
Prerequisite(s): EL1420 or MUN French 1500 or High School French 3200

EL1440 - Introductory French III
Transferable to MUN French 1502. In EL1440, it is assumed that students already have a knowledge of basic vocabulary, grammar and constructions of French, in particular the use of the present tense in regular and irregular verbs, and the use of past tenses. This course continues to practice those tenses, but concentrates on the forms and uses of the future, the conditional and the subjunctive tenses. Students are expected to achieve and maintain a high level of accuracy in spelling, grammar and pronunciation. 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.

EL1500 - Introduction to Linguistics
Transferable to MUN Lingistics1100 or 2100. This course provides a general, fairly non-technical introduction to linguistics. Students will learn basic concepts about the nature of language and its function in communication. Some technical terminology and elementary analysis related to the study of language and linguistics will be introduced.

EL1530 - Fine Art Printing
Students' will gain an understanding of the relationship between a digital photographic file and an electronic printer. Particular attention will be paid to the relationship of the file and a final presentation print.

EL2420 - Advanced French for First-year Students
This course is designed for bilingual non-francophone students who wish to improve their fluency in French (emphasis on oral skills during instruction) or francophone students who wish to improve their oral skills (emphasis on grammatically correct oral communications). The focus of the course is on aural comprehension and oral production. The course is the equivalent of French 2159 at Memorial University.
Prerequisite(s): High School French Immersion 3202 with a minimum grade of 80%, or Accelerated or Extended French 3203 with a minimum grade of 80%

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.

EN1110 - Soil Fundamentals
This is an introductory course in soil science and hydrogeology designed specifically for the Environmental Engineering Technologist. This course exposes the students to the basic concepts of soil science, soil sampling and analysis, and soil classification. Students learn about soil types, soil properties, soil classification, and standard tests and procedures used to evaluate soil properties. Students learn how to conduct site and subsurface investigations through introductory concepts of hydrogeology where they learn to measure and calculate hydraulic conductivity, soil permeability, bore hole sampling, and elements of erosion control encompassing Darcy's Law. Emphasis is placed on an understanding of the occurrence and movement of groundwater in a variety of geologic settings and the effect of human activity on that movement. Other topics include types of aquifers, properties of porous

• Available through Distributed Learning ⊗ Available through correspondence

media, groundwater flow, and pump testing of aquifers. The laboratory component of the course explores soil testing methods and analytical problems related to lecture topics.

EN1210 - Geomatics I (Practical)
This course is designed to expose students to concepts of field navigation. This field oriented course introduces students to navigational skills using map, compass and GPS.

EN1220 - Industrial Hygiene
This course will introduce the student to the fundamentals of Industrial hygiene. 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. This course prepares students to apply industrial hygiene techniques to monitor air quality, and conduct Hazardous Materials Assessments in the HSE (Health, Safety and Environment) field.
Prerequisite(s): EN2321, EN1520

EN1230 - Geomatics II (GIS)
This course is designed to provide students with an overview of Remote Sensing and Geographic Information Systems (GIS) technology. It is designed to introduce basic principles and skills associated with remote sensing; orthophotography interpretation and GPS technology are addressed through lectures and practical applications. Students are exposed to satellite imagery, processes and products and 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): EN1210

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.

EN1531 - Water Quality
This course will introduce students to various aspects of water quality and will provide an in-depth review of the Canadian Water Quality Guidelines. This course expands upon the students' knowledge of analytical chemistry techniques and emphasizes introductory microbiology and toxicology techniques including exposure to the parameters of a local water treatment plant. Students are introduced to the diversity of microorganisms, their relationship to environmental technology and the basic lab techniques used to identify and enumerate them. This course prepares students to apply their technical knowledge to monitor water quality, domestic and industrial water and wastewater treatment systems and site remediation projects and prepare water quality reports.
Prerequisite(s): CH2700, EN1520

EN1600 - Environmental Assessment
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 1 assessment of a local facility.

EN1601 - Environmental 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 requires a 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, EN1110

EN2120 - Environmental Citizenship
This course is designed to foster environmental ethics and sustainable development. It provides an opportunity for students to discuss, debate, analyze 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.

EN2300 - Environmental Law
This course is oriented to the needs of the environmental industry and introduces the students to Municipal, Provincial, and Federal Environmental Policy, Legislation, Regulations and Guidelines. The Canadian Justice System framework is introduced with emphasis on case studies involving Environmental Law. Courtroom terminology, proceedings, legal documentation, environmental protection, due diligence and personal and corporate liability will be reviewed in detail.

EN2321 - Occupational Health and 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.

EN2545 - Water and Waste Water Treatment
This course deals with water and wastewater management and treatment. The first part of the course focuses briefly on water and wastewater collection and measurement. The second part of the course focuses on water treatment and in-plant abatements and treatment of wastewater flowing from industrial settings. The course will include characteristics of primary and secondary wastewater treatment processes as it relates to overall plant operations. Monitoring procedures and methods of analysis is covered in theory and laboratory sessions. Current and innovative water and wastewater treatment processes will be discussed and evaluated with special attention focused on provincial and federal environmental acts and regulations and how it is related to decision making.
Prerequisite(s): MA1100, EN1520

EN2601 - Environmental Abatement - 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. 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. Monitoring procedures and methods of analysis are covered in theory and laboratory sessions. Current and innovative wastewater treatment processes are covered. Special attention is focused on provincial and federal environmental acts and regulations, in particular how these relate to decision making and possible audit findings.
Prerequisite(s): MA1101; PH1101

EN2640 - Environmental Abatement-Air & Solid Waste
This course deals with air pollution and industrial solid waste treatment and abatement. The first part of the course focuses on air pollution and its abatement. The second emphasis of the course is an introduction to knowledge, practices, and theories relevant to solid waste generated from industrial settings. The characteristics, treatment processes, and plant operations to handle air pollution and solid waste will be studied. Monitoring procedures and methods of analysis for air pollution and solid waste management are covered in theory and laboratory sessions. Current and innovative treatment processes are covered with focus on industries operating within the province of NL. Special attention is focused on provincial and federal environmental acts and regulations, in particular how these relate to decision making and best operating practices.
Prerequisite(s): MA1101; PH1101

EN3110 - Environmental Engineering
This course is designed to acquaint the learner with the major areas of pollution control and mitigation. Learners will gain an appreciation of the issues concerning sustainable development, gain familiarity with environmental legislation and risk management systems, as well as various environmental hazards in the workplace. Environmental concerns due to air pollution and noise pollution will be discussed, as well as solid waste management and wastewater treatment.

EN3111 - Environmental Engineering I
This is a combined theory/laboratory course dealing with mass and energy transfer and water resources. The first part of the course focuses briefly on mass and energy. The second emphasis of the course is an introduction to knowledge, practices, theories and applications relevant to hydraulics and hydrology. The

characteristics of pressure, flow, and energy in both closed conduits and open channels will be studied. The Hydrological Cycle and the different forms of precipitation along with the surface and groundwater movements of water are studied and methods of analysis are covered in theory and laboratory sessions. Special attention is focused on best management practices, in particular how these relate to decision making.
Prerequisite(s): MA1100

EN3120 - Environmental Engineering II
This course deals with air pollution and solid waste management. The first part of the course focuses briefly on the principles of meteorology. The second part of the course places emphasis on practices, theories and applications relevant to air pollution. The third section of this course concentrates on the management of municipal, industrial and hazardous solid waste. All topics are studied and methods of analysis are covered in both the theory and laboratory sessions. Special attention is focused on best management practices and how they are related to decision making.
Prerequisite(s): EN3111, EN1520

EN3200 - Environmental Impact Assessment
This course, oriented to the needs of the environment industry, covers the basics of the environmental assessment procedure. The course carries on from the Environmental Law course where a broad overview of the legislation is presented. Students review the assessment legislation in detail and develop the tools needed to perform an environmental impact assessment. Students then perform a case study to assess a small local project.
Prerequisite(s): EN2300

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

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 or CH2335

EP1100 - Entrepreneurial Studies •
Students will acquire the necessary skills and techniques to develop a sound business plan. This course is designed to develop an appreciation of small business, particularly as it relates to understanding the entrepreneurial process. 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 will introduce students to business systems, forms of business ownership, production, marketing, finance, personnel and labour relations, international business and small business ownership. Students will describe and compare aspects of business, economics, and finance, including the functional areas of a business.

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.

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.

EP2130 - Business Principles and Practices •
This course will provide students with an overview of business principles and practices relevant to the IM industry. Students will be introduced to the functional areas of business and the processes within each function. As well, students will be exposed to business intelligence and enterprise resource planning systems.

EP2150 - Entrepreneurship •
This is an introductory course that analyzes aspects of entrepreneurship and the link between entrepreneurs and small business. It presents a fundamental approach to planning and operating a firm incorporating basic steps in business management and explains how each step can best be accomplished.

EP2200 - Business Planning •
This is a comprehensive advanced-level course in developing a comprehensive business plan. The student will identify a business idea, product or service, conduct an industry analysis, and develop plans for operational and human resources, marketing, and finance. The student will also conduct a risk assessment and present their plan to a panel of industry experts. The student will apply his/her knowledge from previous terms in a practical manner.
Prerequisite(s): EP2250

EP2250 - Small Business Development •
This is an advanced course is the use of primary and secondary research techniques and analysis. The student will explore secondary research analysis, competition and demand analysis, project site and area evaluation, estimates of operating results and economic feasibility study. The student will be required to produce and present a research report establishing the feasibility for an opportunity or 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 present business owner. This plan is developed based on two prior years of Business Management education and is intended in part to prepare the student to own or operate a small business.
Prerequisite(s): AC2260, CM2300, EC1110, MA1670

EP2400 - Business Solutions •
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): CP1930 OR CP1410 OR CP3421, EP1130 OR EP1150 OR AC1300

ES2301 - Petroleum Refining
In this course, the learners are introduced to petroleum refining. The course covers 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. 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.

ES2320 - Pulping & Papermaking
In this course learners are introduced to the series of processes that convert wood first to pulp, and then to paper. After an introduction to the physical and chemical properties of wood, the processes associated with high-yield pulping methodologies are studied, followed with pulp cleaning and washing, screening, bleaching, and pulp testing procedures. This is followed by a logical progression in the papermaking process, starting with the preparation of the stock to the wet-end processes and progressing to the finished product. 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.

ES3310 - Petroleum Refining Support Systems
The purpose of this course is to introduce the learner to specialized equipment, supporting refinery processes, and utilities found in a typical petroleum refining plant. All processes and equipment explored will include operating principles, type, and application. Simulation software will be implemented to further investigate the refinery support systems and understand the effects of varying process variables.
Prerequisite(s): ES2301

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 use of electrical measuring instruments as well as reinforcing 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

ET1120 - Electronics for Audio
Electronics for Audio is a Sound Recording & Production course. It is designed to prepare students for entry into work in the sound recording and production industry. It will provide the basic knowledge needed to perform circuit analysis and, more importantly, allow the student to design, modify, and test circuit designs necessary in their field. In addition, once completed, students should be able to troubleshoot existing electronic devices and connect them correctly and safely.
Co-requisite(s): MA1100

ET1140 - AC/DC Fundamentals
This is an introductory course in electrical theory covering the fundamentals of Direct Current (D.C.) and Alternating Current (A.C.) electricity. Students will be exposed to basic electrical quantities, basic electrical circuits, and circuit analysis techniques containing resistance, capacitance, and inductance. An introduction to transformers is also included. The laboratory work is designed to develop skills in the construction of electrical and electronic circuits, use of electrical measuring instruments and reinforce theoretical concepts.
Co-requisite(s): MA1101, PH1140

ET2100 - Electrotechnology
This course covers advanced topics in AC and DC circuit analysis as well as an introduction to DC machines and transformers. It will provide the necessary background for students to enter second year Electrical and Electronics programs.
Prerequisite(s): ET1101, MA1101

ET2150 - Advanced Circuit Analysis
In this course, learners will review 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 learner will learn mathematical techniques and apply these to the concepts to analyze and solve differential equations.
Topics include waveform analysis and synthesis, time domain analysis, solution of differential equations using LaPlace transforms, application of LaPlace transforms to solve electric circuits, and derivation of transfer functions. In addition, the following topics will be covered in this course: Fourier expansion of periodic function, even and odd, Fourier analysis of waveforms and their application to electrical signals, and impulse response.
Prerequisite(s): MA2100, ET1151 or MP2140

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): BL1400

EY2110 - 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.

EY2210 - Silvics/Dendrology I
This is an introductory course to trees and shrubs both native and introduced to Newfoundland and Labrador. Species identification, classification and distribution are studied in detail. The influence of the environment upon the growth and reproduction of trees, stands, and forests are explored. Forest site analysis and classification are introduced and studied in detail.
Prerequisite(s): BL1120

EY2211 - Silvics/Dendrology II
This is an advanced course of study in Forest Ecology. Forest site analysis and classification are studied in detail. The influence of forest genetics, the physical and biotic environment, upon the forest ecosystem are covered. Native and exotic tree/shrub identification is a key component within the course.
Prerequisite(s): EY2210, FR1330
Co-requisite(s): FR2360, FT1401

EY2510 - Population Ecology
Concepts of population dynamics and modeling and applications in fish and wildlife management.
Prerequisite(s): BL1400, RM1401, RM1500

FH1200 - 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.

FH1230 - Physical Activity Programming for Older Adults
This course provides students with an introduction to physical activity programming for the older adults. It is designed to enable students to plan and evaluate a variety of programs for older adults based on current knowledge and trends.

FH1340 - Health & Safety •
This course will address the attitudes and knowledge early childhood educators must have in order to support the health and safety needs of children and themselves. Students will develop a working knowledge of policies and practices that adhere to provincial legislation and standards with regards to the health and well-being of children, and the establishment of positive habits and attitudes toward health and safety. Students will recognize symptoms of ill health and determine appropriate care for a sick child in a group setting. Students will recognize safety hazards and plan to minimize risk. Students will explore the issue of child maltreatment and recognize their responsibilities as early childhood educators with regards to recognition and reporting.

FH1360 - Childhood Nutrition •
This introductory course addresses the fundamental concepts of nutrition. Students will study the basic nutrients and learn about the recommended daily intake for children. Students will develop a working knowledge of Canada's Food Guide and utilize this knowledge in the planning and preparation of healthy snacks and meals for children.

FH1500 - Personal Wellness •
Optimal wellness is critical to a student's success in the workplace and in life. Students will be introduced to the eight dimensions of wellness: physical, mental, social, spiritual, intellectual, environmental, occupational and financial. Students will determine their own 'wellness level' and be encouraged to make healthy lifestyle choices. The goal is for the student to achieve a sense of balance in life which is attained through high levels of understanding and being active in each dimension of wellness.

FM2100 - Fluid Mechanics
This is an introductory course in fluid mechanics 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

FM2102 - Fluid Mechanics
This is an introductory course in fluid mechanics designed to develop 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): PH1101

FM2201 - Mechanics (Dynamics)
This course in mechanics introduces the fundamental concepts of dynamics and builds on the basic principles of statics presented in previous courses. This course provides students with the basic requirements 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, balancing, work and energy, and mechanical vibrations.
Prerequisite(s): CF2540

FM2320 - Fluid Mechanics
The learner will learn the theory and solve problems pertaining to pressure measurement, fluid flow, head loss, and conservation of energy. The learner will apply this knowledge during the analysis of series and parallel piping

systems, and in the selection of pipe fittings and pumps.
Prerequisite(s): MA1101, PH1101

FM3100 - Fluid Power (Hydraulics/ Pneumatics)
This is an intermediate level course designed primarily for students in the Electrical and Mechanical Engineering Technology Programs.
Prerequisite(s): PH1101; EG1520 or DR2320

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. The underlying principles of mechanics of machines and strength of materials demonstrated enabling the student to participate in the design of machinery. The student will gain 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

FN1140 - Introduction to Finance
This course develops the concepts for the financial foundation of all upper level finance courses. The course is designed to provide an introductory level of finance concepts and the use in business decisions. In this course the student will explore the importance of finance in business. Topics merchandising, interest calculations, debt amortization, annuities, bonds and sinking funds, foreign currency computations, and capital budgeting. Students will use a financial calculator or spreadsheet to make financial management decisions.

FN2110 - Business Finance •
This course is an intermediate course in the complexities of business financial management. The student will explore financial analysis and planning, working capital management, capital budgeting, and long-term financing. The course will integrate both short-term and long-term financial considerations, as well as concepts from accounting, statistics, and economics.
Prerequisite(s): AC2260

FN2111 - Business Finance II
The purpose of this course is to extend knowledge and understanding of finance principles by focusing on various problems and decisions confronting the financial manager. Specific topics include sensitivity analysis, corporate planning models, financial statement analysis and forecasting; short and long-term financing; commercial banking; capital budgeting; dividends and dividend policy; options, swaps, futures, forwards, firm valuation; and mergers and acquisitions. The student will conduct an in-depth study of issues and tools that financial managers use in financial planning and strategic management. The course will use real-world cases to teach the material.
Prerequisite(s): FN2110

FN2160 - Investments-An Overview
Students are expected to be familiar with the different investment avenues available to investors who are interested in optimizing their return on their investments. This course will address the concept of risk management and its application to the average investor and will provide an overview of the different investment strategies and their potential risks and returns.
Prerequisite(s): MA2400

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.
Prerequisite(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): SU1550

FR1331 - Natural Resource Measurements II
This advanced level course in the principles of natural resources measurements places emphasis on the design, conduct and application of a variety of survey methods to assess forest characteristics using GIS and GPS. 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): FR1560

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 studies.

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 lay out a forest road.
Prerequisite(s): SU1710, 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 hydrogical processes and principles in general, through detail 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
This course involves the study of the major forest enemies of North America (excluding fire). Emphasis will be placed on insects which damage or benefit the forest and on biotic and abiotic causes of forest disease. Prevention and protection measures of above are covered. Field collection and diagnosis are emphasized, stressing the importance of signs leading to early detection.
Prerequisite(s): EY2210 , FR1330

FR2360 - Silviculture
This course involves a study of a wide range of silviculture 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 improvement, and nursery production as well as stand manipulation including pre-commercial thinning, commercial thinning, pruning, and other vegetation control methods.
Prerequisite(s): FR1330
Co-requisite(s): EY2211, 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 Services I is the first in a three course series designed to introduce the student to family services. This initial course, Family Services I will focus on family structure by looking at the different structures of family, marriage, and alternative living arrangements, socialization and parenting. Upon completion of this course, students will understand the diversity of families in today's society, trends concerning families in the 21st century,

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the meaning of marriage and other forms of partnering, and the responsibilities of parenting.

FS1101 - Family Services II
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, stress, violence, abuse, divorce, blended families, and dealing with empty nests and aging parents. Often these challenges create many needs for families that require outside intervention or assistance. The purpose of this course is to provide students with the knowledge and practical skills to understand the needs of families and to be able to identify when families are not coping effectively. 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

FS2100 - Family Services III
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. The course will provide an historical overview of social welfare policies and programs in both public and private sectors. Students will learn how these policies and programs outline the services that are available to meet the needs of families. 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): SU1320, SU1500
Co-requisite(s): SU1321

FT1260 - Multidisciplinary Field Camp
This camp is a hands-on session where the data gathering skills learned throughout the Geomatics/Surveying Engineering Technology (Co-op) program are reinforced by practical field work. The camp will involve different projects with each project involving a different aspect of the program. The projects will be designed to gather and process data and compile the data into maps and a report. Maps and reports will be submitted to instructor(s) and are produced based on industry standards.
Prerequisite(s): SU2320; SU1540
Co-requisite(s): SU1541; SU3300; SU3500

FT1340 - Civil Engineering Technology Camp
This course introduces the learner to the practical elements of various construction processes. In addition, this course provides the learner with an insight into on-site supervision and 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, SU1710
Co-requisite(s): FR1230

FT1401 - Forestry Tour/Camp
This five day field tour is designed to insure that the 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.
Co-requisite(s): EY2211, 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 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 field data for these projects.
Co-requisite(s): RM2200

FT1630 - Petroleum Operations Practical
This course is designed to provide students with practical knowledge of petroleum field operations. Training is also provided in sour gas handling (H2S), Workplace Hazardous Materials Information System (WHMIS), First Aid and Transportation of Dangerous Goods (TDG).

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-sessional 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 associated with motion picture production.
Prerequisite(s): FV1200
Co-requisite(s): FV1250

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, electric connections. Reading layouts, schematics, testing, troubleshooting, and practical set ups and light "gags".
Prerequisite(s): FV1200
Co-requisite(s): FV1240

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): FV1100
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): MM2310
Co-requisite(s): FV1300

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): FV1320
Co-requisite(s): FV1400

FV2220 - Final Film Production
In Final Film Production students will finalize a show reel illustrating their acquired skills.
Prerequisite(s): FV1220

FV2300 - Cinematography
This course will cover the theoretical issues and practical application of the craft of cinematic photography and lighting.
Prerequisite(s): FV1300
Co-requisite(s): VA1400

FW1180 - Field Placement Preparation
Students will prepare for their field placement experience and will gain the necessary information to help them benefit from the field placement experience.
Prerequisite(s): Successful completion of all Semester 1 and 5 courses

FW1210 - Field Placement
Journalism students are placed for four weeks with 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): JL1840
Co-requisite(s): JL1430

FW1230 - Field Placement Preparation
This course helps students prepare for field placement. In the course students will identify and pursue possible field placement opportunities, prepare learning contracts, and receive direction on completion of field placement documentation. In addition, students review ethical and legal guidelines to prepare them for placements with human service agencies.

FW1320 - Field Placement (Post Diploma)
Post-Diploma Journalism students are placed for four weeks with 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. Students learn to produce journalism in a professional atmosphere through a combination of hands-on assignments and job shadowing. Post-Diploma students will produce a major piece of public service journalism during the field placement.
Prerequisite(s): JL1851

FW1450 - Field Placement I
This course consists of a four-week placement with a human services agency in a voluntary capacity. Students are responsible for obtaining their own placements in collaboration with their field placement instructor. Students are encouraged to seek field placements which allow them to meet personal interests and goals. Each student will be assigned a field placement supervisor who will monitor and evaluate the student's progress. Students are responsible for completing and submitting field placement documentation for evaluation and grading.
Prerequisite(s): CM1100, CM2100, CS1120, CS2420, HR1120, HR1210, FW1230

FW1451 - Field Placement II
This course consists of a five-week placement with a human services agency in a voluntary capacity. Students are responsible for obtaining their own placements in collaboration with their field placement instructor. Students are encouraged to seek field placements which allow them to meet personal interests and goals. Each student will be assigned a field placement supervisor who will monitor and evaluate the student's progress. Students are responsible for completing and submitting field placement documentation for evaluation and grading.
Prerequisite(s): FW1450

FW1600 - Field Placement I
During field placement, students begin to link theory to practice. Students will participate in seminars to learn basic knowledge and skills necessary for a successful placement experience, and spend a block of time at a field placement site. 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 interacting and responding in positive ways to children, and engage in developmentally appropriate play with individual and small groups of children. Please note that time will be spent in the College's demonstration child care centre as part of the series of block placements. Opportunities to work with a variety of age groups across the series of field placement courses will be provided where possible.
Prerequisite(s): Valid First Aid Certificate
Co-requisite(s): EE1180, EE1340, EE1290, EE1420, FH1340

FW1601 - Field Placement II
During this second supervised field placement students will continue to link theory to practice, participating fully and assisting with all aspects of the program. It is expected that confidence and competence is increasing in interacting with and guiding children's behaviour, and working with staff, families and community members. Students will begin to add developmentally appropriate materials to the learning environment to support children's play, and will plan and implement a variety of developmentally appropriate activities for individual and groups of children. The importance of an inclusive, child-centred, active learning approach will be reinforced. Please note that time will be spent in the College's demonstration child care centre as part of the series of block placements. Opportunities to work with a variety of age groups across the series of field placement courses will be provided where possible.
Prerequisite(s): EE1180, EE1340, EE1420, EE1340, EE1290, EE1600
Co-requisite(s): EE1181*, FH1360*, EE1421*, EE1360* These courses may have been completed as prerequisites

FW1710 - Supervised Field Placement Experience I
Supervised field placement is an integral part of the total curriculum allowing students the opportunity to apply knowledge and training gained from the semester and constitutes a basic preparation for a wide range of professional practice for full-time registered students. The course instructor will assess students throughout the semester and place accordingly in a variety of approved settings to display leadership qualities and work independently using skills acquired from semester for four weeks (160 hours) following course training. Students will be placed in instructor approved agencies such as: long term care facilities, hospitals, municipal recreation departments, and community agencies. Throughout the semester, students will review field placement requirements and documentation, types of placements, and professional conduct. 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): Clear First Aid/CPR Certificate, Clear Certificate of Conduct must be dated no more than 2 months prior to the start of the semester, Vulnerable Sector Check, Updated Immunization Record
Co-requisite(s): FH1200, RS1230, RS1100, RS1280

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 allowing students to building on experiences gained from FW1710 while providing students the opportunity to apply knowledge and training gained from winter semester. As well, students will be prepared for placements based on standards acceptable to the industry. Course instructor will assess students throughout the semester and place accordingly in a variety of approved settings to display leadership qualities and work independently using skills acquired from the semester which constitutes a basic preparation for a wide range of professional practices. Students will 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): FW1710, RS1280, RS1100, Valid First Aid/CPR Certificate, Valid Certificate of Conduct, Updated Immunization Record.
Co-requisite(s): RS1250, RS1450

FW2600 - Field Placement III
During this third supervised field placement the focus is on students working in teams along with staff to implement the program. Students will plan cumulative play experiences and utilize webbing as a tool for planning of the curriculum. Students are expected to demonstrate initiative with regards to

independently facilitating spontaneous and pre-planned play experiences for individual children, small groups, and whole groups. Students are expected to demonstrate an inclusive approach to curriculum and interactions with families. Please note that time will be spent in the College's demonstration child care centre as part of the series of block placements. Opportunities to work with a variety of age groups across the series of field placement courses will be provided where possible.
Prerequisite(s): EE1181, EE1341, EE1421, FH1360, EE1360, EE1440, EE1480, EE2500, FW1601

FW2601 - Field Placement IV
During this fourth supervised field placement, students are expected to demonstrate increased competence in planning and implementing the routines and schedule, preparing and implementing a cumulative curriculum to meet the needs of all the children, and interacting with parents and community service providers. With guidance, students will implement specific supports for children with challenging behaviours. Students will promote the philosophy of inclusion in all aspects of their interactions with children, families, and the community. Please note that time will be spent in the College's demonstration child care centre as part of the series of block placements. Opportunities to work with a variety of age groups across the series of field placement courses will be provided where possible.
Prerequisite(s): EE2180, EE2255, FW2600

FW2710 - Supervised Field Placement Experience III
The purpose of this supervised field placement experience is to provide students with experience in administrative practices and procedures at an approved setting in a community-based agency/organization. Through classroom and individual assessments, instructor(s) will work with students to provide opportunity for a four-week placement to express leadership skills and work independently in an agency that provides administrative experiences such as the following: financial management, staff and public relations, program development, organization and government structures and functions, and facility operations. Students review previous placement experiences, types of placement, and placement documentation issues and concerns. Students may be placed in a variety of community agencies such as long-term care facilities, hospitals, youth serving agencies, government, provincial sport and recreation departments, and municipal recreation departments. 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): FW1711, RS 1450, Valid First Aid/CPR Certificate, Clear Certificate of Conduct must be dated no more than 2 months prior to the start of the semester, Vulnerable Sector Check, Updated Immunization Record, Current Resume
Co-requisite(s): RS1320

FW2711 - Supervised Field Placement Experience IV
The purpose of this final supervised field placement is to provide second-year students the experience in administrative practices and procedures at an approved setting in a community-based agency/organization. Through classroom and individual assessments, the instructor will work with students to provide opportunity for a four-week placement to express leadership skills and work independently in an agency that may provide the following administrative experiences: financial management, staff and public relations, program development, organizational administration and facility management and operations. Students will be expected to show a high level of management and leadership skills throughout this placement and work independently throughout the four-week placement. Students will review previous placement experiences, types of placement and placement documentation issues and concerns. Students may be placed in a variety of community agencies such as long-term care facilities, hospitals, youth-serving agencies, government, provincial sport and recreation departments and municipal recreation departments. 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, RS1320, Documents required: Valid First Aid/CPR Certificate, Clear Certificate of Conduct (must be dated no more 2 months prior to the start of the semester, Vulnerable Sector Check, Updated Immunization Record, Current Resume
Co-requisite(s): MN1410

FW2800 - Field Placement
Students will work in the graphics industry under the direct supervision of an employer; with their progress being monitored and evaluated by faculty in the Graphics programs. The supervised field placement is an integral part of the total curriculum in the Graphic Design and Graphic Communications programs, and provides students with direct experience in the industry that can lead to a wide range of professional practice.
Prerequisite(s): Successful completion of all program courses in Semesters 1 to 5, FW1180

FW2801 - Field Placement Reflection
Students will reflect upon and evaluate their field placement experience. Based upon this reflection and evaluation, students will have an opportunity to revisit skill-sets and areas for development.
Prerequisite(s): FW2800

FW2810 - Field Placement
Students will work in the graphics industry under the direct supervision of an employer; with their progress being monitored and evaluated by faculty in the Graphics programs. The supervised field placement is an integral part of the total curriculum in the Graphic Design and Graphic Communications programs, and provides students with direct experience in the industry that can lead to a wide range of professional practice.
Prerequisite(s): Successful completion of all program courses in Semesters 1 to 5, FW1180

FW2811 - Field Placement Reflection
Students will reflect upon and evaluate their field placement experience. Based upon this reflection and evaluation, students will have an opportunity to revisit skill-sets and areas for development.
Prerequisite(s): FW2810

GA1120 - Typography I
Students will be introduced to the history of the graphics industry and will study the historical evolution of typography from its beginning to its application in today's industry.

GA1121 - Typography II
Students will address contemporary issues in typography as they apply to print, web, and mobile devices. Students will develop design solutions for common typographic issues such as readability, legibility, navigation and coherence.
Prerequisite(s): GA1120

GA1140 - Vector Graphics
Students will gain an introduction to the basics of Vector Graphics used on dual platforms within graphic communications.

GA1170 - Graphics Problem Solving
Students will gain an understanding of practical and relevant mathematics specific to disciplines within the graphics industry and learn to directly apply relevant mathematics concepts. Students will learn about topics which emphasize problem-solving skills that apply practically to printing and design.

GA1180 - Graphic Design History
Students will gain a clear understanding of the history of the graphics industry. Students will study the historical evolution of typography from its beginning to its application in today's industry.
Co-requisite(s): GA1121

GA1220 - Color Management
Students will learn to effectively manage and use color in a digital graphic arts environment. Students will learn effective color management principles on both Apple MacIntosh and PC platforms, and cover color systems and translations between color gamuts in detail. Students will also gain a clear understanding of the elements and principles of color theory, and how color can be used to create more effective images for the graphics industry.
Prerequisite(s): GA1170

GA1230 - Finishing & Bindery I
Students will gain an understanding of the background and methods used for finishing and bindery and how they apply to graphic communications.

GA1231 - Finishing & Bindery II
Students will gain an understanding of the advanced methods used for finishing and bindery as it applies to graphic communications.
Prerequisite(s): GA1170, GA1230

GA1320 - Digital Printing I
Students will receive hands-on skill development in printing to digital devices. Students are required to become proficient in

the skill areas involved in providing short run, full-color documents and on-demand printing.

GA1321 - Digital Printing II
Students will gain an understanding of the principles of digital practices. The focus will be on advanced machine operation and quality control.
Prerequisite(s): GA1320, GA1421

GA1350 - Motion I
Students will be introduced to the principles and elements of motion design through studio practices at beginning and advanced levels. Students will be exposed to the first phase, "type in motion", which emphasizes the relationship between typography principles and animation fundamentals. Students will then gain knowledge during the second phase when an advanced applied approach to the language and principles of motion is explored. Students will also develop skills in digital creativity throughout this course.

GA1351 - Motion II
Students will expand upon the principles and elements of motion design studied in Motion I. Students will continue with studio lessons and practices at an advanced level and implement a practical demonstrable skill set in motion graphics.
Prerequisite(s): GA1350

GA1420 - Digital Page Layout I
Students will learn the basic technique of assembling visual elements.

GA1421 - Digital Page Layout II
Students will learn electronic page assembly using the techniques of page layout software on the computer. Students will learn about the flexibility of the page layout software as it applies to production for graphic communications.
Prerequisite(s): GA1420
Co-requisite(s): GA2570

GA1430 - Page Composition I
Students will gain an understanding of basic page composition as it applies to the graphics industry. Students will explore topics which emphasize developing digital layout skills using industry-standard software tools, while exploring different types of graphic design projects for traditional and digital printing processes.

GA1431 - Page Composition II
Students will gain an understanding of intermediate page composition as it applies to the graphics industry by working on long document design and production. Students are exposed to topics which emphasize developing digital layout skills while using industry-standard software tools, and exploring different types of graphic design projects for traditional and digital printing processes.
Prerequisite(s): GA1430

GA1470 - Web Processes
Students will be introduced to the basic skills in web processes. Students will be required to collect and process data from web-based applications, and this collected data will be processed and managed through software applications.

GA1520 - Image Manipulation I
Students will gain foundational skills required to use equipment and software to record, store, and manipulate digital images. Students will also gain an understanding of the hardware and skills required for the graphics industry.
Prerequisite(s): GA1170

GA1521 - Image Manipulation II
Students will gain advanced skills required to use equipment and software to record, store, and manipulate digital images. Students will also gain an advanced understanding of the hardware and skills required for the graphics industry.
Prerequisite(s): GA1170, GA1520

GA1620 - Offset Printing I
Students will learn the basic operation of small offset duplicators.

GA1621 - Offset Printing II
Students will apply the principles and practices of the offset press.
Prerequisite(s): GA1620

GA1640 - Illustration I
Students will be introduced to the basics of illustration as it is used in the graphics industry, and will develop traditional and digital illustration skills. Observation and experimentation with current traditional and digital graphic communications drawing tools, and an emphasis on both print- and screen-based graphic design projects are the focus of this course.

GA1641 - Illustration II
Students will further develop their illustration skills using vector-based drawing software current in the graphics industry. An emphasis will be placed on complex projects that incorporate vector and bitmap illustration, as well as typographic and layout skills.
Prerequisite(s): GA1640, GA1120

GA1740 - Textiles Graphics & Imaging I
Students will gain an understanding of the techniques and methods of transferring digital images to a variety of textile products. The emphasis will be on creation, output, and production of graphic images.
Prerequisite(s): GA1140, GA1420

GA1741 - Textiles Graphics & Imaging II
Students will gain advanced computer and production skills in the program area. Students will focus on the development of professional skills acquired through a selection of self-directed projects.
Prerequisite(s): GA1740

GA1750 - Display Graphics & Assembly I
Students will be introduced to the techniques and methods of applying digital images to a variety of materials used in the sign and display advertising industry. Emphasis will be on creation, output and assembly of graphic images.
Prerequisite(s): GA1140, GA1421

GA1751 - Display Graphics & Assembly II
Students will gain advanced skills in display graphics and assembly. Student focus will be on equipment maintenance, team building, and productivity.
Prerequisite(s): GA1750

GA1880 - Business Practices
Students will develop an understanding of common business practices in the graphics industry. Students will be introduced 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.

GA1890 - Business Practices
Students will develop their understanding of common business practices in graphic communications. Students will focus specifically on the business requirements of graphic communication work, including pricing, estimating, specification-writing, subcontracting, contract and copyright law, time management, taxation and promotion.

GA2320 - Digital Printing III
Students will gain the skills required to ensure the equipment is functioning to equipment manufacturers' specifications. Students will focus on efficient machine operation and maintenance.
Prerequisite(s): GA1321

GA2350 - Motion III
Students will be introduced to the principles and elements of motion design through studio practices at beginning and advanced levels. Students will be exposed to the first phase, "type in motion", which emphasizes the relationship between typography principles and animation fundamentals. Students will then gain knowledge during the second phase when an advanced applied approach to the language and principles of motion is explored. Students will also develop skills in digital creativity throughout this course.
Prerequisite(s): GA1351

GA2380 - Production for Designers
Students will receive a basic overview of production methods and equipment used in the graphics industry. After completion of this course, students will have an understanding of the equipment with supervised operation.
Prerequisite(s): GA1170, GA1431, GA1641

GA2420 - Digital Page Layout III
Students will learn the techniques of page layout using advanced electronic page assembly software on the computer. Students will be working with advanced features of the software plus the exploration of different types of software for page layout. Students will also explore and develop electronic documents that will be published to mobile devices.
Prerequisite(s): GA1421, GA2570

GA2430 - Page Composition III
Students will gain an understanding of advanced layout as it applies to the graphics industry by working on electronic document design and production. Students will explore topics which emphasize enhancing digital layout skills while using industry-standard software tools, and while exploring different types of graphic design projects for screen-based documents.

Prerequisite(s): GA1431

GA2570 - Production Workflow
Students will gain the skills required to develop workflow methods while maintaining quality control. Students will develop estimate sheets, quotation sheets, job dockets, and a tracking system while using computer software and workflow devices developed by the student.

GA2620 - Offset Printing III
Students will learn to apply the principles and practices of the offset press.
Prerequisite(s): GA1621

GA2640 - Illustration III
Students will further develop their illustration skills using vector-based and bitmap-based drawing software current in the graphics industry. Students will be working on advanced projects that incorporate vector-based and bitmap-based illustration, typographic and layout skills for both print and screen-based (static and motion-based) graphic design projects.
Prerequisite(s): GA1641

GA2720 - Design Management Identity
Students will gain advanced understanding of and experience with managing and developing complex identity systems for the private, governmental and non-profit sectors.
Prerequisite(s): MR1340, VA1231

GA2740 - Advanced Graphics Imaging
Students are encouraged to research new technologies in graphics imaging. Students may develop research or merge with current imaging methods. Students will receive a combination of lectures and self-study followed by a presentation of the research compiled.
Prerequisite(s): GA1740, GA1750, GA2420, GA1321, GA1520

GD1120 - Storytelling in Games I •
The game industry is comprised of many artistic and technical disciplines. As games evolve, storytelling is becoming a leading factor in the development of an immersive and engaging gaming experience. Like movies and books, games support much of the common literary and cinematic forms of narrative. Games provide the opportunity to take these storytelling tools deeper through interactivity and involving the player as an active member of the storytelling experience. Students will learn the influence classic storytelling has in games and examine the modern day narrative processes and experiences that entertain gamers today.

GD1130 - Game Design Theory •
Games and the concept of play are an important part of human culture from the prehistoric age through modern times. They serve purposes such as teaching basic survival skills, provide engaging entertainment, and promote education, health, and fitness. Effective game design determines the purposes that each game will serve, and how audiences will respond through the act of play. This course will explore how games influence culture, past and present, discuss the principles of basic game design, and examine the psychological, and sociological aspects of games.

GD1140 - Serious Games Theory •
Inspiring young minds to learn, exploring the depths of the ocean and outer space, saving lives, increasing personal wellness: these are examples of areas where games go beyond pure entertainment and expand into education and training for people of all ages and roles in society. Students will explore the history, key designers, industry, and career opportunities of serious games. Various types and categories of serious games will be analyzed and discussed. Games for education, vocational training, simulation, health, and wellness, as well as art games, will be explored in more depth.

GD1150 - Game & Level Design I
Game and Level Design I introduces students to the basic practices of creating games through procedural design practices. From the stages of conceptualizing a game idea to delivering a fully functional game, students will explore the structured elements of making games, create game design documentation, prototype game concepts, and playtest a game's functionality. Game and level design practices will be applied to create a basic tabletop game, as well developing original 2D digital games with custom art and audio assets.
Prerequisite(s): GD1130
Co-requisite(s): GD1160, GD1170

GD1160 - Art for Games I
This course covers traditional and digital concept art for games. Students will also be introduced to skills and techniques for creating 2D game art and pixel art. Participation in critical analysis and discussion provides feedback for improving work.
Prerequisite(s): VA1120, VA1110
Co-requisite(s): GD1150

GD1170 - Sound Design for Games
Sound is an important element that helps bring a game to life, communicate with the player, and deepen the immersive experience. Building an effective soundscape for a game is a creative process that involves several areas of focus such as sound effects, ambience, character dialogue, and music. Each one of these elements blend together to create a game atmosphere which might just provide interactive feedback to the player, or pull them into an emotional, audible world. Students will be introduced to, and practice the process of creating and editing sounds for implementation into game projects.
Co-requisite(s): GD1150

GD118- - Sound Design for Games
Sound is an important element that helps bring a game to life, communicate with the player, and deepen the immersive experience. Building an effective soundscape for a game is a creative process that involves several areas of focus such as sound effects, ambience, character dialogue, and music. Each one of these elements blend together to create a game atmosphere which might just provide interactive feedback to the player, or pull them into an emotional, audible world. Students will be introduced to, and practice the process of creating and editing sounds for implementation into game projects.
Co-requisite(s): GD1150

GD1180 - Game Industry Professionalism
Professional behaviour is important to having a successful career in the game industry, including interpersonal and online interactions. Students will learn about the uniquely casual yet intense workplace environment of game studios. This course covers topics such as teamwork, diversity, conflict resolution, and attitudes for success in the game industry.

GD1600 - Business of Game Development
The game industry has grown to be a major economic force in the global market. It is an exciting time for start-up game companies and large studios alike. Accessibility to game engines and tools, and an enormous player base on a variety of platforms has lowered barriers to entry into the game industry. This course will explore elements of business for game developers with examples pertaining to the game industry. Items such as trends, game pitches, intellectual property, and marketing will be covered.
Prerequisite(s): GD1150

GD2110 - Game & Level Design II
Casual and serious games are popular genres in game design. Easy-to-play but difficult-to-master games are what defines a casual game while serious games can offer a player more than casual entertainment, providing educational and informational experiences. Students will examine and discuss various types of casual and serious games and apply game design practices to create an original casual game as well as develop a serious game based on task-based team development.
Prerequisite(s): GD1150, GD1140
Co-requisite(s): GD2120

GD2120 - Art for Games II
This course focuses on the design and creation of pixel art for games in more depth. The basics of 3D modelling and texturing for game art will be introduced. Participation in critical analysis and discussion provides feedback for improving work.
Prerequisite(s): GD1160
Co-requisite(s): GD2110

GD2130 - Storytelling Games II
Creative writing skills are an essential element of storytelling in games. Through developed story arcs, deep characters, and meaningful writing, games can provide unique narrative experiences that go beyond traditional writing by incorporating the element of choice. Choice driven stories allow participants to feel a sense of control and freedom over how their experience will unfold. In this course, students will utilize writing fundamentals to engage in practices of creative writing, detailed character development, and create an original story-based game featuring branching narrative.
Prerequisite(s): GD1120
Co-requisite(s): GD2110

GD2140 - Game & Level Design III
Good level design can draw a player into an immersive game experience. 3D level design reflect how people assess the space around them in the real world. By creating levels that deliver a sense of believability, based on perspective, games can be created that provide deeper engagement for the player.

• Available through Distributed Learning ⊗ Available through correspondence

Multiplayer levels offer a sense of collaboration, competition, and a community element to game play. In this course, students will be introduced to early 3D game and level design practices, and become familiar with using a 3D level editor to build basic, multiplayer game levels.
Prerequisite(s): GD2110
Co-requisite(s): GD2150, GD2160

GD2150 - Art for Games III
As a continuation of Art for Games, this course will focus on research and design practices for a specific theme. Students will build skills in 3D modelling and texturing for game art asset creation for implementation into 3D game levels. Participation in critical analysis and discussion provides feedback for improving work.
Prerequisite(s): GD2120
Co-requisite(s): GD2140

GD2160 - QA & Playtesting for Games
This course explores quality assurance and testing for the game industry from a professional viewpoint. Test planning, documentation and bug reporting are taught and practiced as a playtesting feedback mechanism for Game and Level Design III. Careers in quality assurance and testing are also covered.
Co-requisite(s): GD2140

GD3100 - Game & Level Design IV
Interactions within a level allow a player to engage with the game through active participation. Interaction design can introduce diversity in navigational exploration and involve deeper elements of challenge. By combining basic game mechanics in a level with original asset implementation, students can create unique, interactive game experiences. Elements such as physics and particles can add to the theme and atmosphere of the level. In this course, students will continue the practices of 3D level editing to begin creating a single player game experience.
Prerequisite(s): GD2140
Co-requisite(s): GD3110, GD3130

GD3110 - Art for Games IV
As a continuation of the Art for Games series, this course covers advanced art asset creation for implementation into 3D game levels including environments, props, particles, and effects. In combination with 3D Game Character Design, students will also design and create accessories for their character and be introduced to 3D game character animation. Participation in critical analysis and discussion provides feedback for improving work.
Prerequisite(s): GD2150
Co-requisite(s): GD3100, GD3120

GD3120 - 3D Game Character Design
This course covers 3D game character design including concept, modelling, texturing, rigging, posing, and presentation. Tools and techniques are utilized with a focus on application for game art. Participation in advanced critical analysis and discussion provides feedback for improvement of work.
Prerequisite(s): VA1140
Co-requisite(s): GD3110

GD3130 - Visual Narrative for Games
A picture is worth a thousand words and game stories can be intensified through the use of visual narratives. With the basic nature of human gestures and expressions, storytelling can come to life with dramatic influence. Students will examine the historical relevance of cinematography as it relates to game design. Incorporating visual elements into games and media begins with the preproduction process of storyboards and animatic design. Students will apply these preproduction processes and utilize video editing software to create animated storyboards as well as use in-game camera systems to create basic cinematics and scripted events in a game level.
Prerequisite(s): GD2130
Co-requisite(s): GD3100

GD3140 - Game & Level Design V
A game experience can be improved when the action and environment facilitate good storytelling. The game world along with interface elements provide a canvas for delivering a game story. Revision and refinement are important processes when seeing a project through to completion. This course will focus on the completion of student single player levels from the previous Game and Level Design course. Through playtesting, revision, and refinement, students will complete and deliver a short single player game experience.
Prerequisite(s): GD3100
Co-requisite(s): GD3170, GD3150

GD3150 - Interactive Storytelling
Games as storytelling devices is a popular and growing trend in game development, and drawing attention to the narrative possibilities of interactive entertainment. Storytelling is an important element of game design that can deliver a narrative context to the events and actions of game play. Environments and interfaces also have the power to influence a story experience and can be used to guide a player throughout the events of the game. In this course, students will develop in-game artifacts and utilize various literary, auditory, and visual forms of interactive narrative, providing deeper storytelling experiences to compliment game play and level design.
Prerequisite(s): GD3130
Co-requisite(s): GD3140

GD3160 - Portfolio for the Game Industry
Students will research current roles and opportunities within the game industry to conduct an organized, targeted job search. Refined and fully developed work samples specific to roles within the game industry will be selected and critically assessed for inclusion in a body of work. Using skills and knowledge learned in Visual Narrative for Games, students will create supporting media for job application and create an online portfolio to present samples and media in an industry standard convention.
Prerequisite(s): GD3130
Co-requisite(s): GD3170, GD3140

GD3170 - Art for Games V
This course is a continuation of developing game art assets for 3D game levels, including interface and artifact design, level décor, and polishing elements to bring a high-quality project to completion. Students will focus heavily on art production for the project combined with Game and Level Design V. Participation in advanced critical analysis and discussion provides feedback for improving work.
Prerequisite(s): GD3110
Co-requisite(s): GD3140

GD3180 - Game Design Capstone Project
The capstone project enables the learner completing a Video Game Art & Design diploma, in the final semester, to demonstrate the application of skills and knowledge developed throughout the program. This course incorporates comprehensive project development within the college or industry.
Prerequisite(s): GD3140, GD3170, GD1180

GE1230 - Geology for Geomatics/Surveying ET
This is an introductory course in physical geology and exploration geophysics designed for learners in the Geomatics/ Surveying Engineering Technology program. The course will begin with an introduction to physical geology and continue with an overview of tectonics and structure and will include weathering and erosion. The second component will be an overview of geophysical exploration tools. Laboratory work will relate directly to in class lectures.

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.

GE1502 - Petroleum Geology I
This course is a continuation of Physical Geology. It covers geologic processes occurring in and on the earth, structural geology and geological resources. Laboratory work includes the study of topographic maps and profiles, earthquakes and tectonics, construction of sub-surface geology maps and sections and field trips to places of geologic interest on the Avalon Peninsula.
Prerequisite(s): GE1520

GE1520 - Physical Geology
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 of sedimentary rocks.

GE2510 - Petroleum Geology II
This course covers the generation of oil/gas and the movement of oil/gas from source to reservoir. Further, the course will look at the exploration procedure and the methods of exploration for oil and gas both geological and geophysical. The main geophysical exploration tool "seismic exploration" will be looked at in detail.
Prerequisite(s): CH2330, GE1502
Co-requisite(s): PM2120

GM1105 - Aircraft Plumbing (S)

This S course will enable the learner to identify and manufacture the different types of pressure and vacuum lines and hoses used on the various aircraft systems.
Prerequisite(s): GM1120

GM1120 - General Maintenance Procedures (M, E, S)
This M, E, and S course is to inform the learner of the responsibilities and safety requirements when working in an aircraft environment. This course will also enable the learner to select materials and instructions so they can successfully complete a maintenance task.

GM1130 - Aircraft Servicing (M,E)
This M and E course will enable the learner to work safely and efficiently in an aviation maintenance environment. This is to enable learners to position aircraft, select materials and instructions that will provide for the safe completion of a maintenance task.
Prerequisite(s): GM1120

GM1140 - Standard Work Shop Practices (M,E,S)
This M, E, and S course is designed for learners entering into the Aviation Programs. This course enables the learner 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.

GM1230 - Human Factors EASA Module 9
This course will provide the student with the knowledge of human performance in aviation maintenance. This course will also examine various models and theories that are attributable to human errors and review strategies to help either manage or avoid these errors to prevent or reduce the risk of accidents. The course is designed to meet all the requirements for EASA module 9A at the B1 level.

GM1320 - Aircraft Weight and Balance (M, E)
This M and E course is designed to provide a learner with an in depth knowledge of Aircraft Weight and Balance. Learners will be required to differentiate between fixed wing and rotary wing weight and balance, as well as longitudinal and lateral centre of gravity. Learners will interpret manufacturers' specifications and procedures for weighing aircraft and compute a weight and balance report.
Prerequisite(s): GM1120, GM1130

GM1340 - EASA Module 6 Top Up
This course is designed to cover items from EASA module 6 that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in springs, bearings, transmissions, belts and pulleys, chains and sprockets.

GM1350 - EASA Module 7 (A) Top Up
This course is designed to cover items from EASA module 7A that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in the maintenance of springs, bearings, transmissions, belts and pulleys, chains and sprockets along with aircraft lubrication requirements.

GM1360 - EASA Module 6, 7 (A), 8 Refresher
This course is designed to prepare the student to write the EASA module exams for modules 6, 7A & 8 through the use of practice exercises and review lessons.
GM1420 - Non-Destructive Testing (M)
This M course is designed to provide a learner with an in depth knowledge of Nondestructive testing techniques. Materials and equipment will be discussed.

GM1525 - Sheet Metal Fabrication and Replacement (S)
This S course is designed to provide the learner with the knowledge of aircraft structural fabrication and replacement. The learner will utilize the knowledge and skills learned in previous aircraft structural repair courses. They will use aircraft technical drawings, follow guidelines and specifications to fabricate and replace aircraft structural component. The learner will produce the certification as required by the Canadian Aviation Regulations for completed.
Prerequisite(s): AF1240

GM1550 - Maintenance Regulations (M,E,S)
This M, E, S course will provide the learner 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 learner 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.

GM1580 - Corrosion Control II (S)
This S course will provide the learner with the skills to inspect aircraft structures for corrosion, assess damage, remove corrosion, treat corroded areas and apply protection methods used to prevent or retard further deterioration of aircraft structures.
Prerequisite(s): GM1570

GM1600 - Structural Damage Repair & Assembly
This is an advanced course in aircraft sheet metal repair that will develop the learner's knowledge and skill to assess damaged structures, procure and repair scheme them embody a certified repair that meets airworthiness requirements.
Prerequisite(s): AF1201

GM1700 - Legislation EASA Module 10
This course will provide the student with the knowledge of aviation legislation and regulatory framework for all operators in the European Union that operate under the EASA regulations. The course is designed to meet all the requirements for EASA module 10 at the B1 level.

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 studies. 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.

GS1320 - 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. A series of laboratory exercises provide students with hands-on experience using current software applications.

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 tedium 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.
Prerequisite(s): GS1410

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. The course also provides a detailed exploration of GeoDatabase.
Prerequisite(s): GS1210

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 will act as an introduction to 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 ArcGIS Server, 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
Airborne/space-borne digital mapping systems will be reviewed. In doing so, students will be able to use current imaging and GIS software to compile a 3-D map. 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 specializations.
Prerequisite(s): GS2110

GS3210 - Major GIS Project
This course provides the student with an opportunity to finalize the design, development and implementation of a GIS project initiated in the Project Planning and Management course. This team based project will address a variety of GIS issues and use mapping techniques to promote the research, development, testing, and analyzing of real world information in a real world environment. Students will be challenged to assign responsibilities, create and maintain satisfactory working relationships with the client, accept feedback, meet project deadlines, manage the production of deliverables to industry standard, and formally present their findings. The team consists of students, instructors, and industry sponsors.
Prerequisite(s): GS2310

GS3410 - Spatial Database Applications
Evidence in the past two decades has shown that traditional GIS database design procedures are sound and do not need change drastically with the migration of GIS data management toward object based designs and DBMS applications. While object oriented and DBMS design tools are useful when used appropriately, they are not enough for GIS database design. Currently, the object paradigm is recognized 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.
Prerequisite(s): GS1310

HB1100 - Introduction to Health Informatics •
This course is designed to give students an introductory overview of the field of Health Informatics, the application of information systems to healthcare environments, and the program itself. Departments, agencies, private companies, and organizations influencing Canadian electronic health and health informatics implementation will be studied. Students will have the opportunity to learn about the various career opportunities within the field.

HB1130 - Health Delivery Systems I •
This course introduces the student to the healthcare system in Canada. Through course content, lectures, selected reading and critical discussions, the key components of the health care system will be examined and applied to current health care environment scenarios.

HB1131 - Health Delivery Systems II •
This course continues from HB1130 – Health Delivery Systems I, and introduces the student to components of the healthcare system in Canada. Through course content, lectures, selected reading and critical discussions, the key components of the health care system and current health care environments will be examined.
Prerequisite(s): HB1130

HB1170 - Medical Process Terminology •
This course is designed to familiarize the Health Informatics student with the relevant clinical terminology to work successfully as part of the health care team. By completion of this course, the student will gain the requisite knowledge of medical terminology commonly used in the health care environment, and will understand the importance of this language when functioning in the Health Informatics environment.

HB1200 - Health Information Networking
This course introduces students to the concept of computer networking. Using the Open Systems Interconnection (OSI) and TCP/IP models, students will explore devices, technologies, and protocols that operate at each layer and enable network communications. Students will also gain an understanding of the Newfoundland and Labrador electronic health record and its components and how it interoperates within the pan-Canadian model.

HB1240 - Data Management •
This course includes the fundamental 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 technologies.

HB1300 - Research and Data in Health Care •
This course will enable the student to gain a comprehension of research and data as they relate to the health care setting. Through lectures and laboratory sessions, the student will obtain the knowledge necessary to critically evaluate the role that research plays in our health system. This course will further enable the student to practice these skills as the laboratory sessions will provide the tools to create a small research project.

HB1350 - Data Quality and Risk Management •
This course is intended to address two important topics for healthcare organizations: risk management and data quality. Students will develop an understanding of the intricacies of the healthcare environment. From legislation to information management and patient care, both risk management and data quality management are key processes used to identify, assess, classify, and reduce risks and improve the quality of data across all areas of the health informatics setting. Scenarios are used to provide students with the opportunity to apply risk management and data quality steps to real life situations.

HB1400 - Public Health, Population Health and Epidemiology •
This course will enable the student to gain an understanding of public health, population health, and epidemiology concepts. Through lectures and discussions, the students will be able to relate these concepts to the Health Informatics setting.

HB2100 - Management Health Information Systems •
This course explores the use of information systems in healthcare. Students are introduced to the structure of various health information systems available in different healthcare contexts. Increasingly, hospitals, pharmacies, and clinics alike are relying on health information systems to improve efficiencies and patient care. This course focuses on the information and communication technologies that allow contemporary healthcare organizations to analyze, produce, deliver, and add value to their services.

HB2160 - Records Management for HI Professionals •
This course is designed to give students the background knowledge and practical skills necessary to contribute to the management of information as a key strategic resource in a variety of health settings.
Co-requisite(s): HB1131

HB2200 - HIS Systems Analysis •
The HIS Systems Analysis course presents an overview of the complete system development life cycle (SDLC) of HIS related projects and provides a detailed view of systems analysis. Different SDLC methodologies are studied with the intention of applying the most appropriate methodology to particular healthcare information systems scenarios.
The course provides a fundamental overview of the effective analysis and design of business-related problems; paying particular attention to the processes and techniques performed by a systems analyst during the analysis phase. Scenarios are used to provide students with the opportunity to practice skills and knowledge in a simulated real-world environment with a focus on teamwork. Typical healthcare problems are dealt with at length. Analysis tools are used to document an existing system from both a physical and logical perspective.
Prerequisite(s): HB1240, HB1200, CM1370

HB2220 - Leadership for HI Professionals •
This course will introduce key concepts in leadership that will allow the student to function in a variety of roles upon graduation.
Prerequisite(s): HB1100, HB1131, PR2330, HB2100

HB2260 - Health Informatics Capstone •
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 an eHealth/Health Informatics project, under the supervision of a faculty supervisor, and will perform the following:
1. an in-depth analysis of a business case that deals with an eHealth/Health Informatics issue in an organization
2. the creation and presentation of an analysis document
3. the creation and presentation of a project plan
4. the creation and presentation of a design document
5. a presentation of their solution to the mock client
Prerequisite(s): Successful completion of all courses in Semesters 1 and 2 of the Health Informatics (Post Diploma) program

HG1680 - Ethics in Health Care
This is an introductory course in health care ethics and workplace issues. Through course content, lectures, selected readings and student discussion, ethical theories will be examined and applied to current issues that arise in health care.

HM2150 - Food and 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.

HM2280 - Supervision in the Hospitality Industry
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.

HM2420 - Hospitality Facilities Management
Provides hospitality students with information they need to know to manage the physical plant of a hospitality property and work

effectively with the engineering and maintenance department.

HM2520 - Events Management for the Hospitality Industry
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 management the budget; scheduling; coordinating food and beverages, selecting decor, themes and entertainment; media; and staffing.

HM2521 - Events Management
This course is designed to give students an introduction to developing, planning and executing events. The course examines practical information on all aspects of creating, organizing and managing events, such as selecting the event; choosing the venue; preparing and managing budgets and promotions; scheduling and staffing; coordinating programs and entertainment, food and beverage, décor, technology, media and security; risk management and evaluating after the event. The economic impact of events will also be discussed.

HN1100 - Industrial Relations •
This is an introductory course in the theory and practice of industrial relations in Canada. The student will explore: industrial relations models; the structure of the Canadian Labour movement; the process involved in organizing a union and establishing union recognition; the collective bargaining process and the administration of a collective agreement; the various dispute resolution methods and industrial dispute tactics; and the union impact on compensation, productivity, and management and strategic choice. Theoretical learning will be reinforced with case studies and research of current industrial relations topics.

HN1200 - Human Resource Management •
Human resource management is concerned with the effective use of employees to achieve organizational goals.

HN1230 - Human Resource Management I •
This is an introductory course in the fundamental principles and practices of strategic human resource management today. The student will explore the law and human resource management, human resource planning, job analysis and job design, recruitment, selection, socialization and orientation, training, development and career planning. Theoretical learning will be reinforced with case studies and current article reviews.

HN1240 - Human Resource Management II •
This is an introductory course in the fundamental principles and practices of strategic human resource management. The student will explore performance management, direct compensation, indirect compensation (employee benefits and services), communication and employee relations, workplace safety and occupational health, industrial relations framework, workforce diversity and international human resource management, and human resource metrics. Theoretical learning will be reinforced with case studies and current article reviews.
Prerequisite(s): HN1230

HN1400 - Occupational Health & Safety •
This is an introductory course in the fundamental principles and practices of occupational health and safety (OH&S). A solid understanding of OH&S issues, legislation and programs is essential to create an effective OH&S program. The student will explore development of OH&S; costs of accidents, injuries and workplace illnesses; legislation and regulation; hazards and agents; hazard recognition and assessment; workplace compensation; accident investigation; and OH&S program management. Students will have the opportunity to apply various OH&S practices and techniques using case studies and simulations and to obtain WHMIS certification.

HN2100 - Collective Agreement Administration •
This course will examine in depth the issues involved in the interpretation, application and administration of a collective agreement. The student will explore public service collective bargaining, regulating the collective agreement, collective agreement administration, collective agreement clauses and the legal issues in interpreting and administering collective agreements. Students will have the opportunity to apply and interpret various collective agreement administration techniques, practices, and clauses using case studies and application assignments.
Prerequisite(s): HN1100

HN2110 - Dispute Resolution •
This course will explore the various types of third-party assistance available to both management and union in resolving disputes. The student will explore union management cooperation; industrial conflict/disputes; conciliation/mediation; picketing/boycotts; grievances and grievance (rights) arbitration; and alternative dispute resolution. Students will have the opportunity to apply and research various dispute resolution techniques and practices.
Prerequisite(s): HN1100, LW1210

HN2130 - Recruitment and Selection •
This course will examine in some depth the current process, issues and practices involved in the recruitment and selection function. The student will explore: the staffing function; legal compliance; information sources for staffing; reliability and validity of performance predictors; recruitment; selection, ; staffing evaluation; and emerging trends in staffing. Students will have the opportunity to apply various staffing techniques and practices using case studies and application assignments.
Prerequisite(s): HN1240

HN2140 - Attendance and Disability Management •
This course will examine in some depth the current processes, issues and practices involved in attendance and disability management. The student will explore the various laws and regulations affecting the practice of attendance and disability management; attendance management systems/procedures; disability management programs; best practices in disability management; legal and ethical issues in disability management; disability management in a unionized environment; and attendance management and disability management policy/plan development. Students will have the opportunity to research various attendance management and disability management practices and procedures.
Prerequisite(s): HN1240 and HN1400

HN2150 - Training and Development •
This course will examine in some depth the current processes, issues and practices involved in the training and development function. The students will explore: needs analysis; training design, methods and evaluation; development methods and evaluation; and emerging trends in the field. Students will have the opportunity to apply various training and development techniques and practices using case studies and application assignments.
Prerequisite(s): HN1240

HN2200 - Strategic Compensation and Benefits •
This course will explain in some depth the key issues, processes and techniques involved in planning, designing, and administering a compensation and benefits strategy. The student will explore internal alignment; external competitiveness; performance management; administration/budgeting; role of government and pay discrimination; and employee benefits. Students will have the opportunity to apply various compensation practices and techniques with case studies and application assignments.
Prerequisite(s): HN1240

HN2210 - Human Resource Planning •
This course will examine in some depth the fundamental issues, principles and practices of strategic human resource planning. The student will explore human resource strategies and plans; environmental influences/issues; staffing strategies; forecasting techniques; managing performance and employee expectations; and managing and measuring the human resource function. Theoretical learning will be reinforced with application assignments.
Prerequisite(s): HN1240

HN3110 - Current Topics in Human Resource Management and Industrial Relations •
This learner-led seminar-based course will examine issues, topics and trends in the area of human resource management and industrial relations that are of recent and current concern to human resource professionals today. Students will research, develop and present a seminar/paper on selected issues/topics/trends from among the following areas explored in this course: the field/practice of human resource management; the filed/practice of industrial relations; recruitment and selection; occupational health and safety; employment and labor law; collective agreement administration; attendance and disability management; compensation and

benefits; human resource planning; and dispute resolution. In addition students will have the opportunity to research and critique a current journal article.
Prerequisite(s): HN1100, HN1400, HN2100, HN2130, HN2140, HN2200
Co-requisite(s): HN2110, HN2210

HR1120 - 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 practise effective communication skills in personal and professional relationships. The course emphasizes interpersonal skill development through the process of experiential learning.

HR1210 - Introduction to Human Services
This course introduces the student to the human service field. It will look at what help is, why it might be needed, and where it might be offered. The important attitudes, philosophies, and values that underlie the delivery of human services will be examined. It will explore the concepts of culture and oppression, and the importance of becoming culturally competent. The course will also explore the principles of forming and maintaining a helping relationship. It will discuss how to support communities through advocacy and organizing. Finally the course will review the importance of caring for the caregiver by stressing the importance of paying attention to you, self-care, and appropriately dealing with difficult situations. Students will be encouraged to explore personal suitability for human services.

HR1300 - Communications and Human Relations •
Students will develop communication skills associated with effective human relations. Knowledge and skills will be developed in effective listening, and oral and written communications.

HR2121 - Public Relations
This course concentrates on the skills necessary to develop public relations for music business purposes. A combination of theories/concepts and practical illustrations are used to explain the application of public relations.

HR2140 - Human Relations
This course is designed to provide the learner with an introduction to the complexities of human interaction with respect to the work place. The course material will contribute to a better understanding of subject matter studied in other courses.
This basic course in human relations emphasises the role of the individual within an organization. Topics 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 resolution and management, prejudice, discrimination, and sexism.

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.

HR2230 - Human Relations
This course is designed to provide the learner with an introduction to the complexities of human interaction with respect to the work place. The course material will contribute to a better understanding of subject matter studied in other courses.
This basic course in human relations emphasises the role of the individual within an organization. Topics 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 resolution and management, prejudice, discrimination, and sexism. Learners will be required to attend and participate in weekly workshops, and submit a structured, reflective journal.

HS1340 - Bar and Beverage Operations
This course introduces the student to the basic principles and techniques of bartending. Theory is combined with practical labs to ensure the student is given the opportunity to practise the skills learned. Responsible service of alcohol and guest contact techniques are stressed.

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 program should try to coordinate the topic(s) offered in this course. The course may be delivered though lectures or self-directed research or a combination of methods. The course will contain practical projects and applications.

HW1000 - Introductory Concepts
This introductory HSW/PCA course is designed to introduce the learner to the Health Care Sector. It explores employers' expectations for the HSW/PCA graduate in Long Term Care, Community Support Services as well as the private sector. Other components of the health care sector including public health, acute care and mental health are discussed. This course enables the learner to acquire and demonstrate professional behavior and effective interpersonal interactions in accordance with standards of practice.
Co-requisite(s): CM1110, HW1020, HW1010

HW1010 - Personal Care
In this course the learner will be introduced to the principles relating to personal care using a client-centered philosophy of care approach. S/he will learn, practice and demonstrate the practical skills necessary for respectfully, safely and effectively providing personal care to client/residents across the life cycle.
Co-requisite(s): HW1000, CM1110, HW1020

HW1020 - Home Support Basics
This course is designed to enable the learner to gain knowledge and develop the skills required to provide a safe and clean environment according to their scope of practice and employment policies. Infection control protocols and time management strategies are learned and practiced in both classroom and lab. An introduction to the principles of body mechanics and Safe Client/Resident Handling and Movement are provided.
Co-requisite(s): HW1000, CM1110, HW1010

HW1030 - Practicum I
This practicum provides learners with the opportunity to further develop their skills in the long term care nursing home setting as well as the home support setting. Learners gain practical experience in meeting the Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) needs of clients under supervision. All practicum hours must be completed by learners to meet program requirements and may occur during any 24 hour/7 day a week period over 12 months of the year.
Prerequisite(s): Current CPR-HCP level certificate, HW1000, CM1110, HW1020, HW1010

HW1040 - Body Systems & Diseases
This course enables the learner to acquire a basic knowledge of the normal structure and function of the body. It provides an introduction to common health issues and associated implications for care.
Prerequisite(s): All Semester 1 courses
Co-requisite(s): HW1070, HW1060, HW1080, HW1050

HW1050 - Growth & Development
In this course the learner will understand and apply the principles of growth and development to meet the client/resident's needs appropriately and adequately. Knowing the client/resident's level of physical, emotional and social development is crucial to planning and providing care. This course emphasizes how these needs change as the client/resident progresses through the life cycle.
Prerequisite(s): All Semester 1 courses
Co-requisite(s): HW1070, HW1060, HW1080, HW1040

HW1060 - Mental Health & Social Issues
This course prepares the learner to recognize and support client/residents experiencing mental health issues and various types of abuse and neglect. Learners will study strategies to maintain mental health and social well–being including the identification of community resources. Finally, challenging/responsive behaviours are discussed.
Prerequisite(s): All Semesters 1 courses
Co-requisite(s): HW1070, HW1080, HW1040, HW1050

HW1070 - Nutrition & Pharmacology
In this course the learner will focus on nutrition and the role of the HSW/PCA in meeting the dietary needs of clients/residents of all ages. S/he will plan menus, prepare and serve meals to meet client/resident specific nutritional needs.

• Available through Distributed Learning ⊗ Available through correspondence

Principles of infection prevention and control, time management and client/resident safety will be practiced. An introduction to commonly used medications and basic principles of pharmacology will enable the learner to gain a greater awareness of the role of the HSW/PCA in meeting the needs of the client/resident.
Prerequisite(s): All Semester 1 courses
Co-requisite(s): HW1060, HW1080, HW1040, HW1050

HW1080 - Special Populations
This course introduces learners to the role of the HSW/PCA in caring effectively and safely for two specific groups of client/residents: Palliative / End of Life Care and Alzheimer Disease / Dementia.
Prerequisite(s): All Semester 1 courses
Co-requisite(s): HW1060, HW1070, HW1040, HW1050

HW1090 - Practicum II
As a continuation of Practicum I, Practicum II provides learners with the opportunity to further develop their skills in both the long term care nursing home setting as well as the home support setting. Learners gain practical experience in meeting the Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) needs of clients under supervision. All practicum hours must be completed by learners to meet program requirements and may occur during any 24 hour/7 day a week period over 12 months of the year.
Prerequisite(s): Current CPR-HCP level certificate, National Food Safety certificate, All Semester 1 courses

HW1100 - Preceptorship
This course provides learners with the opportunity to further enhance their knowledge and skill in a selected area of practice in either the long term care nursing home or home support agency setting.
In addition, learners will gain practical independent experience in meeting the Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) needs of clients/residents under the indirect supervision of an instructor or preceptor.
All practicum hours must be completed by learners to meet program requirements and may occur during any 24 hour/7 day a week period over 12 months of the year.
Prerequisite(s): Current CPR-HCP level certificate, National Food Safety certificate, All Semester 2 courses

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.

HY1110 - Canada Since 1982
Students will trace the history of Canada since the patriation of the Constitution in 1982. They will explore major political, economic, cultural and sociological changes the country has undergone since then, as well as major milestone events. In one section, they will examine major events and developments in recent Newfoundland and Labrador history.

HY1120 - Prehistory to Renaissance •
This is a survey course of the history of Western art from prehistory to the early Renaissance period. It will examine the importance of historical context in the development of visual culture and its relationship to the interpretation of art. Students will be introduced to art historical concepts and develop an understanding of works of art as aesthetic objects and cultural artifacts.

HY1130 - Renaissance to 20th Century •
This is a survey course of the history of Western art from the late Renaissance to the 20th century. It examines art historical concepts, the significance of the social, religious and political context for the development of visual culture and the interpretation of ideas in art. Students will develop skills in critical thinking, visual communication and an understanding of how art history informs contemporary art practices.

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

JL1110 - Reporting & News Writing I
This course is an introduction to the theory and practices of professional journalism. Students obtain a solid foundation in reporting and news writing skills. These skills include the basics of research, interviews and news article writing. The students learn the importance of accuracy and deadlines. Students learn how to conceive newsworthy story ideas, research them and tell stories. They explore the role of journalism and the journalist in society.

JL1120 - Reporting & News Writing II
Students progress from the fundamentals of reporting the news to the fundamentals of storytelling. They learn how to write short profile features, incorporating elements of narrative. They also learn how to cover a variety of general assignment stories they will encounter as entry-level reporters. They develop critical thinking, math and editing skills.
Prerequisite(s): JL1110

JL1130 - Audio Storytelling
This course emphasizes basics of effective radio news storytelling, including professional formatting, writing conventions and presentation. Students will also learn how to use various professional broadcast tools for radio including digital audio recorders; a DAW or Digital Audio Workstation with non-destructive audio editing software, as well as a radio sound board for live broadcast. The course will lay the theoretical and technical foundation students need to effectively craft, record and execute radio news stories.

JL1140 - Current Affairs
Through class discussions and presentations, students will develop an interest in current affairs. They will foster within themselves the ability to relate current affairs to their own lives and to the communities they serve as journalists. Students will devise strategies for following major issues and events at local, provincial, national and global levels. They will identify major current issues and events, as well as trace their background, provide context and draw connections between them.

JL1160 - Video Storytelling
In this course, students learn how to produce news and current affairs videos. They will apply principles and practices of news video production common to both TV and online consumption such as visual storytelling principles, script writing, presentation, composition, lighting, audio and editing. On-campus students will use professional-level video cameras, audio equipment, light kits and editing software. Distance learning students will use accessible tools such as DSLR cameras, affordable microphones, tripods and prosumer video editing software. However, the core skills of video storytelling, composition, writing, presentation, lighting, audio and editing will be the same.

JL1170 - Advanced Broadcast Journalism
In this course, students further develop the learned 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 and editorial knowledge acquired in both Audio and Video Storytelling to a journalism setting to create longer broadcast pieces that attain greater depth with higher production values.
Prerequisite(s): JL1130, JL1160
Co-requisite(s): JL2120, JL2820

JL1180 - Reporting & News Writing IV
Students will produce a major piece of enterprise journalism that provides a public service. The resulting product must meet professional standards and be suitable for publication, broadcast, podcast 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): JL2120

JL1190 - Newsroom III
Newsroom III is primarily is primarily a practical course in which students apply the journalistic principles they have learned in theory. Students will put into practice storytelling using various platforms such as print, broadcast and the Internet. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and tight deadlines which are reinforced. The students help produce a website, a provincial magazine, a weekly radio show and various video projects. Emphasis is placed on establishing good journalistic habits such as meeting tight deadlines and meeting editors' expectations. Students are expected to apply the principles they have learned/are learning in Reporting & News Writing I, II, III and IV, Photojournalism I and II, and Advanced

Broadcast Journalism to develop and deliver in-depth news stores in accordance with the modern 24-hour news cycle.
Prerequisite(s): JL1841
Co-requisite(s): JL1180

JL1210 - Freelance Journalism
Students will attain a variety of skills essential to the freelance journalist; how to pitch and market freelance stories for different platforms; manage their freelance careers as businesses; negotiate payments, and uphold their legal rights. They will also examine opportunities to market their work directly to the public. Each student will produce and sell at least one print, broadcast or multimedia piece to a professional news organization.
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JL1220 - Professional Wellness
This course provides journalists with the knowledge and skills to function in crisis situations at home and abroad while fulfilling their roles as reporters and photojournalists. Students will acquire the appropriate knowledge and skills through the completion of a series of programs, workshops and/or certifications.

JL1230 - Multiplatform Journalism Project
Working in close contact with instructors, students produce a significant multiplatform project. Using the skills learned in print, broadcast, photojournalism and online journalism, students will produce a multiplatform capstone project. They will also advance their careers by networking with professional journalists and by attending sessions at a conference.
Prerequisite(s): JL1190

JL1420 - Journalism Ethics & the Law
This course explores in depth the legal and ethical issues that journalists face. It educates students about the foundations of Canadian law and how the Canadian legal system functions. It teaches students how to navigate the legal system as they report on criminal and civil cases. It explores the reporter's role in safeguarding both freedom of expression and the integrity of the legal system. Students learn how to avoid committing defamation, contempt of court and other legal mistakes. They learn about the ethical standards of journalism and how to apply them.

JL1430 - Workplace Professionalism
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 resumes, writing cover letters, compiling portfolios and preparing learning contracts.

JL1581 - Online Journalism
Students learn how to use the tools and techniques required in a "digital first" news environment. Once they have successfully completed this course, they will know how to use social and mobile media to gather news, tell stories, develop sources and converse with an audience. They will create multimedia projects such as audio slideshows and interactive graphics using user-friendly software and apps. Students will also shoot and edit video using mobile media, stream audio and video and employ a variety of mobile apps as journalistic tools. The Canadian Association of Journalists guidelines for social media activity will be applied and, as well, students will be able to create a web page using basic HTML

JL1840 - Newsroom I
Newsroom I is primarily a practical course in which students apply the journalistic principles they have learned in theory. Students will put into practice storytelling, using various platforms such as print, broadcast and the Internet. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and tight deadlines which are reinforced. The students help produce a website, a provincial magazine, a weekly radio show and various video projects. Emphasis is placed on establishing good journalistic habits such as meeting tight deadlines and meeting editors' expectations. Students are expected to apply the principles they have learned/are learning in Reporting & News Writing I and II, Photojournalism I and II, and Video and Audio Storytelling to produce news stories in accordance with the modern 24-hour news cycle.
Prerequisite(s): JL1110, PY1330, JL1130
Co-requisite(s): JL1120, PY1331, JL1160

JL1841 - Newsroom II
.Newsroom II is primarily a practical course in which students apply the journalistic principles they have learned in theory. Students will put into practice storytelling using various platforms such as print, broadcast and the Internet. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and tight deadlines which are reinforced. The students help produce a website, a provincial magazine, a weekly radio show and various video projects. Emphasis is placed on establishing good journalistic habits such as meeting tight deadlines and meeting editors' expectations. Students are expected to apply the principles they have learned/are learning in Reporting & News Writing I, II, and III, Photojournalism I and II and Video and Audio Storytelling to produce news stories in accordance with the modern 24-hour news cycle.
Prerequisite(s): JL1840
Co-requisite(s): JL2120, JL1170

JL1850 - News Production I (Post Diploma)
News Production I (Post Diploma) is primarily a practical course in which the Post-Diploma students apply the journalistic principles they have learned in theory. Students will put into practice storytelling using audio broadcast techniques and the Internet. The course seeks to mirror as closely as possible a newsroom setting, complete with story meetings, assignments and tight deadlines which are reinforced. The students help produce a website and a weekly radio show. Emphasis is placed on establishing good journalistic habits such as meeting tight deadlines and meeting editors' expectations. Students are expected to apply the principles they have learned/ are learning in Reporting & News Writing I, News Photography I, and Audio Storytelling in accordance with the modern 24-hour news cycle.
Co-requisite(s): JL1110, PY1330, JL1130 *These courses may also be completed prior to JL1850

JL1851 - News Production II (Post Diploma)
News Production II (Post Diploma) students apply the journalistic principles and practices they have learned in theory. Students work as part of a team in producing a provincial news publication, a news website, a weekly radio show and various video assignments. They tell stories via text, audio, video, photographic, social and mobile media. They become accustomed to storytelling in accordance with the modern 24-hour news cycle.
Prerequisite(s): JL1850
Co-requisite(s): JL1120, PY1331, JL1581, JL1160
*These courses may be completed prior to JL1851

JL2120 - Reporting & News Writing III
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

KB1150 - Keyboarding I •
This course develops keyboarding speed and accuracy. Keyboarding speed on straight copy material is developed to 30 net words per minute for five (5) minutes. Note: Students must achieve a typing speed of 30 net words per minute in order to pass KB1150. Students must achieve a typing speed of 40 net words per minute in order to pass KB1151.

KB1151 - Keyboarding II •
This course continues to develop keyboarding speed and accuracy. Keyboarding speed is developed to a minimum of 40 net words per minute for five (5) minutes. Note: Students must achieve a typing speed of 40 net words per minute in order to pass KP1151.
Prerequisite(s): KB1150

LW1070 - Ethics & Law
This course introduces learners to the legal and ethical rights, obligations and responsibilities of the engineering technician profession in the work place. Learners will gain an understanding of the intent and application of professional codes of ethics, Torts, Contract Laws, and environmental protection regulations.

LW1100 - Business Law
This course is an introduction to the Canadian legal system including the federal and provincial judicial systems, civil law, tort law, and contract law including types of contracts, offer and acceptance, breach of contract, discharge of contract, and capacity to contract.

LW1130 - Tourism/Hospitality 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, restauranteur 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.

LW1210 - Labour and Employment Law •
This course will examine the ever changing subordinate legislation, statute and common law in Canada that deals with union-management relations and interactions, as well as the relations and interactions between individual (non-unionized) employees and their employers. The course is designed to provide students with a current overview of the Canadian system of labour and employment law. The student will explore employment law; labour law; and statute/subordinate legislation for labour and employment law. Students will have the opportunity to apply and research various employment and labour law legislation and cases.
Prerequisite(s): HN1100, HN1240

LW1230 - Business Law •
This course will examine the fundamental principles of the Canadian legal system. The student will explore the Canadian legal system, torts, contracts, business law, employment law and international business law. Students will have the opportunity to apply and research various business law cases.

LW1280 - Information Management Law •
This course introduces the student to the legal framework which affects information management. The student will learn about the structure of the federal and provincial legal system. Furthermore, the student will be introduced to the language of law and procedures to follow when interpreting legislation. The provincial and federal legislation that impacts information management in government, health and private industry will be discussed focusing on the impact of information management methodologies. Finally, the student will study industry best practices for legal compliance.
Prerequisite(s): OP1401

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 an understanding of fundamental concepts and a frame of reference guiding the application of these principles.

LW1600 - Construction Law
This is an introductory course dealing with the application of tort and contract law as applied to the construction environment. Topics covered include but are not limited to a study of various federal and provincial acts that affect the construction phase of project development; the law of contract, insurance and bonding, the law of torts, construction claims, construction contract documents and ethics.
Prerequisite(s): CM1401

LW1610 - Management and Construction Law
This is a course dealing with management principles, professional relationships, 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.

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 comprehension 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

LX1000 - Digital Imaging I: Capture, Display & Archiving •
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 digital methods of image capture and will become familiar with the many factors that affect the quality of the radiographic image. Image manipulation will be discussed, ensuring the production of optimal diagnostic images.

LX1010 - Apparatus & 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 study 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 gain knowledge of methods employed to facilitate heat dissipation during the production of x-radiation, as well as practical skills employed to conserve tube life. Finally, the student will be able to identify signs of tube failure.

LX1020 - Radiographic Anatomy & Pathology •
In this course students will study human anatomy as it relates to performing diagnostic radiographic examinations. Identification of anatomical structures on the radiograph as well as differentiation between the normal and abnormal radiographic images will be studied. Finally, students will use their knowledge of tissue densities (either normal or pathological) to accurately locate hidden structures by relating to surface landmarks.

LX1030 - Radiobiology & Protection •
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 national and provincial standards. They will learn how to maintain these standards by the correct use of equipment, accessories and other relevant factors. Students will also learn how to provide maximum protection from ionizing radiation for the patient, general public, co-workers and themselves.
Prerequisite(s): PH1070

LX1040 - Digital Imaging II: Quality Management •
This course is a continuation of Digital Imaging I: Capture, Display & Archiving. It is designed to provide the student with a comprehensive knowledge of quality assurance processes associated with image quality management. The student will be able to describe and explain specific quality control procedures necessary to maintain a high standard of image quality in a digital imaging environment. Quality control tests for general radiographic units will be studied. The importance of faithful adherence to quality control procedures and processes as part of a diagnostic imaging department's overall risk management strategy will be discussed. Students will learn how to perform inspection procedures, assess image artifacts and describe corrective actions.
Prerequisite(s): LX1000

LX1050 - Radiographic Technique •
This course is designed to introduce the student to the fundamental practices involved in the performance of radiographic positioning and procedures and the analysis of the resultant image. Instructional areas include: terminology, IR identification, patient/technologist relationship, examination procedures and protocol, image analysis and critique, radiation protection and technologist responsibility. Emphasis will be placed on basic, alternate, and trauma imaging.
Prerequisite(s): LX1020

LX1060 - Patient Care & Safety •
This course is designed to provide the student radiographer with the necessary knowledge to provide good patient care 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, as well as caring for patients with special needs.
Prerequisite(s): None
Co-requisite(s): None

LX1070 - Simulated Practical Radiography •
This course provides the student with seven weeks of simulated general radiography which will prepare them for their upcoming clinical experience. The course utilizes simulated patients, including manikins, x-ray phantoms, and fellow students and focuses on skill development in radiographic positioning, image recognition (normal and abnormal) and equipment operation, assisting the student to correlate theory learnt in previous courses to patient situations. Students will be required to demonstrate their ability to prioritize,

organize and implement procedures in general radiography including trauma situations. Students will be required to demonstrate routine, pathology and trauma skills necessary to image skeletal (including skull), and respiratory, digestive and urinary anatomy. Professional practice will be stressed as well as the ability to provide patient care while emphasizing safety. Students will be expected to adhere to and provide radiation protection, optimize image quality and utilize a quality assurance program with special attention to performing quality control procedures and mitigating potential risks.
Prerequisite(s): LX1050, LX2010

LX1080 - Clinical Radiography •
This clinical course is designed to provide the combined laboratory and x-ray technology student with extensive clinical experience. Applied knowledge of anatomy, radiographic technique, pathology, radiation protection and patient care and safety will be reinforced. Emphasis will be placed on intensive demonstration and application of clinical skills in professional practice. Throughout the entire clinical component of the X-Ray Skills program, the student will maintain documentation which demonstrates both the quality and quantity of clinical experience acquired, thus ensuring on-going maintenance of competencies acquired.
Prerequisite(s): Successful completion of all previous courses

LX2000 - Clinical I
This clinical course is designed to reinforce in a practical manner, the theoretical knowledge the student is acquiring during the didactic segment of their training program. Under the direction and supervision of a clinical preceptor, students participate in a variety of basic routine radiographic procedures in accordance with their level of training. Students are also afforded the opportunity to enhance their knowledge of radiographic equipment used in today's modern diagnostic imaging departments. Finally, students are able to apply their understanding of the concepts used in providing quality patient care and radiation protection by observing radiographic procedures in a "real life" setting.
Prerequisite(s): PH1070, LX1000, LX1010

LX2010 - Clinical II
This course is a continuation of Clinical I and is designed to reinforce in a practical manner, the theoretical knowledge the student is acquiring during the didactic segment of their training program. Under the direction and supervision of a clinical preceptor, students participate in a variety of basic routine radiographic procedures in accordance with their level of training. Students are also afforded the opportunity to enhance their knowledge of radiographic equipment used in today's modern diagnostic imaging departments. Finally, students are able to apply their understanding of the concepts used in providing quality patient care and radiation protection by observing radiographic procedures in a "real life" setting.
Prerequisite(s): LX1020, LX1030, LX1040, LX2000

MA1010 - Mathematics I for Aboriginal Students
This course has been developed for aboriginal students using culturally relevant readings, examples, and problems. It emphasizes a study of number theory, basic arithmetic, and problem solving skills. Fractions, decimals, and percents will be reviewed in detail, and basic concepts of geometry will be introduced. Students will become proficient in the use of Systems International (SI) measurements.

MA1011 - Mathematics II for Aboriginal Students
Building upon the skills, and using culturally relevant materials akin to those mastered in Mathematics I for Aboriginal Students, this course seeks to emphasize algebraic and geometric concepts. The translation of linear algebraic expressions and inequalities, and the solving of equations using the multi-step method are introduced, along with the geometric notions of perimeter, area, and volume. The Imperial measurement system is examined and students learn conversions between the metric and imperial systems
Prerequisite(s): MA1010

MA1012 - Mathematics III for Aboriginal Students
This course has been developed for aboriginal students using culturally relevant readings, examples, and problems. Emphasis will be placed upon an exploration of positive and negative exponents, polynomials, and the graphing of linear equations upon a coordinate plane. Primary trigonometric ratios will be discussed in relation to real-life situations, and students will analyze and create common types of graphs.
Prerequisite(s): MA1011

MA1040 - Math Fundamentals I •
Math Fundamentals I is a Comprehensive Arts and Science (CAS) 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) 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.

MA1070 - Structural Repair Shop Mathematics
This is an introductory course providing practical exercises in mathematics. The course begins with a review of basic mathematics and leads to a solid foundation of practical and application for Aircraft Structural Repair.

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

MA1081 - Math Fundamentals in NDT
This course is designed to prepare Non-Destructive Testing students to use basic math concepts directly related to the core disciplines in Non-Destructive Testing. The major topics will contain content that reflects more specific required topics for Non-Destructive Testing applications. The focus of this course is to introduce technical math to students to enable them to apply the concepts in each of the disciplines of Non-Destructive Testing.
Prerequisite(s): AM1100

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 introduce and give them a facility with the concepts of differentiation necessary for a better understanding of a variety of technology courses.
Prerequisite(s): Successful completion of either Mathematics MA1700, MA1100, HS Advanced Mathematics 3205, or a minimum grade of 70% in HS Academic Mathematics 3204

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.

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

MA1131 - Calculus II
This course is an introduction to integral calculus with applications. Transferable to MUN Mathematics 1001.
Prerequisite(s): MA1130 or MUN Math 1000

MA1150 - Math Refresher for EASA Module 1
This course is designed to prepare the student to write the EASA module 1 exam by building on mathematics skills learned in previous training. It should be noted that the use of a calculator is not allowed during EASA exams.

MA1240 - Mathematics
This is a course in fundamental mathematics and data management designed to improve a learner's basic and essential mathematical skills, and to introduce statistical-type calculations required for further study in Surface Mining and Mineral Processing courses.
Prerequisite(s): AM1180

MA1520 - Applied Mathematics for Computer Systems and Networking
This course provides a practical mathematical background for Computer Systems and Networking. The course covers topics in number systems, set theory and statistics in the context of supporting computer systems. The examples used in this course have a direct application to network and operating system analysis.

MA1530 - Statistics
This course is designed to introduce the learner to the basic principles of statistics with the use of Microsoft Excel.

MA1670 - Statistics •
This course introduces students to the basic principles of probability and statistics, and the decisions that can be made using statistics. In this course the student will explore descriptive statistics, elementary probability, discrete and continuous probability distributions, sampling distributions, hypothesis testing, chi-square distribution, analysis of variance, linear regression and correlation, and multiple linear regression. The student will have the opportunity to apply and interpret the results of a variety of statistical techniques from both descriptive and inferential statistics; to apply the fundamental concepts in statistics including sampling, experimentation, variability, distribution, association, causation, estimation, confidence, hypothesis testing, and significance; to critically review and analyze statistical arguments found in the popular press and in scholarly journals; and to appreciate the relevance and importance of statistics.

MA1700 - 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.

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 student's 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.

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 - Mathematics
This is an advanced calculus course designed to meet specific requirements of the Electrical/ Electronics Engineering Programs.
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)

MA2180 - Applied Geomatics Mathematics
This course consists of an introduction to probability and statistics with emphasis on descriptive statistics, probability theory and two variable data sets. It also investigates error propagation and error analysis as it pertains to the surveying industry.
Prerequisite(s): MA2100

MA3130 - Advanced Geomatics Mathematics
This course consists of elements of spherical trigonometry and an introduction to conditional adjustment as it pertains to the surveying industry.
Prerequisite(s): MA2180

MA3700 - Production and Operations Management
This course is designed to provide the student with an understanding of the process involved in production management and operations management. Operations management involves design, planning, control and improvement of the activities or processes that transform a firm's inputs into final products. In this course the student will study the building blocks of operations management. The student will study the importance of interaction and coordination of business areas to meet organizational goals. Various mathematical and computerized models are introduced and their application to the decision-making process is emphasized.
Prerequisite(s): MA2400, MA1670 and MC1241

MC1060 - Computer Essentials
This course is designed to give the learner an introduction to computer systems. Particular emphasis is given to word processing, spreadsheet, email, internet and D2L, the software used to complete apprenticeship block exams. Upon completion of this course, the learner will have a basic understanding of these skills. Trade specific examples will be used to reinforce the skills.

MC1080 - Introduction to Computers
This course is designed to give the student an introduction to computer systems. Particular emphasis is given to word processing, spreadsheets, e-mail, the Internet, and major security issues. Upon successful completion of this course, students will have a basic understanding of computer systems and their operation, popular software packages and their applications, and 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.

MC1140 - Digital Literacy in the Workplace
Production tools in the majority of offices, throughout many industries, benefit from the use of digital software. Common software integrations that help create an organized and productive work environment include word processing, spreadsheets, project management, presentation, email communications, as well as popular online resources that facilitate all of these tools and file-sharing opportunities. Providing students with digital literacy knowledge, and how these production tools work, is important to promote successful academic studies throughout the college experience, and provide essential skill sets that can be applied in the workplace.

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.

MC1240 - Computer Applications I •
This course will introduce the students to the use of e-mail and the Internet, manipulating files in the Windows operating environment, basic word processing techniques, and basic presentation creation techniques. Students will apply concepts through practical application.

MC1242 - Computer Applications II •
The course is designed to expose the student to software packages that can be used to create spreadsheets.
Prerequisite(s): MC1240

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.

MC1805 - Software Applications
This course is designed to give the student a working knowledge of office automation tools. Students will be exposed to common spreadsheet, diagramming and project management tools. Furthermore, the course will provide an in-depth treatment of a microcomputer database package.

MC1850 - Spreadsheet Applications
This course is designed to give the learner a working knowledge of a Windows operating system and the use of electronic spreadsheets. This course teaches the learner how to work with different types of spreadsheet documents using a variety of core and intermediate features to create and edit professional-looking spreadsheets for a variety of purposes and situations.

ME1120 - Media and Public Relations
This is an applied media and public relations course for students intending to work in the human services 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. The course has a practical focus and it requires some work with a volunteer organization in the human services field. Students apply media and public relations techniques and methods from this course to specific situations in the community.

MH1130 - HVAC Fundamentals
This course is designed to assist learners in becoming fully familiar with the principles of design, operation and maintenance of HVAC systems which includes the basics of heating, ventilation, air conditioning systems and processes.

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.

MH1330 - Industrial Boiler Systems
In this course, the learners are introduced to boiler systems typically found in industrial settings. In addition to an overview of boiler construction and operation an introduction to boiler ancillary equipment, including boiler feedwater, piping systems and typical air pollution abatement equipment is covered.

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): MH1130

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 operations.
Prerequisite(s): MH2330

MH3320 - Building System Design
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, MH1200

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 exchangers and fired heaters is studied and the students learn to apply knowledge of preventative maintenance procedures.
Prerequisite(s): MH1200

MH4510 - 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, MH2330, MH2820

MH4600 - Plant Systems Design
This course will introduce the student with the understanding and knowledge of acoustic, fire protection and smoke management, testing, adjusting and balancing of HVAC systems, equipment and ancillary schedule, cost estimate, mechanical specifications and detailed plant system design.
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.
Prerequisite(s): ML1000, ML1010, ML1020, BL1260

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.

• Available through Distributed Learning ⊗ Available through correspondence

Prerequisite(s): ML1000, ML1010, ML1020, BL1260

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.
Prerequisite(s): ML1000, ML1010, ML1020, BL1260

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.
Prerequisite(s): ML1000, ML1010, ML1020, BL1260

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.
Prerequisite(s): ML1000, ML1010, ML1020, BL1260

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 urinalysis, 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 all semester 1 and 2 courses

ML1120 - Immunology
This is an introductory course in immunology covering the following topics: immunity, the immune system, antigen and antigenic determinants, antibodies, the immune response, complement, transplantation immunology, tumor immunology, diseases of the immune system, and antigen-antibody interactions.
Prerequisite(s): Completion of all third semester courses.

ML1200 - 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): Completion of all third semester courses

ML1221 - Hematology
This course is a continuation of the study of leukocytes with emphasis on leukemias, myeloproliferative disorders and lympomas. 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.
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 microtome and study of the microscopic appearance 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 artifacts. Microscopic identification of tissue sections is practiced to aid in the evaluation of staining results.
Prerequisite(s): ML1300

ML1510 - Introduction to Transfusion Science
The course 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, hemolytic disease of the fetus and newborn as well as autoimmune hemolytic diseases will be examined. Associated laboratory testing will be introduced in laboratory sessions.
Prerequisite(s): ML2400

ML1530 - 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.

ML1660 - Clinical Practicum I
This course allows the student to develop technical competence in pre-analytical procedures while reviewing theoretical material from previous semesters. The two week hospital rotation will emphasize the pre-analytical phase of the testing process and acquaint the student with the hospital operation and policies.
Prerequisite(s): Successful completion of all Semester 6 courses

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 hematological 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. 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

ML2610 - 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 competency categories in each discipline. Students are also expected to rotate through the following laboratories: Public Health Laboratory, Canadian Blood Services, Electron Microscopy, Immunohistochemistry, Immunology and Clinical Genetics for exposure to advanced diagnostic techniques.
Prerequisite(s): Successful completion of Semester 9

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

MM1110 - Intro to Cosplay
Cosplay combines costume making with performance art to represent a specific character or idea. It is embraced by fans to demonstrate passion for their favorite characters from various forms of media in popular culture such as video games, animated shows, graphic novels, movies, and music. It is also a popular form of marketing and promotion for the entertainment industry. Students will be introduced to the processes required to design, create, and perform a cosplay character.

MM1400 - 2D Digital Graphics
Students will become familiar with "Photoshop" image editing tools and will be introduced to basic colour theory and digital painting techniques.

MM1500 - Introduction to 3D Animation
Students will learn the fundamentals of 3D digital modeling, texturing, and animation. Students will gain a general knowledge of the history and potential applications of the medium, exploring the basics of workflow, organizational structure and specific tool use.

MM1600 - Narrative & Production Design
In Narrative and Production Design students will be introduced to the processes required to realize and present a story in a visual format.

MM1950 - Workplace Professionalism
Students will gain the skills and knowledge necessary to effectively work in a team environment.

MM2310 - Digital Video Techniques
Students will gain 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.

MM2320 - Digital Audio Techniques
Students will gain a working knowledge of sound capture, audio editing basics and output. Students will also explore audio manipulation and editing techniques for dialog, music and sound effects.

MM2340 - Digital Audio Workstations
This course is designed to provide students with the understanding and skill set required to use various Digital Audio Workstations (DAWs) for daily sound production tasks through practical examples and projects.
Prerequisite(s): SN1160

MM2560 - 3D Texture and Digital Paint
Using standard image processing programs, students will be introduced to the artistic approach and technical aspects of custom texture generation, digital painting and application techniques for 3D.
Prerequisite(s): MM1400
Co-requisite(s): MM2670

MM2620 - 2D Computer Animation
Students will continue with the projection of content covered in previous animation drawing courses into the digital production environment. Emphasis will be on learning 2D animation software tools. Through hands-on activities and assignments students will produce a series of short animation projects using drawn animation skills and digital animation techniques.
Prerequisite(s): VA1161; MM1400

MM2670 - 3D Character Modeling
Students will expand upon the fundamentals of digital modeling presented in Introduction to 3D Animation and will learn the concepts and practical applications of model optimization, animation rigging and weighting.
Prerequisite(s): MM1500
Co-requisite(s): None

MM2680 - 3D Character Animation
Students will learn to expand upon the fundamentals of digital character animation previously 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): MM2560

MM2700 - Multimedia Lab I
Students will work on multimedia applications with formal lab assistance and supervision. In this course students will apply principles and practices covered in the program to practical applications.

MM2710 - Multimedia Lab II
Students will work on multimedia applications with formal lab assistance and supervision. In this course, students will apply principles and practices covered in the program to practical applications.

MM2760 - Animation Design Project
Students will be exposed to a simulation of a professional 3D production and design environment. Through research and collaborative production assignments the students will be expected to produce a fully developed animation project.
Prerequisite(s): MM1600; MM1500; MM2670; MM2560

MM2830 - 3D Post-Production & VFX
Students will explore the concepts and techniques used to digitally create realistic simulations of various environmental conditions and natural phenomenon. This will be achieved by using an industry standard animation package 3D Post-Production and Visual FX.
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.

MN1410 - 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.

MN1520 - Supervisory Leadership
This course will prepare the student with skills to work in leadership and supervisory positions in a variety of work place settings. Emphasis is placed on the unique challenges facing the supervisor as the first level of management in most organizations. Concepts and theories will be explored through case studies, projects and in-class exercises designed to simulate the daily challenges facing supervisors and leaders.

MN1800 - Integrated Resource Management
This course is designed to provide a working knowledge of sustainable forest management principles, procedures and concepts. Technical, esthetical, environmental, hydrological, wildlife, and financial considerations of management practices are reviewed. Emphasis is placed on owner's objectives while employing a sound, practical, forest technical approach to resource management. Students are expected to apply knowledge from all forestry courses throughout the program to construct a strategic sustainable forest ecosystem management plan for an assigned forest.
Prerequisite(s): FR1331, LW2210

MN2600 - Strategic Management •
This advanced course will enable students to be exposed to the inter-relationship 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 Second Year Business Administration courses

MN3100 - Business Ethics •
This course will examine business ethical principles/concepts as well as the many ethical issues/dilemmas facing organizations today. The course will also explore the various government regulations and laws impacting and restricting business operations. The following topics will be explored: business ethics fundamentals; stakeholders and corporate social responsibility/governance; ethical issues in the workplace; business ethics and the law; ethical decision making; ethics program and audits; and globalization and emerging trends. Students will have the opportunity to research, analyze, and critique various organizational practices and policies, particularly codes of conduct and codes of ethics.
Prerequisite(s): AC2260, HN1240, MR2100, and PS2340

MN3200 - Performance Management •
This course will examine the importance of an effective performance management system in helping organizations define and achieve long-term and short-term goals vital to its overall success. It will reinforce the concept that performance management is an ongoing process of planning, facilitating, assessing and improving individual and organizational performance. The student will explore the value of performance management and its context; performance management process and strategic planning; setting performance standards; effective performance appraisal systems; performance management and employee development plans; performance coaching; and team performance. Students will have the opportunity to apply various performance management practices and techniques using case studies and application assignments.
Prerequisite(s): HN1240 and PS2340

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

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 learners to enter second year Electrical and Electronics programs.
Prerequisite(s): ET1101, MA1101

MP2170 - AC Circuits and Machines
This course is designed for Instrumentation and Controls learners. It is designed to strengthen the learner's ability to analyze single- and three-phase AC circuits as well as the learner's understanding of AC machines. The course also introduces the learner to motor control diagrams.
Prerequisite(s): ET2100, MA1101

MP2230 - Power System Harmonics
This is an introductory course in power system harmonics covering sources, problems, Fourier analysis and solutions. The laboratory component will further develop and strengthen the understanding and skills related to harmonic and Fourier analysis.
Prerequisite(s): 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 enhance skills in the use of AC measuring instruments.
Prerequisite(s): ET2100, MA1101

MP2350 - Transformers
This course is designed to be a continuation of the electrotechnology courses. It is designed to expand the student's knowledge of transformers and the associated applications, standards and loading guides. Additionally it will enhance the student's ability to analyze single-and three-phase AC circuits as well as provide an application for advanced mathematical analysis techniques.
Prerequisite(s): MA2100, MP2300

MP2710 - Welding Power Sources
This course provides a theoretical approach to welding power sources and equipment. Classroom instruction deals with the assessing the operational characteristics of various welding power sources, their installation, maintenance, and fundamental trouble shooting analysis pertaining to weld process control.
Prerequisite(s): ET1101

MP2910 - DC Machines
This course 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

MP2920 - AC Machines
This course follows DC Machines MP2910 and covers topics in AC Machines MP2300. 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): MP2910, MP2300

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 solutions 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

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

MP3170 - Industrial Motor Controls
This course is a study of power systems including single line power schematics, motor controls, relay logic, PLC control and electronic variable speed motor drives. AC and DC drives, with applications in the instrumentation field.
Prerequisite(s): MP2170, ET2100
Co-requisite(s): CE2810

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 models 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

MP3225 - 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): MP3215

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 is an introductory course in the fundamental principles and practices of marketing. The student will explore strategic planning and marketing management, the internet in marketing, marketing research information, consumer markets and behavior, business markets and behavior, market segmentation and targeting, and international marketing. Students will have the opportunity to apply case studies and research various marketing concepts, techniques, and processes.

MR1270 - Quality 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
Students will gain an understanding of the relationship between marketing and graphic design. Students will be introduced to the process of applying marketing principles when translating clients' needs to specific target audiences.
Prerequisite(s): VA1230

MR1500 - Consumer Behaviour
This course introduces the student to the concepts, theories and techniques of consumer behaviour. The student will explore the fundamentals of consumer behavior in order to gain an understanding of the motivation behind purchase decisions. By understanding the consumer's behavior, students are able to make more market focused strategic decisions. Students will have the opportunity to apply their knowledge through the use of case analysis and assignments.
Prerequisite(s): MR2100

MR1600 - Professional Selling •
This is an introductory course in the fundamental principles and practices of professional selling. The course is designed to teach the student about competencies in prospecting, identifying client needs, and dealing with objectives while building client relationships. The student will take part in video-taped selling exercises to review and master their selling techniques. Students will have the opportunity to apply various techniques and practices through case analysis and the use of a sales simulation.
Prerequisite(s): CM1241, CM2200, MR2100

MR2100 - Marketing II •
This is an introductory course in the fundamental principles and practices of marketing. The student will explore product development and lifecycle, price distribution and supply chain management, retailing and wholesaling, promotion, advertising, and personal selling. Students will have the opportunity to apply various marketing techniques and practices using case studies and application assignments.
Prerequisite(s): MR1100

MR2110 - Marketing Methods
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. Students will also take an in-depth look at the online tools and emerging technologies artists can use to generate interest in their music. 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 designed as an introduction to the concepts, theories, and techniques of retailing. The student will explore the concepts of buyer behavior, strategic retail management, retail design, presentation, and pricing. Students will have the opportunity to apply various retail techniques and practices using case studies and application assignments, and will develop communication skills through class discussions and group activities.
Prerequisite(s): MR2100

MR2300 - Business Research •
This course introduces students to the field of business research through the examination of the various techniques, principles, skills and activities required to create and present an effective survey project. It will familiarize students with the ways that marketing information can be obtained and/or produced and how it can be used to provide insight into markets, customers, products, and business strategies for business decision making purposes. Students will have the opportunity to apply various research techniques and practices using case studies and application assignments culminating in the preparation and presentation of a research report.
Prerequisite(s): MR2100
Co-requisite(s): MA1670

MR2350 - E-Business
This course is designed to introduce the student to the managerial and technical aspects of electronic business and commerce. Students will gain knowledge of the competitive electronic business field and will be equipped to help businesses assess possible opportunities through this rapidly evolving technology. They will be exposed to the concepts of customer relationship management, marketing communications, supply chain management, web analytics, and taxation and ethical Issues related to E-Business. Students will also have the opportunity to apply various E-Business techniques and practices using case studies and application based assignments.
Prerequisite(s): MR2100 and MC1241

MR2400 - Marketing Communications •
This course will examine in some depth the current processes, issues, and practices involved in marketing communications. The student will explore communications as it relates to print, television, radio and other media, and will have the opportunity to apply their creativity in developing tools In these media for local uses wherever possible. The student will also examine how marketing communications affects the purchase and post-purchase behavior of the consumer. Students will have the opportunity to apply various marketing communication techniques and practices using case studies, application assignments and a major project.
Prerequisite(s): MR2100 and CM1241

MR2450 - Services Marketing
This course is designed to enable students to apply the concepts and strategies of marketing relevant to the services sector. The student will explore in some depth various aspects of services marketing, including service productivity, service marketing distribution, service pricing concepts, positioning in service marketing, and service personnel management. Students will have the opportunity to apply their knowledge of these marketing concepts and strategies using a case project, application assignments and presentations.
Prerequisite(s): MR2100

MR2620 - Sales Management
This advanced course will provide the student with the opportunity to explore the practical components of the professional sales manager. The students will deepen their knowledge in the areas of sales management, planning, forecasting, and account relationships, as well as sales force organization, operations, staffing and training. Students will have the opportunity to demonstrate the application of concepts through field work assignments, case analysis, research and presentations.
Prerequisite(s): MR1600

MR2700 - International Marketing
This course is designed to enable students to apply the concepts of marketing in an international context. The student will research and evaluate foreign markets and apply marketing concepts relevant to strategy development in foreign markets identified by

exporting and trans-national organizations. The student will have the opportunity to acquire knowledge of international environmental influences, preparation for international markets, and the international marketing mix and apply various international marketing techniques and practices using case studies and application assignments.
Prerequisite(s): MR2100

MR2800 - Business-to-Business Marketing
This course will enable students to apply the concepts of marketing in a business customer context, to research and evaluate business markets, and to apply marketing concepts relevant to strategy development in manufacturing, trade, institutional, and not-for-profit organizations. The student will use analysis of business buyer behavior, segmentation and targeting, business marketing strategy, marketing communications, and personal selling techniques to analyze case studies and complete application assignments.
Prerequisite(s): MR2100

MR3100 - Current Topics in Marketing
This student-led seminar-based course will examine issues, topics and trends in the area of marketing that are of recent and current concern to marketing professionals today. Students will research, develop and present a seminar/paper on selected issues/topics/ trends from among the following areas explored in this course: the field/practice of consumer behavior; professional selling; sales management; retailing; E-Business; marketing communications; services marketing; business to business marketing; and international marketing. In addition students will have the opportunity to research and critique a current journal article.
Prerequisite(s): MR1500, MR2300, MR2200, MR2350, MR2400, MR2450, MR2800
Co-requisite(s): MR2620, MR2700

MT1110 - Introduction to Mining
This course serves to introduce the learner to mining techniques in Canada relating to mineral deposits, various types of ore, mining machinery, units of operations in mining, and mine engineering analysis techniques used in these operations, from discovery, through development to extraction underground and on surface. This course will also delve into the required safety equipment, mobile equipment and required certification to work in an industrial environment.

MT1250 - Equipment Reliability Concepts
This course provides the learner with an in-depth research of the importance of stationary and non-stationary equipment reliability to the efficiency of mining operations. This course serves to identify the critical role of Operators, maintenance and service provider's play can make to the wellness of equipment and production process. The importance of 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 dependably to customers, is also illustrated in this course.
Prerequisite(s): MW2150

MT1270 - Engine Fundamentals
This course provides the learner with the information pertaining to engines in gasoline and diesel systems. Learners will explore two stroke and four stroke principles along with part identification and descriptions of operation. Learners will explore the basic science behind engine operations and describe common terms used for engines.

MT1420 - Heavy Equipment Simulator I
This course will provide the learner with training on the Komatsu Haul Truck 830-E simulator, in preparation for operation of heavy haul truck in a mining environment. Learners will perform simulator orientation, drive in various weather conditions, perform specific loading and unload requirements, and be presented with various challenges throughout the simulation that will enhance their operation skills.

MT1430 - Heavy Equipment Simulator II
This course builds on the Heavy Equipment Simulator I training to provide the learner with an advanced simulation training experience. Learners will review several components of operation of Heavy Equipment Simulator I and with a focus on the key elements of an experienced operator. Experienced / Upskill Training is required to ensure that safe, proficient and productive Komatsu 830E competencies are retained by experienced operators.
Prerequisite(s): MT1420

MT2100 - Surface Mining
The course is designed to train the learner 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-Stripping, Equipment and Methods, Fragmentation and Drilling Principles.

MT2140 - Surface Mining
This course is designed to identify to the learner how various surface mining operations function. Surface mining processes will be discussed in detail. Learners will discover formulas and procedures for various extraction methods, planning and complete financial estimations to determine viable extractions and processing.
Prerequisite(s): MA1240

MT2150 - Ethical Mining
This course will explore sustainable development along with Canada's Green Plan. The relationship of sustainable development and mining will be examined and topics such as mining's role in sustainable development. The Mining Industry of Canada benchmarks through TSM (toward sustainable mining) will be examined and evaluated.

MT2420 - Mineral Processing I
This course is designed to train the learner 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.

MT2421 - Mineral Processing II
This course is a continuation of MT2420. It introduces learners to theory in areas of flow sheeting, methods of analyzing and recovering ore while controlling environmental impacts.
Prerequisite(s): MT2420

MT2440 - Mineral Processing I
This course is designed to identify the processes that are used to operate in an ore concentration facility. The course is designed to introduce subject matter relating to but not limited to the mineral sampling methods and procedures, flow-sheeting, screens and screen analysis, pulp density, calculations, grinding-crushing equipment, size reduction calculations, classification, concentration and tailings disposal.
Prerequisite(s): AM1180
Co-requisite(s): MA1240

MT2441 - Mineral Processing II
This course introduces the learner to theory in methods of analyzing and recovering product while identifying processes that can be utilized for the control of minimal negative environmental impacts. Mathematics calculations will be utilized in assisting the analysis of quality control processing procedures.
Prerequisite(s): MT2440

MT2660 - Chemical Processing of Ores
This course will focus on the flow, feed preparation, and operation of many of the chemical processing operations conducted on metallic ores. Emphasis will be placed on the preparation and handling of the metal ore concentrate for the extraction of the desired minerals using hydrometallurgical processes. The processes covered are in use in Newfoundland and Labrador and include those modifications to those processes as are typically encountered in the mineral processing industry.
Prerequisite(s): CH1121; MT2420

MT3440 - Mineral Processing III
This course serves to identify the processes that occur within a mineral processing plant. Learners will identify the standard and alternative process for pelletizing, from the receiving of product, transportation, primary and secondary process, including the quality controls. Learners will identify the required equipment and procedures for flotation plant and pelletizing operation.
Prerequisite(s): MT2441

MU1110 - Music & 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.

MU1130 - Music Theory I
This is an introductory course that explores the basic theory and terminology of music. The intent is to provide students with the skills to read and write music while learning

the vocabulary of the industry and the use of music notation software for musical productivity.

MU1140 - Musicianship & Recording
This course is designed to provide the student with the skills required in order to be an effective musician in the recording environment, both in the recording studio and when recording live from the stage. Areas of instruction will include proper preparation for the recording studio, recording terminology, effective studio communication, working with a click track, headphone monitoring, recording a studio performance vs. recording a live performance, the multi-track recording, the mixing process, the musician's role in the overall recording process, and mental focus in the recording studio. Classroom sessions will be augmented through hands-on experience in the recording studio.

MU1150 - Music in Media
This course is designed to introduce students to composing and formatting music for inclusion in 21st Century media platforms: Film, Video, Video Games, Software, Internet, Animations, and Mobile Web Applications. Lectures and labs will focus on both the musical and technical aspects of the creation of music for these contemporary mediums.

MU1160 - Cultural Career Management
This course is designed to provide students with an understanding of the elements of a long-term career plan for cultural industry workers. Students will learn about developing skills in the following areas: short, medium and long-term career goals establishment, career competencies, artistic competencies and incorporation of business planning, self-promotion strategies, project management, grant application processes, life-long artistic development and professional association's affiliation. Students will have an opportunity to complete this course with a clear vision of their career plans and the tools necessary to implement these plans effectively.

MU1200 - Songs & 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. Throughout the course, students will regularly write original songs and have them peer evaluated.

MU1210 - Music Theory II
This is an advanced music theory course which explores harmony and scoring. The intent is to provide students with the skills to read and write music at an advanced level while learning to apply theoretical concepts to the analysis of musical compositions and scores. The use of music notation software will be an important tool in this course.
Prerequisite(s): MU1130

MU1415 - Performance I
This course is designed to introduce essential skills required to perform music live in front of an audience. Introductory performance skills will be implemented and the evaluation will focus on the development of these skills. Students will be graded through peer evaluation of classroom performances and instructor evaluation of both college and public performances, as well as a graded final jury. At the core of this course will be introductory performance techniques in the music industry, professionalism and performance career planning.

MU1420 - Performance II
This course is designed to continue with the student's ongoing development as a performer. More intermediate performance skills will be implemented and the evaluation will become more focused on these intermediate 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 a final jury. At the core of this course will be intermediate performance techniques in the music industry, professionalism, and performance career planning.
Prerequisite(s): MU1415

MU2110 - Instruments
This introductory course explores the families of instruments used in civilizations. Students will use classification systems to categorize instruments and to identify common operating principles.
Prerequisite(s): MU1100

MU2120 - Traditional Music Studies
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 Newfoundland traditional music.
Prerequisite(s): MU1110

MU2130 - Popular Music History
This course explores the origins of popular music, the evolution of media and mass distribution, and traces the impact of popular music upon society.

MU2420 - Performance III
While the student continues to build a strong portfolio and enhances his or her performance skills, they will prepare larger musical events in various genres at a variety of venues. 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 a final jury. At the core of this course will be current concert and touring trends in the music industry, professionalism and performance career planning.
Prerequisite(s): MU1420

MU2425 - Performance V
While the student finalizes a strong portfolio and establishes an online presence, performance skills will be crafted to a semi-professional level. Students will be graded through peer evaluation of live performances, instructor evaluation of both college and public performances and portfolio evaluation, which will take place as part of a final jury. At the core of this course will be professional skill evaluation and clearly defined career planning.
Prerequisite(s): MU2420

MX1510 - Clinical Radiography
All clinical courses are designed to provide extensive clinical experience to students. Applied knowledge of anatomy and physiology, radiographic technique, pathology, radiation protection and patient care and safety will be reinforced. Emphasis will be placed on intensive demonstrations and application of clinical skills in professional practice. Throughout the entire clinical component of the Medical Radiography program (48 weeks total), students will maintain documentation which demonstrates both the quality and quantity of clinical experience acquired, thus ensuring on-going maintenance of competencies acquired.
Prerequisite(s): Successful completion of semester 5

MX1620 - 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 their 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

MX1621 - 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 their 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 4
Co-requisite(s): All subjects in 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; used 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, respiratory 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 MX2102, 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 anatomical appearance 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, respiratory system.
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 are 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 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 bone mineral densitometry will be studied. The importance of faithful adherence 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 patient care 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
All clinical courses are designed to provide extensive clinical experience to students. Applied knowledge of anatomy and physiology, radiographic technique, pathology, radiation protection and patient care and safety will be reinforced. Emphasis will be placed on intensive demonstrations and application of clinical skills in professional practice. Throughout the entire clinical component of the Medical Radiography program (48 weeks total), students will maintain documentation which demonstrates both the quality and quantity of clinical experience acquired, thus ensuring on-going maintenance of competencies acquired. This course will also provide the student with the opportunity to become familiar with related disciplines in order to review patient data such as images and reports from other studies through research and observation of other imaging and therapeutic modalities.
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

ND1110 - Liquid Penetrant Inspection

This course prepares students to recognize surface flaws in components that appear as a result of capillary action. Flaws become apparent when a colored or florescent dye bleeds out of the component to reveal a crack in its surface. This course provides learners training for a Liquid Penetrant Inspection in preparation for national Non-Destructive Technician Certification through Natural Resources Canada. This training will include both in class and practical training.
Prerequisite(s): TS1520
Co-requisite(s): ND1130

ND1130 - Materials and Process
This course provides students information on metals, metal forming, casting, welding, service conditions, and flaws. It also introduces the physical, electrical, mechanical, and magnetic properties of metals. This course provides learners training for Materials and Process in preparation for nation Non-Destructive Technician Certification through Natural Resources Canada. This training will include both in class and practical training.

ND1210 - Magnetic Particle Inspection
This course is designed to train learners to use small magnetic particles (i.e. iron filings) to detect flaws in components. For this method to be used the component must be made of ferromagnetic material such as iron, nickel, cobalt, or some of their alloys. This course provides learners training for a Magnetic Particle Inspection in preparation for national Non-Destructive Technician Certification through Natural Resources Canada. This training will include both in class and practical training.
Prerequisite(s): TS1520
Co-requisite(s): ND1130

ND1310 - Industrial Ultrasonics I
This course trains learners to use high frequency sound energy to conduct examinations and make measurements in materials to determine surface or internal cracks or flaws in the materials. This course provides training for a Level I Industrial Ultrasonics NDT Technician Certification.
Prerequisite(s): ND1130, TS1520, MA1080

ND1311 - Industrial Ultrasonics II
This course provides training for a Level II Industrial Ultrasonic's NDT Technician Certification. Ultrasonic's trains learners to use high frequency sound energy to conduct examinations and make measurements in materials to determine flaws in the structure.
Prerequisite(s): ND1310

ND1410 - Industrial Radiography I
This course provides training for Level I Industrial Radiography NDT Technician Certification. It also trains learners to send radioactive energy through a material enabling a negative (Photo) to be produced of that material illustrating internal flaws or cracks. This will include both in class and practical training.
Prerequisite(s): TS1520, MA1080, ND1500, ND1130

ND1411 - Industrial Radiography II
This course provides training for Level II Industrial Radiography NDT Technician Certification. It also trains learners to send radioactive energy through a material enabling a negative (Photo) to be produced that material illustrating internal flaws or cracks. This will include both in class and practical training.
Prerequisite(s): ND1410

ND1500 - Radiation Safety and CEDO
This course introduces learners to radiation safety techniques, ionizing radiation, quantity, and unit. It presents the procedure for monitoring radiation, biological effects of radiation, maximum dosage and effective dosage, dose control, magic numbers, as well as the standard operating procedure for a radioactive site. This course will also provide learners an opportunity to become nationally certified in CEDO â€" Certified Exposure Device Operator this is a certification that is required for NDT technicians to handle and work with radioactive materials. This will include both in class and practical training.
Prerequisite(s): TS1520, MA1080

OF1100 - Office Management I •
This course will acquaint the student with the significant role of the office employee in business, the importance of effective communication and various communications methods, the use of reference resources, and the need 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 information storage and retrieval, types of microforms, and the need for records retention. Proper procedures for handling mail, planning and organizing business travel, good customer-service techniques, and researching information are also explored.

OF2100 - Office Management III •
This course is designed to further prepare the student for the workplace. The focus is on topics such as personal development, planning meetings and conferences and job search skills to refine the skills needed to become a successful and professional employee. Students will plan meetings and events using standards of the International Association of Administrative Professionals (IAAP).
Prerequisite(s): OF1101, DM1210 and CM2110

OF2101 - Office Management IV •
In this course students will complete an office simulation that will require them to perform research, make decisions, and apply time management skills. Students will apply knowledge they have gained in all previous Office Administration courses.
Prerequisite(s): DM2200 and OF2100

OF2300 - MCP Billing •
This course is designed to emphasize the preparation of Medical Care Plan (MCP) claim forms relating to various medical procedures in accordance with the guidelines established by the Newfoundland Medical Care Plan.
Prerequisite(s): TM1100
Co-requisite(s): TM2100

OF2400 - Medical Office Management I •
This course is designed to acquaint the student with the role of the medical office administrative assistant in a hospital or in the office of a physician or other health care professional. It provides opportunities for the student to acquire knowledge on such topics as interpersonal relationships, reception and client management, health insurance, and general issues relating to prescriptions. There is a strong emphasis on the need for confidentiality in a medical environment throughout the course.
Prerequisite(s): OF1101

OF2401 - Medical Office Management II •
This course further develops the students' ability to function efficiently in a medical environment. A time-limited medical office practice simulation program is utilized to acquaint the student with typical medical cases and to assist in the development of organizational, time management, and decision-making skills. Students are also given an opportunity to acquire job-search skills in the preparation of letters of application and resumes and in simulated interviews.
Prerequisite(s): OF2400

OF2500 - Legal Office Procedures I
This course focuses on the role of the legal administrative assistant and in particular areas as sources of law, memoranda of law, diaries and client records, the Newfoundland and Labrador court system, civil litigation, legal terminology and incorporation procedures for Newfoundland and Labrador. In addition, emphasis is placed on personal development of the student in areas such as professionalism, confidentiality, personality development, human relations, and personal appearance.
Prerequisite(s): OF1101
Co-requisite(s): DM2210

OF2530 - Legal Office Procedures II (Real Estate, Wills, Estates, and Family Law)
In this course, the student 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 exposed to mortgages for purchasing and refinancing real property and to procedures for the purchase and sale of condominiums. The student is also informed of the legal procedures regarding wills, the probate and administration of estates, and family law. Emphasis is also placed on office management skills and personal development in areas such as human relations, poise and current issues at work.
Prerequisite(s): OF2500
Co-requisite(s): DM3250

OF2700 - Capstone Project •
This course is designed to provide students with the opportunity to apply the principles and skills necessary to successfully enter the workplace as an administrative professional. The course will reinforce office management concepts, including professionalism and human relations, and will assist students as they prepare to make the transition to the workplace as an Administrative Assistant.
Prerequisite(s): OF2100 or OF2500 or OF2400

OJ1100 - Work Exposure (Certificate) •
The work exposure is a required portion of the program and provides a unique learning experience in a real workplace setting. Students will complete two weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Business Administration Certificate program. They will become more employable as they enhance technical, team-building, problem-solving, and customer-service skills; increase accountability; and strengthen positive attitudes and work ethic.
Prerequisite(s): Successful completion of all courses in the Business Administration Certificate program with a minimum Grade Point Average of 2.00

OJ1130 - Work Exposure - (Certificate) •
The work exposure is a required portion of the program and provides a unique learning experience in a real workplace setting. Work exposures must be program relevant and two weeks in duration. Students will complete two weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Office Administration Certificate program. They will become more employable as they enhance technical, team-building, problem-solving, and customer-service skills; increase accountability; and strengthen positive attitudes and work ethic.
Prerequisite(s): Successful completion of all courses in the Office Administration Certificate program with a minimum Grade Point Average of 2.00

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 insure 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).

OJ1550 - Work Exposure - HRM •
The student will gain an appreciation of the real work environment in a business or industry directly related to the area of training. This six-week period will be required in addition to academic content covered. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in all previous courses in the HRM Diploma programs. They will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth.
Prerequisite(s): Successful completion of all courses in Semesters 1 to 5 of the HRM Diploma program with a minimum GPA of 2.0

OJ1560 - Work Exposure - Marketing
The student will gain an appreciation of the real work environment in a business or industry directly related to the area of training. This six-week period will be required in addition to academic content covered. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behavior and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in all previous courses in the Marketing Diploma programs. They will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth.
Prerequisite(s): Successful completion of all courses in semesters 1 to 5 of the Marketing Diploma program with a minimum GPA of 2.0

OJ1580 - Work Exposure - Accounting •
The student will gain an appreciation of the real work environment in a business or industry directly related to the area of training. This six-week period will be required in addition to academic content covered. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behavior and performance expected in the work environment. Throughout the work exposure experience, the student will apply the skills and knowledge learned in all previous courses in the Accounting Diploma programs. They will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth.
Prerequisite(s): Successful completion of all courses in semester 1 to 5 of the Accounting Diploma program with a minimum GPA of 2.0

OJ1590 - Work Exposure - General •
The student will gain an appreciation of the real work environment in a business or industry directly related to the area of training. This six-week period will be required in addition to academic content covered. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in all previous courses in the General Diploma program. They will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth.
Prerequisite(s): Successful completion of all courses in Semesters 1 to 5 of the General Diploma program with a minimum GPA of 2.0

OJ1650 - On the Job Training
Learners will gain an appreciation of the real work environment through a four (4) week work placement experience directly related to the area of training. Learners will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth. Learners will be able to perform tasks that are contained within their approved practicum manual.
Prerequisite(s): PW1160

OJ1860 - Job Placement I
Learners will gain an appreciation of the real work environment through a six week job placement experience directly related to the area of training. This experience will be required in addition to all academic requirements of the Renovation Technician program. Learners will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, accountability, and further enhancing their personal growth. This Job Placement will require learners to practice basic skills learned in the first year of study.
Prerequisite(s): Completion of Semester 1 and 2

OJ1861 - Job Placement II
Learners will gain an appreciation of the real work environment through a six (6) week work placement experience directly related to the area of training. This experience will be required in addition to all academic requirements of the Renovation Technician programs. Learners will also further develop employability skills such as working independently, team-building, customer service, work ethic, attitude, and accountability, further enhancing their personal growth. This Job Placement will require learners to practice skills learned in years one and two of the program.
Prerequisite(s): Completion of Semester 3 and 4 and OJ1860

OJ1900 - Work Exposure - Office Administration (Executive) •
The work exposure is a required portion of the program and provides an unique learning experience in a real workplace setting. Work exposure placements must be program relevant, and six weeks in duration. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Office Administration (Executive) Diploma program. They will further enhance their personal growth by developing employability

skills such as team-building, customer service, work ethic, attitude, accountability, and the ability to work independently.
Prerequisite(s): Successful completion of all courses in semesters 1-5 of the Office Administration (Executive) Diploma program with a minimum Grade Point Average of 2.00

OJ1910 - Work Exposure - Office Administration (Legal)
The work exposure is a required portion of the program and provides a unique learning experience in a real workplace setting. Work exposure placements must be program relevant, and six weeks in duration. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Office Administration (Legal) Diploma program. They will further enhance their personal growth by developing employability skills such as team-building, customer service, work ethic, attitude, accountability, and the ability to work independently.
Prerequisite(s): Successful completion of all courses in semesters 1-5 of the Office Administration (Legal) Diploma program with a minimum Grade Point Average of 2.00

OJ1920 - Work Exposure - Office Administration (Medical) •
The work exposure is a required portion of the program and provides a unique learning experience in a real workplace setting. Work exposure placements must be program relevant, and six weeks in duration. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Office Administration (Medical) Diploma program. They will further enhance their personal growth by developing employability skills such as team-building, customer service, work ethic, attitude, accountability, and the ability to work independently.
Prerequisite(s): Successful completion of all courses in semesters 1-5 of the Office Administration (Medical) Diploma program with a minimum Grade Point Average of 2.00

OJ1930 - Work Exposure - Office Administration (RIM)
The work exposure is a required portion of the program and provides a unique learning experience in a real workplace setting. Work exposure placements must be program relevant, and six weeks in duration. Students will complete six weeks in industry where they are expected to learn, develop, and demonstrate the high standards of behaviour and performance expected in the work environment. Throughout the work exposure experience, students will apply the skills and knowledge learned in previous courses in the Office Administration (RIM) Diploma program. They will further enhance their personal growth by developing employability skills such as team-building, customer service, work ethic, attitude, accountability, and the ability to work independently.
Prerequisite(s): Successful completion of all courses in semesters 1-5 of the Office Administration (RIM) Diploma program with a minimum Grade Point Average of 2.00

OP1320 - Classification •
This course is designed to explore the importance of classification within a recordkeeping system. The topics covered will give the student the fundamentals of a classification scheme; the different types of classification schemes; the current standards and guidelines; and why it is important to maintain a classification scheme within a records system.
Prerequisite(s): OP1400

OP1400 - Records and Information Management I •
This course will provide the student with the fundamental concepts of records and information management. The topics covered include: the role of records management and its importance in today's businesses and organizations, the information management code of ethics, the life cycle of records, records inventory procedures, records appraisal, records retention, document management systems. Additionally, the student will examine active records in terms of storage and retrieval, and indexing rules; and classification systems.

OP1401 - Records and Information Management II •
This course is designed to further explore the records and information management discipline and to teach students the fundamentals of information security. The topics covered will make the students aware of the legislation and litigation procedures involved with information security as well as further develop the students' ability to manage all types of documents. Students will study records control, quality control and improvement, retention requirements, the need for security, the identification of vital records, disaster prevention and recovery as well as controls for inactive and archival records.
Prerequisite(s): OP1400

OP1600 - Electronic Records Management •
This course is designed to give students the knowledge necessary to understand what happens within the life cycle of records. The topics covered will give students an understanding of sources of records and appropriate capture mechanisms, concepts of classification, current metadata standards, search and retrieval approaches, retention and disposal schedules and related concepts such as migration, digital preservation and discovery and disclosure. Students will be given the opportunity to put these concepts into practice using the enterprise content management (ECM) software.
Prerequisite(s): OP1400

PA1125 - EMS Basics
In this course, learners will become familiar with the profession of paramedicine by gaining knowledge on areas such as historical perspective, requirements of a modern EMS system, roles and responsibilities, and legislation pertaining to paramedicine. Learners will evaluate an emergency scene, carry out a patient assessment at the basic level and modify a basic assessment in circumstances where triage is required. Learners will also study information pertaining to ground ambulance operation including performing vehicle safety checks, safe and defensive driving techniques, emergency driving, cleaning and disinfecting equipment, and utilizing basic equipment commonly found in emergency vehicles.
Co-requisite(s): PA1190

PA1210 - Health & Fitness I
This course introduces learners to the concepts of physical fitness and the importance of developing and maintaining a healthy lifestyle. This course also explores support systems and stress including the importance of these aspects to an individual's overall level of health and well-being. Learners are encouraged to establish their own goals and plan for their future fitness needs related to the paramedic field. Learners will identify their areas of physical fitness requiring improvement through completion of a General Physical Fitness Appraisal.
Prerequisite(s): Completion of Pre-Physical Activity Assessment

PA1211 - Health & Fitness II
This course extends the concepts of fitness acquired in Health & Fitness I. While fitness remains a leading concept in this course, learners will further explore aspects such as biomechanics, lifting, transferring and securing patients including maximizing crash protection for occupants of the patient compartment. Learners will also study regulations and legislation relative to workplace safety as well as demonstrate their ability to safely perform the bona fide occupational requirements of a paramedic.
Prerequisite(s): PA1210

PA1230 - Airway Management
This course focuses on the knowledge, skills and abilities of paramedics in assessing and managing the airway, oxygenation and ventilation of patients. Learners will study and practice methods of evaluating the respiratory system and its airway structures through assessment techniques and diagnostic tests. Learners will demonstrate the knowledge and ability to independently conduct therapeutic management of the airway, and provide oxygenation and ventilation at the basic life support level. Learners will also develop the ability to assist advanced care providers in managing the airway, including below the vocal cords, utilizing specialized techniques and equipment.
Prerequisite(s): BL1180, PA1125

PA1280 - Cardiovascular Emergencies
This course provides learners with a comprehensive understanding of cardiovascular emergencies, including the pathophysiology of several illnesses affecting the cardiovascular system. Through the application of critical thinking strategies, learners will study how to assess and manage cardiovascular emergencies in the pre-hospital

setting. Learners will focus on acquiring, analyzing, and interpreting electrocardiogram (ECG) tracings for a variety of arrhythmias. They will also determine when a 12-lead ECG may be required and demonstrate acquiring a 12-lead ECG.
Prerequisite(s): PA1190 or BL1180, PA1125, Current CPR-HCP certificate

PA1290 - Community Paramedicine
In this course, learners will explore and participate in expanded roles of paramedic practice into an area commonly referred to as Community Paramedicine. The course consists of both didactic and practical components. In the practical component, learners may accompany a health care worker, such as a Mental Health Counselor, Addictions Counselor, Public Health Nurse, Community Paramedic, and others. Learners will evaluate methods and tools utilized to perform related assessments and referrals for clients in the community setting that are not related to the usual emergency response and transport model.
Prerequisite(s): PA1125

PA1370 - Pharmacology I
This course introduces learners to the fundamentals of pharmacology. This course will provide learners with the foundation for further studies on drug administration in Pharmacology II and in specific patient-types related to the paramedic's scope of practice.
Co-requisite(s): PA1190

PA1371 - Pharmacology II
This course builds on the previous Pharmacology I course and provides learners with the theory and skills for intravenous cannulation, fluid resuscitation, and safe administration of medications commonly used in the scope of practice of a Primary Care Paramedic.
Prerequisite(s): BL1180, PA1370, PA1125

PA1415 - Interagency Relations
This course focuses on interagency relations in field operations. In this regard, learners 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. Learners will study 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. Learners will participate in a practical workshop to learn about the safety issues related to providing patient care while extrication tools are being used. Finally, learners will study the responsibilities of the paramedic at crime scenes and accident scenes, and their role in collaborating with law enforcement agents.
Prerequisite(s): Semester 1-3 courses
Co-requisite(s): PA2000

PA1430 - Medical Emergencies
This course focuses on illnesses and medical conditions not covered in other courses for which the paramedic is expected to be knowledgeable during their professional practice. The course provides learners with the pathophysiology, common management strategies and treatments for a variety of medical conditions. Some of the management strategies and specific interventions are used in the pre-hospital environment and others in the clinical setting. In cases where a specific intervention is within the Paramedic's scope of practice, learners will proficiently demonstrate correct management of that patient-type in a simulated setting. The course also includes foundational knowledge on various diagnostic tests that may be performed to aid in the diagnosis of various medical conditions.
Prerequisite(s): PA1125, PA1371, PA1230, PA1280

PA1440 - Clinical
The purpose of this clinical placement is to provide learners with the opportunity to become acquainted with health care settings, and to allow learners to gain proficiency with specific skills and tasks in a controlled environment under the supervision of a clinician or preceptor.
Prerequisite(s): Semester 1 and 2 courses, Current CPR-HCP level certificate (maintained throughout course), Certificate of Conduct (as per agency requirement), Personal Health Information Act Training Certificate, Acceptable Health Assessment Form, Up-to-date Immunizations and Vaccinations, Fit Mask Test Certificate

PA1515 - Special Populations
This course addresses special considerations that are required for assessment and treatment of: patients of specific groups; patients with physical and mental impairments; geriatric and bariatric patients; as well as patients with terminal illness or in palliative care. Learners will also study the pathophysiology, manifestations and pre-hospital precautions for a variety of communicable and infectious diseases.
Prerequisite(s): PA1430, PA1440
Co-requisite(s): PA2020

PA1520 - Mental Health
Learners will develop an understanding of various mental illnesses including how to relate to patients experiencing a mental health crisis. Learners will also study how to protect their mental health as it relates to their paramedicine working experiences.

PA2000 - Traumatology
The course focuses on the skills necessary to recognize mechanisms of injury including assessment and management of trauma patients. Through this course, learners will demonstrate organized time-efficient assessments, prioritize and perform critical interventions, appropriately package and transport trauma patients. A major focus of the course is the identification of conditions that require immediate transport ("load-and-go") in order to save the patient. Lifesaving techniques are taught or reviewed in practical exercises.
Prerequisite(s): All Semesters 1-3 courses
Co-requisite(s): PA1415, PA2020

PA2005 - Obstetrics and Pediatrics
In this course, learners apply knowledge and demonstrate skills related to the branches of medicine concerned with diseases of the female reproductive system, pregnancy, and childbirth. More specifically, the study of the physiologic and pathologic function of the female reproductive tract and the care of the mother and fetus throughout pregnancy, childbirth, and the immediate postpartum period is addressed. Learners will also incorporate skills learned in previous courses to complete specialized training in evaluation and resuscitation of neonates and pediatric patients.
Prerequisite(s): PA1430, PA1440
Co-requisite(s): PA2020

PA2020 - Simulation Lab
This course is designed to prepare learners for practicum placements through synthesizing and integrating knowledge and skills learned in previous and concurrent courses. Learners will demonstrate proficiency assessing, inferring a differential diagnosis, and providing care to various patient-types in a simulated setting using high fidelity simulation. Using a teamwork approach, learners will simulate the events of a paramedic or clinical response. At the conclusion of simulated scenarios, learners who performed lead roles will complete proper documentation in a medical record.
Prerequisite(s): All Semester 1-3 courses
Co-requisite(s): PA2000, PA2005, PA1515, PA1415

PA2025 - Practicum
In this course, learners will proficiently demonstrate knowledge and perform specific competencies, abilities and job tasks at the national occupational competency level for Primary Care Paramedicine, in a field preceptorship.
Prerequisite(s): All courses in Semesters 1-4, Note: Learners must successfully pass Simulation Testing within 6 months of beginning the Practicum (PA2025) course, Current CPR-HCP level certificate (maintained throughout course)

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.

PD1100 - College and Career Preparation
This course provides the student basic college information, an information technology industry overview, a self and career assessment process, learning strategies 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.

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 checkpoints 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

PD2130 - Personal and 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.
Prerequisite(s): PD1100

PD2140 - Work Term Seminar
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 update their career plans and résumés.
Prerequisite(s): PD2130

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.

PE1140 - Basic AC 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.

PE1220 - EASA Module 3, 4, 5 Refresher
This course is designed to prepare the student to write the EASA module exams for modules 3, 4 & 5 through the use of practice exercises and review lessons.

PE1230 - EASA Module 5 Top Up
This course is designed to cover items from EASA Module 5 that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in data buses and aircraft networks, software management control and fibre optics.

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): PE1350

PE1350 - Electrical Power Systems (M)
This M only course is designed to upgrade 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): PE1200
Co-requisite(s): PE1300

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

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.

PE2240 - Hazardous Areas
This course gives the learner an understanding of hazardous area classifications. It includes system design to confine an explosion inside an enclosure, isolate the ignition source and limit the energy flow into the hazardous area. The learner receives hands on training to install and maintain hazardous area equipment.
Prerequisite(s): XD1810 or MP2170

PE2430 - Plant Electrical Systems
This course introduces the learner 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, safety in a motor control center, and digital controllers used for energy management (demand controller) and motor control.
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): CI1310, 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

PE2730 - Industrial Instrumentation Practices
This course is designed to provide the Instrumentation and Controls Engineering Technologist with the knowledge and skills necessary to implement safe systems in an industrial environment. Emphasis will be on OHS, instrument wiring and grounding considerations, fasteners and adhesives, conduit and tube and fitting installations.
Prerequisite(s): CI1310

PE2800 - Industrial Mechanical Systems
The purpose of this course is to introduce the learners to industrial mechanical systems. The learners are expected to use this knowledge to assist with improving the efficiency of common mechanical processes, in an effort to improve product quality. Outcomes 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 preventive and predictive 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

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

PH1030 - Physics Refresher for EASA Module 2
This course is designed to prepare the student to write the EASA Module 2 exams by providing a refresher of basic physics along with a knowledge of the nature of matter, statics, dynamics, fluid dynamics, thermodynamics, optics and wave motion and sound.
Prerequisite(s): PH1300

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. 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 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.
Prerequisite(s): PH1050

PH1060 - Physics for Aboriginal Students
The purpose of this course is to provide aboriginal students with an introduction to the discipline of physics. Topics will be explored from a First Nations' perspective using a scientific framework. These topics will include: motion, machines/force, and electricity.

PH1070 - X-Ray Skills Physics •
This is a radiation physics course designed for combined laboratory and x-ray technology students to give them an understanding of: (1) x-ray physics: the nature of x-rays, the production of x-rays, the interaction of x-rays with matter; (2) radiation dosimetry: radiation exposure, absorbed dose, dose equivalent, effective dose equivalent, detection of radiation and dosimeters.

PH1100 - Physics •
This is an introductory physics course designed to extend the students' knowledge and understanding of basic physics principles, concepts and applications related to mechanics. The 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.
Prerequisite(s): MA1700, PH1100

PH1120 - Introductory 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 - Introductory 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). MA1130 (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 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 (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.

PH1140 - Applied Physics
This course introduces students to the physical science concepts applicable to the fields of electrical and instrumentation technology.

PH1200 - Physics
This is a second semester algebra based course designed to extend students' knowledge of basic concepts and principles of physics; specifically in the areas of heat, static fluids, waves, sound light and electricity.
Prerequisite(s): PH1100 or PH1120

PH1201 - Physics
This is an intersession course designed to extend students' knowledge and understanding of physics principles, concepts and applications relating to electricity and magnetism.
Prerequisite(s): PH1200

PH1300 - Physics for Aircraft Maintenance
This is an introductory physics course designed to extend the 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.

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

PM2130 - Drilling
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): FT1630, FM2102, CF2540

PM2140 - Well Planning
This is the second of three courses in drilling technology. Students apply and build on the skills and knowledge developed in PM2130 - Drilling to carry out drilling engineering analysis and optimization and well planning.
Prerequisite(s): PM2130

PM2180 - Well Control
This is an advanced course in drilling technology which uses simulation software to

perform well control operations. Learners build knowledge developed in two previous drilling technology courses and apply these skills to hands-on well control simulation exercises.
Prerequisite(s): PM2140

PM2185 - Facilities Operations
The laboratory based course will provide students with the concepts and skills required to safely operate and troubleshoot the many types of oil and gas surface facility equipment commonly encountered in industry. Simulation and laboratory work will be used to teach students the fundamentals of start-up, shut-down, control and troubleshooting procedures for surface facility equipment such as separators, absorption units, distillation units and heat exchangers, etc.
Prerequisite(s): PM2520, PM2530

PM2190 - Reservoir Simulation
The course is designed to give an introduction to the fundamental and practical aspects of modern reservoir simulation. Particular emphasis is placed upon the available data and its integration into a data set that reflects a coherent model of the reservoir. These aspects are reinforced with small practical examples run by groups of the course participants.
Prerequisite(s): PM2321

PM2222 - Production
This is the first course in petroleum production, which focusses 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.
An introduction to various artificial lift methods is presented which enable depleting reservoirs to sustain viable production rates.
Prerequisite(s): FM2102
Co-requisite(s): MA1670

PM2230 - Completions
This is the second course in petroleum production operations and is an introductory course in Completion Technology 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 by introducing concepts of total quality management. Topics include well completion design for both conventional and horizontal wells, tubular selection including interactions with packers, subsurface control equipment, completion fluids, and perforating oil and gas wells.
Prerequisite(s): PM2130
Co-requisite(s): PM2520

PM2321 - Reservoir Estimates
This is the 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 learner 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): MA2100

PM2330 - Reservoir Analysis
The second course in this subject area builds upon the basics presented in the first offering. The mechanics of fluid flow in a porous media are covered in detail enabling the student to analyze 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.
Prerequisite(s): MA1670, PM2321

PM2402 - Production Logging & Applications
This is a course in the analysis & interpretation of production logging data along with an introduction to the analysis of wellbore cement. The course will overview the operation of production logging tools but will focus mostly on the interpretation of production logging data.
Prerequisite(s): PM2420

PM2420 - Logging and Formation Evaluation
This is a course in interpretation of data obtained from down-hole geophysical tools, i.e. open hole well logs. Concentration will be on the basic open hole logging tools some of which are applicable to cased holes. Physical nature (size, weight, etc.) and theory of operation for the various tools will be dealt with briefly. Interpretation of the data derived from the various tools is the main course goal. New technology/specialty tools that are available will be discussed where time permits.
Prerequisite(s): GE1502, CH2330, GE2510

PM2520 - Oil Facilities
This course presents the basic concepts and techniques necessary to design, specify, and operate oil field processing equipment to separate the produced gas and water from the oil at or near the well site.
Prerequisite(s): CF2540, FM2102, MA2100, PM2321

PM2530 - Gas Facilities
A course which presents the basic concepts and techniques necessary to design, specify and operate upstream gas handling systems and facilities.
Prerequisite(s): PM2520, TD2100, TD2130
Co-requisite(s): CH2335

PM2600 - Intervention
A third course in petroleum production operations introducing the major processes and equipment involved in maintaining production from a wellbore. The course stresses an interdisciplinary approach to intervention and "work over planning".
Prerequisite(s): PM2222

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
Learners will be introduced to the variety of separation processes used in industrial processes. Learners 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 students the fundamentals of safe and correct start-up, shut-down and control and troubleshooting of processes.
Prerequisite(s): PO3100

PR1100 - Website Project I •
The Website Project I course provides students with an opportunity to utilize and demonstrate the tools, knowledge, and skills developed during the first year of the program. Students will design and create a multimedia-rich Web site based on a given set of criteria. Emphasis is placed on creativity of design and effective use of technology.
Prerequisite(s): CM1401, CP1120, CP3160, CR1510

PR1101 - Website Project II •
The Website Project II course provides students with an opportunity to utilize and demonstrate the tools, knowledge, and skills developed during the second year of the Web Development program. Students will analyze the requirements of a substantial Web development project, and design and create a dynamic Web site which incorporates security, database interactivity and server-side Web technologies. Emphasis is placed on developing a creatively designed, standards-compliant Web site which meets the business goals of the project requirements.
Prerequisite(s): Successful completion of all courses in Semesters 1-5 of the Web Development program

PR1410 - Capstone Project I (Seminar)
The capstone project enables the learner completing an Advanced Diploma in the

Environmental Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of Semester 2. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

PR1420 - Capstone Project II
The capstone project enables the learner completing an Advanced Diploma in the Environmental Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. Learners can commence planning for the course prior to the beginning of Semester 2. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR1410 and all courses in previous academic semesters

PR2170 - Project Management
The purpose of this course is to learn various techniques used to ensure that a project is completed on time, within budget, and with high quality. The student will explore various aspects of project management, such as scope, time, cost, quality and communications and will use project management software to manage a project.

PR2250 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Civil Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and minimum cumulative GPA of 2.0

PR2251 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Civil Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2250 and all courses in previous academic semesters

PR2270 - Technical Thesis I
The technical thesis enables the student completing a Diploma in the Geomatics Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Students taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The student can work independently or in teams 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 independent 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 semesters and a minimum cumulative GPA of 2.0
Co-requisite(s): PR3150

PR2271 - Technical Thesis II
The technical thesis enables the student completing a Diploma in the Geomatics Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Students taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The student can work independently or in teams 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 independent 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): PR2270

PR2330 - Project Management for HIS •
This course is designed to give students the opportunity to apply project management methodology to information systems development within the healthcare environment. Using case studies, students will apply strategies from the various phases of the Project Management Life Cycle and understand the impact of project scope, time management, cost management, quality management, human resource management, and communications management on the realization of the project's objectives.
Prerequisite(s): HB1130

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; and 3) full documentation and a presentation of their solution. This project can be one from industry or one assigned by the College. If it is an industry-driven project, prior faculty approval must be provided to ensure it meets the scope, depth and focus required to meet the course outcomes.

Prerequisite(s): CP1940, one of CP4411, CP4260, one of CM2300, CM1401, one of CP2560, CP2130, CP1890

PR2560 - Technical Thesis I
The technical thesis enables the student completing a Diploma in 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 supervision on a project, under the guidance of a faculty member. The student can work independently or in teams 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 independent 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 instruct.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0
Co-requisite(s): PR3150

PR2561 - Technical Thesis II
The technical thesis enables the student completing a Diploma in 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 supervision on a project, under the guidance of a faculty member. The student can work independently or in teams 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 independent 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 instruct.
Prerequisite(s): PR2560 and all courses in previous academic semesters

PR2640 - Technological Thesis I
The technological thesis enables the student completing 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, under the guidance of a faculty member. The student can 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 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 independent 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 semesters and a minimum cumulative GPA of 2.0
Co-requisite(s): PR3150

PR2641 - Technological Thesis II
The technological thesis enables the student completing 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, under the guidance of a faculty member. The student can 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 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 independent 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 academic semesters

PR2660 - Technical Project and Presentation
This technical thesis project enables the student to demonstrate the application of knowledge and skills developed 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 present his/her 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 in consultation with the communications instructor.
Prerequisite(s): CM1401

PR2700 - Project Management •
This course is designed to give the students a general understanding of project management and the various stages of a project. The main topics will be discussed at an informational level. Topics discussed include, but are not limited to: defining a project, project scope, time management, cost management, quality management, human resource management, communications management and risk management.

PR2740 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Instrumentation Controls Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be co-delivered to the learner by a technical instructor and a communications instructor.
Prerequisite(s): All courses in the previous academic semesters and a minimum cumulative GPA of 2.0

PR2741 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Instrumentation and Controls Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2740

PR2750 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Architectural Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will

• Available through Distributed Learning ⊗ Available through correspondence

work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners are expected to allocate the course. Regular meetings with a faculty supervisor will be scheduled within the assigned hours and it is mandatory that learners 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 semesters and a minimum cumulative GPA of 2.0

PR2751 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Architectural Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application and fully document and present their findings. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2750 and all courses in previous academic semesters

PR2760 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Computing Systems Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and minimum cumulative GPA of 2.0.

PR2761 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Computing Systems Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings. This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2760 and all courses in previous academic semesters

PR2780 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Process Operations Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

PR2781 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Process Operations Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2780 - Capstone Project I (Seminar) and all courses in previous academic semesters

PR2790 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Electronic Systems Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program. Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

PR2791 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Electronic Systems Engineering Technology program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem,

design or technical application, and fully document and present their findings.
Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2790 and all courses in previous academic semesters

PR2830 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Electronics Engineering Technology Biomedical program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program.
Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

PR2831 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Electronics Engineering Technology Biomedical program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings.
Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2830

PR2880 - Capstone Project I (Seminar)
The capstone project enables the learner completing a Diploma in the Petroleum Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams 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 learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program.
Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

PR2881 - Capstone Project II
The capstone project enables the learner completing a Diploma in the Petroleum Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings.

Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners 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 learners attend these meetings.
This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.
Prerequisite(s): PR2880 and all courses in previous academic semesters

PR3110 - Petroleum Risk Assessment
The course is designed to enable the student to complete an Offshore Petroleum Risk Assessment and Analysis to meet safety standards in the Petroleum industry. The purpose of this course is to ensure adequate measures are taken to protect people, the environment and assets from harmful consequences of the activities being undertaken within the petroleum and offshore industry. This includes but is not limited to health, environment and safety.
Prerequisite(s): MA1670

PR3150 - Project Management and Financial Analysis
This course introduces learners 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. Learners are introduced to the use of project management software.
Prerequisite(s): MA1101 or MA1140

PR3600 - Technical Thesis (Seminar)
The technological 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): Semester 7 complete and GPA of 2.0

PR3630 - Technical Thesis (Seminar)
The technological thesis enables the student completing a diploma in the Mechanical Engineering Technology (Manufacturing) 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): Semester 7 complete and GPA of 2.0

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

PR3724 - Technical Thesis
The technical thesis enables the student completing a Diploma in the Mechanical Engineering Technology (Manufacturing) 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 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): PR3600

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: psychology as a science, learning, perception, sensation, personality, and human development.

PS1120 - Psychology I •
This is an introductory psychology course. Current experimentation in the field and various methods of psychological research are emphasized throughout the course. This course introduces the student to topics such as psychology as a science, brain and behavior, human development, sensation and perception of stimuli, states of consciousness, learning and memory.

PS1121 - Psychology II
This is the second part, and hence a continuation of the introductory psychology course. The course introduces students to psychological theory and research in the areas of cognition, intelligence and creativity, human emotion, motivation, stress and its impact on health, personality, psychological disorders and their treatments, and social psychology.
Prerequisite(s): PS1120

PS1130 - Psychology I •
This is an introductory psychology course. Current experimentation in the field and the various methods of psychological research are emphasized throughout the course. This course introduces the student to topics such as psychology as a science, brain and behavior, human development, sensation and perception of stimuli, states of consciousness, learning, and memory.

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, and states of consciousness. This course is transferable to MUN Psychology 1000.

PS1151 - Introduction to Psychology II •
This course provides 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. This course is transferable to MUN Psychology 1001.
Prerequisite(s): PS1150 or MUN Psychology 1000.

PS1200 - Drugs & Behaviour
This course examines the relationship between drugs, especially psychoactive substances, and their influence on behaviour. 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 paradigms.
Prerequisite(s): PS1121

PS1240 - Understanding Addictions
This course takes a detailed look at how alcohol and/or drug addiction affects an individual. First, it examines the nature of dependency on a physical, psychological, and emotional level. This information will then be utilized to teach students basic assessment, intervention, and counseling techniques. Students will also receive a detailed understanding of the process of change, relapse prevention, and stages of recovery in addiction. They will also learn how addiction impacts upon a family. Students will also acquire more knowledge on how addiction affects specific populations, (youth, women, seniors, Aboriginal persons, and adult children of alcohol/drug users).
Prerequisite(s): PS1121, PS1200

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. These principles are viewed as tools to facilitate the understanding, analysis, and modification of targeted behavior(s) of any individual, including individuals with development disabilities.
Prerequisite(s): PS1121

PS1420 - Health Care Organization and Structure •
This course is an introduction to the study of organizational behaviour and structure within the health care system. Students will familiarize themselves with their health care system, specifically the roles that directly impact structure and function. Students will examine individual and inter-disciplinary relationships and roles of health professions within the hospital organizational structure.

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): PS1121

PS2340 - Organizational Behaviour •
This is an introductory course in the study and practical application of organizational behavior. Through the use of workplace examples and the analysis of the interrelated levels of individual behavior, group functioning, and organizational structure, students will examine how employees within organizations achieve both personal and organizational goals. Topics such as motivation, leadership, group dynamics, and organizational communication are studied.

PT1110 - Reciprocating Engine Fundamentals (M)
This M course will provide learners with the basic knowledge of the operation of aircraft reciprocating engines and engine components. Learners 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 learners with the basic knowledge of the design, construction and theory of operations of aircraft reciprocating engines.
Prerequisite(s): GM1120, GM1130
Co-requisite(s): PT1110

PT1200 - EASA Module 15 Top Up
This course is designed to cover items from EASA Module 15 that were not contained in the Aircraft Maintenance Engineering Technician program. The students will receive instruction in: auxiliary power units (APU's), powerplant installation, along with engine storage and preservation.

PT1210 - EASA Module 15, 17 (A) Refresher
This course is designed to prepare the student to write the EASA module exams for modules 15 & 17A through the use of practice exercises and review lessons.

PT2120 - Reciprocating Engine Systems (M)
This M course will provide the learner 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 learner with the knowledge of reciprocating engine inspection removal, installation, overhaul and maintenance procedures, so that h/she can develop sound maintenance practices.
Prerequisite(s): PT2120

PT2210 - Turbine Engine Maintenance (M, E)

This M and E course is designed to provide the learner with a comprehensive knowledge of turbine engine design and operation. Learners will be dismantling a turbine engine and required to identify each component.
Prerequisite(s): GM1120, GM1130

PT2240 - Turbine Engine Systems (M)
This M course will provide the learner 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

PW1101 - Applied Mathematics
This introductory course serves to identify the basic principles of a Power Engineering career. Basic math skills are developed to prepare learners to apply mathematics principles in Power Engineering. This course is a critical building block to enable learners to interpret findings and evaluate specific conditions in the power engineering field.
Prerequisite(s): AM1100

PW1111 - Applied Science
This course will provide the learner with an introduction to basic science and is sequentially designed to provide a strong base from which to build upon in the power engineer field. This course covers principles in mechanics, physics, math, and problem solving to ensure the learner can see relevance in the applied principles of Power Engineering. This course is a critical building block for enabling learners to interpret findings and evaluate specific conditions in the power engineering field.
Prerequisite(s): PW1101

PW1121 - Industrial Drawings and Legislation
This course will introduce to the learner the concept of sketching centre lines and dimensioning standard object views, sketching techniques and sectioning. This course also provides a practical exercise that enables the learner to employ the learned concepts by completing applied drawings. Learners will also explore the legislation requirement for Power Engineering.

PW1150 - Work Safety and Environment I
This course will enable the learner to discover the classification, label, and MSDS regarding hazardous materials. Learners will be introduced to the correct personal protective requirements for an industrial setting, and be identifying the correct procedures for confined space entry, and the cautions surrounding hazardous gases.

PW1160 - Work Safety and Environment II
This course will introduce power engineering learners to the various aspects of health and safety factors that are required to identify applicable information regarding Emergency First Aid, basic fire extinguishing, proper handling/storage of dangerous gases and fluids to the industrial environment. This course will also allow the learner to become aware of correct environmental protection techniques.
Prerequisite(s): PW1150

PW1200 - Power Engineering Maintenance I
This course is designed to provide learners with the understanding of the concepts and requirements for identification for various mechanical, ferrous, and non-ferrous engineering materials. It also provides learners an introduction to basic welding methodology, terms and flaws. This course will also expose learners to standard piping, fittings, and valves relating steam plant operations.

PW1221 - Power Plant Operating Equipment
This course will allow learners to discover the critical elements and equipment relating to power plant operations. Specifically it serves to provide the learner with information relating to various types of steam or gasoline engines and turbines. It also identifies the various types of power plant pumps, and their maintenance. It introduces the concepts of air compression, lubrication principles, and bearing lubrication.

PW1230 - Power Engineering Operations I
This course is intended to introduce the concepts relating to high pressure and low pressure boiler systems relating to their design, operations, and safety using the ASME (American Society of Mechanical Engineers) requirements. Learners will identify various types of boiler construction, associated equipment, and multiple combustion processes.

PW1240 - Power Engineering Operations II
This course is intended to discover the detailed components and operational procedures of a boiler plant. This course will also describe the processes in boiler start up and shut down. This course also provides the learner with diagnostic information pertaining to closed and open loop water contamination, repairs, with external and internal feedwater systems.
Co-requisite(s): PW1230

PW1301 - Electrical Principles
This course will introduce the concept of electricity and magnetism; learners will engage in practical exercises using metering devices that apply these basic electrical concepts as they relate to power plant operations. This course will also serve to introduce electrical motors, generators, transformers, and circuits along with their descriptions and operation.

PW1311 - Boiler Controls and Instrumentation
This course serves to provide learners with an understanding of the basic control loops along with the details and reasoning why the components are in that loop. It introduces the concepts relating to boiler protection devices, programming, troubleshooting, and computer controlled boiler systems.

PW1330 - Heating Boilers and Systems I
This course is designed to introduce learners to the identification of various boiler systems, their construction, application, and diagnostics. This course also discusses reasoning for specific boiler fitting design, steam heating, hot water, warm air, infrared, and steam boiler operations.
Prerequisite(s): PW1121

PW1340 - Heating Boilers and Systems II
This course is designed to expand upon various hot water boiler systems, their construction, application, and diagnostics. This course also discusses reasoning for specific boiler fitting design, hot water, warm air, infrared, and steam boiler operations. It also serves to introduce the student to various designs in boiler feed water, pneumatic, electrical, and electronic controls. It also introduces the reasoning for ventilation and various air filtration systems.
Prerequisite(s): PW1121

PW1401 - Auxiliary Systems
This course is intended to enable learners to become aware of auxiliary systems that may be affected by any closed or open boiler system. It also discusses the design, methods, and requirements that may have effect on the interrelationship of the lighting, water supply and sanitary drainage systems.

PW1411 - Refrigeration Systems
This course is intended to provide learners with information regarding various types of refrigeration systems as it pertains to thermodynamics, types of refrigerant, compressions systems, compressors and heat exchangers. It also provides clear definitions of meter systems, controls, and accessories. It discusses the startup procedures, and operations of compressions systems. It also discusses absorption systems and operation as it relates to refrigeration.

PW1421 - Air Conditioning Systems
This course is intended to provide learners with detailed descriptions of the application of air conditioning systems, control, and recovery related to power plant operation. It provides a comprehensive description of air, its distribution, and ducts systems. It also serves to introduce learners to coil types and operation, along with heat gain and loss.
Prerequisite(s): PW1411

PW1430 - Power Engineering Maintenance II
This course introduces learners to the purpose of lubrication, along with its classes and properties. This course is intended to enable learners to become aware of the procedures for plant maintenance as it pertains to bearing lubrication, general shop procedures, tools and equipment. This course also describes the general boiler maintenance and cleaning procedures.

PW1441 - Power Engineering Industrial Applications
This course is designed to give learners the description, layout and operation of hot oil systems and the role it plays in industrial steam plant operation. It also provides learners with the exposure to the processes that occur in pulp mills, gas plants, food processing, and sawmills. These processes are discovered through a combination of in class theory and planned site visits.

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.

PY1150 - Photography •
This course will teach students how to operate a Digital Single Lens Reflex (DSLR) camera and the rules of composition through practical and theoretical instruction. Students must have access to a Digital Single Lens Reflex camera.

PY1200 - Photography I
Students will be introduced to the basic principles and mechanics of digital photography as applied to the graphics industry.

PY1201 - Photography II
Students will be introduced to various photographic techniques as applied to the graphics industry.
Prerequisite(s): PY1200

PY1330 - News Photography I
In this course, students will learn basic photographic principles and techniques. They will learn the history of photojournalism, composition, how to use digital cameras and how to perform basic image-editing functions using industry-standard digital image editing software.

PY1331 - News Photography II
Building upon the technical foundation acquired in Photojournalism I, students will learn the principles of various types of news photography such as spot news, sports, event coverage and how to produce a photo essay. They will also learn visual literacy and the law and ethics of photojournalism.
Prerequisite(s): PY1330

PY2200 - Photography III
Students will learn the importance of the well crafted photographic image as it is used in the graphics industry. Consideration of the photographic image as a key element of an overall design, and specifically as a design anchor point, will be especially emphasized.
Prerequisite(s): PY1201

PY2201 - Photography IV
Students will have 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 photographic techniques, and implement the project.
Prerequisite(s): PY2200

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

RM1501 - Fisheries Techniques II
This course investigates methods to determine sex, age, size and maturity of fish. Current techniques used to inventory and monitor fish populations will be studied.
Prerequisite(s): BL1400

RM2200 - Habitat Assessment
Identify and classify fish and wildlife habitats.
Prerequisite(s): FR1330

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, reclamation, 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.

RP1101 - Management and Control of Records •
This course is designed to further explore the records and information management discipline. The topics covered will further develop the student's ability to manage all types of documents. Students will also be introduced to records control, quality control and improvement.

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, procedures and career opportunities in the discipline.

RP1300 - Active, Semi-active and Inactive Records
This course involves a detailed examination of active, semi-active and inactive records. Students examine each group of records in terms of storage, maintenance, and retrieval procedures; supplies and equipment 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 using a simulation approach. 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 a particular group of records; they will be given an opportunity to work on projects involving these various systems.

RS1100 - Introduction to Community Recreation Leadership
This course introduces students to the community recreation delivery system. The importance of dynamic leadership in the recreational delivery process will be emphasized. Students will analyze a variety of settings and populations for which recreation programming and services are offered.

RS1230 - Creative Activities
This course introduces students to basic materials, supplies, and methods necessary to conduct creative activity programs. These activities may be used in a variety of recreation programs such as boys' and girls' clubs, long term care facilities, rehabilitation centres, hospitals, guiding/scouting groups, and community recreation centres.

RS1240 - Recreation Activities III
This course is designed to expose the students to a variety of recreational related activities to create a better understanding of the student's

role in recreation service programming and the importance of recreation as a regular component of active living. Students will participate, plan, lead and evaluate recreation activities such as walking, hiking, gardening and board/card games. Students will establish baseline step count for daily activity with the use of a pedometer. The opportunity for students to attain certification in the 3M National Coaching Certification Program will be provided.

RS1250 - Recreation Activities I
This course is designed to provide exposure as well as develop leadership skills in a variety of recreation activities. Students will review various topics including the place of sport in society, the role of all levels of government in administering sport, safety in recreation activities, and the history of indoor/outdoor recreation activities. Students will be introduced to the methods of scheduling teams and individual sports competitions. A variety of outdoor recreational activities will be introduced including cross-country skiing, snowshoeing, and winter camping.

RS1280 - Program Planning
This course is an introduction to the programming process required to produce quality recreation programs. Students will be provided with an overview of program planning and the human life stages to aid in understanding the resources required to provide programming. Students will learn about the six steps of the program planning process including needs assessment, and program objectives, solutions, design, implementation, and evaluation.

RS1320 - Recreation Administration
This course is a study of the administrative and organizational procedures used in the management systems of community and volunteer recreation agencies. Students will study the history of recreation and recreation management; recreation organization and management; recreation delivery system; fundraising; grants and proposal writing; and financial management.

RS1360 - Outdoor Winter Recreation
A variety of outdoor recreational activities will be introduced including cross-country skiing and snowshoeing as well as an introduction to Canada's Physical Fitness Guide to Healthy Living. Safety and injury prevention will be discussed through developing an awareness of preventative techniques and preparation to avoid injuries. Students will acquire theoretical knowledge and personal skills in classic techniques, snowshoeing, and hill maneuvers. Equipment requirements and selection, sizing, care and waxing will also be discussed.

RS1370 - Recreation Activities II
This course is a study of the principles of effective outdoor leadership and the application of those principles to selected outdoor experiences. The potential of tourism, adventure tourism, and ecotourism in Newfoundland and Labrador will be examined with a focus on leadership skills and group dynamics. Students will gain exposure to a variety of outdoor recreation activities and will be provided with the knowledge and skills to assist them in developing programs for children, youth, adults, and older adults.
Prerequisite(s): RS1250

RS1400 - Community Agencies
This is a seminar based course in which students study local organizations involved in providing community and recreation services in Newfoundland and Labrador. Students will conduct research on organizations and present this research through formal presentations and papers.

RS1440 - Recreation Facilities
This course introduces the student to the theory and practice of the planning, design, operation, and management of recreational facilities. As well, the student will become aware of the general trends in recreation which influence the design and management of selected facilities.

RS1450 - Introduction to Therapeutic Recreation
This course introduces the student to the field of therapeutic recreation. The course addresses the provision of recreational services to individuals who face specific challenges.

RS1460 - Recreation Programming for the Older Adult
This course examines the physical, cognitive and emotional changes that occur as an individual ages. Characteristics of aging and disorders associated with aging will be examined. Students are provided with the framework necessary to design recreation programs for older adults.

RS1520 - Risk Management and Legal Liability
This course will overview the various forms of business and legal issues concerning recreation administration and operation of organizations and facilities operated by recreation practitioners. Students will review the components of the Canadian legal system. The area of risk management in recreation management will also be examined.

RS1530 - Principles and Procedures of Therapeutic Recreation
This course introduces students to a number of key principles and procedures that are paramount in the development and delivery of comprehensive therapeutic recreation services and programs. Course material will focus on the importance of therapeutic recreation programming and various other theoretical and philosophical foundations for therapeutic recreation services.
Prerequisite(s): RS1450

RT1600 - Clinical Skills I
The Clinical Skills I course is designed to introduce the respiratory therapy student to the clinical setting, using both the simulation laboratory and the hospital environment. Under direct supervision of the clinical instructor, students will have the opportunity to integrate and perform skills currently being taught in RT2200 Gas Supply & Control and RT2450 Respiratory Therapy Procedures. Sessions will be held in the hospital setting and in a simulated clinical laboratory throughout the semester.
Prerequisite(s): Successful completion of Semester 3
Co-requisite(s): All Semester 4 courses

RT1601 - Clinical Skills II
This course is a continuation of Clinical Skills I. Students will have the opportunity to demonstrate respiratory therapy procedures again under direct supervision. Students will be expected to expand their knowledge and comprehension of respiratory therapy procedures in keeping with didactic theory and laboratory skills previously or concurrently being taught. In the hospital setting, students will be expected to perform skills evaluated in Clinical Skills I. In a simulated clinical environment, students will have the opportunity to integrate and perform skills currently being taught in RT2220 Mechanical Ventilation, RT2230 Mechanical Ventilators and RT2451 Neonatal/Pediatric Respiratory Care I. Sessions will be held in the hospital setting and in a simulated clinical throughout the semester.
Prerequisite(s): Successful completion of Semester 4
Co-requisite(s): All Semester 5 courses

RT1610 - Respiratory Therapy Clinical Orientation
This course is a clinical review of respiratory therapy procedures, equipment, hospital policies and clinical skills prior to entering the RT III clinical year (Clinical Practicums I, II and Clinical Elective). This course is a mandatory requirement prior to entering the RT III clinical year.
Prerequisite(s): Successful completion of second year of Respiratory Therapy Program

RT2200 - Gas Supply and Control
In this course learners explore the administration of medical gas therapies with the primary emphasis on the principles of operation of the various types of equipment utilized in the delivery of respiratory therapy.
Prerequisite(s): Successful completion of 3rd semester

RT2220 - Mechanical Ventilation
This course focuses on the physiological implications of instituting, maintaining, and discontinuing mechanical ventilatory support. Emphasis is placed on patient 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, preoperative procedures, monitoring the anesthetized patient and complications of anesthesia.
Prerequisite(s): Successful completion of semester 4

RT2450 - Respiratory Therapy Procedures
This course introduces the student to the theory and application of clinical assessment and management skills requisite to the practice of respiratory therapy.
Prerequisite(s): Successful completion of 3rd semester

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 ECG 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 Skills III
This course is a continuation of clinical skills I and II. The course is designed to help students prepare for their clinical year of training, Clinical Practicum I and II. Specialized high fidelity manikins will be used in a simulated clinical setting to review didactic knowledge and practice skills previously taught. Students will be given various patient case-based scenarios and will be expected to provide satisfactory respiratory treatments in this simulated setting. Care of the neonatal, pediatric and adult patient will be emphasized. Following each case scenario, there will be a time for debriefing and discussion of student performance. This course will allow for the continued building of skills and knowledge before entering the hospital/clinical environment. There will also be an opportunity for students to rotate through various clinical areas to review and practice skills done in simulation.
Prerequisite(s): Successful completion of 5th semester
Co-requisite(s): All 6th semester 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, Cardio-pulmonary 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 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

RV1101 - Decks and Fences
This course will focus on the special requirements for constructing fences, decks and other exterior unprotected wooden and synthetic structures. Learners will apply their knowledge through the construction of a fence and deck.
Prerequisite(s): AJ1111, AJ1160

RV1120 - Building Systems I
The learner will be introduced to structural requirements of buildings and the principles of controlling air, moisture, thermal and sound movement and transmission in buildings. Practical exercises in the control of air, moisture, thermal, and sound will be utilized to enhance the learner's ability to apply the concepts.
Prerequisite(s): AJ1111, AJ1160

RV1140 - Accommodated Construction
This course will enable the learner to become aware of the requirements and specifications surrounding the basic requirements of barrier-free access for residential and commercial renovations projects. Learners will apply the theory through a practical application of construction by planning, drawing and constructing a barrier free structure.
Prerequisite(s): AJ1111, AJ1160

RV1160 - Renovation I
This course provides the learner with the knowledge of construction of heritage and obsolete buildings and the issues surrounding renovating these structures. Learners will apply the knowledge they have gained through practical application of a heritage renovation emphasizing the recycling of reusable materials.
Prerequisite(s): AJ1111, AJ1160

RV1161 - Renovation II
The course will introduce the basic concepts of shoring and needling, and structural tie-ins. Practical work will concentrate on more complex structural integrations, particularly as applied to roof frames. Learners will be introduced to the concepts of challenges associated with unique building structure designs.
Prerequisite(s): RV1160

RV1170 - Basement Renovation
This course will focus on basement renovation techniques and unique situations and solutions when renovating basements. Learners will obtain an understanding through practical application of the presented topics by performing a simulated or complete basement renovation.
Prerequisite(s): AJ1111, AJ1160

RV1200 - Green Renovating
This course will enable the learner to apply good practices of energy conversation, waste management, environmental impact, and indoor air quality management to projects. The learner will gain practical experience through performing a green building practical lab on residential or commercial structure.
Prerequisite(s): AJ1111, RV1160

RV1230 - Project Manager I
The learner will become familiar with the concepts of project organization, time

management, materials takeoff and estimating for construction projects. Learners will perform practical projects that apply the concepts of management of a project.
Prerequisite(s): AJ1111, RV1160

RV1231 - Project Manager II
The learner will apply skills acquired in RV1230 - Project Manager I to produce a complete project plan, required specifications, match the working drawings, create the materials take-off and labor estimate for a project.
Prerequisite(s): RV1230

RV1250 - Renovator's Basic Plumbing
This course will introduce the learners to the basics of residential plumbing systems and how to organize them with the renovation project. Learners will perform practical exercise to complete associated renovation plumbing tasks.
Prerequisite(s): AJ1111, RV1160

RV1260 - Renovator's Basic Electrical
This course will introduce the learners to the basics of electrical AC and DC theory as it relates to residential wiring systems, how to enable to identify the materials and tools so they can identify how they can interact with the certified electrical professional is required during a renovation project.
Prerequisite(s): AJ1111

RV1270 - Renovator's Basic HVAC
The learner will be introduced to principles and concepts of equipment, design and operation of Heating, Ventilating and Air Conditioning (HVAC) systems and components as they relate to residential and light commercial building applications. Practical exercises in heat load calculations, HVAC controls, use of testing instruments, and air balancing will utilized to enhance the student's ability to apply the concepts.
Prerequisite(s): AJ1111

RV1300 - Residential Estimating II
In this course, the learner will apply knowledge gained from completing AJ1170 - Residential Estimating to construction drawings and situations. All calculations and layouts are to be quality checked using the Canadian Building Code.
Prerequisite(s): AJ1170

RV1320 - Foundation Systems
The learners will develop an understanding of the numerous components and associated installation practices that combine to produce typical residential and light commercial concrete foundations and structures. Several residential forming systems, as well as ICF, will be studied in detail. Practical assignments and activities will support the delivery of this subject matter.
Prerequisite(s): AJ1111, AJ1160

RV1341 - Cabinet Layout and Design
This course will enable the learner to summarize requirements for cabinetry design, site preparation, and installation techniques. Learners will be introduced to both new home and renovation cabinet installation procedures. Learners will receive in class instruction and also have the opportunity to practice and apply the lessons through practical activities.
Prerequisite(s): AJ1111, RV1160

RV1351 - Flooring
Learners will gain an understanding of different types of flooring installation and removal procedures. Topics to be covered include underlayment, resilient tile, wood floors, laminate floors, engineer plywood floors, ceramic, porcelain tile, stone, resilient, and cement floors installation and removal procedures. Additional topics include site preparation, demolition, moisture monitoring, and estimation. Learners will complete practicals in the installation and removal of floors and floor finishes.
Prerequisite(s): AJ1111, AJ1170

RV1360 - Special Trims
Learners will gain an understanding of numerous types of interior trims and finishes. Topics to be covered include interior plastering and wall finishes/drywall, moldings, and painting/wood finishing. Learners will complete practicals in the installation and removal of trims, plastering, priming and painting.
Prerequisite(s): AJ1111, RV1160

RV1400 - Demolition and Waste Management
This course will provide the learner with a basic understanding of demolition and disposal practices. Recognizing hazardous materials will be emphasized in this course. Safe work practices will be emphasized to reduce the risk of accidents and injuries during demolition work. The need for proper waste diversion strategies will also be tabled during the course.
Prerequisite(s): AJ1111

RW3140 - Rotary Wing Aircraft (M)
This M course is to introduce the learner to the helicopter and the helicopter industry. Its aim is to provide learners with knowledge of helicopter fundamentals, theory of flight and the different main rotor systems. This is to enable learners 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 learners with knowledge of the basic systems found on a helicopter. This will enable the learner to perform maintenance inspections and repairs on the complete aircraft.
Prerequisite(s): RW3140

SC1120 - Introduction to Sociology
This is the first of two introductory courses in sociology. Students are introduced to the various methods and perspectives common in sociology. They then apply these methods and perspectives to the study of several issues related to contemporary Canadian society.

SC1121 - NL Society and Culture
This is the second of two introductory courses in sociology. Students use sociological methods and perspectives to examine aspects of Newfoundland and Labrador society and culture.

SC1150 - Principles of Sociology •
Transferable to MUN Sociology 1000. 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. This course includes the topics: 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, and trends in Canadian family life.

SC1240 - Healthy Aging
This is an introductory course in the area of aging. 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 - Introduction to Women's Studies
The course provides a chronology of the women's movement by examining its historical development. Students will learn about the Canadian and Newfoundland women's movement through an investigation of the contributions and achievements made by women, while also analyzing many of the persistent barriers to full equality for women.

SC1350 - Contemporary Issues for Women
This course examines and analyzes issues and concerns facing women in contemporary society from a feminist framework. Topics are examination and analysis include feminism, women and the economy, women and violence, women and the media, women and addictions, and women's health issues.

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.

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. This 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 learners by providing information regarding the engineering technology profession. This course will prepare learners for the workplace by illustrating how the skills and practices of successful students parallel the skills and practices of successful professionals.
Prerequisite(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 engaged in personal discovery and self-assessment, will 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 and developed a personal career plan.

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 informal debating.

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.

SD1760 - Workplace Essentials •
This course provides the learner with the essential skills required for the workplace. Upon completion of the course the learner should be able to demonstrate knowledge of meetings, unions, workers compensation, workers' rights and human rights, customer service and effective job search techniques.

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.

SE1010 - Fire Protection
This course is designed to give students a thorough understanding of the potential l0ss, 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.

SE1320 - Industrial Safety
This course will introduce the learner to the interpretation and application of workplace occupational health and safety legislation, as related to an industrial setting. The learner will be provided with practical knowledge in the safe operation, storage, and handling of various materials and equipment used in a typical industrial plant.

SE1400 - Auditing OHS&E Management Systems
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 learners 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 - Workers' Compensation and Disability Management
This course will communicate issues related to Worker's Compensation and Disability Management that will enable the student to acquire the basic skills necessary to apply the principles and techniques of Workers' 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 work place.

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

• Available through Distributed Learning ⊗ Available through correspondence

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.

SE2150 - Safety Certifications
This course will provide students with certifications needed for work in industry. Certificate courses will be offered in week prior to Semester 6.

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 - OHS Program Elements
This course will introduce the learner to the key elements of an occupational health and safety program. The role of a Behaviour-Based Safety Approach in the establishment of a strong safety culture will also be addressed.

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

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. The course is divided into four parts. The first part, About Science, introduces the history and scope of science, then clarifies how science operates. The second part, Biology: Living Systems, introduces topics such as cells, cellular processes, genetics, human biology and ecosystems. The third part examines aspects of Earth Science including geology, continental drift, crust composition, and surface phenomena such as weather and glacier formation. The final part of the course, Astronomy, introduces concepts such as stars, quasars, black holes, the solar system and the cosmological view of the universe.

SI1501 - Introduction to Physical and Life Science II
The course is divided into three parts. The first part, About Science, introduces the history and scope of science, then clarifies how science operates. The second part, Physics, develops concepts such as motion, gravity, thermal energy, electromagnetic waves, atomic structure and nuclear physics. The last part of the course, Chemistry, discusses topics such as matter, chemical bonding, chemical reactions and organic chemistry. Science 1501 is transferable to MUN Science 1151.

SI2320 - Materials Science
This course will focus on the structure and composition of materials used in 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

SM1100 - Stop Motion Animation
This course is designed to provide students with the skills and knowledge necessary to create short films using stop-motion animation.

SN1160 - Sound & Microphones
This course is designed to introduce students to the fundamentals of sound, the basics of human hearing, basic acoustics, psychoacoustics and ear training. Students also learn about microphones which are used to transduce sound pressure into electrical voltages which can then be manipulated, encoded, stored to a desired medium or turned back into sound pressure.

SN1170 - Music Production Techniques
This course is designed to get the student out of the classroom and into the recording studio. Students will learn the titles and job descriptions of studio personnel, session flow and terminology, session preparation, microphone and other recording techniques. Students will also get some hands-on time with various signal processing tools and learn about studio signal flow. Lastly, mobile recording equipment and techniques will be discussed.

SN1180 - Exploring Your Industry
This course is designed to give the student much needed insight into the industry they have chosen. Through research and networking with industry professionals, the student will explore their industry in areas such as technical innovation, recent trends, employment prospects and professional organizations within the industry.

SN1200 - 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. Career Planning and other employment opportunities will be discussed as well as the perks and pitfalls of Independent Record Productions.

SN1410 - Stage Lighting
This course is designed to introduce the student to the components and applications of stage lighting for 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, DMX, intelligent lighting and lighting control software. Electrical safety practices will be explained and emphasized.

SN2110 - Mixing & Mastering
This course is designed to expose the student to the final two phases of the recording process: mixing & mastering. Mixing philosophies and techniques will be examined as well as intermediate and advanced use of EQ, dynamics processing and special effects. Mastering will touch on the basics of the process and the tools used to create radio-ready final products.
Prerequisite(s): SN2200

SN2120 - Sound in Practice I
This course is designed to immerse the student in a practical, hands-on, interdisciplinary environment. Theory from other courses will be put into practice as students liaise with students in other media arts disciplines. All projects will be assigned and mentored by the instructor.
Prerequisite(s): SN1160, SN2200
Co-requisite(s): SN2420, SN2110

SN2130 - Career Management
This course will introduce learners to the fundamentals of managing a career in the sound recording and production Industry. It will identify the skills necessary for successful financial management and will introduce the importance and basics of financial planning. It will review the financial aspects of recording

such as budgeting, funding, record keeping and government reporting. Learners will also be introduced to the fundamentals of project management and will be presented with career opportunities that are available in the industry. A combination of theories/concepts and practical illustrations are used to explain the application of sound financial planning.

SN2140 - Acoustics & Studio Design
Acoustics & Studio Design is a Sound Recording & Production course. It is designed to prepare students for a career in the field of sound recording and production. Students will learn the necessary physics of sound and acoustics. They will then apply this theory to the studio, allowing them to design spaces specifically for particular acoustical requirements. Finally, they will take this learning outside of the studio to apply all that they know toward speaker and stage layouts, both enclosed and open air.

SN2150 - Sound in Practice II
This is a continuation of the first Sound in Practice course and is designed to immerse the student in a practical, hands-on, interdisciplinary environment. Theory from other courses will be put into practice as students liaise with students in other media arts disciplines and external community bodies. All projects will be assigned and mentored by the instructor.
Prerequisite(s): SN1410, SN2201

SN2200 - Recording I
This course is an introduction to sound recording technologies. The evolution of those technologies is traced from when sound was first captured and moves to a comprehensive overview of contemporary technologies. Topics include History of Recording, Magnetic Recording, Digital Recording, Analog and Digital Consoles, Analog and Digital Processing.
Co-requisite(s): SN1160

SN2201 - Recording II
This course is designed to give the student hands-on experience of a recording session from pre-production right through the entire modern digital recording process. Modern editing for timing and pitch will be covered as will vocal comping and editing techniques.
Prerequisite(s): SN1160, SN2200
Co-requisite(s): MM2340, SN1170

SN2400 - Sound Production for Animation, Film and Video
This course explores the unique requirements for sound recording and production in film and video industries. Students will review the key technical requirements of the industries and, through practical sessions, will demonstrate required competencies.

SN2420 - Sound for Visual Media
This course explores the unique requirements for sound recording and production for visual media. This includes film and video production, digital animation and video game design. Students will review the key technical requirements of these industries and will, through practical sessions, demonstrate required competencies.

SN3100 - Live Sound Production
This course is designed to introduce the student to the various components that make up a public address system. Cabling and connections will be examined and explained. Mixing sound indoors will be compared and contrasted to mixing sound outdoors.
Prerequisite(s): SN1160

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.

SP1210 - 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.

SP1320 - Radiation Safety
This course will have the learner explore the health and safety concerns related to working with industrial radiography radiation sources. The primary intent of the course is to introduce the learner to safe handling, standard operating principles and procedures and emergency operation principles and procedures for industrial radiography exposure devices. Through the principle of ALARA (As Low As Reasonable Achievable) and the concepts of Time Distance and Shielding this course will prepare the learner for calculating and verifying working radiation dose rates, accumulated dosages, safe distances, and shielding requirements. The relevant sections of the Canadian Nuclear Safety Act and Regulations will be explained in detail. Successful completion of this course will provide the learner the opportunity to further pursue the CEDO Certified Exposure Device Operators designation through the NDT (Non-Destructive Testing) Certifying Agency of CANMET Materials Technology Laboratory, Natural Resources Canada in accordance with the Canadian Nuclear Safety Commission Regulatory Guide G229.

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.

SP1450 - Quality Management Systems
This course introduces the learner to the concepts and systems of Quality Assurance. The context of the course will be centred around the elements of quality assurance as it impacts the welding industry. It emphasizes the elements and it demonstrates the practices and procedures that companies employ to meet the requirements of a Quality Management System.

SP1730 - CNC Machining I
This is an introductory course in Computer Numerical Control (CNC). Programming concepts learned through the lecture time will be applied using both a CNC Lathe and CNC Milling Machine.
Prerequisite(s): SP1200

SP1731 - CNC Machining II
This is a course in Computer Numerical Control (CNC) using Computer Applied Manufacturing (CAM) software. It 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 lecture, computer lab and hands-on work in the shop.
Prerequisite(s): SP1730

SP1830 - Metrology and Quality Control
This course integrates the metrology of product design with the control of quality for a product or service. Measurement of the physical characteristics of a product and its relationship to the manufacture, quality and cost is emphasized. The student will use a variety of measuring tools such as micrometers, scales, the optical comparator and the coordinate measuring machine (CMM) for inspection procedures. In addition, the student will be introduced to Geometric Dimensioning and Tolerancing which will be integrated into the quality control procedures required in the manufacture of the product.
Prerequisite(s): SP1200
Co-requisite(s): MA1670

SP2110 - NDT-MT & RT
This course is intended to introduce the learner to the theory and practice of the Non-Destructive Testing (NDT) disciplines of Magnetic Particle Inspection (MT) and Radiographic Inspection (RT).
Prerequisite(s): PH1100; WD1440

SP2120 - NDT-PT & UT
This course is intended to introduce the learner to the theory and practice of the Non-Destructive Testing (NDT) disciplines of Liquid Penetrant Inspection (PT) and Ultrasonic Inspection (UT).
Prerequisite(s): CF1100

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.

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, teamwork 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.

SP2350 - Quality Assurance & Control
This course is designed to provide knowledge and skills prerequisite to the development, implementation, maintenance and evaluation of Quality Assurance and Quality Control Systems.

SP2360 - Quality Control and Reliability
This course builds on the theory and practice covered in the previous quality assurance, metrology and quality control courses. If focuses on application of geometrical dimensioning and tolerances, precision measurement using a co-ordinate measuring machine and reliability.
Prerequisite(s): SP1830; MA1670

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.

SP2450 - OHS Management Systems
This course will introduce the student to the interpretation and application of workplace occupational health and safety (OHS) legislation and provide the student with an understanding of due diligence. The course is designed to enable the student to utilize industry-recognized standards and methodologies to assess risk, determine its magnitude, and develop plans to minimize and control it. Case studies from manufacturing or other industrial settings may be used to demonstrate the necessity for proactive safety systems.

SP2455 - Petroleum OHS Management
This course will introduce the student to the interpretation and application of workplace legislation and regulations to provide the student with an understanding of due diligence.

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 CADD and communications, with emphasis on the written report.
Prerequisite(s): EG1430

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): TX1500, VA1201

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

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, 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. Also included are differential, profile, trigonometric, and cross-section leveling. An introduction to the use of global positioning system (GPS) is included. Field labs and practicals emphasize use and care of surveying equipment, note taking and interpretation and plotting of field notes.
Prerequisite(s): MA1101

SU1210 - Construction Surveying
This is the second course in surveying for learners in the Civil Technology program. Its purpose is to strengthen the surveying skills of learners, to teach them new skills in surveying that are directly related to the construction of buildings, roads and municipal services.
Prerequisite(s): SU1200

SU1320 - Plane Surveying I
This is an introductory course in surveying presented to Geomatics Engineering Technology (Co-op) program. 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 leveling, 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

SU1321 - Plane Surveying II
This is the second course in Plane Surveying in the Geomatics Engineering Technology (Co-op) program. This course expands on the topics covered in SU1320: vertical and horizontal datums, data transformation, total station instrumentation, data collectors, horizontal and vertical curves, and construction surveying.
Prerequisite(s): SU1320, SU1500

SU1360 - Graphics for Geomatics Engineering Technology
This course introduces a surveying software package. The course utilizes and expands on theory and practice from previous cartography, CAD, and plane surveying courses applying this knowledge to a surveying graphics package. Topics covered include applied drafting skills, traverse computations, software adjustments, earthwork volume determination, road design, area calculations, and subdivision design.
Prerequisite(s): SU1320, SU1500
Co-requisite(s): SU1321

SU1440 - Geographic Information Systems (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 are 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): SU1320, SU2500

SU1441 - Geographic Information Systems (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 EG1110.
Prerequisite(s): MA1101, PH1100, EG1430

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): SU1321

SU1541 - Hydrography II
This course is an advanced course in hydrographic principles and procedures. It is a continuation of SU1540 (Hydrography I) with emphasis on advanced hydrographic systems and their use in marine engineering projects.
Prerequisite(s): SU1540, SU2570

SU1550 - Remote Sensing
This course is designed to introduce the basic principles and skills associated with remote sensing. Ortho photography 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 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, photos, and GPS. Students will also be introduced to viewing and manipulating digital data through desktop mapping.

SU2320 - Geodetic Surveying
The third surveying course for the Geomatics Engineering Technology (Co-op) program and addresses the determination of precise positions. The course deals with the acquisition of high precision data by using the available instrumentation to its capacity. Instrumentation checks and equipment adjustment are performed. The errors associated with observed data and the effect of these errors on the accuracy of the calculated parameters are evaluated. The use of data loggers and the transfer of the logged data to coordinate geometry calculation programs are addressed. The reduction of collected data to the desired datum is introduced. The use of code and carrier based GPS receivers is also introduced.
Prerequisite(s): MA2100, SU1321, PH1101

SU2500 - Photogrammetry
This course is an introduction to photogrammetry for the Geomatics Engineering Technology (Co-op) program. The course introduces the student to the use of aerial photography for the production of maps. The principals of photogrammetry are addressed and the use of stereoplotters for map compilation is explored. The sources of aerial photography acquisition are identified. The aerotriangulation process for the photo to ground geometry is investigated. The use of aerial photography for the production of rudimentary maps is also addressed.
Prerequisite(s): SU1320, SU1500

SU2530 - Cadastral Surveying I
This is an intermediate level course designed to familiarize the student with legal principles and applicable legislation in the area of Cadastral Surveying. The student will also make practical application of this knowledge.
Prerequisite(s): SU1321

SU2531 - Cadastral Surveying II
This is Cadastral Surveying II with emphasis on the field and office practices of Land Surveyors. It includes the study of real property law and law related to matters of Land Surveying in Canadian jurisdictions.
Prerequisite(s): SU2530

SU2570 - GPS and Remote Referencing
This course introduces the student to the Global Positioning System (GPS) as a precise measuring tool. The satellite systems, operational control and user applications of the GPS system are investigated. The GPS signal structure, broadcast information and the parameters of the navigation message are examined. Referencing systems pertinent to space positioning are defined and coordinate computations performed. The procedural tasks associated with various GPS modes of operation are practiced through completion of specified survey projects. Quality assurance and data analysis is performed to investigate the accuracies of the various GPS methods such as Static, RTK and Post processed solutions. Determination of position by use of the classical astronomic means is also addressed. Alternate satellite systems, Glonass and Galileo are presented.
Prerequisite(s): SU2320
Co-requisite(s): MA3130

SU3210 - Geographic Information Systems (GIS)
This course is designed to provide students with an overview of Geographic Information Systems (GIS) technology 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): MC1080, SU1150

SU3300 - Geodesy & Map Projections
This third year course offered in Geomatics Engineering Technology (Co-op) expands on map projections and develops the higher order corrections to positioning problems. The course introduces geodesy and geodetic concepts to equip students for modeling and measurement in a 3D global context. This course expands on map projections and develops higher order corrections to positioning problems.
Prerequisite(s): SU2570, MA3130

SU3500 - Adjustments
This course further explores the use of the Least Squares technique 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): MA3130, SU2570, SU1540

TA1141 - Orientation to Rehabilitation •
The purpose of this course is to introduce the student to the field of rehabilitation, the role of the Rehabilitation Assistant, professional organizations and areas of specialization. The course is followed by a one-week clinical placement.

TA1231 - Human Movement and •
This course will enable students to describe the human body in motion and to demonstrate safe body mechanics. This will be based on theoretical and practical study of human movement and kinesiology 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 this course.
Prerequisite(s): TA1390, TA1141, TA1610

TA1511 - 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.

TA1601 - Introduction to Clinical Skills •
This course will enable students to effectively handle and move patients using safe body mechanics. The course will include a lab component and a practical skills exam.
Co-requisite(s): BL1390

TA1610 - Clinical Orientation Placement •
The purpose of this course is to introduce the student to the clinical setting and develop their observation and professionalism skills.
Prerequisite(s): None
Co-requisite(s): TA1140

TA1612 - Advanced Clinical Skills •
This course is a continuation of TA1601 – Introduction to Clinical Skills. The student will learn the theory behind and practice in the lab setting, advanced handling and positioning skills and therapeutic interventions. Students will utilize appropriate equipment and techniques to enhance client participation in therapeutic procedures. The student will practice these skills in the lab and complete a practical skills exam.
Prerequisite(s): TA1601, TA1610

TA1701 - Clinical Placement I •
The student will demonstrate in the clinical setting advanced handling and positioning skills and therapeutic interventions. Students will utilize appropriate equipment and techniques to enhance client participation in therapeutic procedures. The clinical placement setting will be determined by the clinical instructor and will be supervised by an Occupational Therapist or Physiotherapist and/or Occupational Therapist Assistant or Physiotherapist Assistant.
Prerequisite(s): TA1612, TA1601, TA1610, TA1231

TA2140 - Disease, Injury and Intervention I •
Students will be introduced to a selection of diseases and injuries 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): BL1390

TA2141 - Disease, Injury and Intervention II •
Students will continue their study of a selection of diseases and injuries 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): TA1390, TA2140

TA2221 - Communication Disorders in Rehabilitation •
The purpose of this course is to review communication problems associated with neurological and sensory impairments, which inhibit a person's ability to effectively communicate. 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 difficulties. The students will learn strategies to assist disabled persons to communicate, despite their impairments.
Prerequisite(s): BL1390

TA2521 - Mental Health Concepts and Techniques •
This course provides a general overview of common mental health conditions and their management, and theories of mental illness and psychosocial 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, PTA and Rehabilitation Assistant in this setting.

TA2615 - Therapeutic Skills II for the Rehabilitation Assistant (OTA and PTA) •
This course will build on the knowledge learned in Therapeutic Skills I for OTA and Therapeutic Skills I for PTA. The course also focuses on the duties and role of the Rehabilitation Assistant and the integration of OTA and PTA skills in this role. Professional behaviours such as responsibility and accountability are addressed. Emphasis will be placed on therapeutic interventions with specific populations.
Prerequisite(s): All courses offered in Semesters 1, 2, 3 and 4

TA2671 - Therapeutic Skills I for OTA •
This course will introduce students to, and familiarize them with, the theoretical knowledge and entry-level practical skills of the Occupational Therapist Assistant. Students will learn practical skills in the areas of therapeutic exercise and activity, occupations of daily living (self-care, productivity, and leisure), adapted techniques, modification of the environment and the use of adaptive equipment. These skills will be applied to a variety of disabling conditions in the rehabilitation setting.
Prerequisite(s): TA1601, TA1231, TA1612, TA1701

TA2685 - Therapeutic Skills I for PTA •
The purpose of this course is to provide a foundation of exercise principles and techniques and the use of therapeutic modalities. As well, the student will learn to adjust and fit ambulatory devices, and apply the techniques learned to the most common neurological and musculoskeletal conditions.
Prerequisite(s): TA1601, TA1231, TA1612, TA1701

TA2710 - Clinical Placement III for Rehabilitation Assistant (OTA and PTA)
This six-week clinical placement will provide the opportunity for students to continue to develop the therapeutic skills learned in Therapeutic Skills I for OTA and Therapeutic Skills I for PTA. The student will demonstrate in the clinical setting advanced handling and positioning skills and therapeutic interventions. Students will utilize appropriate equipment and techniques to enhance client participation in therapeutic procedures. The student will practice entry level competence as a Rehabilitation Assistant, integrating both roles and the higher level clinical skills learned in Therapeutic Skills II for the Rehabilitation Assistant (OTA and PTA). The clinical placement setting will be determined by the clinical instructor and will be supervised by an Occupational Therapist or Physiotherapist and/or an Occupational Therapist Assistant or Physiotherapist Assistant.
Prerequisite(s): All other program courses

TA2741 - 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 Therapeutic Skills I for OTA and Advanced Clinical Skills and practice entry level competence as an Occupational Therapist Assistant.
Prerequisite(s): TA1701, TA2671, TA1612

TA2751 - Clinical Placement II for PTA •
This five-week clinical placement will provide the opportunity for students to continue to develop their therapeutic skills learned in Therapeutic Skills I for PTA and Advanced Clinical Skills and practice entry level competence as a Physiotherapist Assistant.
Prerequisite(s): TA1701, TA2685, TA1612

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 technologist is likely to use in his/her future work.
Prerequisite(s): TD2100

TD2130 - Heat Transfer & Flow Assurance
The course will introduce the fundamental concepts of heat transfer and flow assurance. It will further elaborate these concepts with theories and applications to the solutions of practically relevant petroleum engineering problems.
Prerequisite(s): FM2102, TD2100
Co-requisite(s): PM2330

TD3100 - Applied Thermodynamics (Refrigeration and Air Conditioning)
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 - Heat Transfer
This course deals with underlying theories and applications of heat transfer. These principles are then related to the unit processes in an industrial environment. The course covers heat transfer principles and applications including heat exchangers, combustion and energy conversions.
Prerequisite(s): MA1101, TD2100

TD3111 - Thermodynamics
This course continues from topics of heat and energy in Chemical Engineering. In this course the effects of work, heat and energy on a system are studied. The First and Second Law of Thermodynamics are defined, examined and applications of these laws to processes are studied. Refrigeration processes are studied in thermodynamic terms.
Prerequisite(s): CL1100

TM1100 - Medical Terminology I •
This course begins with a programmed text designed to guide the students from the fundamentals of word building to complete mastery of a medical word building system. Correct spelling and pronunciation are emphasized.

TM1111 - Medical Terminology
This course provides the engineering technologist with the terminologies commonly used in the areas of practice encountered in a healthcare environment to allow them to effectively communicate, on a technical level, with other healthcare professionals. The course integrates the terms for anatomy, physiology and pathology of specified body systems in a manner that meets these needs.

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. The course integrates the terms for 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

TR1100 - Tourism & the Arts
This course introduces the concept of Cultural Tourism and its connection to the Arts in Newfoundland and Labrador. Students will learn the principles of the contemporary tourism industry while focusing on the effect that it has on art and vice versa. A major aspect of this course is an understanding of the cultural geography of the province with a specific focus on the heritage of each region and the ways in which art is both representative of, and responsive to, that heritage. The goal is to create a thorough understanding of these elements and to encourage students to pursue employment in the tourism industry.

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 five 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 world-renowned, the uniqueness and diversity of the flora and fauna, and the impact that whales, seabirds & icebergs have had on the province.

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 designated 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 switch 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): 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 knit 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 embryo / 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 abdominopelvic 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 the student to acquire a comprehensive knowledge of superficial organs and structures. The didactic phase of the program will include instruction in thyroid, parathyroid, scrotal, testes, upper extremity venous, muscloskeletal and salivary gland anatomy. Emphasis will be placed on cross-sectional anatomy, pathophysiology, examination procedures and protocol, 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 the student 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

VA1110 - Drawing Methods & Media •
Students will be engaged in observational drawing exercises using historical and contemporary drawing processes while developing integral perceptual and technical skills. Students will learn to see and evaluate the visual world and learn to translate visual impressions using a wide range of media. Over the duration of the course, students will document the improvement in their individual drawing skills through the keeping of a working portfolio. Students will benefit from both group and individual instruction and critique.

VA1115 - 2D Design •
This is an introductory course in the elements and principles of design related to two dimensional works. Students will be provided with an understanding of design concepts, the elements of design, the principles of design, and how they can be used in visual communications.

VA1120 - Digital Imaging •
This course introduces students to the digital manipulation of images. Working from photographs, drawn and scanned images and objects, students will focus on the creative process of image development using Adobe Photoshop Creative Cloud. The course will emphasize digital imaging as a tool for the development of ideas, image design and critical thinking. Selected work produced in this course will contribute to personal portfolios.
Prerequisite(s): PY1150

VA1130 - Drawing Fundamentals
Students will learn the rudiments of drawing as a means of communicating objective ideas. Students will study fundamental drawing techniques with a view of developing accurate visual illustration skills required in design, and other collaborative problem solving disciplines.

VA1140 - Figure Drawing •
Students will develop their observational skills to see and analyze the human figure through focus on different principles of drawing using a variety of media in a sequence of exercises to develop insight into the form, structure and gesture of the human figure. Students will continue to contribute work to their personal portfolios.
Prerequisite(s): VA1110

VA1160 - Animation Drawing I
Students will explore the fundamental principles of cel animation using hand drawn sequential images and timing charts.

VA1161 - Animation Drawing II
Students will build upon the skills acquired in VA1160 Animation Drawing I and VA1130 Drawing Fundamentals. Through a series of exercises and applying advance principles of animation, students will learn to apply hand drawn sequential images and timing.
Prerequisite(s): VA1160; VA1130

VA1170 - 3D Design •
Students will utilize the elements and principles of art and design, and apply them to the conceptualization and creation of three-dimensional works of art. The three dimensions will be explored through the use of historical and contemporary media and approaches. Artwork will be analyzed through personal and peer critique. It will emphasize conceptual reasoning and consideration of material choice, craft, form, space, site, presentation and context. Students will select work from this course for their portfolios.

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.

VA1201 - Principles of Design
This is an introductory course in design principles. Students will be provided with a clear understanding of the principles of design and how they can be used in visual communications.
Prerequisite(s): VA1200

VA1230 - Graphic Design I
Students will gain a clear understanding of the elements and principles of design, and how they can be utilized for basic graphic arts tasks. Students will also be introduced to the role of the Graphic Designer in the graphics industry and will gain exposure to the basic operation of a design studio environment.

VA1231 - Graphic Design II
Students will develop 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, GA1120, GA1430

VA1400 - 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.

VA1600 - Sculpture for Animators
Students will design, document and transpose two dimensional character designs into three dimensional objects using a tactile approach, figurative subjects, and manual clay sculpture techniques.
Co-requisite(s): VA1130

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

VA2170 - Life Drawing
Students will develop drawing abilities and powers of observation using live models and the time honored practice of drawing from life.
Prerequisite(s): VA1130

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

VA2800 - Package Design
Students will be introduced to the theory and practice of package design. Students will also be exposed to a variety of packaging concepts and options, and will apply their knowledge to the development of several packaging projects that will incorporate their own ideas. Students will develop packaging solutions that meet clients' needs using industry standard software.
Prerequisite(s): GA1120, GA1430, GA1640, PY1200, GA1220

VA3550 - Screening & Peer Critique
Students will 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 availing of the opportunity to learn from the creative applications of those same peers.

WA1160 - Fluid Mechanics
This course is included in the Civil Engineering Technology program as an engineering science to provide the learner with a knowledge of the principles of fluid mechanics and knowledge to solve practical applied problems.
Prerequisite(s): MA1101; PH1101

WA1230 - Hydrology
This course is designed to introduce the learner to some of the major concepts of surface hydrology.
Co-requisite(s): MA1530

WC1150 - 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 learners, 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) (Co-op) program. Learners are expected to learn, develop and demonstrate the high standards of behaviour and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 10/11 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1201 - Work Term II
The second work term provides learners 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. Learners 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, learners are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical content and communication skills and submitted to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.

• Available through Distributed Learning ⊗ Available through correspondence

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
For most learners, this work term represents their first experience in a Geomatics/Surveying environment and, therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 5 in the Geomatics/ Surveying Engineering Technology (Co-op) Program. Learners are expected to learn, develop and demonstrate the high standards of behavior and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1301 - Work Term II
The second work term provides learners possessing significant knowledge from the Geomatics/Surveying Engineering Technology (Co-op) program with the opportunity to contribute to an employer's operation. This work term follows the successful completion of Semester 7. Learners 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, learners are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical and communication skills and submitted to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1310 - Co-op Work Term
For most students, this work term represents their first experience in the field of Electronic Systems Engineering Technology and therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 2 in the Electronic Systems Engineering Technology (Co-op) Program. Students are expected to learn, develop and demonstrate the high standards of behavior and performance normally expected in the work environment. Students will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1400 - Work Term I
For most learners, this work term represents their first experience in an industrial engineering environment and, therefore presents them with their first opportunity to evaluate their career choice. This work term follows the successful completion of Semester 4 in the Industrial Engineering Technology (Co-op) program. Learners are expected to learn, develop, and demonstrate the high standards of behaviour and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1401 - Work Term II
The second work term provides learners possessing significant knowledge from the Industrial Engineering Technology (Co-op) program with the opportunity to contribute to an employer's operation. This work term follows the successful completion of Semester 6. Learners 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, learners are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical content and communication skills and submitted to the Co-op Office. The work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC1460 - Work Term
For most learners, this work term represents their first experience in a civil 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 in the Civil Engineering Technology (Co-op) Program. Learners are expected to learn, develop and demonstrate the high standards of behavior and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report within four weeks of returning to classes. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1700 - Work Term I
For most learners, this work term represents their first experience in computing systems 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 in the Computing Systems Engineering Technology (Co-op) Program. Learners are expected to learn, develop, and demonstrate the high standards of behavior and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1701 - Work Term II
The second work term provides learners possessing significant knowledge from the Software Engineering Technology (Co-op) or Computing Systems Engineering Technology (Co-op) programs with the opportunity to contribute to an employer's operation. This work term follows the successful completion of Semester 7. Learners 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, learners are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical content and communication skills and submitted to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1830 - Work Term I
For most learners, this work term represents their first experience in a chemical 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 (Co-op) Program. Learners are expected to learn, develop and demonstrate the high standards of behaviour and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 10/11 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1831 - Work Term II
The second work term provides learners possessing significant knowledge from the Chemical Process Engineering Technology (Co-op) program with the opportunity to

contribute to an employer's operation. This work term follows the successful completion of Semester 8. Learners 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, learners are expected to demonstrate an ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical content and communication skills and submitted to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1900 - Work Term I
For most learners, this work term represents their first experience in a mechanical 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 in the Mechanical Engineering Technology (Manufacturing) (Co-op) program. Learners are expected to learn, develop and demonstrate the high standards of behaviour and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar

WC1901 - Work Term II
The second work term provides learners possessing significant knowledge from the Mechanical Engineering Technology (Manufacturing) (Co-op) program with the opportunity to contribute to an employer's operation. This work term follows the successful completion of Semester 7. Learners are expected to further develop and expand the knowledge and work-related skills and should be able to accept increased responsibility and challenge in the workplace. In addition, learners are expected to demonstrate and ability to deal with increasingly complex concepts and problems. Learners should conscientiously assess the various opportunities relative to their individual interests. A substantive work report is also to be prepared by the learner demonstrating competence in both technical content and communication skills and submitted to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
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): Eligibility for this work term is based on successful completion of all courses in academic terms one and two and WC1150 Work Term I with a Grade Point Average of at least 2.00. In the event a student has not obtained a work term before semester four results are released, the student has to be in clear standing from semester 4

WC2400 - Work Term III
This work term follows the successful completion of academic semester 8. Learners should have sufficient academic grounding and work experience to contribute in a positive manner to the management and problem-solving processes needed and practiced in the work environment. Learners should have strong technical ability, good business judgment and superior people skills to improve safety, quality, and productivity in both the production and service sectors.
Prerequisite(s): Eligibility according to Co-op regulations in current College calendar.

WC3150 - Work Term III
This is the final work term. The students should have sufficient academic grounding and work experience to contribute in a positive manner to the management and problem-solving processes needed and practiced in the work environment. The student should become better acquainted with her/his discipline of study, should observe and appreciate the attitudes, responsibilities, and ethics normally expected of information technology professionals and should exercise greater independence and responsibility in her/his assigned work functions.
The work term provides a unique learning experience in a real work place setting. The 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 the student develops her/his employability and technical skills, further enhancing her/his personal growth.
Prerequisite(s): Eligibility for this work term is based on successful completion of all courses in semesters 1, 2 and 4, and WC1150 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

WD1290 - SMAW for NDT
This course provides training to students enrolled in the Non-Destructive Testing Technician program in Shielded Metal Arc Welding. Students will be introduced to SMAW as it relates to weld faults, causes for weld faults and means of prevention. Learners will also perform basic SMAW welds.

WD1440 - SMAW Fundamentals
This introductory course deals with welding technology and processes as applied to the metal fabricating industry using Shielded Metal Arc Welding (SMAW) processes. Safety practices are emphasized in all aspects of welding applications in the shop. Applications include welding preparations, welding basic joints, and cutting processes, safety and health in the welding industry; basic welding technology.

WD1450 - SMAW Processes
This course is a continuation of SMAW Fundamentals (WD1440) and deals with the fundamentals of welding processes as they relate to Shielded Metal Arc Welding (SMAW) welding, gouging, and cutting. It also introduces the learner to the fundamentals of causes of welding faults, the repair procedures associated with these faults and mechanisms to improve the strength of welds after the welding process has taken place.
Prerequisite(s): WD1440 - SMAW Fundamentals

WD2300 - Welding Failure Analysis
In properly performing a failure analysis, the learners will keep an open mind while examining and analyzing the evidence to foster a clear, unbiased perspective of the failure. Analyzing failures is a critical process in determining the physical root causes of problems. The process is complex, draws upon many different technical disciplines, and uses a variety of observation, inspection, and laboratory techniques.
Prerequisite(s): CF1101, CF2560

WD2450 - Welding Metallurgy
This course explores some of the procedural and metallurgical concerns and microstructures that may affect the weldability and integrity of welded connections in carbon manganese steels, low alloy steels, stainless steels, cast iron and nonferrous metals.
Prerequisite(s): CF1101
Co-requisite(s): WD2650

WD2620 - Wire Feed Arc Welding
This course introduces the learner to the more common industrial semi automatic arc welding processes, the process controls, limitations, and typical industrial applications. Welding processes include GMAW, FCAW, SAW, EGW and ESW. The learner will be required to demonstrate knowledge of and proficiency with the most common of the welding processes noted.

WD2650 - GTAW Processes
This course is designed to introduce the learner with the theory and practice of Gas Tungsten Arch Welding (GTAW). The GTAW course includes the selection and set-up of equipment and accessories and their application to aluminum, steel and stainless steel Processes

covered include manual and automated processes.
Prerequisite(s): WD1450

WD2680 - Welding Standards & Codes
This course introduces the learner to welding standards and codes related to the fabrication and inspection of pressure vessels, tanks, structures, and structural steels. Applicable codes such as ASME, Section VIII-1, and Section IX and CSA Standards W47.1, W59, W178.1, and W178.2 are discussed in detail. Other similar codes and standards such as ABS, Lloyds, AWS, and DNV will also be discussed and compared with ASME and CSA.
Prerequisite(s): WD1450; EG1310

WD3120 - Cost Analysis Project
The purpose of this course is to introduce the learner to the concepts involved in the design, costing and management of a welded assembly. Through completing the course the learner will set the specifications, develop drawings, plan timelines, prepare project costing, develop inspection and test plan. The learner will submit a document package that represents a proposal for the design and construction/fabrication of the welded assembly. The learner will present the completed proposal to an audience of their classmates and program instructors.
Prerequisite(s): All courses in previous academic semesters and a minimum cumulative GPA of 2.0

WM1110 - Introduction to Gender Studies
This course considers gender, gender studies, and feminisms as areas of exploration from historical, contemporary, transnational, and interdisciplinary perspectives. The aim of this course is to provide a critical framework for thinking about questions regarding gender and related forms of social difference. This course is transferable to MUN Introduction to Gender Studies 1000.

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 Semesters 1 to 4 of Computer Systems and Networking diploma program with a minimum GPA of 2.0

WT1190 - 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. The College will attempt to find a suitable work term placement for the student; however, if the College cannot find a suitable work placement, it is the responsibility of the student to find a suitable work placement. 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 Semesters 1 to 6

WT1400 - Work Term
For most learners, this work term represents their first experience in a petroleum 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 in the Petroleum Engineering Technology (Co-op) Program. Learners are expected to learn, develop and demonstrate the high standards of behavior and performance normally expected in the work environment. Learners will be evaluated by their employer and submit a work term report to the Co-op Office. This work term must be program relevant, a minimum of 12 weeks in duration, a normal work week of at least 35 hours, remunerated (paid) and evaluated.
Prerequisite(s): Eligibility according to Co-op regulations in current College Calendar

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 five semesters and a minimum cumulative GPA of 2.00.

WT1520 - 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 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 learners, 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. Learners are expected to 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): Semesters 1 and 2

WT1700 - Biomedical Practicum
This course provides comprehensive on-the-job training for Electronics Engineering Technology (Biomedical) learners in a setting within the health care engineering field. The duration of this particular section is seven weeks and will be scheduled upon the successful completion of the eighth semester. Learners 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. Learners' abilities will be assessed by the Employer and the College staff.
Prerequisite(s): Completion of all academic subjects and a cumulative GPA above 2.00; Certificate of completion of Government of NL PHIA course; Signed and witnessed Confidentiality Agreement; Current letter of conduct and vulnerable sector clearance

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