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# FISHERIES AND MARINE INSTITUTE OF MEMORIAL UNIVERSITY OF NEWFOUNDLAND

## ACADEMIC CALENDAR 2002 - 2003

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## MARINE INSTITUTE

This Prospectus sets forth the intentions of the Institute at the time of its publication with respect to all matters contained therein. The Institute reserves the right to deviate from what appears in the Prospectus and to add, delete, revise or cancel particular courses or programmes in order to serve the best interests of the academic community or because of circumstances or occurrences beyond the Institute's control. The Institute cannot accept responsibility or liability to any person or persons who may suffer loss or who may be otherwise adversely affected by such change.

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***All tuition and other fees quoted in this Prospectus are subject to change without notice.***

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The Office of the Registrar will assist students with any questions or problems which might arise concerning the interpretation of academic regulations. It is, however, the responsibility of the students to see that their academic programmes meet the Institute's regulations in all respects.

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# FISHERIES AND MARINE INSTITUTE OVERVIEW

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## HISTORY

The Marine Institute is a world class centre for advanced marine technology and education, based in St. John's, Newfoundland, Canada. The Institute was originally established in 1964 as the College of Fisheries, Navigation, Marine Engineering and Electronics with a mandate to provide education and training in all aspects of fisheries and marine technology. Twenty years later, in 1984, the College moved to a new location within Pippy Park as the Institute of Fisheries and Marine Technology. In 1992, the Institute was affiliated with Memorial University of Newfoundland.

Officially named the Fisheries and Marine Institute of Memorial University of Newfoundland, the Marine Institute is guided by its motto "Ad Excellentiam Nitere - Strive for Excellence". The Institute's capabilities allow it to be the most comprehensive education, training and applied research resource in Canada in support of the fishing and marine transportation sectors.

## MISSION

The Mandate of the Marine Institute is to provide education and training, applied research and technology transfer in support of our client industries on a national and international basis. Overall, the Marine Institute is committed to providing a learning environment in which students can reach their full potential. We aim to design and deliver programmes that provide graduates with highly competitive skills and abilities. We encourage excellence in teaching and learning, and seek to provide the industrial community with relevant, high quality, applied research and technology transfer.

Our mission is "To foster economic development in strategic sectors of the Newfoundland economy, particularly the fisheries and offshore, and to enable Newfoundlanders to participate in the Marine Industry nationally and internationally". This mission provides for the development of the Institute as an industrially relevant institution. A range of one-year advanced diploma, Bachelor's Degree, three-year diploma of technology, two-year technician diploma and one-year technical and vocational certificate programmes are offered, together with a variety of industry-oriented short courses.

## PROGRAMMES

Programmes offered by the Marine Institute provide graduates with the knowledge, skills and experience appropriate for success in the workforce. They fall into three categories, each addressing the particular needs of the industry and the specific goals of the Newfoundland post secondary education system.

Advanced Diploma and Diploma of Technology programmes are offered for the new generation of industry professionals, including those entering specific industrial niches requiring highly developed technical skills.

The Institute also offers, in cooperation with other components of the University, Bachelor's Degrees in Maritime Studies and Technology which are based upon existing three-year diploma programmes, as well as a Master of Science in Aquaculture and a Master of Marine Studies in Fisheries Resource Management.

Technical Certificate and Vocational programmes are offered for persons entering the work force at the basic production or technical levels. Industry response and short course professional development programmes are offered to industry participants throughout the province who wish to continue their professional development.

Our two-year and three-year programmes include the Provincial Common First Year for applied science and engineering technologies, developed by the Marine Institute in 1990. The Common First Year reflects the need for technology programme graduates to possess an understanding of core science and mathematics concepts, which are fundamental to technology specific knowledge and skills.

Professional development and certification in marine navigation, safety survival and firefighting are offered through a wide selection of training courses provided by the School of Maritime Studies. School of Fisheries short courses are offered within rural communities in harvesting, processing, safety and fisheries management, in cooperation with the Regional Colleges.

## ACCREDITATION

The standards of our programmes, and their industrial relevance, are validated through accreditation, where appropriate, with the Canadian Technology Accreditation Board or through certification by regulatory agencies such as Transport Canada.

Our industrial clients and partners are central to all of our programme development activities. The advice of our industrial programme advisory committees is sought in the ongoing development of longer programmes, while short courses are designed to meet specific industry needs. Whenever appropriate, programmes are submitted for national accreditation, providing graduates with mobility in professional employment.

## INDUSTRIAL RESPONSE AND DEVELOPMENT

The Institute undertakes applied research and engages in technology transfer and training for our client industries through a number of specialized centres.

### Centres

A number of centres operate within each of the two schools of the Marine Institute, namely the Offshore Safety and Survival Centre, the Centre for Marine Simulation, the Centre for Sustainable Aquatic Resources, and the Centre for Aquaculture and Seafood Development. These are more fully described in the paragraphs under the headings for each of the two schools.

### MI International

MI International is the focal point for international programmes and activities of the Marine Institute. The unit brings an international dimension to the Institute, while enhancing the province's export capability, by participating in international development projects and establishing linkages with other institutions around the world.

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*industrial clients and partners are central to all of our programme development activities*

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# FISHERIES AND MARINE INSTITUTE OVERVIEW

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## Office of Industrial Assistance

The Office of Industrial Assistance represents a partnership with the National Research Council (NRC), through its Industrial Research Assistance Program (IRAP). It facilitates the application of Marine Institute and Memorial University expertise and facilities to the technological problems of individual small to medium-sized enterprises (SME's).

## Affiliated Centres

Associated with the Marine Institute as well as two arms-length research and development organizations.

### Canadian Centre For Fisheries Innovation (CCFI)

The Canadian Centre for Fisheries Innovation (CCFI), founded in 1989, as a joint initiative of the Marine Institute and Memorial University, provides scientific services to the aquaculture and fish harvesting and processing industries.

### Canadian Centre for Marine Communications (CCMC)

The Canadian Centre for Marine Communications (CCMC) is a non-profit corporation with a mission to facilitate the expansion of the Canadian industrial base through a world-class research and applied technology centre.

Services offered by CCMC include engineering expertise, business support, public relations, marketing, information services, training and education.

CCMC is an initiative of the Atlantic Canada Opportunities Agency, Industry Canada, and The Fisheries and Marine Institute of the Memorial University of Newfoundland

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## FISHERIES CONSERVATION CHAIR

The Fisheries Conservation Chair is a research group created at Memorial University of Newfoundland in 1996 to develop an independent fisheries research programme to complement and scrutinize Government programmes and provide an integrative focus for fisheries research at Memorial University. The Chair is funded by the Natural Sciences and Engineering Research Council of Canada, the Provincial Department of Fisheries and Aquaculture, the Department of Fisheries and Oceans, and Fishery Products International.

The Fisheries Conservation research program focuses on several aspects of fisheries science and management, including:

- The collapse and rebuilding of groundfish stocks in Atlantic Canada.
- Sea-going research.
- Using high-technology to measure the ocean and its fishes (acoustics, electronic sensors, tagging).
- A comparative ecosystem approach to fisheries management and conservation.
- Working with the fishing industry.

In addition, the Fisheries Conservation Chair provides a wide range of opportunities and training for students at the graduate level in fisheries science. An important element of this training is experience at sea with scientific research, research vessels, and fisheries. Students use and develop the latest technology to measure ocean ecosystems and fish populations.

### Senior Chair

Rose, G., B.Sc. Guelph, M.Sc. *Laurentian*, Ph.D. *McGill*

### Associate Chairs

Chen, Y., B.Agr. *Qingdao*, M.Sc., Ph.D. *Toronto*

Snelgrove, P., B.Sc., *Memorial*, M.Sc. *McGill*, Ph.D. *MIT*

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## SCHOOLS

Instructional and Industrial Response and Development activities at the Marine Institute are organized around two schools, the School of Fisheries and the School of Maritime Studies, augmented by the Division of Instructional Development and Student Services. Theory and practice are viewed as partners in the learning process, as classroom education is continually translated into practice. Instructors are educated both as educators and practitioners, and the educational experience is based upon a balanced combination of practical and theoretical knowledge. The Institute also has a strong capability in learning technology and distance education.

The role, programmes and services offered by each of the two schools is described in general below. Further information regarding our programmes is provided in the detailed programme descriptions which follow in this calendar. Further information about our industry response and development services are available by contacting each centre or the Marine Institute Information Centre.

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## School of Fisheries

The School of Fisheries is charged with responsibility for developing and delivering education, training, and industry development services required to meet the needs of the harvesting, processing and aquaculture sectors of the seafood industry, the food industry in general. The School's resources are committed to developing and delivering education and training programmes to meet the needs of these sectors. The schools education and training programmes range from full-time programmes offered at the Marine Institute's facilities on Ridge Road to a comprehensive suite of short, industry-response courses which are community-based and offered in response to specific industry and group requests.

The programmes offered by the School of Fisheries are as follows:

- Advanced Diploma in Aquaculture
- Advanced Diploma in Coastal Zone Management
- Advanced Diploma in Food Safety
- Technology Diploma in Food Technology
- Technology Diploma in Marine Environmental Technology
- Technical Certificate in Quality Assurance
- Technical Certificate for Professional Fish Harvesters (Level II)

The School of Fisheries also offers a variety of industry response courses in Processing, Harvesting and Aquaculture. These are normally offered on a contractual basis in partnership with industry clients.

# FISHERIES AND MARINE INSTITUTE OVERVIEW

## Centre for Sustainable Aquatic Resources

The Centre for Sustainable Aquatic Resources (C-SAR) was established in 2000-2001 to build upon the success of the Marine Institute's former Fishing Technology Unit. The C-SAR's focus is research and development of technologies, techniques, and expertise in the areas of harvesting technology, resource conservation, and ecosystem management.

Working with industry, government and international partners, the C-SAR provides consulting, technical, and training services and conducts applied industrial research to develop new technologies in the areas of fish conservation, selectivity and responsible harvesting. The Centre's capabilities include the world's largest flume tank - the aquatic equivalent of a wind tunnel, underwater remote sensing equipment, research vessels and a core staff of fisheries researchers with local, national and international experience.

## The Centre for Seafood and Aquaculture Development.

The Centre for Aquaculture and Seafood Development (C-ASD) has a solid history of building successful partnerships with other ocean research agencies such as the Ocean Sciences Centre, the Centre for Cold Ocean Resources, the National Research Council, the Institute for Marine Bio-Sciences; and other provincial, national, and international aquaculture and seafood processing enterprises.

The C-ASD's team of scientific and technical researchers combines qualifications with multi-disciplinary industrial skills to provide assistance to clients in all areas of aquaculture and food development ranging from site evaluation services; to food processing technology design, and testing; food product development; and fish health and nutrition. The C-ASD offers industrial and applied research, technology transfer and consulting services to its clients.

## School of Maritime Studies

The development and delivery of education and training programmes to prepare Newfoundlanders and Labradorians for careers in the marine transportation industry is the responsibility of the School of Maritime Studies. Current programming is focused on preparing deck and engineering officers for vessel operations and preparing professionals for the associated marine technology sectors.

Programmes currently offered by the School of Maritime Studies include

- Technology Diploma in Marine Engineering Systems Design
- Technology Diploma in Marine Engineering Technology
- Technology Diploma in Naval Architecture
- Technology Diploma in Nautical Science
- Vocational Certificate in Marine Diesel Mechanics
- Vocational Certificate in Offshore Structural Steel Plate Fitters
- Technical Certificate in Firefighting
- Technical Certificate in Pre-Sea Deckhand

A number of programmes offered by the Marine Institute involve compulsory work placement. Services to support student employment are offered through the Marine Institute's Placement Office.

Industry response and development services of the School of Maritime Studies are offered through the following specialized centres:

### Offshore Safety and Survival Centre

The Offshore Safety and Survival Centre (OSSC) undertakes training and research to improve marine safety standards. Instruction and practical training for client groups are provided at the Marine Institute's new Marine Base, located on the south side of St. John's harbour, and at a purpose-built training centre located in Foxtrap, approximately 30 km from St. John's.

Staffed by qualified Transport Canada approved faculty, training in safety, survival and emergency response is provided through laboratory demonstrations, classroom instruction and practical hands-on simulated emergency exercises. The OSSC is

also actively involved in research aimed at improvements to marine and offshore safety.

Training courses offered by the OSSC are accredited by Transport Canada; Canada-Newfoundland Offshore Petroleum Board (CNOBP); Canada Nova Scotia Offshore Petroleum Board (CNSOPB); Petroleum Industry Training Service; National Fire Protection Association (NFPA); International Fire Service Training Association (IFSTA) and St. John Ambulance.

The facilities of the OSSC are world class and include a survival tank equipped with a helicopter escape trainer (HUET); a large environmentally safe fire field outfitted with marine and offshore fire training simulators; a range of lifeboat/rescue capsules, fast rescue craft and a sea going vessel.

The OSSC offers over 75 different courses to individuals and industry clients on a regular basis throughout the year. In addition, the OSSC has the capability to customize courses in its areas of specialty to meet specific client needs.

### Centre for Marine Simulation

The Centre for Marine Simulation (CMS) trains marine personnel to meet routine and emergency situations through simulator training and is also involved in the development of new vessel management techniques and in marine industry research. Research areas include equipment testing, testing of operators, crew familiarization, and the development and testing of operational procedures. The CMS facilities include: a full mission ship's bridge simulator, a ballast control room simulator, a marine engine/control room simulator; an electronic navigation simulator, a dynamic positioning simulator, and a global maritime distress safety system simulator. The facilities are also used for research into marine safety, behavioural research and port development studies. In conjunction with industry the Centre developments joint programmes and seminars to disseminate information about operational innovations and new technologies.



# FISHERIES AND MARINE INSTITUTE OVERVIEW

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## DIVISION OF DEGREE STUDIES AND RESEARCH

The Division of Degree Studies and Research (DDSR) includes the **Dr. C.R. Barrett Library, Curriculum Development Services, and Computer Services and Learning Technology**. The details of most of the services offered within the division are provided within the section of calendar describing on-campus services.

**The Dr. C.R. Barrett Library** collection supports study and research in fisheries and aquaculture, marine technologies, nautical science, and the ocean environment. The collection includes significant holdings in engineering.

**Curriculum Development Specialists** associated with the division offer services in support of programme and course development and redevelopment activities within each of the two schools of the Marine Institute.

**Computer Services and Learning Technologies** provides support in the development and delivery of learning opportunities through various learning technologies and also provides integrated support for the Marine Institute's networked and administrative computer systems.

## SUPPORT SERVICES

The Marine Institute's education and training and industrial response activities are supported by the services of the Division of Corporate Services and External Affairs and the Division of Instructional Development and Student Services.

### Corporate Services and External Affairs:

The Division of Corporate Services and External Affairs provides organizational and business development services in support of the Marine Institute's Schools, Centers and Units. The division includes:

**Finance and Contract Administration** which provides financial and contract administration support for all project activities, accounting and purchasing services, and operation of the Institute's bookstore.

**Marine and Technical Services** which manages and maintains the Institute's buildings, operates the research and training vessels, provides transportation, mail, receiving and printing services, and oversees new construction.

**Human Resources** which provides personnel and payroll services.

**Cafeteria** which provides meal services for students and caters to both meetings and conferences up to 250 delegates.

**Public Relations** which provides internal and external communications support through newsletters, brochures, tour programs, coordination of special events and advertising.

**Business Development and Marketing** which assists the Schools in identifying and taking advantage of opportunities for contract training and applied research through proposal development, formation of partnerships, and contract negotiations.

**The Office of the Registrar** which provides a variety of services to support the development of students at the Marine Institute including programme advising, admissions, and registration; grade handling and reporting; application of academic policies and regulations; maintenance of student records; and coordination of graduation and certification activities.

### Student Affairs:

Student Affairs offers services for students, prospective students, staff and faculty including personal, financial and academic counselling and referrals to specialized services available on-campus or in the community.

## FACILITIES

The Marine Institute operates from three locations around St. John's. The main complex within Pippy Park, overlooks the city. It consists of classrooms and technical laboratories in support of its programmes, a flume tank, a licensed seafood processing plant, and new freshwater aquaculture research and development facilities. Additionally, in support of maritime studies activities, the complex includes extensive marine simulation facilities. Just 30 kilometres from St. John's, in Foxtrap, training facilities include an international class marine firefighting unit, a survival tank and simulated ship structure which provides practical experience in controlling and extinguishing all types of shipboard fires.

The Institute also operates a brand new marine base at the Southside of St. John's harbour where its vessels are moored. The Department of Marine and Technical Services operates the Institute's training and research vessels: the M.V. Mares (45 feet), and the M.V. Louis M. Lauzier (130 feet).

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### SUPPORT SERVICES:

- Corporate Services & External Affairs:*
- Finance and Contract Administration*
- Marine & Technical Services*
- Human Resources*
- Cafeteria*
- Public Relations*
- Business Development & Marketing*
- The Office of the Registrar*

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### Student Affairs

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*Marine Institute Operates from Three Locations:*

*Main Complex - within Pippy Park  
Offshore Safety and Survival Centre - Foxtrap  
Marine Base - Southside of St. John's Harbour*

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# FISHERIES AND MARINE INSTITUTE MEMORIAL UNIVERSITY OF NEWFOUNDLAND DIARY FOR THE ACADEMIC YEAR 2002 - 2003

The Fisheries and Marine Institute of Memorial University of Newfoundland reserves the right to change the following dates

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August 5, 2002, Monday	Start Date Technical Session - Primary Nautical Science (offering #2 - class of 2005)
August 7, 2002, Wednesday	No Classes - Regatta Day
August 19, 2002, Monday	Registration Begins - Advanced Marine Engineering Work Term (Work Term II)
August 23, 2002, Friday	Classes End - Marine Engineering Technology Term 4
	Registration Ends - Advanced Marine Engineering Work Term (Work Term II)
<b>September 2, 2002, Monday</b>	<b>No Classes - Labour Day</b>
<b>September 3, 2002, Tuesday</b>	<b>Orientation Activities - Primary Technology Students</b>
	Start Date of Work Term - Advanced Marine Engineering Students
September 4, 2002, Wednesday	<b>Registration Deadline - Fall Term for Diploma and Advanced Diploma Programmes</b> <i>(Deadline for submission of Work Term Reports and completed Sea Training Manuals)</i>
September 5, 2002, Thursday	Classes Start - Fall Semester for all Diploma and Advanced Diplomas <b>Fees Payment Deadline - Fall Term</b>
September 10, 2002, Tuesday	Last Day to apply for Supplementary Exams for Technical Session and Summer Semester Courses
September 16, 2002, Monday	Start Date - Supplementary and Deferred Exams for Technical Session and Summer Semester courses
September 17, 2002, Tuesday	End Date - Supplementary and Deferred Exams for Technical Session and Summer Semester courses
September 18, 2002, Wednesday	Last Date - Students in Diploma and Advanced Diplomas to add courses for the Fall, 2002 Semester
September 19, 2002, Thursday	Last Date - Students in Diploma and Advanced Diploma to drop courses and receive a 100% refund of tuition fees and student union fees for the Fall, 2002 Semester. No student union fees will be refunded after this date
September 26, 2002, Thursday	Last Date - Students in Diploma and Advanced Diploma Programmes to drop courses and receive 50% refund of tuition fees for Fall Semester
September 27, 2002, Friday	Classes End - Technical Session Primary Nautical Science (offering #2 - class of 2005) Last Date - Students in Diploma and Advanced Diploma Programmes to apply for fall scholarships
September 30, 2002, Monday	Last Date to apply for Credit Transfers and Examination Re-reads for 2001/2002 Technical Session and Summer Semester
October 3, 2002, Thursday	Last Date - Students in Diploma and Advanced Diploma Programmes to receive 25% refund of tuition fees for the Fall Semester (No refunds will be granted to students in Fall Semester Programmes after this date)



**NOTE:**

*For information regarding  
vocational and technical certificate programmes,  
and Transport Canada deck officer  
and engineering officer certificate programmes,  
please refer to the academic diaries  
specifically for these programmes.*

# ACADEMIC DIARY

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October 7, 2002, Monday	Start Date - Work Term - (SP1) Primary Nautical Science (offering #2 - class of 2005)
<b>October 14, 2002, Monday</b>	<b>No Classes - Thanksgiving Day</b>
October 16, 2002, Wednesday	End Date - Students in Diploma and Advanced Diploma Programmes, <b>except for first time students in the Primary Technology Year</b> to drop courses without academic prejudice
<b>October 17, 2002, Thursday</b>	<b>Classes follow Monday's Schedule</b>
October 30, 2002, Wednesday	End Date - First Time in the Primary Technology Year to drop courses without academic prejudice
<b>November 11, 2002, Monday</b>	<b>No Classes - Armistice Day</b>
December 5, 2002, Thursday	Classes End - Diploma and Advanced Diploma Programmes - Fall Semester
December 6, 2002, Friday	No Classes - Students in Diploma and Advanced Diploma Programmes
December 9, 2002, Monday	Exams Begin - Students in Diploma and Advanced Diploma Programmes - Term 1
December 13, 2002, Friday	Exams End - Students in Diploma and Advanced Diploma Programmes - Term 1 End Date - Work Term (SP1) for Primary Nautical Science (offering #2 - class of 2005), and Work Term II Marine Engineering Technology
<b>January 3, 2003, Friday</b>	<b>Registration Deadline - Winter Term for Diploma and Advanced Diploma Programmes (Deadline for submission of Work Term Reports and completed Sea Training Manuals)</b>
January 6, 2003, Monday	Classes Start - Diploma and Advanced Diploma Programmes Start Date - Work Term I - Marine Engineering Technology Classes Start - Advanced Marine Engineering Technical Session
January 10, 2003, Friday	Last Day to apply for Supplementary Exams
January 17, 2003, Friday	Last Date - Students in Diploma and Advanced Diploma Programmes to Register or add courses for the Winter Semester
January 20, 2003, Monday	Last Date - Students in Diploma and Advanced Diploma Programmes to drop courses and receive 100% refund of tuition fees and student union fees for the Winter Semester. No student union fees will be refunded after this date Supplementary and Deferred Exams Start
January 21, 2003, Tuesday	Supplementary and Deferred Exams End
January 24, 2003, Friday	Classes End - Advanced Marine Engineering Technical Session
January 27, 2003, Monday	Last Date - Students in Diploma and Advanced Diploma Programmes to drop courses and receive 50% refund of tuition fees for Winter Semester
January 31, 2003, Friday	Last Date to apply for Scholarships for Winter Semester Last Date to apply for Credit Transfer and Re-reads
February 3, 2003, Monday	End Date - Students in Diploma and Advanced Diploma Programmes to drop courses and receive 25% refund of tuition fees for the Winter Semester
February 14, 2003, Friday	End Date - Students in Diploma and Advanced Diploma Programmes to drop courses in the Winter Semester without Academic Prejudice
March 14, 2003, Friday	End Date - Applications for Graduation for June, 2003
<b>March 17, 2003, Monday</b>	<b>No Classes - Mid-March Holiday (St. Patrick's Day)</b>
April 2, 2003, Tuesday	Registration Period Begins - Technical Session and Work Terms
April 4, 2003, Friday	Classes End - Diploma and Advanced Diploma Programmes - Winter Semester
April 7, 2003, Monday	Exams Begin - Winter Term for Diploma and Advanced Diploma Programmes
April 11, 2003, Friday	Exams End - Winter Term for Diploma and Advanced Diploma Programmes End of Work Term - Intermediate Marine Engineering Students Registration Deadline - Technical Session for Diploma Programmes (Deadline for submission of Work Term Reports and completed Sea Training Manuals)

# ACADEMIC DIARY

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April 14, 2003, Monday	Start of Break - Students in Diploma and Advanced Diploma Programmes (Except Advanced Diplomas in Aquaculture and Food Safety and Advanced Nautical Science) Start Date - First Aid for the Advanced Diploma in Aquaculture Programme Start Date - Canned Foods and Thermal Processing - Advanced Diploma in Food Safety Start Date - Technical Session for Nautical Science (Advanced) and Marine Engineering Technology (Intermediate) Classes Start - Technical Session for Nautical Science (Advanced) and Marine Engineering Technology (Intermediate)
April 15, 2003, Tuesday	End Date - First Aid for Advanced Diploma in Aquaculture
April 16, 2003, Wednesday	Start Date - Practical Aquaculture (Small Boat Safety) - Advanced Diploma in Aquaculture Programme
<b>April 18, 2003, Friday</b>	<b>No Classes - Good Friday</b>
<b>April 21, 2003, Monday</b>	<b>No Classes - St. George's Day</b>
April 22, 2003, Tuesday	End Date - Canned Foods and Thermal Processing - Advanced Diploma in Food Safety (End of Term)
April 24, 2003, Thursday	End Date - Practical Aquaculture (Small Boat Safety) End of Semester - Advanced Diploma in Aquaculture
April 28, 2003, Monday	Start Date - Technical Session for Students in Diploma Programmes (other than those which started April 14th, 2003) Start Date - Summer Term for Nautical Science (Term 4 offering #2 - class of 2005)
May 2, 2003, Friday	Deadline for Application for Supplementary Exams for Winter Term Exam Period
May 5, 2003, Monday	Start Date - Work Terms for Advanced Diploma in Aquaculture, Food Safety and Coastal Zone Management
May 12, 2003, Monday	Supplementary Examinations Begin
May 13, 2003, Tuesday	Supplementary Examinations End
<b>May 19, 2003, Monday</b>	<b>No Classes - Victoria Day</b>
May 20, 2003, Tuesday	End Date - Technical Session for Intermediate Marine Engineering Technology
May 23, 2003, Friday	Last Date to apply for Re-reads of examinations written for Winter Semester End Date - Technical Session Intermediate Marine Environmental Technology Registration Deadlines - Summer Semester Marine Engineering Term 4 and Marine Environmental (Intermediate) Work Term
May 26, 2003, Monday	Start Date - Summer Term - Marine Engineering Technology Term 4
May 30, 2003, Friday	End Date - Technical Session for Naval Architecture (all years), Marine Engineering Systems Design (all years), Nautical Science Intermediate (offering #1 - class of 2005) and Marine Engineering Technology (Advanced)
June 6, 2003, Friday	Classes End - Technical Session Nautical Science (Advanced - Groups 1 to 4) Last Date to Add Courses Marine Engineering Technology Term 4
June 9, 2003, Monday	Start Date - Work Terms for Intermediate Marine Environmental Technology, Marine Engineering Technology (Work Term III), and Nautical Science (Intermediate - offering #1 - class of 2005) Last Date - Intermediate Marine Engineering to drop courses and receive 100% refund of tuition fees and student union fees for the Summer Semester. No student union fees will be refunded after this date.
<b>June 13, 2003, Friday</b>	<b>Graduation</b>
June 16, 2003, Monday	Last Date - Intermediate Marine Engineering to drop courses and receive 50% refund of tuition fees for the Summer Semester

# ACADEMIC DIARY

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June 20, 2003, Friday	Classes End - Technical Session Nautical Science (Advanced - Group 5) End Date - Technical Session for Food Technology, Nautical Science (Primary offering #1 - Class of 2006)
<b>June 23, 2003, Monday</b>	<b>No Classes - Discovery Day</b>
June 24, 2003, Tuesday	Last Date - Intermediate Marine Engineering to drop courses and receive 25% refund of tuition fees for the Summer Semester
June 25, 2003, Wednesday	End Date - Technical Session for Primary Technology End Date - Electro-mechanical, Electronics, and Marine Engineering Technician Programmes Term 1 (Part I)
June 27, 2003, Friday	End Date - Technical Session for Marine Engineering Technology (Primary)
June 30, 2003, Monday	Start Date - Work Term for Nautical Science (Primary offering #1 - class of 2006) Start Date - Electro-mechanical, Electronics and Marine Engineering Technician Programmes Term 1 (Part II)
<b>July 1, 2003, Tuesday</b>	<b>No Classes - Memorial Day/Canada Day</b>
July 4, 2003, Friday	Last Date - Marine Engineering Term 4 to drop courses without Academic Prejudice
<b>July 8, 2003, Monday</b>	<b>No Classes - Orangeman's Day</b>
<b>July 10, 2003, Thursday</b>	<b>Classes follow Monday's Schedule</b>
July 31, 2003, Thursday	Classes End - Summer Term - Nautical Science (Term 4 offering #2 - class of 2005)
August 1, 2003, Friday	No Classes -Nautical Science (Term 4 offering #2 - class of 2005) End Date - Electro-mechanical, Electronics, and Marine Engineering Technician Programmes Term 1 (Part II)
August 4, 2003, Monday	Exams Begin - Nautical Science (Term 4 offering #2 - class of 2005) Classes Begin - Nautical Science (TS1 offering #2 - class of 2006)
<b>August 6, 2003, Wednesday</b>	<b>No Classes - Regatta (Civic) Day</b>
August 11, 2003, Monday	Exams End - Nautical Science (Term 4 offering #2 - class of 2005)
August 22, 2003, Friday	End Date - Work Term periods for Intermediate Marine Environmental, Nautical Science Primary (offering #1 - class of 2006), Sea Phase II (class of 2004 and class of 2005), Advanced Marine Engineering, and all Advanced Diplomas
August 25, 2003, Monday	Start Date - Nautical Science Technical Session II (offering #2 - class of 2005)
August 29, 2003, Friday	End Date - Intermediate Marine Engineering Technology (Term 4)
September 25, 2003, Friday	End Date - Nautical Science Technical Session II (offering #2 - class of 2005) and Technical Session 1 (offering #2 - class of 2006)



**NOTE:**

*Please see policies on course changes, fees payments/refunds for Technical Session Deadlines.*



**NOTE:**

*Please refer to specific programme regulations for maximum and minimum durations of programme work terms and deadlines for submission of work term reports.*

# MARINE INSTITUTE GOVERNANCE

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## MARINE INSTITUTE ADVISORY COMMITTEE

An Industry-based Advisory Committee, established by an Act of Legislature, with members appointed by the Board of Regents of the University, advises the Marine Institute on fisheries and marine related programmes and activities.

Mr. A. Roche (Chair)  
Executive Vice-President  
Fishery Products International

Mr. B. Broderick  
Inshore Vice President  
Fish, Food and Allied Workers Union (FFAW-CAW)

Mr. M. Samson  
Deputy Minister  
Department of Fisheries, Food, and Agriculture

Mr. K. Jones  
Director, Safety and Labour Management  
Canada Steamship Line Inc.

Mr. G. Lever  
Operations Manager  
Terra Nova

Dr. P. Locke  
President and C.E.O.  
Seabase Limited

Mr. L. O'Reilly  
Executive Director  
Marine Institute

Mr. A. O'Reilly  
President  
Fisheries Association of Newfoundland and Labrador

Mr. J. Price  
Regional Director General  
Fisheries and Oceans

Mr. C. Rogers  
Mayor  
Harbour Breton, NF

Mr. B. Wareham  
Executive, Vice-President  
National Sea Products Limited

Mr. M. Breau  
President, Student Union  
Marine Institute

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## MARINE INSTITUTE EXECUTIVE COMMITTEE

O'Reilly, L.G. B.A., B.A. (Ed.), Grad. Dip., M.Ed. *Memorial*

Vacant

Bonnell, D., B.Sc. *Memorial*

Dutton, C. R., B.Eng., B.Voc. Ed., M.Eng. *Memorial*, P.Eng.

Clarke, K., B.Sc., M.B.A. *Memorial*

Fisher, P., B.Sc., P.G.C.E., Ac. Dip. Ed. *London*, M.Ed. *Memorial*, Ph.D. *Leeds*

Executive Director

Associate Executive Director

Head, School of Fisheries

Head, School of Maritime Studies

Director, Corporate Services and External Affairs

Director, Division of Degree Studies and Research

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# MARINE INSTITUTE GOVERNANCE

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## ACADEMIC COUNCIL 2000 - 2001

### Chair Academic Council

O' Reilly, L.G., B.A. (Ed.), Grad.Dip.Ed., M.Ed. *Memorial* (Executive Director)

### Vice-Chair, Academic Council

Norman, W., Dip. Tech. *College of Fisheries*, B.Voc.Ed. *Memorial*, M.Sc. *World Maritime University*, Master Mariner

### Secretary to Academic Council

Murray, M., B.Comm. *Memorial* (Institute Registrar)

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## Division of Degree Studies and Research

Fisher, P., B.Sc., P.G.C.E., Ac.Dip.Ed. *London*, M.Ed. *Memorial*, Ph.D. *Leeds*, Director, D.D.S.R.

Breen, C.A., B.Sc., M.Ed. *Memorial*

Churchill, E., B.A., B.Ed., M.Ed. *Memorial*

Howse, D.M., B.Sc., B.Ed., M.Ed. *Memorial*

Kerr, B.D., B.Sc.F. *New Brunswick*, M.Ed. *Memorial*

Molloy, C., B.A. *Memorial*

Taylor-Harding, D., B.Sc. *Guelph*, M.L.S. *Western Ontario*

Hayter, R., Dip.Tech. *College of Fisheries*

<sup>1</sup>He, P., B.Eng. *Zhejiang Fisheries College*, Ph.D. *Aberdeen*

Hyde, R., Voc.Cert. *Marine Institute*, B.Voc.Ed. *Memorial*

Kennedy, E., Dip.Tech. *College of Fisheries*

Mackey, J., B.Th. *Laval*, M.Ed. *Loyola*

Mercer, K.B., B.Sc. *Dalhousie*, Grad.Dip.Tech. *Marine Institute*

Negrijn, J., Master Home Trade

<sup>3</sup>Parsons, J., B.Sc. *Guelph*, M.Sc. *Acadia*, Ph.D. *Guelph*

<sup>2</sup>Patel, J., B.Sc., M.Sc. *M.S.U. India*, M.S. *TWV Texas*, Ph.D. *SUNY New York*

Perry, R.A., B.A. (Ed.), B.A., M.A., M.B.A. *Memorial*

Pippy, M.C., B.Sc., B.Ed. *Memorial*

Whiteway, G., Dip.Tech. *College of Fisheries*, B.Sc. *Memorial*

<sup>1</sup>cross appointment with Department of Psychology

<sup>2</sup>cross appointment with Department of Biology

<sup>3</sup>on leave

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## SCHOOL OF MARITIME STUDIES

Dutton, C. R., B.Eng., B.Voc.Ed., M.Eng. *Memorial*, P.Eng. (School Head)

<sup>1</sup>Aboulazm, A.F., B.Sc.(Hons) *Alexandria*, B.Voc.Ed., Dip.Ad.Ed., M.Eng., Ph.D. *Memorial*, P.Eng.

Anstey, F.A., B.A., B.Voc.Ed., Cert.Bus.Adm. *Memorial*, O.N.1

Azizan, H., Dip.Tech. *College of Fisheries*, B.Voc.Ed., M.Ed. *Memorial*, MMM. *Dalhousie*, Master Mariner

Baker, K., Dip.Tech. *College of Fisheries*

Blackmore, D., Dip.Voc.Ed. *Memorial*, F.M.1

Boone, J.

Brake, D. J., B.Sc., B.Ed., B.A. *Memorial*

Brazil, D., Dip.Tech. *Marine Institute*, O.N.1

Brown, E., B.A., B.Ed., M.Ed. *Memorial*

Buckingham, J., B.Eng. *Memorial*

Budgell, D.

Bussey, S., B.A.(Ed.) *Memorial*

Callahan, C., B.Sc., B.Ed. *Memorial*

Campbell, S., O.N.1

Chaulk, C., B.Eng. *Memorial*

Clarke, C., Dip.Tech. *Marine Institute*, O.N.1

Courage, A., B.Eng., M.A.Sc. *Memorial*, P.Eng.

Cross, J., B.Sc. *Queens*, M.Eng. *Memorial*, O.N.2., P.Eng.

Curtis, S. L., Dip.Tech. *Marine Institute*, C.E.T.

Dalley, C., B.A., B.A.(Ed.), M.Ed. *Memorial*

Dohey, P.

Dunphy, L., Cert.Adv. Instructor Methodology *St. Mary's*

Enanny, F. A., B.Sc. *Ain Shams Univ. Egypt*, B.Voc.Ed. *Memorial*, M.S. (Eng.) *U.C. Berkeley*, P.Eng.

Ennis, J., Master Mariner

<sup>1</sup>Fiander, G. R., Dip.Tech. *Marine Institute*, O.N.1

Francis, D., Marine Engineer (2nd Class)

Freeborn, A., First Class Engineer

<sup>1</sup>Fudge, M., O.N.2

Halfyard, P., Cert.Tech. *College of Fisheries*, Cert.Tech. *Marine Institute*

Harnum, C.

Harvey, G.

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## STUDENT AFFAIRS

Green, G., B.A., M.Ed. *Memorial*

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## SCHOOL OF FISHERIES

Bonnell, D., B.Sc. *Memorial* (School Head)

Barker, D., B.Sc., M.Sc. *Memorial*, Ph.D. *Dalhousie*

Blunden, J., B.Sc., B.Ed. *Memorial*, Adv.Dip. *Marine Institute*, MMS *Memorial*

Canning, J., Dip.Tech. *College of Fisheries*

Coady, D., Dip.Tech. *College of Fisheries*, B.Voc.Ed. *Memorial*

Couturier, C.F., B.Sc. *New Brunswick*, M.Sc. *Dalhousie*

Durnford, E., Dip.Tech. *Marine Institute*, B.Sc., M.Sc. *Memorial*

Gibbons, R.C., B.A. *Memorial*, F.M.2

Grant, S., B.Sc. *Wilfred Laurier*, M.Sc. *Trent*, Ph.D. *Memorial*

Halfyard, L., B.Sc., B.Ed., *Memorial*, M.Sc. *Sterling*

Harris, C., B.Eng., M.Eng. *Memorial*

# MARINE INSTITUTE GOVERNANCE

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<sup>1</sup>Howse, D., B.Eng., M.Eng., M.B.A.  
*Memorial*, P.Eng

Hye-Knudsen, K., Master Mariner

Kavanagh, T. J., Dip.Tech. *Marine Institute*, Marine Engineer, (3rd class motor, 4th class steam)

Keating, J., Dip.Tech. *College of Fisheries*, B.Voc.Ed. *Memorial*, Master Mariner

Kettle, M.

Kiash, R. S., Dip.Voc.Ed. *Memorial*, C.Eng., Marine Engineer (1st class motor & steam), C.E.T.

Lye, E., B.P.E., B.Ed., M.P.E.  
*Memorial*

Martin, J., Master Mariner

Matchem, J. D., B.Eng. *Memorial*, E.I.T., P.Eng.

Matchim, R., B.Eng. *Memorial*

Meadus, R., Marine Engineer (4<sup>th</sup> Class)

Mercer, R., Dip.Voc.Ed., M.Ed.  
*Memorial*, Master Mariner

Norman, W., Dip.Tech. *College of Fisheries*, B.Voc.Ed. *Memorial*, M.Sc. *World Maritime University*, Master Mariner (Vice-Chair, Academic Council)

Parsons, C., O.N.2

Parsons, J.R., Dip.Tech. *College of Fisheries*, C.Voc.Ed., B.M.S. *Memorial*, Master Mariner

Parsons, K., B.Sc., B.A., B.Ed., Dip. Adult Ed. *Memorial*

Pearson, P., B.Eng. *Memorial*, M.Sc. *London*

Pelley, J., B.Sc., B.Ed. *Memorial*

Penney, D. S., B.Sc. *Iona*, B.Ed., M.Ed. *Memorial*

Piercey, D. R., Journeyperson Machinist

Pritchett, S., Dip.Tech. *College of Fisheries*

Rees, S., Dip.Eng.Tech. *Camosun*, Dip. Marine Electronics *BCIT*

Rehner, D., B.A. *College of Wooster*, M.A. *Bryn Mawr College*, B.Ed. *Memorial*

Ryan, J. C., B.P.E., B.Ed., B.Sc., B.A. *Memorial*

Shanahan, J., Dip.Voc.Ed. *Memorial*, Marine Engineer (4th class)

Sheppard, S.

Short, C., Master Mariner

Simoes Ré, J.M., Capitaio Marinha Mercante, Curso Elementar de Pilotagem, *Lisbon Nautical School*, Curso Complementar de Pilotagem, *Infante D. Henrique Nautical College Lisbon, Portugal*, Master Mariner

Skinner, D., Dip.Tech. *College of Fisheries*, Master Mariner

Small, G., B.Sc., B.Ed. *Memorial*

Snow, R., N.F.P.A., Level 3 Firefighting Cert., *University of Oklahoma*

St. Croix, J., B.A., B.Ed., M.Ed., M.A. *Memorial*

Stone, B.

Taylor, B., Master Mariner

Tobiasz, S.S., B.Sc. (Marine Engineering) *Gdansk Technical University*, C.I.M.E., P.Eng.

Tucker, J., B.Eng., M.Eng. *Memorial*, P.Eng.

Walsh, R., Marine Engineer (2nd class)

Ward, E., Dip.Voc.Ed. *Memorial*

Wheeler, F., Master Mariner

Whitelaw, B., B.Sc. *Newcastle*

Woolridge, D., B.Sc., B.Ed. *Memorial*

Young, J., Voc.Cert. *Marine Institute*

Zaki, A., Dip.Tech. *College of Fisheries*, Master Mariner

<sup>1</sup>  
*on leave*

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*Marine Institute Governance:  
Advisory Committee  
Executive Committee  
Marine Institute Officers  
Academic Council*

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# **Admissions, Academic Policies, and Regulations**

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# ADMISSION TO THE MARINE INSTITUTE

## Application for Admission

### Non-Degree Programmes

A Marine Institute Application for Admission is required for all Marine Institute non-degree programmes. An application fee of \$40, as well as original copies of documents required for determination of admission eligibility, must accompany each application. The documents required for determination of eligibility for admission to each Marine Institute programme are listed in the appropriate area of the Marine Institute Application for Admission as well as in the Admission Requirements section of this calendar. An application is considered to be complete only upon receipt of all required documents and application fees.



#### NOTE:

*Transcripts must be submitted by the issuing institution directly to the following address:*

*Registrar's Office  
Marine Institute  
P.O. Box 4920  
St. John's, NF  
A1C 5R3*

*Copies submitted by applicants will not be considered as official copies.*

The application deadline for Fall term admission for Diploma and Advanced Diploma programmes is April 15th. For all other programmes the Marine Institute does not enforce an application deadline. Applications for Admission for all programmes, including Diploma and Advanced Diploma programmes, are accepted up to the beginning of each semester or programme. However, early application is recommended as limited resources and facilities may limit enrolment.

Applicants should note that all documents (including transcripts) used for admission purposes become the property of the Marine Institute and are not returned to the applicant. Documents submitted by applicants who are not accepted or who do not attend are destroyed after the start of the semester for which admission was requested.

The Marine Institute reserves the right to refuse admission to any applicant. Application or admission enquiries should be directed to:

**Admissions Officer  
Office of the Registrar  
Fisheries and Marine Institute of  
Memorial University  
P.O. Box 4920  
St. John's, Newfoundland  
A1C 5R3**

**Telephone: (709) 778-0380 or  
1-800-563-5799  
Fax: (709) 778-0322  
Internet: admissions@mi.mun.ca**

### Bachelor Degree Programmes

Applicants seeking admission or re-admission to the Bachelor of Maritime Studies or Bachelor of Technology programmes of the Fisheries and Marine Institute of Memorial University of Newfoundland are required to apply for general admission to Memorial University of Newfoundland. A separate application is also required for admission to the degree programme of their choice. Applicants should consult the Memorial University Calendar and refer to the Regulations Governing Admission/Readmission for admission to Memorial University as well as to the Fisheries and Marine Institute section of the Memorial University Calendar for the regulations governing each programme.

If the applicant has attended Memorial University or the Marine Institute during either of the previous two semesters, a General Memorial University Application for Admission is not required. Students who are currently completing work at post-secondary institutions other than the Marine Institute or Memorial University are required to supply official transcripts of this work. Transcripts should be submitted by the appropriate institution directly to the following address:

**Registrar's Office  
Memorial University of Newfoundland  
St. John's, NF  
A1C 5S7**



#### NOTE:

*Transcripts submitted directly by applicants to the Office of the Registrar will not be accepted.*

### Master Degree Programme

Applicants for the Master in Marine Studies (Fisheries Resource Management) programme must apply for admission through Memorial University's School of Graduate Studies. Information concerning application procedures can be obtained from the Memorial University Calendar.

Inquiries concerning the degree programmes listed above may be directed to:

**Coordinator of Advanced Programmes  
Office of the Registrar  
Fisheries and Marine Institute of  
Memorial University  
P.O. Box 4920  
St. John's, NF  
A1C 5R3**

**Telephone: (709) 778-0522 or  
1-800-563-5799  
Fax: (709) 778-0322  
E-Mail: nsmith@mi.mun.ca**

#### *Application for Admission*

*Non-Degree Programmes  
Bachelor and Master Degree Programmes  
Mature Student  
Transfers from Other Canadian  
Universities/Colleges  
Applicants from Other Countries  
Credit Transfers and Challenge  
Examinations  
English Proficiency  
Requirements*

# ADMISSION TO THE MARINE INSTITUTE

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## ADMISSION REQUIREMENTS

The regulations governing admission to Marine Institute programmes are provided below. Applicants are advised to review the regulations for specific programmes to ensure they are familiar with any additional requirements that may be in place for determining eligibility for admission.

### Physical Requirements

Applicants seeking entry to Marine Institute programmes which lead to Transport Canada Certification for Seafarer's should note that Transport Canada requires proof of satisfactory physical fitness prior to sitting for any Transport Canada exams. This includes satisfactory visual acuity, colour vision, and hearing among other physical requirements.

Programmes requiring fitness evaluation include the Marine Institute Diplomas of Technology in Nautical Science, Marine Engineering, Vocational Certificates in Marine Diesel Mechanics and Offshore Structural Steel/Plate Fitter, and Technical Certificates in Pre-sea Deckhand and Firefighting. Proof of physical fitness is required for students to participate in the Marine Emergency Duties (MED) Training or Basic Survival Training (BST) components of these programmes.

Proof of physical fitness must be provided by way of a signed medical from an approved physician. **Signed Seafarer's and Marine Emergency Duties (MED) medicals from an approved physician are required for admission to each respective programme.** The list of physicians approved to conduct either the Seafarer's or MED medical is available from the Marine Institute Office of the Registrar. Details of the physical requirements for the Seafarer's Medical may be obtained from the Marine Institute Library or Transport Canada at the following address:

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#### *Admission Requirements*

*Physical Requirements*  
*Readmission*  
*Degree Programmes*  
*Advanced Diploma Programmes*  
*Diploma of Technology and*  
*Technician Diploma Programmes*  
*Vocational Certificate Programmes*  
*Transport Canada Certification Training*  
*Programmes*

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**Marine Safety Directorate**  
**John Cabot Building**  
**10 Barter's Hill**  
**P.O. Box 1300**  
**St. John's, NF**  
**A1C 6H8**  
**(709) 772 - 5167**

### Readmission

Applicants seeking readmission to Marine Institute programmes following a period of withdrawal should note that changes in regulations governing programmes may be made from time to time. Students who have not interrupted their programme may complete their requirements for graduation following the regulations in place when he/she started his/her programme. However, students who have interrupted their programme may be required to complete additional courses so that they may convert their programme to fit the new regulations.

### Degree Programmes

The Master of Marine Studies (Fisheries Resource Management), Bachelor of Maritime Studies and Bachelor of Technology degree programmes are listed in this Calendar for information purposes only. These programmes are governed by Memorial University of Newfoundland and the admission and other academic regulations are outlined in the Memorial University calendar.

### Advanced Diploma Programmes

Admission to a Marine Institute Advanced Diploma of Technology Programme requires completion of a three-year diploma programme or four-year degree programme. The specific requirements of each programme are outlined in the listings for each respective programme contained in this Calendar.

Applicants for admission to advanced diploma programmes are required to submit original copies of transcripts from all post-secondary institutions they have attended. Applicants may also be required to provide a resume and three letters of reference, as well as meet with an interview panel as part of the final selection process.

# ADMISSION TO THE MARINE INSTITUTE

## Diplomas of Technology and Technician Diplomas

The admission regulations below apply to all Technology and Technician Diplomas. Candidates for admission to diploma programmes are required to submit original, official copies of all high school and post-secondary education, with their application for admission. Applicants should refer to each programme for further details of regulations which may apply.

### Newfoundland Applicants

Newfoundland applicants seeking admission to any Marine Institute Technology or Technician Diploma programme require either a senior high school Level III Graduation Certificate; a grade 11 Public Examination Matriculation Certificate; a Level III Adult Basic Education (ABE) Certificate; or other qualifications amounting to high school equivalency including a Certificate of Attainment in B.T.S.D. - Technical Option, a General Equivalency Diploma (G.E.D.) or other qualifications judged by the Marine Institute to be equivalent to high school equivalency.

High School Level III, Grade 11 or ABE graduates require the following for admission to a Marine Institute diploma programme:

### High School Graduates - Level III

A senior high school graduation certificate with a minimum average of 60% in the following:

**Mathematics:** 2 credits from 3200\*, 3203\* or 3201  
\*a minimum of 60% must be achieved in these subjects

**Language:** One of 3101, 3102, 3103 or 3104 or any other 3100 level language credit.

**Science:** 4 credits two of which must be from  
Physics 3204, Biology 3201,  
Chemistry 3202, or Earth Systems 3209

**NOTE:**  
Geology 3203,  
which was part of the  
high school curriculum  
prior to the 1999-2000  
academic year,  
will also be accepted.

### High School Graduates - Grade 11 Public Examination Matriculation Certificate

A Grade 11 Matriculation Certificate with a minimum average of 60%.

### Adult Basic Education

Completion of Level III Adult Basic Education (A.B.E.) in the following Department of Education approved courses with a minimum of a 60% average in each of the following three areas:

**Communication Skills:** IC 3112 or IC 3116

**Mathematics:** IM 3212, IM 3213 and IM 3216

**Science:** Either Chemistry; IH 3215, IH 3116, IH 3117 and IH 3118, or  
Biology, IB 3113, IB 3115, IB 3214 and IB 3316; or  
Physics; IP 3215 and IP 3216; or  
Geology; IS 3212

Adult Basic Education courses are offered at the College of the North Atlantic and at approved private training institutions. Applicants may obtain further information concerning the Adult Basic Education programme from these organizations.

### Applicants from Outside Newfoundland

Individuals from outside Newfoundland seeking admission to any Marine Institute Technology Diploma and Technician Diploma programme are required to have graduated from Grade XII in the University Preparatory Program (the Secondary V Certificate for Quebec applicants) with a passing mark in the required courses and an overall average of no less than 60% in these courses.

## Vocational Certificate Programmes

Applicants seeking admission to any Marine Institute Vocational Certificate programme require successful completion of High School or a recognized equivalent. Individual programmes may have additional admission requirements. Candidates for admission to vocational certificate programmes are required to submit original, official copies of all high school and post-secondary education, with their application for admission. Please refer to the regulations governing each programme as listed in this calendar for further information concerning specific requirements.

## Technical Certificate Programmes

Applicants seeking admission to any Marine Institute Technical Certificate programmes require successful completion of the grade required for the particular programme for which they are applying. Individual programmes may have additional admission requirements. Candidates for admission to vocational certificate programmes are required to submit original, official copies of all transcripts for the required grades. Please refer to the regulations governing each programme as listed in this calendar for further information concerning specific requirements.

## Transport Canada Certification Training Programmes

Students entering Transport Canada Certification Training Programmes are required to be familiar with Transport Canada regulations governing the examination and certification of seafarers. Transport Canada requires that candidates attempting certification examinations have specific minimum periods of sea-service and/or prior certification qualifications. Applicants should refer to Transport Canada's TP2293 for details on the periods of time required for each certificate.

# ADMISSION TO MARINE INSTITUTE

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Candidates interested in pursuing Canadian Certification for Seafarer's should note that they are subject to certain minimum physical and residency requirements that are prescribed by Transport Canada. Please refer to Transport Canada's crewing regulations (SOR/97-390) and the TP11343 (Medical Examination of Seafarers's - Physician's Guide) for the related standards.

Transport Canada examination and certification of seafarers is available only to Canadian Citizens and landed immigrants. Only students who are eligible to sit for Transport Canada examinations are eligible for admission to the Marine Institute for certification preparation training.


Proof of physical fitness is also required for students to participate in Marine Emergency Duties (MED) Training which is compulsory for Transport Canada Certification programmes. Please refer to regulations governing physical requirements as listed in this calendar.

## Mature Students

Applications may be received from individuals who are 21 years of age or older within one month of the start of the programme for which they are applying. The admission requirements outlined earlier describe what are viewed as the minimum qualifications individuals should have in order to succeed in each respective programme area. However, the Marine Institute realizes that individuals may obtain the equivalent or other suitable qualifications from alternate sources to prepare them for technology programmes.

Therefore, applicants in this category are required to demonstrate that they have gained technical or practical expertise, or a combination of both, in the intended field of study. Mature applicants should submit an Application for Admission to the Marine Institute, as well as the following documentation so that their admission status can be determined:

- a resume outlining all associated experience
- letters of recommendation from employers or other individuals who can attest to an applicant's qualifications
- official academic transcripts of high school and post-secondary studies
- proof of age

 **NOTE:**  
*The Marine Institute reserves the right to refuse admission to any applicant.*

## Transfers from Other Canadian Universities/Colleges

Students from other universities and colleges who apply to enter the Marine Institute will be considered for admission upon producing satisfactory documentation. Students forced to withdraw from another university or college will not be eligible for admission to the Marine Institute until the associated withdrawal penalty has been served. Candidates for admission are required to submit official, original copies of all high school and post-secondary transcripts verifying they have attained admission requirements.

Students transferring from the College of the North Atlantic or from Memorial University's degree programmes should refer to the Newfoundland and Labrador Transfer Guide at [www.edu.gov.nf.ca/council](http://www.edu.gov.nf.ca/council) for details on established credit transfer availability.

## Applicants from Other Countries

Applicants from other countries must submit an Application for Admission to the Marine Institute along with official transcripts and any other related documentation well in advance of the semester for which they are seeking admission. The Marine Institute does not offer financial assistance to students from outside Newfoundland. Therefore, a statement of satisfactory financial resources must be submitted with the application for admission. Please refer to the regulations governing English Proficiency Requirements as listed in this calendar for further information.

## Credit Transfers and Challenge Examinations

Students transferring from other colleges or universities, and students with prior academic or work experience who feel they are eligible to earn credit from the Marine Institute for work completed towards the requirements of a Marine Institute programme, may apply to earn this credit through either an Application for Credit Transfer or through a Challenge Examination. Please refer to the section of this calendar concerning Academic Policies and Procedures for an explanation of the policies, regulations and procedures governing transfers of credit and challenge examinations.

## English Proficiency Requirements

English is the primary language of instruction at the Marine Institute. Therefore, all applicants seeking admission must possess an adequate knowledge of written and spoken English as a prerequisite to admission. Regardless of the country of origin or of citizenship status, applicants will be required to demonstrate proficiency in the English language. This demonstration will take one of the following forms:

- Successful completion of the equivalent of full-time instruction in an English language secondary institution as recognized by Memorial University of Newfoundland including successful completion of at least two courses in English language and/or literature at the Grade XI (or equivalent) level. Please note that these courses must be other than E.S.L. (English as a Second Language) courses.

# ADMISSION TO MARINE INSTITUTE

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- Successful completion of the equivalent
- Submission of official results of the Test of English as a Foreign Language (TOEFL) with an acceptable score.
- Applicants submitting a TOEFL score of 550 (or higher) will be considered as having demonstrated English language proficiency for admission purposes only. Applicants submitting a TOEFL score of less than 550 will be considered as not having met the English language requirements and will not be admitted until English language proficiency can be demonstrated.
- Submission of the official results of the Michigan Test of English Proficiency with an acceptable score. Applicants submitting a Michigan Test of English result of 85 (or higher) will be considered as having demonstrated English language proficiency for admission purposes only. Applicants presenting a Michigan Test of English result of less than 85 will be considered as not having met the English proficiency requirements and will not be admitted until proficiency in English can be demonstrated.

Information regarding the TOEFL programme is available from the Educational Testing Service, Box 899, Princeton, New Jersey, U.S.A., 08540, from U.S. embassies or consulates, or from offices of the U.S. Information Services. Information on the Michigan Test of English may be obtained from the Testing and Certificate Service, University of Michigan, 2001 North University Building, Ann Arbor, Michigan, U.S.A., 48109-1057.

In extenuating circumstances and with the approval of the Admissions Committee, applicants may be permitted to provide proof of proficiency in English based on a proficiency test designed and administered by the Department of English at Memorial University.

## Admission Status

### Non-Degree Programmes

The admission status of an application to the Marine Institute for non-degree programmes may fall in one of the following categories:

#### **Acknowledged (AK):**

The acknowledged classification refers to an application which has been received and the review of the applicant for admission is currently underway or about to begin. Following this review, additional information may be requested from an applicant or the applicant may be classified as Accepted, Conditionally Accepted, Not Accepted or Waiting.

#### **Additional Information (AI):**

This classification refers to those applicants from whom additional information or documentation has been requested in order to review their application for consideration of admission status.

#### **Accepted (A):**

An applicant will be officially accepted when all entrance requirements are met and a position is reserved in the programme for the applicant.

#### **Conditionally Accepted (CA):**

Students in their final year of high school (Level III) in Newfoundland, or individuals attending other post-secondary or other secondary institutions may be Conditionally Accepted to the Marine Institute prior to the official release of their final grades and academic standing.

This conditional acceptance remains valid until the Provincial Department of Education releases the final results for high school students or an official transcript of results is provided by the post-secondary or other secondary institution in question. A final determination of each applicant's admission status will be made upon receipt of the official grades and standings. Conditionally Accepted applicants who meet all of the entrance requirements will be granted formal acceptance to the Marine Institute programme for which they have been conditionally accepted. Conditionally Accepted applicants who, in the end, fail to meet the programme entrance requirements will be classified as Not Accepted.

#### **Not Accepted (UA):**

An applicant is not accepted to the Marine Institute when the individual does not meet the entrance requirements.

#### **Waiting (W):**

An applicant is placed in this category when the programme or programme option for which he/she applied is full. The applicant has met the programme entrance requirements and has been placed on a waiting list and will be offered a place as one becomes available.

For diploma programme admission, the waiting list is maintained up to the deadline to register/add courses in the academic semester. The waiting list for admission to a specific programme option within the Primary Technology Year is maintained up to the scheduled registration date for the Primary Technology Year students in the Fall Term. The waiting list for programmes that have multiple intakes during the academic year will be maintained for one year.

#### **Not Interested (NI)**

An applicant will be classified as Not Interested (NI) at any time during the application review and handling process if the applicant notifies the Registrar's Office that he or she is not interested in joining the Marine Institute programme for which he or she has applied for admission. Once classified as NI, no further communication will be made with the applicant concerning admission or registration for the programme offering in question.

In the case where an applicant has been already classified as Not Accepted (NA), the status would not be adjusted to reflect NI under any circumstance.

In cases when the applicant has been contacted for Additional Information (AI) and there has been no response by the registration deadline, the applicant will be classified as NI.

#### **No Response (NR):**

In cases when an applicant has been Accepted (A) or Conditionally Accepted (CA) but has not registered by the registration deadline, the application will be classified as No Response (NR).

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*Admission Status  
(Non-Degree Programmes)*

*Acknowledged (AK)  
Additional Information (AI)  
Accepted (A)  
Conditionally Accepted (CA)  
Not Accepted (UA)  
Waiting (W)  
Not Interested (NI)  
No Response (NR)*

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# ACADEMIC POLICIES AND REGULATIONS

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The Fisheries and Marine Institute of Memorial University is governed by policies, rules and regulations designed to ensure fair and equitable treatment for the entire Institute community. Some of the regulations deal with the normal workings of the Institute (registration deadlines, etc.) and pertain to all students. Other regulations, however, especially those concerned with readmission, supplementary examinations, deferred examinations and academic dishonesty, apply to certain students in certain specific situations. Every student has the right to appeal decisions resulting from the application of Institute regulations.

## INSTITUTE RULES

### Academic Misconduct

The Marine Institute values academic honesty highly and does not tolerate academic misconduct. All students are required to produce original work for evaluation where it is requested and are expected to be familiar with all of the regulations governing academic misconduct. Students who commit acts of misconduct are subject to disciplinary action governed by the policies outlined further in this section of the Calendar. Acts of academic misconduct include, but are not limited to:

- Cheating on assignments, tests, projects, reports, laboratories and examinations.
- Impersonating another student or allowing oneself to be impersonated
- Plagiarism
- Theft of academic materials
- Use and/or distribution of stolen academic materials
- Submitting false information
- Submission of the same material for two or more courses
- Academic Mischief such as tampering with examinations, gaining unauthorized access to examinations, removing materials from the examination room, violating other examination regulations or any other acts not described above which are considered to be acts of misconduct.

### Discipline

The general discipline of the Institute is based on rules of common sense and courtesy. Smoking is permitted only in designated areas. Defacement of buildings and damage to equipment are considered serious offenses. The Institute reserves the right to dismiss any student who does not comply with these regulations.

### Student Attendance

It is the Marine Institute's policy that attendance in all classes, labs, and all other scheduled meetings is compulsory. In exceptional cases, the course instructor may excuse a student from one or more classes. Acceptable cause for an excused absence may include illness, bereavement, family emergencies or any other cause deemed acceptable by the instructor. It is the student's responsibility to provide satisfactory proof of the necessity for absence.

A majority of the courses in some programs, including Nautical Science and Marine Engineering and all industry response courses, have specific minimum attendance requirements. In some short courses, an attendance rate of 100% is mandatory. However, unless otherwise specified, a rate of un-excused absence that exceeds 10% is considered to be unacceptable. Students are strongly advised to read the course outline for each course for which they are registered with respect to attendance requirements and other specific regulations governing that course.

A student who is inexcusably absent for more than an acceptable number of the scheduled meeting times for a course will be deemed to be in violation of this policy and will be required to consult the programme chair or designated advisor. If, following consultation with the programme chair or designate, the student's attendance does not improve, he or she may be discontinued from that course. In such cases, if this occurs following the course drop or fees refund deadlines, the student will be subject to any applicable academic or financial prejudice.

Attendance is included as part of the student's academic record and will be one of the criteria used to determine eligibility for continuation in a programme or for certification by the Marine Institute or external agencies such as Transport Canada.

Specific guidelines and related procedures are available from the offices of each School Head or the Registrar.

The registration of each student in a course implies that he or she understands this responsibility and agrees to abide by the above policy.

### Usage of Computer Facilities

The following guidelines are a subset of the **Regulations governing MI Computer Facility Usage** and are applied to all individuals accessing computer systems:

- All access to computer services and the issuing of computer accounts and passwords, must be approved by the Computer Services division of the Marine Institute in accordance with the Regulations for Issuing Accounts.
- No attempt should be made to discover other users' passwords nor should any such passwords discovered by chance be used. Passwords are distributed to individuals for the purpose of gaining access to a computer system and should remain confidential. Any suspected leak of a password **OR** other loopholes in system security should be reported immediately to the Computer Services department.
- Software applications and other proprietary information are not to be copied, this includes information which has been stored by Computer Services or any other computer users. This could result in a breach of copyright or license agreement.
- The hardware components of any computer system must not be moved. The software or hardware configuration of computer systems must not be altered.
- The Marine Institute's computing facilities may not be used for non-institutional projects, or for personal or commercial purposes.
- No one should deliberately attempt to degrade the performance of a computer system or to deprive others of resources or access to any university computer system.
- Software programmes that were not previously installed on the systems should not be operated. Any such use could increase the possibility of infection by computer viruses. Computer Systems are not to be used for games or other non-academic recreational activities (e.g. MP3's, Chat, On-line games).
- Abusive, fraudulent, or harassing messages are not to be sent or stored by users. Storage and possession of property is **strictly prohibited**.

# ACADEMIC POLICIES AND REGULATIONS

## EXPLANATION OF TERMS

The Marine Institute's **academic year** runs from the first day of registration for the fall semester to the last day prior to fall registration for the next academic year, which is usually the end of August.

- A **Term** or **Semester** means a period of approximately fifteen weeks during which regular classes are held and, for diploma of technology, technician diploma and advanced diploma programmes, in which there are at least 65 teaching days. Normally, the fall semester begins in September, the winter semester in January and the summer semester in May.
- **Technical Session** is a period of study which is normally five weeks in duration, but may be anywhere from three to eight weeks in duration, depending on the programme of study. The Technical Session normally follows the Winter semester or may precede the summer semester for programmes which normally have one or more scheduled summer semesters.
- A **course** is a unit of work in a particular subject which normally carries credit towards the fulfillment of the requirements for a particular certificate, diploma and for which achievement of the established learning objectives are formally measured and recorded.
- A **credit** is awarded for each course completed in which the student obtains at least the minimum passing grade.
- A **prerequisite** course is a course which must be successfully completed prior to registration in the course for which it is required. A **co-requisite** course is a course which may be taken concurrently with the course for which it is required.
- **Programme** refers to an academic programme forming a coherent unit of study including a series of courses, the completion of which, if other requirements are met, qualifies the candidate to receive the appropriate award.
- **Award** refers to the type of certificate or diploma to be conferred upon candidates completing a Marine Institute Programme who are approved by the Marine Institute Academic Council to receive this award. Awards are issued upon the successful completion of a programme of study which has been approved by the Marine Institute Senate (August, 1994 or earlier) or Academic Council (September, 1995 or later). At the Institute, these include Advanced Diplomas, Diplomas of Technology, Technician Diplomas, Vocational Certificates, Technical Certificates, Certificates of Achievement and Certificates of Participation. Marine Institute Advanced Diplomas, Technology Diplomas, Technician Diplomas, and Vocational Certificates are conferred once a year only regardless of when programme requirements are completed. This occurs during the Institute's annual graduation ceremony held in June.
- **Advanced Diploma** programmes provide in-depth training in a specific technical area to graduates of at least a first degree or three-year technology diploma programmes. These are normally one academic year in length, except that work terms or job placement requirements may extend programmes beyond this time. Programme duration in years is shown on the Diploma.
- **Diploma of Technology** programmes are designed to prepare graduates for employment as technologists. These programmes are normally three academic years in length. However, some programmes may extend beyond this time as a result of work term or job experience requirements.
- **Technician Diploma** programmes are designed to prepare graduates for employment as technicians. These programmes are normally two years in length.
- **Vocational Certificate** programmes prepare graduates for employment as operating or service technicians in specific trade areas. Programmes are normally 9 - 12 months in length.
- **Technical Certificate** programmes provide training in specific technical areas. Programmes may be modular, full or part-time and of variable duration, but not less than one academic semester or its equivalent.
- **Certificates of Achievement** are issued upon successful completion of an academic programme of less than one academic semester, or its equivalent, in length, or upon completion of an academic course for which learning is measured and evaluated.
- **Certificates of Participation** are issued upon completion of a non-formalized course or workshop or programme, lasting from a few hours to several days for which specific learning or performance is not measured or evaluated.

## PARTNERSHIP/ SPONSORED PROGRAMMES

From time to time the Marine Institute enters partnerships for the purpose of developing or delivering courses or programmes. These partnerships may be with other educational institutions, with public agencies or with private companies. Where appropriate, such partnerships may be formally recognized on certificates. This may be done in one of the following ways:

### The Marine Institute is the Awarding Institute

When a course or programme is developed largely by the Marine Institute, either in partnership with or on behalf of another institution or agency, an appropriate Marine Institute Certificate will be awarded. This certificate may contain the phrase "designed in partnership with ....." as an additional description of the course or programme.

### A Joint Certificate is Awarded

When a course or programme is developed and/or delivered in partnership with another educational institution, a joint certificate formally recognizing both institutions may be awarded. This certification would be consistent with Marine Institute criteria and its award would require Marine Institute Academic Council approval.

The certificate itself would recognize both institutions and contain the signatures of both chief executive officers or duly authorized officers of either institution.



# ACADEMIC POLICIES AND REGULATIONS

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## CREDIT TRANSFERS

### Applying for Transfer of Credit

Students applying for transfer of credit must submit an Application for Transfer of Credit to the Office of the Registrar, preferably with their Marine Institute Application for Admission. The Application for Credit form can be obtained upon request from the Office of the Registrar or the information centre and must be accompanied by the following documents:

- A high school transcript and official transcript(s) from any universities and colleges attended (if not already provided with the application for Admission). Specifically, applicants must ensure their request includes an official transcript of their marks for the course in question.
- Official Calendar Descriptions or Course Outlines from the other institution(s), where the work in question was previously completed, of the courses claimed for credit.

As an application is not considered complete until these documents have been received, applicants are advised:

- to submit their Application for Admission with their Application for Credit as early as possible, and
- that it is the student's responsibility to provide the pertinent documents to allow sufficient time to evaluate the application for credit and to assess admission status.

Where possible, applicants will be advised by the Office of the Registrar of the results of transfer credit evaluations in advance of registration. Where approval has not been received in advance of Registration, students should register for the course in question pending the outcome of their application.

### Evaluation of Credit Applications

Credit for courses completed at this or any other institution will be considered by the Marine Institute under the following conditions:

- Students apply to the Registrar on the Application for Credit form;
- Applications are received within four weeks of the course registration dates;
- The application includes all of the pertinent documentation as outlined above.
- Further information regarding courses previously completed, as required by the Marine Institute in order to fully evaluate an application for credit, is provided by the student. The information requested may be obtained by the student from the other institution or may be submitted directly to the Marine Institute by the other institution by request from the student, upon request by the Marine Institute to the applicant. Such information may include Official Course outlines or syllabi and information about the number of hours of instruction.
- Students are permitted one application for credit per semester only, i.e., if a student wishes to apply for credit in more than one subject in any semester, all subjects must be requested on one form.
- Only those courses accepted will be recorded as transfer credit courses on the Marine Institute transcript.
- Credit transferred from other institutions will be recorded only upon a student's registration in a programme.
- The Marine Institute reserves the right to award credit for any application it may receive and process.

The School in which the programme for which credit is being sought will be asked by the Office of the Registrar to assess the course credit application and to decide to either recommend or refuse credit.

This decision is based upon the equivalence between the material learned in the previous course work and the course for which credit is being sought. This is evaluated by such aspects as the topics covered; the depth, breadth and difficulty of material; and how current the material previously covered is relative to the current Marine Institute course.

### Transfers From Other Newfoundland Post-secondary Institutions

For students transferring from another Newfoundland institution to the Marine Institute, the 2000-2001 Transfer Guide, published by the Newfoundland and Labrador Council on Higher Education, is a compendium of current transfer credit precedents available to students in Newfoundland. It is a valuable reference guide for matters relating to the transfer of credit from one institution to another within the Newfoundland public post-secondary education system. In considering applications for credit transfer, this guide is used by the Marine Institute to cross-reference previously approved credit transfers. A copy of this guide is available from the Office of the Registrar, or from the Council on Higher Education on-line at <http://www.edu.gov.nf.ca/council>, or at the following address:

Newfoundland and Labrador Council  
on Higher Education  
Confederation Building,  
3rd Floor, West Block  
P.O. Box 8700  
St. John's, Newfoundland  
A1B 4J6

Telephone: (709) 729-2642  
Fax: (709) 729-3669

# ACADEMIC POLICIES AND REGULATIONS

## CHALLENGE EXAMINATIONS

A Challenge Examination is written by a student who wishes to seek credit in a course by a procedure other than normal class instruction or transfer of credit from another post-secondary institution.

To be eligible to write a challenge examination, the student must have obtained previous education or work experience which, as he/she must demonstrate to the satisfaction of the Marine Institute, has given him/her knowledge equivalent to that required to achieve a passing grade in a particular course. Students will be required to show documented proof of having received the experience. The Marine Institute shall have the responsibility to evaluate each student's application and determine which courses may be challenged, subject to the procedures and regulations outlined below:

### Application for a Challenge Examination

Students must complete an Application for a Challenge Examination which can be obtained from the Office of the Registrar. The student must complete the application and submit it to the Registrar. The application requires the student to document the previous education or work experience which the student believes is adequate preparation for challenging the course in question for credit.

The Registrar forwards applications to the appropriate School for evaluation of each student's request. This evaluation determines if credit for the course may be obtained in this manner. If an appropriate examination format is approved for the applicant by the School, the School then notifies the Registrar of the nature, format and schedule for the exam. This information is then communicated to the student by the Registrar in writing with any further related instructions from the School. If the student wishes to proceed with the challenge exam as prescribed, he/she will be required to confirm his/her agreement in writing and to pay a non-refundable tuition fee equivalent in amount to the fee for one course credit for the semester in question.

### Challenge Examinations Regulations

Receipt of payment of the applicant's required tuition fee by the Cashier following written confirmation of the Challenge Exam availability from the Registrar shall constitute an official request for a Challenge Examination and shall entitle the applicant to challenge the course in question for credit through the agreed upon examination.

- Challenge for Credit is available only to students formally admitted to, and registered in, a programme leading to a Certificate or Diploma.
- A maximum of five (5) credits towards a Marine Institute Diploma may be acquired by challenge exam at the Marine Institute or elsewhere. A maximum of two (2) credits may be obtained towards a Marine Institute Certificate.
- A challenge credit may not be used as a substitute for grade raising or to replace a failed course.
- The Challenge Examination shall be worth 100%.
- A student may not challenge a course (or its equivalent) in which he/she has been previously registered or which he/she has already challenged.
- The passing grade for a challenge will appear on the transcript as CH. Challenge grades are not, therefore, computed in averages and are not used in evaluating scholarship standing, but are counted as course attempts. Failures (FA) will be noted on the transcript.
- A student may not withdraw the challenge once he/she has officially requested a Challenge Examination. Failure to complete the exam as approved will constitute failure of the exam in question.
- Requests for Challenge Examinations must be received by the end of the third week in any semester. Students must write the examination within two weeks after payment.

The Registrar shall notify the student of the status of the Challenge examination result by way of a Challenge Exam Report and the final result will be included as part of the student's end of semester grade report.

## PROGRAMME/COURSE REGISTRATION

The registration schedule for each semester or technical session, for each programme, is set by the Registrar. For the Fall Semester, the registration period normally falls in the last week of August. For the Winter Semester, registration normally occurs on the first day of business following the New Year's Day holiday. For Technical Session, the registration period is normally the two weeks immediately preceding the first day of Technical Session. For the Summer Semester, registration normally occurs during the last week of May.

The dates for registration for each semester and start of classes are published each year in the Marine Institute Academic Diary. The specific registration schedule for each programme is published prior to the start of each semester or session and is posted or distributed to students.

Students are required to appear for registration on the day and at the time scheduled for them. Students who do not register on the prescribed registration date may be denied permission to register. If in such cases, a student is permitted to register late, the student must pay a late registration fee. No student may register following the last date to officially add courses. Specific deadlines are listed separately under the regulations for course changes.

# ACADEMIC POLICIES AND REGULATIONS

## COURSE CHANGES

A student who wishes to officially drop or add a course must obtain and complete an official **Course Change Form** from the Office of the Registrar or the Institute's Information Centre, complete the form, have each course change approved by his/her Programme Chair, and return the **Course Change Form** to the Office of the Registrar prior to the official add or drop date. Otherwise, the course change will not be considered to be official and will not be recognized on the student's academic record.

### Term or Semester

The official date for adding courses is **TWO WEEKS** from the first day of classes in a semester.

The official deadline for dropping courses is **SIX WEEKS** from the first day of classes in a semester. For students in Primary Technology in the Fall Semester, in their first semester at the Marine Institute, the deadline for dropping courses is **EIGHT WEEKS** from the first day of classes.

### Technical Session

In a Technical Session, the official deadline to add courses is the end of the **THIRD DAY** of classes for courses which are of 21 days duration or longer or, the end of the **FIRST DAY** of classes for courses which are less than 21 days in duration. These deadlines are subject to variation for courses which may have specific attendance requirements.

In a Technical Session, the official deadline for dropping courses is the end of the **TENTH DAY** of classes for courses which are of 21 days duration or longer. For Technical Session courses which are less than 21 days in duration, the following table applies:

Length of Course	Deadline for Dropping Courses
up to Five days	End of Second day of Classes
Six to Ten days	End of Fourth day of Classes
Eleven to Fifteen days	End of Sixth day of Classes
Sixteen to Twenty days	End of Eighth day of Classes



### NOTE:

*For students in Transport Canada approved programmes, minimum attendance requirements apply which may reduce the length of time available to students to add applicable courses*

## CLASSIFICATIONS OF STUDENTS

### Full-Time Students

The full-time course load in a Semester for a diploma or certificate student is four or more courses. A student registered for four or more courses in a Semester shall be considered to be registered as a full-time student for that semester.

The full-time course load in a Technical Session for a diploma student is considered to be two or more courses when that student is registered in a Programme for which the normal course load for the respective Technical Session is three or more courses.

Students registered for two or more courses in a Technical Session in such cases shall be considered to be registered as a full-time student for that session.

For students registered in a Technical Session for a diploma programme for which the normal course load is one or two courses, the students shall be considered to be registered as a full-time student when registered for one course in that session.

### Part-Time Students

A student registered for three or fewer courses in a semester shall be considered to be registered as a Part-time student for that semester.

Students registered for one course in a Technical Session for which the normal course load is three or more courses shall be considered to be registered as a part-time student for that session.

### Other Requirements

Students should note that external sponsoring agencies such as Human Resources Development Canada and Canada Student Aid may have requirements for the students they sponsor to be in attendance for a minimum number of hours per week and/or to be enrolled for a minimum number of weeks while they are sponsored. Students are responsible for ensuring that they are familiar with the sponsor's requirements before they register and that they meet the minimum standards of attendance of the sponsoring agency.

## PROGRESSION IN A PROGRAMME

Courses are generally studied as they appear in the programme outline. By following the outline, students should be able to complete their programme in the shortest possible time. In all instances, requirements for prerequisite and co-requisite courses must be satisfied. The official programme and course outlines contain information regarding such requirements.

In evaluating a student's final standing, the work of the entire semester is taken into consideration. This includes semester examinations, class tests, laboratory work, technical work reports together with attendance.

### Programme Time Limits

Student enrolled in a Marine Institute programme will be allowed a maximum of three years beyond their schedule graduation date, based upon the year of admission to the programme, to complete the programme requirements and be eligible to receive a diploma or certificate in that programme.

Changes in regulations governing programmes may be made from time to time. Student who have not interrupted their programme may complete their requirements for graduation following the regulations in place when he/she started his/her programme. Students who have interrupted their programme may be required to complete additional courses so that they may convert their programme to fit the new regulations.

# ACADEMIC POLICIES AND REGULATIONS

## READMISSION AND CONTINUANCE

Subject to the readmission regulations described in the following paragraphs, a student enrolled in a vocational certificate or an advanced, technology, or technician diploma programme, and registered as a full-time student, shall be permitted to continue to the next semester if he/she passes at least 50% of the courses for which a grade is awarded that semester. If he/she passes fewer than 50% of the courses for which a grade is awarded that semester he/she will be required to Withdraw (WD).

Students are required to maintain a cumulative average of 60% at the end of each semester of study.

A student who passes 50% of the courses for which a grade was awarded in a semester, but has one or more failures and has a cumulative average of at least 60% will be awarded a Clear Standing (CL) and will be readmitted to the following semester without conditions.

A student who was admitted to the semester with a Clear Standing (CL) or better but who earns a cumulative average of between 50% and 59% at the end of a semester, and has passed 50% of the courses for which a grade was awarded in the semester, will earn a Conditional (C) standing and will be conditionally readmitted to the next semester. If, at the end of the next semester, the student again passes 50% of the courses for which a grade was awarded and earns a cumulative average of between 50% and 59%, the student will be required to Withdraw (WD) from the Marine Institute for a minimum of one semester.

Students who have a cumulative average below 50% will be required to Withdraw (WD) for a minimum of one semester.

With the exception of students admitted to the Marine Institute with an advanced standing of 10 credits or more, a student in his or her first semester at the Marine Institute will be readmitted to the second semester of study provided that he or she passes 50% of the courses for which a grade was awarded. First semester students who pass 50% of the courses who have a cumulative average of less than 60% will be readmitted to the next semester with an Academic Warning (WS).

A student who has been required to withdraw (WD) from the Institute on three (3) occasions will be academically dismissed. In this instance a student may be readmitted to the Marine Institute only in exceptional circumstances and only upon approval of an Admissions Committee.

## Readmission Following Withdrawal

Subject to the information above students who withdraw voluntarily or are required to withdraw (WD) for academic or disciplinary reasons are required to reapply for admission to the Institute as per the Admissions policies and procedures.

## Withdrawal From the Marine Institute

A student who wishes to voluntarily withdraw from the Marine Institute and officially drop all courses for which he/she is currently registered must indicate all of the courses to be dropped from his/her record for the semester **and** complete the Withdrawal portion of the **Course Change/Withdrawal Form**. The student must then have the form signed by a representative of both the Marine Institute Library and the Marine Institute Accounts Office for final clearance.

## Withdrawal Under Special Circumstances

Students who wish to withdraw after the official drop date, without academic penalty, may be permitted to do so in cases of serious illness or other compelling circumstances. In cases of illness a medical certificate will be required. A student seeking such consideration must apply to the Registrar who will then consult with the instructors and School concerned. If approved, "DR" will be assigned to the course(s) in question and the student will not have any academic penalty.

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### *Reporting Student Status*

*Good Standing (GS)*  
*Clear Standing (CL)*  
*Academic Warning (WS)*  
*Conditional (C)*  
*Withdrawal (WD)*  
*Academic Dismissal (AD)*  
*Successful Completion (SC)*  
*Part Time (PN)*

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# ACADEMIC POLICIES AND REGULATIONS

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## REPORTING PERFORMANCE

### Grade Reports

Semester grade reports are released at the end of each semester for all Advanced, Technology and Technician Diploma as well as Vocational Certificate Programmes. These list the courses taken during that semester and the grades or results obtained by one of the letter codes below. This also reports the standing earned by the student at the end of the period of study. Grade Reports are normally issued following examination periods. Marks may be withheld in cases where students have outstanding fees or are under disciplinary action.

### Grade Types

Grade Types marked with an asterisk are those for which further explanations are provided elsewhere in this section describing Academic Policies and Regulations. These also signify a course or grade status for which prior approval must be obtained through the Office of the Registrar.

- DE** - **DEFERRED EXAM RESULT** The Student has written a deferred examination and this is the final grade.
- FA** - **FAIL** The Student has been unsuccessful with course, however no grade is associated with this course. Students are issued **FAIL** on grade report.
- NF** - **NO FINAL** The student did not write the final exam for this course. His mark is calculated using "0%" for the final exam.
- NG** - **NO GRADE RECEIVED** The notation NG is issued when a grade was not received within the required time frame to be issued to student. The student should initiate an enquiry if he/she had anticipated a grade, or if this is an error in course records.
- PS-** **PASS** The Student has successfully completed course, however no grade is associated with this course. Students are issued **PASS** on grade report.
- RP** - **REPEAT** The student has repeated the course and this is the grade for the repeat.
- AG\*** - **AEGROTAT STATUS** Aegrotat status in a course refers to a student's eligibility to continue in his/her programme without completion of all semester work for the course in question, with advancement to subsequent courses on the basis of the work completed. Aegrotat standing confers credit for the course(s) under consideration. However, no grade is assigned and Aegrotat (AG) is entered on the student's permanent record.
- AU\*** - **AUDIT** The student was auditing this course and will not be given a grade for the course.
- CH\*** - **CHALLENGE EXAM RESULT** The student has written a challenge exam in a course and this is the result of the examination.
- DF\*** - **DEFERRED EXAM** This is an interim designation only. The Student has applied, and has been approved, to write deferred examination.
- DR\*** - **DROP** A Drop (DR) is reported for a student who officially drops a course or courses prior to the official drop date for the semester in question and therefore does not incur any academic penalty. Please refer to the policies concerning course changes for further details.
- IN\*** - **INCOMPLETE** This is an interim designation only. An **IN** designation must be changed to a valid grade by the specified time as outlined in the Institute's policy concerning incomplete grades under Grade Types Policies and Explanations.
- RR\*** - **RE-READ RESULT** The final grade once the final exam has been re-read. This result is to be calculated in exactly the same manner as the original grade. (i.e., semester mark + exam result = final grade)
- SP\*** - **SUPPLEMENTARY EXAM RESULT** The Student has written a supplementary examination and this is the final grade. The supplementary result is to be compiled in the same manner as the original grade. (i.e., semester mark + exam result = final grade) and the maximum grade awarded for a course in which a supplementary examination has been written is the passing grade for the course.

# ACADEMIC POLICIES AND REGULATIONS

## Aegrotat (AG)

Aegrotat status in a course refers to a student's eligibility to continue in his/her programme without completion of all semester work for the course in question, with advancement to subsequent courses on the basis of the work completed. Aegrotat standing confers credit for the course(s) under consideration. However, no grade is assigned and Aegrotat (AG) is entered on the student's permanent record.

Aegrotat will be awarded to a student who has:

- encountered exceptional circumstances such as illness which prevented completion of the semester's work;
- demonstrated the ability to do the work; and,
- received the recommendation of the School Head.

## Audit (AU)

An Auditor is a student who is awarded permission, in writing by the School, to attend lectures in a course on the understanding that he/she may not participate in any assignments, examinations or any other form of evaluation offered for the course involved. Such permission will be contingent upon seat availability in the course and the satisfaction of the instructor of the course that having a student audit the course will not be a disruption for him/her or the remainder of the class.

Once a student has registered to audit, he/she may not change their status to earn credit. Nor will a student who has registered for credit in a course be permitted to change his/her status to Audit.

The student may, in succeeding semesters, take any course for credit that was previously audited. Auditing students must present a signed Permission to Audit Form to the Office of the Registrar. Permission to audit a course will not be granted until the number of students registered for credit in the class is known.

## Deferred Final Examinations (DF and DE)

A student who is unable, for a valid reason, to write a final examination at the scheduled time may apply for a Deferred Examination. The application must be supported by a medical certificate if the absence is due to illness or hospitalization.

If a student becomes ill or receives notification of severe domestic affliction during an examination, and wishes to discontinue the examination and apply for a deferral, he/she shall report at once to the chief invigilator, hand in his/her unfinished examination and request the exam be cancelled. If illness is the cause, he/she must report directly to a physician so that any subsequent application for a deferred examination may be supported by a medical certificate.

If a student writes an examination, submits his/her paper for marking, and later reports extenuating circumstances to support his/her request for cancellation of his/her paper, such a request will not be considered.

## Incomplete (IN)

An IN on a student's record is an interim designation only. An IN is awarded to a student in extenuating circumstances and/or on compassionate grounds as approved in writing by the instructor who will indicate a date for completion. This may also be awarded to a group or section of students who have been affected by events beyond the control of the Institute (e.g. equipment failure). The IN must be cleared by the date indicated on the student's Grade Report or it will revert to a Zero ("0") grade.

## Repeats (RP)

Students are permitted a maximum of three attempts at each course for which a grade is awarded by the Institute. Thus a student is permitted a maximum of two repeats for each course on his/her record.

## End of Term Academic Status

At the end of each semester a student's exit/readmission status shall be denoted on a student's grade report or transcript with one of the following:

### Good Standing (GS)

The student has passed all courses with the required passing grade and has a cumulative average of 60%.

### Clear Standing (CL)

The student has a cumulative average of 60% but has one or more failures. The student has passed at least 50% of all the courses for which a grade was awarded.

### Academic Warning (WS)

This standing applies to first semester students only. The student has passed 50% of the courses for which a grade was awarded. No other conditions are required for advancement to the next semester.

### Conditional (C)

The student has passed 50% of the courses for which a grade was awarded and has a cumulative average between 50% to 59%, except in the case where these conditions were met in the previous semester and the student was admitted to the current semester on condition. In this case the student is required to withdraw (WD).

### Withdrawal (WD)

A student who, in a given semester, meets the requirements for conditional standing but who earned a Conditional Standing for his/her previous academic semester is required to withdraw (WD) for one semester. If the requirements for Conditional Standing (C) are met as a result of grades earned during the Technical Session and the student earned a Conditional Standing (C) in the previous semester, the student will be awarded a Conditional Standing and will be conditionally readmitted to the next semester or session.

A student who passes fewer than 50% of the courses for which he/she is registered in a semester is required to withdraw (WD) for one semester.

A student whose cumulative average is less than 50% is required to withdraw (WD) for one semester.

# ACADEMIC POLICIES AND REGULATIONS

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<b>Academic Dismissal (AD)</b>	A student who has been required to withdraw (WD) from the Institute on three (3) occasions will be Academically Dismissed (AD). In this instance, a student may be readmitted to the Marine Institute only in exceptional circumstances and only upon approval of the Admissions Committee.
<b>Successful Completion (SC)</b>	A student who has completed all requirements for his/her programme and is eligible to receive a Marine Institute diploma or certificate according to the regulations described in the section concerning graduation.
<b>Part Time (PN)</b>	A student who is taking three or fewer courses in a semester. Part-time students may or may not be enrolled in a certificate or diploma programme.

- The prescribed fee must accompany the application, which is not refundable.
- Supplementary examinations will be written before or at the beginning of the next academic semester or session.
  - For examinations written in April, supplementary exams will be scheduled in April or May.
  - For examinations written in May, supplementary exams will be scheduled in June or September.
  - For examinations written in December, supplementary examinations will be scheduled in January.

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## TRANSCRIPTS

A transcript of a student's academic record at the Marine Institute is available from the Office of the Registrar upon receipt of written authorization from the student and the appropriate fee. No transcript will be issued while the student is financially indebted to the Institute.

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## EXAMINATION RE-READS

Any student may apply to have a final examination re-read, whether or not he/she has passed the course. The application must be made in writing to the Registrar within one month after the student has been officially informed of the result of the examination(s). The appropriate fee must accompany the application. The fee will be refunded if the student's grade is raised once the final examination is re-read. If the grade remains the same or is lowered, the fee is not refundable.

If the student's grade is changed as the result of a reread, the revised grade will replace the original result on the student's record and will be denoted by the grade type "RR" on the transcript except in the case where the original grade was a passing grade and a re-read results in a failing grade. In such instances, the original grade will remain on the student's record.

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## SUPPLEMENTARY EXAMINATIONS REGULATIONS

Marine Institute Supplementary Examination Regulations apply to students in Advanced Diploma (one year), Diploma of Technology (three years), Technician Diploma (two years), and Vocational Certificate (one year) programmes.

- The privilege of writing supplementary examinations is limited to students who:
  - (a) have failed no more than two subjects;
  - (b) have obtained at least 70 % of the specified passing grade in each subject failed;
  - (c) have obtained a term or session average of at least 55 %;
  - (d) were registered on a full-time basis for the period of study in question.
- Only one attempt to write a supplementary examination will be permitted in each subject allowed under these regulations.
- Students are permitted to write a maximum of two supplementary examinations for the duration of their enrollment in a programme. Once a student has written two supplementary examinations, he/she must repeat any failed courses in order to earn credit for these courses.
- Any student who has failed to complete laboratory work, workshop or drawing work to the satisfaction of the School, is ineligible for supplementary examinations.
- Applications to write supplementary examinations are to be filed at the Registrar's Office no later than five (5) business days after the release of grades by the Registrar's Office.

The date of official release of grades for this purpose is the day that grades are issued and mailed by the Institute.

- Supplementary exams must be written during the exam period scheduled for the course in question. In the case of a student who otherwise has all of his/her programme requirements completed, he/she may have up to two years following completion of the course in question to write the supplementary examination. The application for a supplementary exam must be filed within the normal application period as specified above.
- For students permitted and scheduled to write a supplementary examination, failure to write a scheduled supplementary examination without prior written notice satisfactory to the Registrar will result in a grade of 0% for the exam portion of the course.
- A Supplementary exam cannot be written for a course in which a student has received a reduction of any portion of the course grade as a result of academic Misconduct.
- For the purposes of calculating a student's revised final grade, the grade obtained in a supplementary examination replaces the grade earned for the original examination for the calculation of the final course mark.
- The maximum grade for a course in which a supplementary examination has been written is the passing grade for the course.

# ACADEMIC POLICIES AND REGULATIONS

## GRADUATION

The Marine Institute holds its annual graduation ceremony each year in June for all students graduating from advanced diploma, technology diploma, technician diploma and vocational certificate programmes. Students completing their programme requirements and expecting to graduate from the Marine Institute must submit an Application to Graduate, with the appropriate fee, to the Office of the Registrar, by the published deadline.

Candidates must meet the following requirements in order to be approved by the Marine Institute Academic Council to graduate from the Marine Institute:

- have a minimum cumulative average of 60%,
- have passed all courses in his/her programme,
- have obtained a minimum of 50% of the credits for their programme at the Marine Institute

## APPEALS POLICY AND PROCEDURES

The Appeals Committee of the Marine Institute Academic Council provides an objective review of students' cases.

This Committee exists to consider student appeals of the application of Institute Academic Policies and Regulations.

The purpose of this section is to outline the procedures by which appeals may be made and to ensure that students are given advice that will allow them to make the best possible case when preparing an appeal.

- The responsibility for making an appeal before the Appeals Committee of Academic Council rests with the student.
- Student Appeals should be directed in writing to the Registrar who is Chair of the Academic Council Appeals Committee
- Reasons for initiating an appeal before the Appeals Committee of Academic Council include the following:
  - i) medical problems
  - ii) bereavement
  - iii) other acceptable cause

- Students should prepare as strong a case as possible. It is therefore recommended that students seek advice when launching their appeal. Such advice can be obtained from a variety of sources:

- i) The Office of the Registrar for the appropriate regulations and appeal procedures.
- ii) An advisor or facilitator to assist in preparing their appeals, such as:

faculty member

a counselor

designated faculty, who have made themselves familiar with the appeals process and who are willing to undertake the role of student advisor or facilitator

the Marine Institute Student Union (MISU)

- A student submitting an appeal must present to the committee a personal letter including reasons for the appeal.

Students must present independent evidence to corroborate statements made in the letter of appeal. Preferably, this evidence will come from a professional, such as a doctor, a counselor, a lawyer or a professor. However letters from other knowledgeable parties may be acceptable.

- In cases where an appeal is made on medical grounds, medical notes must be sufficiently specific to allow appropriate consideration of the student's case. The note must also clearly state that, in the opinion of the doctor, the problem was serious enough to have interfered with the student's work. The Institute requires that all medical notes be on letterhead, be signed by the physician and include details on the following:
  - i) confirmation of the specific dates on which the student visited the doctor.
  - ii) the degree to which the illness (or treatment, in the case of medication, for example) is likely to have affected the student's ability to study, attend classes, or sit for examinations.
  - iii) the length of time over which the student's ability was likely hampered by the medical condition (e.g. recurring and severe back pain over a two month period would likely have a more adverse effect on studies than a single episode of back pain requiring bed rest for a week.)
  - iv) the fitness of the student to resume studies (it is in the student's best interest not to return to his/her studies prematurely.)

The Institute respects the privacy of all students and, therefore, the confidentiality of all material contained in medical notes.

- Students claiming bereavement as grounds for an appeal must provide proof of death and evidence of a close personal relationship between themselves and the deceased.

- The members of the Appeals Committee do require substantial information about the reasons for the appeal in order to make their decisions. However, the committee also recognizes the student's rights to confidentiality. With this in mind, a student may discuss the reasons for his or her appeal with the Institute counselor, who, with the student's permission and provided sufficient reasons exist, may then write a letter to the committee confirming that there were sufficient grounds for an appeal without disclosing the special personal and confidential details of the case.

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*Reporting Performance  
Transcripts  
Course Changes  
Examination Re-Reads  
Classification of Students  
Attendance Policy  
Progression in a Programme  
Readmission and Continuance  
Graduation  
Supplementary Examinations Regulations*

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# ACADEMIC POLICIES AND REGULATIONS

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## ACADEMIC MISCONDUCT

These rules on Academic Misconduct apply to students registered in courses in any non-degree Marine Institute programme. Students enrolled in the degree-level courses should consult the Memorial University Calendar for regulations governing undergraduate degree students.

### General Procedures

#### Reporting Offenses:

The Marine Institute values academic honesty highly. When any member of the Marine Institute community (faculty, staff, student) has reason to believe that an academic offense has been committed, he/she is obliged to report the matter verbally without delay to the appropriate person immediately.

In the case of a final examination, the appropriate person shall be the chief invigilator. In the case of a classroom test, assignment, project, or other academic work, the appropriate person shall be the person for whom the work is being done or the person supervising the work. The person for whom the work is being done shall take immediate action to stop the offense, if possible. He/she shall promptly inform the student's School Head of the offense and the action taken.

In the case of a final examination, the report shall be made to the Supervisor of Examinations who will prepare a report to the School Head in question once the circumstances of the matter have been determined. A verbal report shall be confirmed in writing as soon as possible.

All references to School Head in this policy refer to the Head of the School with responsibility for the programme of study in which the student accused of academic misconduct is registered.

#### Resolution of Allegations:

1. In the case of work, other than final exams, which constitutes less than 10% of the final grade for the course in question, an instructor may determine that a student may be guilty of either cheating or plagiarism. Such an offense shall be considered a *minor offense*. In such cases, an instructor may apply a grade reduction penalty up to and including the reduction of the grade for the portion of work in question to 0%. In such cases, the instructor shall submit a brief written report to

the School Head documenting the nature of the incident, the evidence used to determine that the student cheated, and the action taken to resolve the issue. For minor offenses, an instructor may choose to have such incidents of alleged academic misconduct resolved by the student's School Head. In all cases other than those resolved in step one above, the faculty member, witness to the event or, in the case of final examinations, the Supervisor of Examinations, shall prepare and submit a written report to the School Head.

2. The School Head shall interview each person involved separately to establish the facts of the matter and the appropriate steps to follow. Those to be interviewed shall include the student(s) in question, the instructor for the course in question, the witness to the act of academic misconduct, and, in the case of final examinations, the Chief Invigilator and the Supervisor of Examinations. All interviews and the review of all documentation shall be completed and a decision shall be made by the School Head within ten (10) business days of the occurrence of the alleged offence.
4. If upon completion of step 3 above the School Head determines that there is not enough evidence to determine that a student is guilty of an act of academic misconduct, the matter is resolved and the student and instructor are notified in writing of the outcome.
5. If, upon completion of step 3 above, the School Head determines that there is enough evidence determine that an act of academic misconduct was committed by a student, he or she will assess the circumstances and severity of the act of dishonesty and apply the appropriate penalties, as outlined below in the section concerning Penalties. The School Head shall notify the student in writing of the outcome of the case within five (5) business days of his/her decision.

## Academic Offenses

Students who commit acts of academic misconduct, including but not limited to the following offenses, shall be subject to disciplinary action by the Marine Institute.

### Cheating:

For assignment, tests, projects, reports, laboratories and examinations, cheating means copying from another student's work, or allowing a student to copy from one's own work; consulting with unauthorized persons during a test or examination; or using unauthorized notes, books, manuals, or equipment during a test or examination.

### Impersonating Another Student or Allowing Oneself to be Impersonated:

Impersonation for these purposes means the imitation or substitution of one person for another for the purposes of writing an examination or undertaking other academic work.

### Plagiarism:

Plagiarism is the act of presenting the ideas or works of another as one's own. Under copyright law in Canada, all such items (writings, photos, videos, handwritten notes, etc.) are the property of the originator, even if not formally inscribed with the copyright symbol. This applies to all material such as essays, laboratory reports, work term reports, design projects, seminar presentations, statistical data, computer programmes and research results. The properly acknowledged use of sources is an accepted and important part of scholarship. Use of such material without acknowledgment, however, is contrary to accepted norms of academic behaviour.

### Theft of Academic Materials:

Theft means the obtaining or possession of, by any improper means, examination papers, tests, or any other materials used in the evaluation of students.

### Use and/or Distribution of Stolen Materials:

This refers to the use and/or distribution of materials which the student knows have been improperly obtained.

# ACADEMIC POLICIES AND REGULATIONS

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## **Submitting False Information:**

Submitting false information includes, but is not limited to, the submission of false data, medical records, credentials, and misleading or incomplete information.

## **Submission of the Same Material for Two or More Courses:**

This refers to submitting work for one course or work term which has been, or is being, submitted for another course or work term at this or any other institution without express permission to do so.

## **Academic Mischief:**

Academic Mischief means any activities, other than those specified above, which in any way jeopardize the academic integrity of the Institute. This includes, but is not be limited to, tampering with examinations, gaining unauthorized access to examinations, removing materials from the examination room, and the like.

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## **Penalties for Academic Misconduct Offences**

Penalties resulting from acts of academic misconduct, as previously defined, may be taken from the full range of penalties available including reprimand, probation, grade reduction, suspension or expulsion. A description of each form of penalty can be found below. However, conviction for certain offenses shall automatically invoke penalties as follows::

OFFENSE	PENALTY
Theft of academic materials.	Expulsion
Possession, use, and/or distribution of stolen academic materials.	Expulsion
Giving false information to gain entrance to the Institute.	Expulsion
Impersonation.	Expulsion
Any other case of academic misconduct relating to a test, assignment, lab semester project, or semester report, which constitutes 10% or more of the final course grade	Reduction of Grade
Any other case of academic misconduct relating to a final examination	Reduction of Grade, and Suspension from Course
Any other case of academic misconduct relating to two or more final examination	Reduction of Grade, and Suspension from the Institute

Any or all acts of academic misconduct may result in a student being placed on probation with the Marine Institute, a reprimand, or suspension from course. Multiple offenses of Academic Misconduct may result in a more severe penalty being applied.

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## **Description of Penalties**

### **Reprimand:**

A reprimand shall take the form of a written warning from the School Head informing the student that his/her academic conduct has been unacceptable to the Institute.

### **Reduction of Grade:**

A reduction of grade penalty shall be imposed as follows:

- (a.) On materials such as tests, assignments, labs, and similar semester work accounting for less than 25% of total mark; the student shall be awarded 0% for the work under consideration.
- (b.) For semester reports, term projects including drawings, technical reports and other academic work which constitutes 25% or more of the total mark for a course; the course marks shall be 0%.
- (C.) For final examinations; the course mark shall be 0%.

### **Probation:**

The period of probation shall be from the time of conviction to the end of two academic semesters beyond the semester in which the offense took place. In no instance will the period of probation exceed three academic semesters for any one offense. A student who commits a second offense while under probation may be suspended or expelled upon the recommendation of the Executive Committee of the Marine Institute Academic Council Committee.

### **Suspension:**

A suspension may apply to a course, programme, or the Institute. The length of the suspension shall be determined by the Executive Committee of the Marine Institute Academic Council and shall be conveyed to the student in writing by the Chair of Academic Council.

In no case shall the length of the suspension for any single offense exceed three academic semesters.

### **Expulsion:**

Expulsion shall mean that the student is required to withdraw from the Institute. Students who have been expelled shall not be permitted to re-enter the Institute.

The recommendation for expulsion shall be made to the Executive Director for his/her final decision. Prior to the Executive Director's decision, the Registrar shall notify the student in writing of the recommendation for expulsion. The student shall be given a period of two weeks from the date of receiving the letter in which to make an appeal before the Executive Director's final decision is made.

# ACADEMIC POLICIES AND REGULATIONS

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## Application of Penalties

A student who has been found guilty of academic misconduct shall be subject to a penalty or penalties in keeping with the seriousness of the offense. Conviction of certain offenses shall involve automatic penalties as outlined above.

The Registrar shall be responsible for the enforcement of penalties resulting from the above procedures. In some cases more than one penalty may be imposed for the same offense. Previous academic misconduct will be taken into account in determining the penalty or penalties.

In all cases where a student has been convicted of academic misconduct and there is a record on file with the Registrar, the students shall be disqualified for scholarships based upon work completed during the academic year in which the offense took place.

If a student receives a mark of 0% on any academic work as a result of academic misconduct, where this is on file with the Registrar, the student shall not be permitted to write a supplementary examination in the course concerned.

## Right of Appeal

In accordance with Marine Institute policy and procedures regarding Student Appeals, a student has the right to appeal a decision concerning his or her involvement in an alleged case of academic misconduct.

In cases where the matter was initially resolved by an instructor, appeals shall be made to the student's School Head. In such cases, the School Head shall initiate action as per step 2 above under "Resolution of Offenses".

In cases where a student wishes to appeal a decision of the Appeals Committee of the Marine Institute Academic Council, the appeal shall be directed to the Chair of the Marine Institute Academic Council. The Chair shall review all documentation on record and meet with each party concerned including the student, the School Head, the instructor, the witness to the incident and the Registrar. The Chair shall determine if there is any further evidence or grounds to amend the previous decisions of the School Head or the Appeals Committee.

In all cases, written appeals must be made no later than two weeks after the decision is made known to the student. Failure to do so will result in the forfeiture of the right to appeal.

## Disposition of Documentation

Documents relating to allegations under these procedures shall be disposed of as follows:

### Allegations Not Supported:

In cases where the allegation was not supported, no documentation shall be retained.

### Allegations Supported and Resolved by Instructor:

In cases where a minor offense is resolved by an instructor, documentation regarding the incident shall remain with the School Head. Documentation of the offence may be reported to the Registrar. This shall not be recorded in a student's file or on a student's transcript. It will be used to apply the appropriate scholarship or supplementary examination regulations for the term in which the offense was committed.

### Allegations Supported and Resolved by School Head:

In cases where the allegation is supported and resolved by the School Head documentation regarding the incident shall remain with the School Head. In all cases but minor offenses, the Registrar shall be notified of the student's name and the offence including the course title, the nature of the offence, and the penalty imposed. For minor offenses the Registrar may be notified Correspondence between the School Head and the student shall be copied to the Registrar as well. Records regarding the offense shall be retained in the student's file.

### Allegations Resolved Through Appeal:

In cases where a student appeals the determination of their guilt or the application of a penalty regarding a case of academic misconduct, all documentation regarding the case shall be garnered from the School Head. In the case that an appeal results in the reversal of a previous decision, all previous documentation shall be destroyed by the School Head and the documentation of the case in question shall remain with the minutes and records regarding the appeal. In the case that an appeal results in a previous decision being upheld, all documentation obtained from the School Head shall be returned and a copy retained with the records regarding the appeal. The record of the offence, the appeal and the outcome of the appeal shall be retained in the student's file.

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## Transcript Entries

Transcript entries related to the penalty(ies) imposed shall be as follows:

PENALTY	ENTRY
Reprimand	No entry.
Reduction of Grade	Final grade for course.
Probation	On probation at the Institute for academic misconduct until Day, Month, Year. *
Suspension	Suspended from course/programme/ Institute for academic misconduct until Day, Month, Year. *
Expulsion	Expelled from the Institute for academic misconduct.

\* These entries are removed upon the expiry of the period of Probation or Suspension. The onus is on the student to ensure that the entry is removed at the appropriate time.

# ACADEMIC POLICIES AND REGULATIONS

## GENERAL GUIDELINES FOR FORMAL WORK TERMS

The Marine Institute offers a number of programmes which include formalized work terms which are required in order to successfully complete the programme of study and be eligible for the related diploma or certificate. The Institute has general guidelines governing work terms which are provided below. There are also work term regulations specific to each programme. These are considered as course regulations which are provided to students separately.

### Status

While on work terms, students are considered to be full-time students. All Marine Institute academic policies and regulations governing full-time students apply to students completing work terms.

### Fees

Students entering work terms in Diploma of Technology and Advanced Diploma programmes are required to pay a fee equivalent to the fee for one course for that student in that programme at the time of registration. Please refer to the section concerning Fees and Financial Information for further details.

### Registration

Students are permitted to conditionally register for a work term during the last week of classes of the preceding academic semester. This registration is conditional upon the completion of the preceding academic semester in which the student is enrolled and confirmation of the completion of any required prerequisites. Students who are required to withdraw at the end of the preceding academic semester are not eligible for placement in the work term and the conditional registration will be cancelled.

### Placement

#### Placement Services and Coordination

All placements for work terms are coordinated jointly through the appropriate school and the Placement Office which assists employers and students in the selection process. The Institute does not guarantee placement. However, every effort is made to obtain adequate numbers of positions for students embarking on work terms. Please refer to the Student Services section for further information concerning the Placement Office.

### Students Required to Withdraw Programmes

If a student is required to withdraw from a programme, the Institute will not place the student until he/she has been reinstated in the programme.

### Self Placement

Students may secure their own placements provided they consult with the Placement Office. It is critical that all such placements are discussed with the Placement Officer and prior approval is obtained from the appropriate School before accepting a work term position with the intention of fulfilling the work term requirements of any specific programme. Failure to receive prior approval may jeopardize the student's academic status and the eligibility of the work completed for recognition as meeting work term requirements.

Students in School of Fisheries programmes, who are unable to secure a work term placement are required to do a research project. The project must be approved by the School Head and supervised by a faculty member. A research project is not an option for students in any other School of Maritime Studies programmes.

### Evaluation

All students on work terms are required to complete a project as specified by the respective School. Written project reports or completed "Sea Training Manuals" must be submitted to the appropriate Program Chair prior to the registration date for the next academic semester. These reports and manuals are evaluated by the Program Chair or designate.

Evaluation of a student's work term performance is based on the employer's report and either the written project report or the Sea Training Manual. Each is evaluated separately. The specific evaluation scheme for each work term is outlined in the course regulations for that work term.

On-the-job performance is assessed by written documentation from the employer and, where necessary, a meeting between the employer and an Institute representative.

### Advancement

Students are required to obtain a minimum overall passing average as specified by the appropriate School and

the requirements of each respective work term. However, in all cases, a student must obtain no less than 50% in each of the appropriate evaluation components (Sea Training Manual, project report, employer's assessment) in order to advance.

Students who fail to honour a placement, leave before the agreed upon termination date, or perform in a manner which causes the employer to terminate employment, shall be deemed to have failed the work term.

### Repeating Work Terms

Students who do not achieve the required grades, or fail a work term for any reason, are required to repeat the work term in order to earn credit for that component of the programme. A student is permitted to repeat a given work term only once. Failure to pass on the second attempt means that the student must then withdraw from the programme. A student may not repeat more than **one** work term for the entire length of the programme.

**Students who fail a work term are required to withdraw from the Marine Institute for at least one academic semester.** The period of withdrawal will be considered to be the academic semester immediately following the scheduled date of return to the Institute following the work term.

### Reporting of Results

Work Term evaluation results are recorded as either Pass (P) or Fail (F) on the student's transcript. No grade value is recorded on a student's transcript.

### Scheduling

Work terms are scheduled differently for each programme. Students are expected to complete the work term(s) at the appropriate time(s). Alterations to the schedule or exemptions can be made only on basis of exceptional circumstances **and with approval from the School.** All requests for exemptions or alternatives along with supporting documentation (medical forms, etc.) must be submitted in writing to the Registrar.

### Specific Programmes

For information on the application of these general regulations to specific programmes, please consult the detailed programme listings.

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# ABC'S OF ON-CAMPUS SERVICES

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## BOOKSTORE:

The Bookstore is located on the main floor next to the Library. Textbooks and related course materials such as drafting tools, computer disks and writing materials are available at the Institute's Bookstore. The cost of books and supplies varies with each course, but students should expect to spend \$400 - \$500 on books and another \$100 or so on supplies throughout the year. The Bookstore also stocks a number of crested items such as T-shirts, caps and sweat suits.

## CHILD CARE:

The Institute does not have its own child care centre. The Council of the Students Union on the university's main campus operates a new modern facility which is located next to Burton's Pond. While the facility services the university community, preference is given to full-time students attending the main campus. Further information is available from the CSU by calling 737- 4728/4729.

A number of privately run centres are located throughout the city and may be conveniently located for some students.

## COMPUTER FACILITIES/RESOURCES:

The Marine Institute provides computer laboratories to be used for instruction, course work and assignments. These facilities are fully networked and permit students to operate all software applications required for their course work. These rooms are available during normal working hours when classes are not in progress as well as at scheduled times after hours. Printing and plotting is provided on a fee per page basis, funds are transferred to the printing software using the Smart Card system.

Accounts are issued to new students at the beginning of each semester. Returning students will have their accounts renewed upon confirmation of registration.

While using these facilities, students are expected to adhere to the following acceptable use guidelines. Failure to do so may result in a loss of privileges or further disciplinary action in accordance to the Code of Disciplinary Procedures for Students. Violations of some policies may constitute a criminal offence.

**Regulations governing computer facility usage** for all individuals accessing Marine Institute computer systems and services are provided in the section describing **Institute Rules**.

## STUDENT AFFAIRS:

Student Affairs offers services for students, prospective students, staff and faculty. Services offered include:

- Academic, vocational and personal counselling.
- Career, student aid, scholarship and other information to students.
- Advising and assisting Student Council and other student groups on campus.
- Consulting with outside agencies regarding Institute programmes.
- Advising individuals who may be interested in attending the Institute.

## FOOD SERVICES:

Food services are available from Fall registration until Spring graduation, Monday to Friday. Hours of operation are 8:30 a.m. to 3:30 p.m. Hot food is available from 11:30 a.m. to 2:00 p.m. Sandwiches, fruit, snack items, confectionery items and a variety of beverages are available throughout normal hours of operation. Payment must be made at time of purchase.

To assist in controlling cafeteria prices, customers are asked to help keep the cafeteria clean and tidy by returning dishes to tray racks and by disposing of garbage in appropriate receptacles.

Special requests for functions may be made to the Cafeteria Manager on a "Food Service Requisition". Advance booking is normally required.

Any student having special dietary needs or requests can consult with the Cafeteria Manager to determine if these requests can be met. An attempt will be made by cafeteria personnel to meet all reasonable requests

## HARASSMENT/ DISCRIMINATION:

Members of the Institute community are expected to treat each other with respect. The Institute does not tolerate any activity which may be harassing or discriminatory or which promotes harassment or discrimination. Students who feel that they are the subject of such activity are urged to report the matter to Student Affairs. The Institute will endeavour to ensure that the matter is dealt with promptly under the university-wide policy. Students may also contact the university's harassment officer on the main campus directly.

## HEALTH INSURANCE:

There are two health plans for students, one for Canadian students and the other for international students. Students are normally covered under one or the other plan but not both.

### Canadian Students

The Student Council offers students a health care plan which covers a portion of the cost of prescription drugs, eyeglass expense and other medical services. Participation in the plan is compulsory and fees are due at the time of registration. A family plan is available on request. A detailed description of the plans is available from either the Student Council or Student Affairs.

Students who are covered under a similar plan held by a parent or spouse may opt out of the plan upon proof of coverage. Certain deadline restrictions apply and students should contact the Student Union.

### International Students

International students are not covered under Canada's medical programmes. Separate medical insurance is arranged through the Institute. Details of the plan and fees will be provided to students as part of the registration process. Participation in the plan is compulsory.

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### COUNSELLING:

*giving advice or guidance, esp. as solicited from a knowledgeable person.*

*Counsellors are available for individual appointments during the day.*

*For more information call  
(709) 778-0469, ext. 0303,*

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# ABC'S OF ON-CAMPUS SERVICES

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## THE LEARNING CENTRE:

The Learning Centre, located on the main floor next to the Library, provides academic support services. It is equipped with appropriate texts and computer resources and is staffed by faculty tutors who are able to offer assistance on an individual or small group basis.

Students may be referred to the Centre by an instructor or they may drop in to use its resources.

## HOUSING:

### On Campus

Institute students may stay in residence on Memorial's main campus located about three kilometres from the Institute. The Burton's Pond complex contains apartments which are shared by four students. Each student has a private room and shares kitchen, washroom, and lounge area. This type of accommodation is available to students who are at least 19 years old and who are beyond first year studies. Paton College is comprised of a number of dormitories. Students are housed in single or double bedrooms and meals are provided from a central dining hall. This accommodation is open to all students. The residences are serviced by the city's transportation system.

Applications for residence accommodation can be obtained by writing the appropriate office below:

#### ***Housing, Food and Conference Services***

***9-309 Hatcher House  
Memorial University of  
Newfoundland  
St. John's, NF  
A1B 3P7***

***Supervisor  
Burton's Pond Apartments  
106 Corte Real Court  
Memorial University of***

***Newfoundland  
St. John's, NF  
A1B 3S7***

***Student Affairs (Housing)  
Marine Institute  
P.O. Box 4920, St. John's, NF  
A1C 5R3***

## Off Campus

The Institute maintains a list of off-campus apartments and boarding houses. The Institute does not inspect or endorse any of the facilities appearing on the list. Students need to assess the suitability of a given place for their use. A copy of the most recent list may be obtained from Student Affairs at the above address or at the web site - [www.mun.ca/student.html](http://www.mun.ca/student.html).

## DR. C.R. BARRETT LIBRARY:

The Dr. C.R. Barrett Library is located on the main floor of the Fisheries and Marine Institute. It offers a comprehensive range of research and audio-visual services to students, faculty, and staff at the Fisheries and Marine Institute and the Engineering Technology Centre of the College of the North Atlantic, and to the Newfoundland marine industries.

The library collection supports study and research in Fisheries and aquaculture, marine technologies, nautical science, and the ocean environment. The collection includes significant holdings in engineering.

The Dr. C.R. Barrett Library holdings comprise 35,000 books and government documents, 425 current magazine and newspaper subscriptions, and many CD-ROM and WWW-based reference indexes. Its Audiovisual holdings include 1375 videotapes, 350 films and several hundred pieces of equipment. The Library maintains files of ship drawings and of company design manuals.

The Dr. C.R. Barrett Library is one of several facilities constituting the Memorial University of Newfoundland Libraries. All members of the Marine Institute community may access the resources and services of other MUN Libraries.

## LOCKERS:

Lockers are available to students at a cost of \$20.00 per year. At the end of the school year students are required to return their locks at which time they will receive a \$10.00 refund. Failure to return locks will result in loss of the \$10.00 refundable deposit.

Lockers are made available to students on registration day in the gymnasium or any time after registration in room 1072 D.

## OFFICE OF THE REGISTRAR:

The Office of the Registrar provides a variety of services to support the development of students at the Marine Institute. The primary role of this office is to interpret, uphold and contribute to the development of the academic policies and regulations of the Marine Institute; to coordinate the admission and enrollment of students at the Institute; to provide information regarding Institute programmes, policies and regulations and courses to applicants, students and others; and to receive, process, manage and report all student and academic records relating to Marine Institute programmes and students.

This office provides the following services:

- The production and distribution of the Institute calendar and programme information brochures.
- The application and interpretation of Marine Institute academic policies, regulations and procedures.
- The provision, receipt, review of, and response to, applications for admission for all Marine Institute programmes.
- The receipt and coordination of applications for transfer of credit from other institutions to the Marine Institute.
- Programme and faculty scheduling for all Marine Institute programmes and other programmes involving Marine Institute facilities.
- Registration for students in programmes and courses.
- The receipt and coordination of Course Audit applications.
- The provision and updating of student identification cards.
- The receipt and processing of changes to student registration information including course changes and student withdrawals.
- The processing of changes of address for students.
- The evaluation of deferred and supplementary examination applications.
- The coordination and supervision of final examinations including deferred and supplementary examinations.
- The receipt and coordination of challenge examination applications.
- The coordination of the review of, and response to, student academic appeals.
- The coordination of the Institute's response to reports of academic misconduct.

# ABC'S OF ON-CAMPUS SERVICES

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- The coordination of enrollment for Ministry of Transport certification training.
- The receipt, processing and reporting of end of term grades.
- The provision of official student transcripts.
- The receipt and evaluation of applications for graduation.
- The provision of student certificates and diplomas upon verification of completion of programme requirements.
- The coordination of graduation activities.

The Office of the Registrar may be contacted for further information on programmes or any of the above services as follows:

**Phone:**  
(709) 778-0488  
1-800-563-5799 (ext. 488)

**Fax:**  
(709) 778-0322

**E-mail:**  
admissions@mi.mun.ca

**Web Site:**  
www.mi.mun.ca

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*Recruitment, Admissions and Enrollment;  
Scheduling;  
Sponsor Liaison;  
Short Course Enrollment and Records;  
Final Examinations; Records and Grade  
Handling;  
and Graduation.*

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## **PARKING:**

Students who wish to park on campus must obtain a parking permit. Parking permits will be sold during registration and may be purchased after registration at the Cashier's Office. All students must complete an Application for Parking Permit form which are available at the Marine Institute Security office. Memorial University parking regulations apply to the Institute and students are advised to obtain a copy from Security or Marine and Technical Services. Tickets are issued for traffic and parking violations and must be paid at the Traffic Court.

## **RECREATION AND FITNESS:**

A large, well-equipped, modern gymnasium, exercise room, weight room, change and shower rooms are available for physical and recreational activity. Individual and group bookings may be made through the Recreation Director's office, Room 2054.

There is a wide variety of intramural activities for both students and staff. These activities include softball, floor hockey, basketball, and volleyball.

Information about these activities is available from the Recreation Director's office.

Currently, there are two varsity programmes. Both basketball and volleyball teams participate in the St. John's league. There are open tryouts at the beginning of the Fall semester.

The following policies and procedures apply to the recreational facility:

- Only non-marking shoes will be permitted on gym floor.
- Equipment must be returned to office when group is finished.
- Any abuse of facility or equipment will not be tolerated.
- Student I.D. must be presented in order to use facility equipment.

## **SAFETY:**

The Occupational Health and Safety Committee endeavors to:

- ensure that the injury and accident severity rates are reduced to a minimum
- recommend workable solutions to hazards or problems
- review the ratio between old and new occurrences in specific areas.

The Committee also welcomes and encourages individuals to:

- contact any member of the committee with ideas or comments to provide a safer work environment within the Institute
- recognize individuals who have made significant contributions.

## **STUDENT PLACEMENT:**

The main function of the Placement Office is coordinating student work term employment in various programs offered by the Marine Institute. As well, additional services are offered to students and graduates through the Placement Office which include:

- Job Posting - Individual jobs are posted on a bulletin board.
- Resume Referral Service - Resumes of qualified candidates are collected and forwarded to the employers.
- On Campus Recruitment - Office space and board rooms are available to employers who wish to conduct interviews with students on campus.
- Employment Programs - Information on student and employer subsidy programmes is available.
- Employer Database - A database of companies employing Institute graduates/students is maintained.
- Employer Resource Files - An employer file containing company information, annual reports, and applications for employment is available.
- Resume File - An up-to-date file of student and graduate resumes are made available to employers.
- Job Search Techniques - Students are assisted with cover letters, interview techniques, and resume preparation.
- Programme Promotion - Institute programmes are promoted to employers and graduate and work term placements are sought.
- Part-time Employment - Assists students to secure part-time employment while at the Marine Institute.
- National Job Bank - A listing of jobs available locally and nationally is posted daily to the Job Bank.



# ABC'S OF ON-CAMPUS SERVICES

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## STUDENT UNION:

The Marine Institute Student Union (MISU) was incorporated in 1991, and is committed to the provision of goods and services to students, and to the representation of the student body in matters affecting the quality of student life. The MISU provides services and representation to Marine Institute students on national and provincial levels, as well as within the walls of the Marine Institute.

The MISU is a prominent member of The Canadian Federation of Students (CFS), which is the voice for students at over 70 universities, colleges, and technical institutes across Canada. CFS has a strong presence that ensures students' opinions are known on Parliament Hill, in Ottawa. The CFS also provides services such as the National Student Health Network, student saver cards as well as coordinating programmes to provide Canadian students opportunities abroad (International Student Identity Cards, SWAP programmes, etc.) The MISU takes part in the CFS biannual conferences to discuss and form policies on behalf of students.

The MISU is also a prominent member of the Newfoundland and Labrador Federation of Students/Canadian Federation of Students Newfoundland and Labrador (NLFS) represents 32,000 students across Newfoundland and Labrador and works in conjunction with the CFS to ensure students opinions are known in the Provincial House of Assembly.

Within the Institute, the MISU is represented on all committees, including the advisory committee and the academic council, where the Union members ensure that the good of the students is forefront in all policies affecting student lives. Many social and recreational activities are planned and sponsored by the MISU. An annual highlight is winter carnival, a week of fun held during the winter semester. The MISU manages and maintains the student lounge.

Elections for the Student Union Council are held during the year.

All students are encouraged to run and vote in these elections.

## TRANSPORTATION:

### Bus

The Institute is serviced by several Metrobus routes at regular intervals throughout the day. Special buses run in the early morning and late afternoon to facilitate students getting to and from classes. There is also an evening bus service. Schedules for the current term are posted near the main entrance.

### Shuttle Bus

Students who are required to take courses at the South Side of St. John's harbour or the Offshore Survival Centre in Foxtrap may take advantage of the Institute's shuttle bus service. The bus departs the

main building early in the morning and returns after classes end for the day. Departure times may vary with the programme being taken. Consult Technical Services for exact times.

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### ABC'S OF ON-CAMPUS SERVICES:

*Parking  
Recreation and Fitness  
Safety  
Student Placement  
Student Union*

*Transportation:  
Bus and Shuttle Bus*

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# FEES AND FINANCIAL INFORMATION

*The fees and charges indicated herein are as of the date of printing. The Marine Institute reserves the right to make changes to the regulations, fees and charges listed below. Any questions concerning fees and charges should be directed to the Marine Institute Cashier's Office on Ridge Road in St. John's*

## **Tuition Fees:**

Tuition for Technician Diploma and Diploma of Technology programmes for Canadian citizens is \$173.00 per course to a maximum of \$690.00 per term. International students are assessed a tuition fee of \$865.00 per course to a maximum of \$3450.00 per term.

Technical Session fees for Canadian students are \$173.00 per course to a maximum of \$345.00. For International students Technical Session fees are \$865.00 to a maximum of \$1730.00

Tuition for Advanced Diploma programmes for Canadian citizens is \$345.00 per course to a maximum of \$1380.00 per term. International students are assessed a tuition fee of \$1730.00 per course to a maximum of \$6900.00 per term.

Students entering work terms in Advanced Diplomas and Diplomas of Technology must pay a fee equivalent to the fee for one course upon registration for that work term.

Tuition fees for all other programmes can be obtained from the Office of the Registrar. Students sponsored by Human Resource Development Canada (HRDC) should also contact the Registrar.

## **Sponsorship**

Students who will be in receipt of sponsorship by an employer, Human Resources Development Canada or any other agency are responsible for the payment to the Marine Institute of all related tuition and other fees in accordance with the fee payment policy. In cases where a sponsor wishes to be invoiced by the Marine Institute for tuition or other fees, written notification must be provided from the sponsor on or before the day that fees are due to be paid. Such notification must state which fees, and to what amount, will be paid on the students behalf.

## **Laboratory Fee:**

First year students are required to pay a non-refundable Laboratory Fee of \$25.00 upon registration in term 1. All other students are required to pay a non-refundable Laboratory fee of \$5.00 at registration.

Students entering the second year of the Marine Institute technology diplomas in Naval Architecture and Marine Engineering Systems Design must pay a Laboratory Fee of \$500.00 per term and \$200.00 per Session.

## **Student Union Fees:**

A Student Council Fee of \$25.00 per term is compulsory and payable at registration. Human Resource Development Canada (HRDC) sponsored students are responsible for paying their own student union fees since they are not covered by HRDC.

## **Application Fees:**

An application fee of \$40.00 must accompany each application for admission to all Advanced Diploma, Technology and Technician Diploma, Vocational and Technical Certificate and Transport Canada Certification preparation Programmes from Canadian students who have never attended a post-secondary institution or who have previously attended a post-secondary institution within Newfoundland.

Applicants to Advanced Diploma, Diploma, Vocational or Technical Certificate programmes; and Transport Canada certification preparation programmes who have attended a post-secondary institution outside of Newfoundland or who are Non-Canadian applicants must include an application fee of \$80 with their application.

## **Recreation Complex:**

All students in Diploma, Vocational/Technical Certificate and Transport Canada Certificate programmes have access to Memorial University's Recreation Complex. The mandatory fee for this is \$40 per term.

## **Health and Dental Insurance:**

The cost of health/dental insurance for Canadian students is approximately \$180.00 per term or \$360.00 per year. Dependent coverage is available upon request at a cost of approximately \$360.00 per semester or \$720.00 per year. International students should contact the Office for Student Affairs and Services for Memorial University for health/dental insurance information.

Students holding health/dental insurance coverage elsewhere may apply to the Marine Institute Student Union office to be excluded from the student health/dental plan. These applications are available in accordance with the policies of the health insurance carrier.

## **Confirmation Fee:**

A non-refundable, nontransferrable fee of \$150.00, is required from all applicants (except sponsored students and apprentices) who are accepted or conditionally accepted for any programme offered by the Marine Institute. This fee ensures that your place is reserved in the programme to which you have been accepted and is applied towards your first term's tuition.

## **Methods of Payment**

You have the following options available to you for payment of your fees to the Marine Institute:

**Cash/Debit Card** - Must be paid in person at the Cashier's Office. Do not mail cash.

**Cheque** - May be either (1) mailed to the Cashier's Office keeping in mind that if we do not have the cheque prior to your registration date, you will not be considered registered; or (2) delivered in person to the Cashier's Office.

**Telephone Banking** - Information on using this method of payment can be obtained from your local bank. Please allow 5-7 business days for the payment of fees through telephone banking.

## FEES AND FINANCIAL INFORMATION

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**Student Aid** - Students unable to meet fee obligations while awaiting a loan must contact the Marine Institute's Finance Office before, or at the time of registration, to arrange for a deferral of fees payment. Once loan documents arrive at the Marine Institute all student fees owing will be signed out of the student loan unless the student wishes to pay by another method.

**Tuition Voucher** - If you are receiving a tuition voucher, then you must present the voucher at the time of registration. A tuition voucher can only be used towards payment of tuition. It cannot be used for payment towards health insurance and student council fees.

**Credit Card** - You can pay by credit card in person at the Cashier's Office, or using Memorial University's Telephone Registration System.

### Telephone Registration System (TRS)

To use Memorial University's TRS, you must have a touch-tone telephone. A touch-tone telephone is one that generates a different tone for each number selected. If the phone is a rotary dial or push button (i.e. does not generate different tones for each button), it cannot be used for fee payment purposed unless accompanied by a tone-generating device.

A voice will guide you after each entry.

1. The first step is to dial the system number which is (709) 733-9949.
2. Indicate whether you wish to hear about the help features (yes or no).
3. Enter your nine-digit student number. Please note that Marine Institute students must put a zero in front of their eight-digit student number.
4. Enter your four-digit Personal Identification Number (PIN). Your PIN number will be the last four digits of your student number. You must change this PIN number to whatever you want for security.

Otherwise, any person with your student number and PIN has access to your account information.

5. Enter your main menu request, which for credit card payment is 8. Follow instructions given.
6. Press 0 (zero) to terminate the session.

The telephone registration system can only be used for fee payment by credit card. Registration features are not available for Marine Institute courses.

### Canada Student Loans:

Students enrolling in courses of 12 weeks or more in length may be eligible for Canada Student Loans.

For Student Loan purposes, the allowance for books is approximately \$500.00 per semester or \$1000.00 per year.

For student loan purposes, the allowance for books is approximately \$500.00 per semester or \$1000.00 per year. For applicants from provinces outside Newfoundland please contact the Student or Financial Aid office for your province. For further information concerning loan programmes for students from Newfoundland contact the Student Aid Branch of the Department of Youth Services and Post-Secondary Education as follows:

Internet: <http://www.gov.nf.ca/youth/sa/main.htm> (Online applications and information)

E-mail: [Studentaid@mail.gov.nf.ca](mailto:Studentaid@mail.gov.nf.ca)

Telephone: (709) 729-5849 (client service during business hours) or (709) 729-4244 or 1-888-657-0800 for automated information service

Facsimile: (709) 729-2298

Office: Coughlan College on the St. John's Campus of Memorial University Monday to Friday 9:00 A.M. to 4:30 P.M. (4:00 p.m. during the summer)

Mail: Student Financial Services Division Department of Youth Services and Post-Secondary Education P.O. Box 8700 St. John's, NF A1B 4J6

Students unable to meet fee obligations while awaiting a loan must contact the Finance Office before or at the time of registration to arrange for a deferral of fees payment.

### Student Residence:

Students attending the Institute may apply for accommodation to:

**Housing, Food and Conference Services**  
9-309 Hatcher House  
Memorial University of Newfoundland  
St. John's, Newfoundland  
A1B 3P7

phone: (709) 737 7590 or

e-mail: [housing@mun.ca](mailto:housing@mun.ca)

Internet: <http://www.housing.mun.ca>

All students are responsible for locating suitable accommodation for the duration of his or her studies. Students registering in full time programmes that are at least 12 weeks in duration may apply for accommodation through Memorial University of Newfoundland's for Housing, Food, and Conference Services. A sample of some of the fees charged for on-campus housing and meal plans is provided below. Please consult Memorial University's 2002-2003 Calendar or contact Housing, Food and Conference Services for a full outline of all related fees:

#### Paton College:

Single room \$872.00 per semester  
Double room \$706.00 per semester

#### Burton's Pond Apartments

Single Apartment \$919.00  
Family Unit (month) \$575.00

#### Meal Plans

10 meal plan \$1,200.00 per semester  
14 meal plan \$1,297.00 per semester  
19 meal plan \$1,353.00 per semester

#### Locker Fee:

Students wishing to obtain a locker will pay \$20.00, of which \$10.00 will be refunded at the end of the year provided the lock is returned.

#### Challenge Exam:

A fee equivalent to the cost of one course is payable by students applying to earn credit in a Marine Institute course by way of a challenge exam. Further information regarding challenge exams is provided in the section regarding Academic Regulations.

## FEES AND FINANCIAL INFORMATION

### Late Registration Fee:

The Registrar schedules the registration period and deadline for each term. Students are advised of this information. Students who fail to register before the registration deadline date will be assessed a basic late registration fee of \$20.00 as well as \$10.00 per day for each day beyond the deadline.

### Supplementary Examination Fee:

A non-refundable supplementary examination fee of \$50.00 is charged for each supplementary examination that a student writes. This fee must be submitted with the application to write supplementary examination(s).

### Re-Read of Examination Fee:

A fee of \$50.00 is charged for each examination re-read. It is refunded only if the mark is raised. This fee must be submitted with the application for examination re-read(s).

### Replacement of Diploma or Certificate Fee:

A fee of \$20.00 is charged for each replacement diploma or certificate.

### Replacement of ID Card Fee:

A fee of \$10.00 is charged for each replacement Student Identification Card.

### Replacement of T2202a Fee:

An administration fee of \$10.00 is charged for each replacement T2202A (Educational Deduction Form).

## FEE PAYMENT AND REFUND POLICY:

### Payment Term:

All tuition fees, student union fees and health/dental insurance fees are due once a student registers regardless of the method of registration, and must be paid by the fee deadline to avoid a late payment penalty.

The fees payment deadline for students in diploma programmes is the first day of classes in the term. The fees payment deadline for students in certificate or industry-response programmes or courses is the date of registration.

Students who do not comply with the above may have their registration or pre-registration cancelled at the discretion of the Marine Institute.

Students with outstanding fees at the end of a semester or session will not be permitted to register for future courses until any outstanding amounts are paid in full.

### Deferral of Fees:

Students who have been awarded a scholarship, bursary, Canada Student Loan or other similar award, may be permitted to have their tuition fees deferred until they are in receipt of the award or the Canada Student Loan. To request such a deferral, the student must submit an "Application to Defer Payment of Fees". This is available from the accounts office.

### Finance Charges:

Student accounts outstanding on the last day of examinations in a semester/session will be assessed interest at the prime interest rate plus two percent. Such interest will apply effective first day of classes in the semester.

### Health Insurance:

Requests to be excluded from the student health insurance plan will be evaluated in accordance with the policies of the health insurance carrier. Please see the student health plan brochure for further details.

### Late Payment Penalty:

Except as outlined in this policy, all overdue accounts will be subject to a late payment penalty. The late payment penalty is \$15.00 per course up to a maximum of \$75.00 per term or session.

### Outstanding Fees:

Students with outstanding accounts for any reason will be ineligible to register for a subsequent semester until the outstanding account has been paid in full by cash, certified cheque or money order.

Students with outstanding account balances will not be awarded a diploma or certificate, and will not be issued an academic transcript of marks or letters confirming graduation status until the outstanding account has been paid in full by cash, money order or certified cheque.

### Returned Cheque Charge:

A \$25.00 charge will be assessed on any cheque, tendered to Marine Institute, which is subsequently returned to the Marine Institute by the bank. The fees intended to have been covered by the returned cheque will be considered unpaid and therefore a late payment penalty will also apply. All outstanding fees and charges must then be paid by cash, certified cheque or money order.

### Supplementary Exams/Re-Reads:

Students who cannot register on their scheduled registration date pending the outcome of a supplementary exam or re-read of an exam will not be subject to a late registration penalty.

### Waiting List:

Students who cannot register on their scheduled registration date pending verification of admission from the Registrar's Office will not be subject to a late registration penalty.



#### NOTE:

*Details concerning Student Housing are available in the previous section of the Student Services Information.*

# FEES AND FINANCIAL INFORMATION

## (Fee Payment Policy - Refund Policy)

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### Student Fees Refund Policy:

#### TUITION

<b>Full Semester Programmes:</b>	<b>Refund</b>
In the first 11 days of classes	100%
Day 12 to Day 16 of classes	50%
Day 17 to Day 21 of classes	25%
Day 22 and beyond	0%

<b>Less Than Full Semester Programme</b>	<b>Refund</b>
In the first 5 days of classes	100%
Day 6 to Day 8 of classes	50%
Day 9 to Day 11 of classes	25%
Day 12 and beyond	0%

**NOTE:**  
*No refund for programmes  
 3 weeks or less.*

#### STUDENT UNION

<b>Full Semester Programmes</b>	<b>Refund</b>
In the first 11 days of classes	100%
Day 12 and beyond	0%

<b>Less Than Full Semester Programmes</b>	<b>Refund</b>
In the first 5 days of classes	100%
Day 6 and beyond	0%

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**FEES AND FINANCIAL INFORMATION:**

- (Canada Student Loans)*
  - (Student Training Allowance)*
  - (Student Residence)*
  - (Locker Fee)*
  - (Challenge Exam)*
  - (Late Registration Fee)*
  - (Supplementary Exam Fee)*
  - (Re-Read of Exam Fee)*
  - (Transcript Fee)*
  - (Replacement Fees)*
  - (Graduation)*
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# SCHOLARSHIPS AND AWARDS

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The Marine Institute scholarship programme is made up of internally and externally administered scholarships.

There are normally two scholarship presentations in an academic year; one in November and the other in March. The application deadline dates for the current academic year appear in the list of important dates printed at the front of the calendar.

Students must apply for scholarships each term. One application form covers all scholarships and awards administered by the Marine Institute Committee on Scholarships. Students may be required to submit additional application forms to be considered for externally administered scholarships.

## Scholarship Guidelines:

These guidelines cover scholarships and awards administered by the Scholarship Committee of the Marine Institute Academic Council.

- An applicant must be a registered full-time student of the Institute for the current academic year and satisfy the general conditions outlined below. In addition, certain scholarships and awards have special requirements which also must be met.
- For the academic year under consideration, applicants normally shall have taken a course load equal to or greater than that prescribed for a student at that level in a given programme. Students who take more than the normal course load shall have their average based on the courses actually taken. In cases where students take a reduced load, a maximum of a one course reduction for the entire academic year is allowed.
- In any one academic year, a student normally shall be granted only one scholarship which is administered by the Marine Institute Scholarship Committee.
- There is no limit on the number of external scholarships which a student may hold. For the purpose of these regulations, an external scholarship shall be deemed to be a scholarship that is administered or approved by an external committee (e.g. Ocean Ranger, Atlantic Accord, Master Mariners, etc.)
- A scholarship or award normally is given to the eligible student with the highest marks. In the event of a tie, the following shall apply:
  - In the case where the students are taking an unequal number of courses, the student taking the larger number of courses shall be awarded the scholarship.
  - In the case where the students are taking an equal number of courses, the unrounded course marks shall be used and the student with the higher average shall be awarded the scholarship.
  - In the case where the unrounded averages are equal, every attempt will be made to award all students concerned with scholarships of equal value.
- Entrance scholarships shall be awarded on the basis of the high school marks used to determine entrance eligibility.
- First year students shall be awarded scholarships based on their performance in the first term.
- Second and third year students shall be awarded scholarships based on their performance in the preceding year.
- Students who have received an undergraduate diploma from the Institute and who are returning to receive another undergraduate diploma shall be eligible for scholarships provided that they returned to studies in the academic year immediately following the one in which they graduated. They shall be evaluated on the basis of their academic performance in the graduating year of their first diploma including any courses done as part of the new diploma.
- Advanced diploma students shall be evaluated on the basis of their performance in the first term of their programme.
- Students entering the Bachelor of Maritime Studies and Bachelor of Technology programmes shall be evaluated on the basis of their marks in the graduating year of their diploma programme.
- M.O.T. students shall be awarded scholarships and awards based on the recommendation of their faculty.
- Certificate students in one year programmes shall be evaluated on the basis of their performance in the first term.
- Students in programme of less than one academic year in length shall not be eligible for scholarships.
- Students must apply for scholarships, although the committee reserves the right to award scholarships to students who do not apply. Students who fail to apply may not claim any right of consideration by the Institute.
- Students shall be required to have a minimum average of 70% for the academic year under consideration.
- Students who write supplementary examinations in the year under consideration shall not be eligible for scholarships.
- Students must have passed all courses in the year under consideration.
- Where possible, marks will be correlated with scholarship value.
- Awards given for performance in specific area are based upon the recommendation from the school. As such, the nominee need not meet the overall minimum overall average requirement nor the course load requirement. The nominee must have been registered as a full-time student for the year under consideration.
- Pass/fail courses completed as requirements for external certification (e.g. MED, First Aid, Radio Operator) shall not be calculated in the course load provided they were done as blocks and not concurrent with other courses.
- Students in the diploma programmes who are admitted to pre BMS or pre Btech may use courses from those programmes to maintain the required course load for scholarships.
- Students who have been convicted of an offence under the academic misconduct code are not eligible for scholarships.

A number of the scholarships have additional specific requirements which must be met. The Scholarship Committee reserves the right to award scholarships to students who have not applied. However, students who do not apply may not claim any right of consideration by the Institute.

From time to time special scholarship programmes are offered by outside agencies. Notice of these scholarships is posted on the Student Affairs notice board outside Room 3307. Usually more detailed information and application forms are available from the Student Affairs Office, Room 3009.

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*The scholarship programme is made up of internally and externally administered scholarships.*

*There are normally two scholarship presentations in an academic year*

*Students must apply for scholarships each term.*

# SCHOLARSHIPS AND AWARDS

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## The Kenneth S. Abbott Memorial Scholarship

This scholarship in memory of Kenneth Abbott, a humanitarian and Safety Officer with the Hibernia project, is given to a student in the Nautical Science programme who demonstrates a commitment to safety and has a high level of performance in the MED portion of the programme.

**Value: Varies**

## Association of Engineering Technicians and Technologists Scholarship

This scholarship is available to a deserving student who is an associate member of the Association of Engineering Technicians and Technologists of Newfoundland and is returning to the Institute to complete a technical programme of study.

**Value: \$200**

## Atlantic Accord Career Development Awards

The Federal and Provincial governments through the Atlantic Accord Career Development Awards Board provides scholarships for students enrolled in three-year technology programmes and graduate programmes which are directly related to the exploration, development, and production of offshore oil and gas. These scholarships are normally awarded in the second semester.

**Value: \$2,000**

## The Mr. Justice Fintan J. Aylward Scholarship

This scholarship, the yearly interest from an endowment established by the Honourable Mr. Justice Fintan J. Aylward, Q.C., (a former Chairman of the Board of the College of Fisheries, Navigation, Marine Engineering and Electronics and of the Marine Institute) is awarded to a student entering the first year of a diploma programme at the Institute who has demonstrated an interest in marine law or marine safety.

**Value: Varies**

## Dr. C. R. Barrett Scholarship

This scholarship, the yearly interest from a \$5,000 trust fund donated by Dr. C. R. Barrett on his retirement as President of the College of Fisheries, Navigation, Marine Engineering and Electronics, will be awarded to a deserving Diploma of Technology student.

**Value: Varies**

## The John N. Barrett Scholarship

This scholarship, the yearly interest from a \$2,000 trust fund to be awarded to a deserving diploma student who plans to continue his/her studies at the Institute, was donated by Dr. C. R. Barrett in memory of his father.

**Value: Varies**

## The Raymond Bartlett Memorial Scholarship

This scholarship, the interest from an endowment in memory of a former student, is presented in alternate years to a student in second or third year of the Marine Engineering programme or the MOT Engineering programme who has demonstrated high academic ability and a strong sense of initiative and perseverance.

**Value: Varies**

## The Gordon C. Bishop Scholarship

This scholarship in memory of Gordon C. Bishop, a dedicated family man and mechanical enthusiast, is given to a student in the third year of the Marine Engineering Programme who demonstrates dedication and high academic performance in the second year marine engineering knowledge courses. It is based on the recommendation of the course instructors.

**Value: \$200**

## The Ed Bowdring Memorial Scholarship

The scholarship was established by the friends and colleagues of Ed Bowdring as a memorial to an exceptional photographer who has left a valuable photo record of the people of the land and the sea. This scholarship, the interest from a trust fund, is awarded to a student who demonstrates a creative use of video or still photography as part of his or her studies, or develops an innovative media-related project for the benefit of rural Newfoundland and Labrador.

**Value: Varies.**

## Centenary of Responsible Government Scholarships

These scholarships sponsored by the Government of Newfoundland and Labrador are awarded to the two students who obtain the highest marks in a three year technology programme.

**Value: \$1,000.**

## Daley Brothers Limited Scholarship

One scholarship to be awarded on the basis of academic performance and financial need to a deserving student in either the diploma or advanced diploma programmes in the School of Fisheries.

**Value: \$250**

## Donald W. K. Dawe Scholarship

This scholarship is awarded to a student who plans to continue his/her studies at the Institute.

**Value: \$250**

## Donald W. K. Dawe Memorial Scholarship

This scholarship comes from the yearly interest of a trust fund donated by the family, friends and associates of the late Donald W. K. Dawe, Q.C., the first chairman of the Board of Governors of the College of Fisheries, Navigation, Marine Engineering and Electronics. It will be awarded annually to a deserving student who has successfully completed at least one year at the Institute. Preference may be given to a student from rural Newfoundland and Labrador.

**Value: Varies**

# SCHOLARSHIPS AND AWARDS

## Randy Emberley Memorial Scholarship

The Randy Emberley Memorial Scholarship, donated by his fiancée Jeanie Sutton, is given in memory of Randy Emberley, a former graduate of the Marine Institute who died tragically. This scholarship valued at \$200 is awarded annually to a student in either the Ocean Navigation I or II programmes, who is a native of Newfoundland.

Value: \$200

## The Captain Bill Ennis Memorial Scholarship

This scholarship in memory of Captain William (Bill) Ennis, a Marine Institute faculty member and prominent Newfoundland fishing captain, is given to a student in the Bachelor of Maritime Studies programme who has completed the Nautical Science diploma programme at the Marine Institute

Value: Varies

## Charles Evans Memorial Scholarship

This scholarship, the yearly interest from an endowment by the family of Charles Evans, a former student of the Marine Institute, is awarded to a student in Nautical Science, upon the recommendations of the Head of the School of Maritime Studies.

Value: Varies

## Fisheries Association of Newfoundland and Labrador Limited Scholarships

These scholarships are awarded annually to deserving students in the diploma and advanced diploma programmes in the School of Fisheries as a credit towards their registration fees.

Value: \$500

## Fishery Products International Employee Scholarships

This scholarship is awarded to a student entering a two or three year programme of the Institute who is a dependent child of a Fishery Products International employee.

Value: \$500

## Fishery Products International Scholarships (Entrance Scholarships)

Three scholarships awarded annually to students entering the Marine Institute.

Value: \$500

## Flotilla '97 Legacy Scholarship

This scholarship, the legacy of the 1997 flotilla to commemorate the 500<sup>th</sup> Anniversary of Cabot's voyage, is presented to a student entering the B.Tech. Programme. Preference shall be given to students from Marine Environmental Technology.

Value: Varies

## The Hector and Sybil Green Memorial Scholarship

The Hector and Sybil Green Memorial Scholarship was established by the Green family as a memorial to two people who had a long-time association with the fishery and who appreciated the value of education. It is awarded annually to a student in the Marine Diesel Mechanics programme, who is not receiving other forms of financial assistance and is based upon academic performance and the recommendation of the selection committee.

Value: \$300

## Grenfell Scholarship

Each year one scholarship will be awarded to a student from the area served by the Grenfell Regional Health Services who has completed one or more years towards either a university degree or a diploma of technology at the Marine Institute. This scholarship is sponsored by the International Grenfell Association and is renewable for up to three years providing that scholarship standing is maintained.

Value: \$5,000

## The Harvey Head Memorial Scholarship

This scholarship is presented to a full-time student entering the B.Tech. programme who has graduated from the Electrical Engineering programme at either the Marine Institute, Cabot College, or College of the North Atlantic and who has maintained a minimum of 70% average throughout the diploma programme.

Value: Varies

## The Shawn Hatcher Memorial Scholarship

This scholarship, in memory of a former student, is given to a student in the Marine Diesel Mechanics programme.

Value: \$400

## The Kjell Henriksen Scholarships

Two scholarships donated by the widow of the late President of the Canadian Saltfish Corporation, in memory of her husband, awarded annually to second and third-year diploma students and advanced diploma students in the School of Fisheries who are the sons and daughters of native-born Newfoundlanders.

Value: \$500

## The Hibernia Management and Development Company Ltd. Scholarships

These scholarships shall be awarded annually to one male and one female student in either the second or third year of the Marine Environmental Engineering Technology programme.

Value: \$1,000

## Dale Howse, Sterling Perham, and Richard Price Memorial Scholarship

This scholarship in memory of three students is presented to a student enrolled in a technology programme. Preference may be given to a student in the Marine Engineering programme.

Value: Varies

## Captain Robert Scott Kean Scholarship

This scholarship in memory of Captain Robert Scott Kean is given to a student in the third year of the Naval Architecture programme and is based upon the major design project and the recommendation of the course instructors.

Value \$500



# SCHOLARSHIPS AND AWARDS

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## Keith R. Kirby Scholarship

This scholarship, the yearly interest from a \$5,000 trust fund, to be awarded annually to a deserving Intermediate Student in Nautical Science of high academic achievement and who is recommended as having a commitment to improving safety in the marine environment.

Value: Varies

## The Labrador Scholarship

The Labrador Scholarship, the interest from an award presented to the Institute by Northern Telecom for its distance education programme in Labrador, is awarded annually to a student from Labrador who is enrolled in a three year technology programme.

Value: Varies

## Marine Atlantic Scholarship

The Marine Atlantic Scholarship is awarded annually to a student in Nautical Science and Mechanical Engineering (marine) who are members of one of the following groups: women, visible minorities, aboriginal people, disabled.

Value: \$1,000

## Marine Institute Scholarship

This scholarship may be awarded to students in any programme eligible for scholarships.

Value: Varies

## Marine Institute Science Fair Scholarships

The Marine Institute sponsors up to eight entrance scholarships to the Marine Institute. Up to two recipients may be selected from the Grade XI and XII entries in the senior division of each of the four Newfoundland regional science fairs. Recipients must enroll in the Marine Institute in the next academic year following graduation from high school in order to claim the award. Application must be made prior to the commencement of judging.

Value: One year's tuition

## Marine Institute Student Union Scholarships

The Marine Institute Student Union has established four scholarships which are awarded on the basis of academics and involvement in student affairs.

Value: \$250

## Middle Cove Memorial Scholarship

This scholarship, established from the interest of an endowment by members of the Canadian Coast Guard in the Newfoundland and Maritimes Regions in memory of three colleagues who lost their lives in the line of duty, is awarded annually to a second or third year student in Maritime Studies.

Value: Varies

## Mobil Oil Canada Scholarship

This scholarship is awarded annually to a student with high academic performance.

Value: Varies

## Captain Wilfred B. Morgan Memorial Scholarship

Donated by his wife and children as a memorial to Captain Wilfred B. Morgan, Master Mariner, who served as a Master with C.N.R. and was a Master of the Institute's M.V. Beinir, this scholarship is awarded annually to a Nautical Science student entering second year. Preference shall be given to a student from the Labrador coast.

Value: One year's tuition at the Institute

## The Navigator Magazine Scholarships

These scholarships are given to students in diploma and advanced programmes in the School of Fisheries.

Value: \$350 and \$400

## Newfoundland Telephone Company Scholarship

For dependents of Newfoundland Telephone company employees entering first year studies with scholarship standing and holding no other scholarship.

Value: \$300

## Ocean Ranger Scholarships and Bursaries

To commemorate the tragic loss of the 84 crew members of the Ocean Ranger on Feb. 15, 1982, a scholarship and bursary programme has been established by the Ocean Ranger Disaster Fund. These awards, valued at \$500.00 per year, are presented to students who are entering or pursuing a post-secondary programme of studies. In selecting candidates, preference will be given to the daughters, sons and/or widows of those who were lost. In the absence of eligible candidates from this group, the scholarships and bursaries may be awarded to other students at the discretion of the Ocean Ranger Scholarship Committee.

Value: \$500

## Captain Peter Parsons Memorial Scholarship

Donated by his wife and four daughters, the Captain Peter Parsons Memorial Scholarship commemorates a Newfoundland master mariner who knew the power of both the sea and education. The interest from the endowment is awarded annually to a student in either the second or third year of the Nautical Science Diploma of Technology programme who is a native Newfoundlander or Labradorian or whose parents are natives of the Province.

Value: Varies

## Port of St. John's Scholarships

These scholarships were established by the St. John's Port Corporation to recognize the academic achievements of students studying in the marine fields. Preference shall be given to students in second and third year Nautical Science.

Value: \$500.00

## The Rotary Scholarships

Two scholarships shall be awarded to students entering their final year of studies. In selecting candidates for the scholarships, the Scholarship Committee will consider academic achievement, participation in Institute activities, and the demonstration of personal qualities appropriate to the student's chosen field of endeavour.

Value: \$600

# SCHOLARSHIPS AND AWARDS

## Hazen A. Russell Scholarship in Fisheries

Two scholarships, the annual interest from a \$25,000 trust fund, will be awarded to qualified second and third year students in fisheries and related marine technology. The trust fund is a donation by the family of the late Hazen A. Russell, who made a major contribution to the development of the Newfoundland fishing industry. These scholarships honour the memory of an outstanding businessman whose success was due in no small measure to his commitment to quality control and technical innovation.

Value: Varies

## Schlumberger Scholarships

A total of five scholarships are awarded to students in the Marine Engineering Technology and Marine Diesel Mechanics programmes

Value: \$500

## The Captain Norman Small Scholarship

This scholarship is awarded to a first year student entering the Institute from the area served by the International Grenfell Association. The scholarship is the annual interest from a scholarship trust fund set up to honour the memory of Captain Norman Small.

Value: Varies

## The Terje Strand Memorial Scholarship

This scholarship in memory of Chief Engineer, Terje Strand, is given to a student in the Marine Engineering programme who has completed at least on sea placement. Preference shall be given to students who have served on Oceanex vessels.

Value: \$250

## Tekcon Management Scholarship

This scholarship, the yearly interest from a \$5,000 trust fund, will be awarded to a student in Engineering Technology.

Value: Varies

## Janet Warf Scholarship

This scholarship was established by the friends and colleagues of Janet Warf upon her retirement from the Institute. It honours her outstanding contribution to the Institute and is awarded to a student in a technology programme.

Value: \$100

## Xerox of Canada Scholarship

Awarded to a student of high academic standing.

Value: Varies

## ADDITIONAL SCHOLARSHIPS

A number of external agencies provide scholarships for employees or members and their dependents. Students should make inquiries directly to the agency concerned. The following is a partial listing of scholarship sponsors:

- NAPE
- Knights of Columbus
- Royal Canadian Legion
- Korea Veterans Association
- Society of United Fishermen
- Newfoundland Light and Power Company Ltd. Employees Association
- Masonic Lodges
- Labrador Inuit Association
- The HUB
- Kinsmen
- Fishery Products International
- CUPE
- CNIB
- Imperial Oil
- National Sea Products
- Company of Master Mariners
- Scouts Canada
- Canadian Institute of Marine Engineering
- Netherwood Foundation
- Newfoundland and Labrador Amateur Sports Federation

## AWARDS:

### The Gerard Butler Award

This award of marine reference books to the value of \$100 is to be presented annually to a qualified student of the Ministry of Transport Nautical Certificate programme. This award comes from the annual interest of a memorial trust fund set up by Mrs. Anne Butler in memory of her late husband who was lost at sea when the Arctic Explorer sank.

Value: \$100

### Canadian Institute of Marine Engineers (Newfoundland Branch) Award

This award is given on recommendation of the Executive Director to the student most outstanding in practical and theoretical work with an average of not less than 75% at the end of the first year of training in Marine Engineering.

Value: Reference Book

### Governor General's Bronze Medal

The Governor General's Bronze Medal is awarded at Graduation to the student who has the highest average in the final year of a three year programme. Students must have carried a full academic load.

### Marine Institute Bronze Medals

Marine Institute Bronze Medals, presented at Graduation, are awarded to students with the highest standing in the final year of their programmes.

### The Melvin Freid Marine Safety Award

Donated by Alpha Beta Signa Phi in remembrance of Mel Freid who lost his life in the Ocean Ranger disaster. This award, valued at \$250 is presented annually to a student who shows initiative and enterprise in the field of marine safety or to assist in a research project in marine safety.

Value: \$250

# **Programme Information**

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# MASTERS DEGREE

## MASTER OF MARINE STUDIES (FISHERIES RESOURCE MANAGEMENT)

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The degree Master of Marine Studies (Fisheries Resource Management) is a multi-disciplinary programme of study designed to provide exposure to all dimensions of modern fisheries resource management. The programme is available on a full-time or part-time basis to students who have an undergraduate degree and some exposure to fisheries. All students must take the full complement of 21 credit hours plus a required seminar and must submit a substantial report on a topic chosen in consultation with the program committee. Students registered on a full-time basis will normally complete the programme in one academic year.

### PROGRAMME ENTRY

Admission to the programme is on a competitive basis. A maximum of 15 students will be admitted in any one year. To be considered for admission to the programme an applicant will normally have an undergraduate degree with a minimum of high second-class standing from an institution recognized by the Senate.

In addition to the academic requirements, applicants must normally demonstrate several years of commitment to fisheries through employment in a sector of the fishery, in a regulatory agency or government department connected to fisheries, in a non-government agency, or through self-employment or consulting related to fisheries.

Applicants must submit, along with the normal academic application form, a letter outlining their reasons for applying for the programme, and their expectations from the programme.

In exceptional cases persons who do not have an undergraduate degree but who have a significant connection to fisheries and demonstrated experience at a level acceptable to the programme committee may be admitted. Such persons will undergo an extensive interview by the programme committee before being admitted.

Students will normally be admitted to the programme only in September. Applications for admission in September must be received no later than April 30 of the year in which admission is sought.

### PROGRAMME STRUCTURE

The programme consists of the 21 credit hours which will normally consist of the courses numbered 6001-6007 listed below, the seminar course and the major report. Each course will normally be offered only once in an academic year, with four courses in the fall semester, and four, including the seminar course, offered in the winter. Candidates are expected to undertake and complete the work required for the report in the summer semester. Those admitted as full-time students at the beginning of an academic year in September will normally complete all requirements for the programme, including the report by the end of that academic year, i.e., the following August.

A waiver of a programme course may be granted by the dean of graduate studies on the recommendation of the programme committee if the student can demonstrate that the material in the course has been substantially covered by a course taken at this or another recognized university. In such cases the course must be replaced in the candidates programme by another course at Memorial chosen in consultation with, and approved by, the programme committee. This replacement course must be taken during the student's period of enrolment in the programme.

#### Courses:

**Fisheries Resource Management 6001**  
- Fisheries Ecology

**Fisheries Resource Management 6002**  
- Quantitative Methods in Fisheries

**Fisheries Resource Management 6003**  
- Fisheries Economics

**Fisheries Resource Management 6004**  
- Fisheries Policy

**Fisheries Resource Management 6005**  
- Fisheries Planning and Development

**Fisheries Resource Management 6006**  
- Business Management for Fisheries

**Fisheries Resource Management 6007**  
- Evolution of Fisheries

**Fisheries Resource Management 6008**  
- Seminar in Fisheries Management

### EVALUATION

Candidates for the Master's Degree must obtain a grade of B or better in all programme courses and successfully complete the seminar and the major report.

Candidates who have received a grade less than a B in a programme course will be permitted to remain in the programme, provided the course is retaken and passed with a grade of B or better. Alternatively the candidate may, on the recommendation of the Programme Committee, substitute another graduate course. Only one such repeat or substitution will be permitted in the programme.

The major report is a fundamental component of the programme. The topic of the report will be chosen by the candidate in consultation with the Programme Committee. Normally the report will be multi-disciplinary in nature, although in exceptional circumstances it may be undertaken in a single discipline. The report will be 10,000-15,000 words in length and will normally be undertaken in the final semester of the programme. It will be assessed in accordance with General Regulation J of the School of Graduate Studies.

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*The programme is available on a full-time or part-time basis to students who have an undergraduate degree and some exposure to fisheries*

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# MASTERS DEGREE MASTER OF MARINE STUDIES (FISHERIES RESOURCE MANAGEMENT)

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## PROGRAMME HIGHLIGHTS

This programme emphasizes the intellectual skills needed to work across traditional disciplinary lines. It will be of interest to recent graduates seeking to improve employment prospects within government, consulting companies or commercial enterprises, skilled specialists moving toward management responsibilities and individuals seeking a broadly based education in resource management.

The purpose of this degree is to develop, through formal education, those skills that are essential to the management of natural resources. These skills include familiarity with relevant concepts from biology, economics, sociology, and political science; the ability to grasp and follow quantitative arguments; the ability to read critically and extract key points from diverse material; the capacity to apply this knowledge to important issues in resource management. These skills will complement, rather than replace, the in-depth knowledge of specialists in the natural or social sciences.

The program is a graduate degree in fisheries resource management.  
**Fisheries** - The program deals with the major world fisheries, the species caught, the biological, ecological and oceanographic aspects of these fisheries and the quantitative methods of assessment.  
**Resource** - Economic perspectives of analysis, human dimension to resource utilization, policy and regulatory regimes on global, national and local scales.  
**Management** - Different management regimes, organizations, decision making with incomplete and imperfect knowledge, tradeoffs between biological, human, economic and political factors.

For more information contact:

**Chair, MMS Programme Committee**

Fisheries and Marine Institute of  
Memorial University of Newfoundland  
P.O. Box 4920, St. John's, NF  
Canada A1C 5R3

Tel: (709) 778-0356  
Fax: (709) 778-0346  
e-mail: [admissions@mi.mun.ca](mailto:admissions@mi.mun.ca)  
web site: <http://www.mi.mun.ca>

OR

**School of Graduate Studies**

Memorial University of Newfoundland  
St. John's, NF  
Canada A1B 3X5

Tel: (709) 737-8200  
Fax: (709) 737-4702  
e-mail: [gradstud@morgan.uccs.mun.ca](mailto:gradstud@morgan.uccs.mun.ca)  
web site: <http://www.mun.ca/gradstud>

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*of interest to recent graduates seeking to improve employment prospects within government, consulting companies or commercial enterprises, skilled specialists moving toward management responsibilities and individuals seeking a broadly based education in resource management*

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# BACHELOR OF MARITIME STUDIES DEGREE

The Bachelor of Maritime Studies degree is a unique professional degree offered specifically for those pursuing careers in the maritime and related industries. The programme is designed for those who have graduated from accredited, or Transport Canada approved, Diploma of Technology programmes in marine fields. The student receives credit for the diploma courses as a block and undertakes a series of courses on a full time, part time or distance basis to satisfy the degree requirements. These courses provide the student with an introduction to human resource and business management concepts, and the social context in which their careers are based.

The programme is administered by a Programme Committee at the Fisheries and Marine Institute of Memorial University of Newfoundland (Marine Institute) having representatives from the Faculties of Arts, Business and Engineering and Applied Science, and from the School of Maritime Studies at the Marine Institute, together with representatives from Canadian Forces (Naval Operations), Transport Canada (Marine Safety) and the Canadian Marine Transportation Industry.

## PROGRAMME ENTRY

### 1. Admission Requirements:

To apply for this programme, a student must submit the following to the Office of the Registrar:

- A Memorial University of Newfoundland Undergraduate Application for Admission/Re-Admission;
- A Bachelor of Maritime Studies Application for Admission/Re-admission;
- All documents as prescribed under the Admission Regulations in this Calendar including:
  - a) Original Transcripts from all post-secondary institutions currently or previously attended;
  - b) Proof of Diploma (this may be on transcript) or copies of professional documents;
  - c) Application fee.

Applications and documentation must be mailed to:

Office of the Registrar  
Memorial University of Newfoundland  
St. John's, NF  
A1C 5S7

Applications to the programme will be considered by the Admissions Committee of the Programme Committee.

Applicants must meet the regular admission requirements of the University, and be eligible for admission in one of the following categories:

- a) Applicants holding a diploma from the Marine Institute in nautical science or marine engineering technology;
- b) Applicants holding a diploma from the Marine Institute in naval architecture technology or marine engineering systems design technology;
- c) Applicants holding a Canadian Technology Accreditation Board accredited, or Transport Canada approved, diploma in marine engineering technology or nautical science;
- d) Applicants holding a Canadian or non-Canadian diploma similar to an accredited or Transport Canada approved Marine Institute diploma in nautical science, marine engineering technology, naval architecture technology or marine engineering systems design technology;
- e) Applicants holding a Transport Canada Certificate of Competency at the Master Mariner or Engineering First Class level or equivalent;
- f) Applicants holding a Transport Canada Certificate of Competency at the Master (Intermediate Voyage) level or equivalent;
- g) Applicants holding a Transport Canada Certificate of Competency at the Engineering Second Class level or equivalent;
- h) Applicants who have Canadian Forces (Naval Operations) training of a type and at a level acceptable to the Admissions Committee.



### NOTE:

*Specific regulations for the programme may be waived upon the approval of the Marine Institute Undergraduate Studies Committee upon the recommendation of the Programme Committee.*

*Regulations for the Diploma of Technology programmes are contained elsewhere in the Marine Institute Calendar.*

## PROGRAMME OUTLINE

### 2. Degree Regulations:

To be awarded a Bachelor of Maritime Studies, a candidate shall successfully complete the following programme with a minimum average of 60% in the courses required for the degree:

1. All students enrolled in the Bachelor of Maritime Studies must successfully complete the following courses:

One of: Business 2102 - Introductory Accounting for Non-Business Students, **or** Business 5301 - Organizational Theory, **or** Business 7302 - International Business;

Business 3320 - Introduction to Labour Relations;

One of: Business 4320 - Introduction to Personnel and Human Resources Management, **or** Psychology 3501 - Industrial Psychology;

Economics 2010 - Introduction to Microeconomics;

Economics 2020 - Introduction to Macroeconomics;

Six credit hours in first year English (English 1080 and either 1101 or 1110 are recommended);

Maritime Studies 4000 - Technical Report;

Maritime Studies 4001 - Ship Operations Management;

One of: Mathematics / Statistics 2500 - Statistics for Business and Arts Students, **or** Mathematics / Statistics 2550 - Statistics for Life Science Students;

One of: Political Science 3210 - International Law, **or** Business 4000 - Business Law 1.

**and two courses chosen from the elective list below:**

Business 1201 - Principles of Marketing;

Business 4000 - Business Law I;

One of: Business 6320 - Advanced Labour Relations, **or** Economics 3360 - Labour Market Economics;

Economics 3030 - International Economics (Issues and Problems in a Canadian Context);

Engineering 4102 - Engineering Economics;

One of: Geography 3510 - Geography of the Seas, **or** Geography 3400 - Lands and Seas of the Northern North Atlantic, **or** History 3690 - Maritime History of the North Atlantic from 1850;

Mathematics/Statistics 2501 - Further Statistics for Business and Arts Students;

Political Science 3210 - International Law;

# BACHELOR OF MARITIME STUDIES DEGREE

Political Science 4200 - Special Topics in International Law;

One of: Psychology 2120 - Interpersonal and Group Processes, **or** Sociology 3120 - Social Psychology, **or** Sociology 2120 - Technology and Society;

One of: Sociology/Anthropology 3317 - Oil and Society, **or** Sociology/Anthropology 4091 - Oil and Development

2. Students admitted under Admission Requirements Section 1. b), c), e), f) or g) above must successfully complete the following additional two courses as prerequisites for other courses in the program.

Business 1000 - Introduction to Business, **and**

Business 2301 - Organizational Behaviour

a) Students admitted under Admission Requirements Section 1. f) above must successfully complete the following additional courses:

Business 2000 - Business Communications;

Either: Transport Canada - Ship Management 093 (Master Mariner); **or**

Both of: Marine Institute - Business and Organizational Management 3114 (Business of Shipping), **and**,

Marine Institute - Business and Organizational Management 3204 (Ship Management).

For students at this level, the pre-requisite(s) for Business and Organizational Management 3204 will be waived.

b) Students admitted under Admission Requirements Section 1.g) above must successfully complete the following additional courses:

Business 2000 - Business Communications

Transport Canada - Applied Mechanics (1<sup>st</sup> Class)

Transport Canada - Thermodynamics (1<sup>st</sup> Class)

Transport Canada - Electrotechnology (1<sup>st</sup> Class).

3. Students admitted to the Degree of Bachelor of Maritime Studies under Admission Requirements, Sections 1.d) or h) above may be required to complete courses in addition to those indicated in Degree Regulations, Section 1, above.

4. Students having completed courses listed in Degree Regulations Section 1 as a component of their diploma programme, for which a waiver of any of these courses may be granted, are required to complete additional electives chosen from other

university courses acceptable to the Programme Committee. Students granted a waiver of any degree requirements indicated under Degree Regulations Section 2 are not required to complete additional courses.

5. Under exceptional circumstances, and with the approval of the Programme Committee and the appropriate academic unit, courses other than those indicated may be substituted for the electives listed.

## Maritime Studies 4000 (Technical Report)

This course provides a link between the courses of the Bachelor of Maritime Studies programme and the technical component from the diploma. It gives the student the opportunity to carry out an in-depth and guided study into an aspect of the maritime industries from a perspective provided by the degree programme. The course will normally be completed in the final semester of studies.

The course requires the identification, definition and completion of a project and the preparation of a formal report, under the guidance of a supervisor. The Programme Committee must approve both the topic and scope of the project and the supervisor. Students may begin work on their project concept at any time following admission to the Programme, but should submit a project concept paper and prepare a proposal during the semester prior to that in which they expect to register for and complete the project. The student must complete the report within one year of the Programme Committee's approval of the supervisor. Students will register for Maritime Studies 4000 in the semester they expect to complete the course and must submit the report no later than three weeks before the end of this semester.

Students must prepare and submit a project concept paper, a project proposal, progress reports and a project logbook, and a formal report. This report will demonstrate a high level of competence in written communication and presentation skills and will follow a standard format for formal technical reports. Students should consult the Maritime Studies 4000 Website (<http://www.mi.mun.ca/bms/mrst4000/>) for additional information. (Course fee: \$1500)

## Maritime Studies 4001 (Ship Operations Management)

This course will provide students with a conceptual understanding of owning or managing a marine shipping company from a Canadian perspective. Topics covered include basic trade theory, the structure of marine transportation companies, marine markets, charter parties, risk management, ship finance, budgeting, labour relations, crewing, ship construction and repair, an introduction to marine insurance, and current specialty topics in the shipping business. There will be assignments and major projects associated with this course.

Credit Earned: Degree of Maritime Studies

4 Years

Normal Start: Fall

School of Maritime Studies

Contact: Coordinator of Advanced Programmes

(709) 778 - 0522



### NOTE:

*Credit cannot be obtained for both Maritime Studies 4001 and former Engineering 8065*

# BACHELOR OF TECHNOLOGY DEGREE

The Bachelor of Technology degree has been developed to provide access to a degree to those who have graduated from an accredited Diploma of Technology programme in Health Sciences Technology or Engineering/Applied Science Technology. The student receives credit for the diploma courses as a block and undertakes a series of courses which may be taken on a full time, part time, or distance basis to satisfy the degree requirements. These courses provide the student with exposure to general management concepts; an understanding of the societal context in which their technology careers are based; and research, analysis and report writing experience.

The programme is administered by a Programme Committee having representation from the Marine Institute (at which the programme is administered), the Faculties of Engineering, Business, Arts, Science and Medicine, and the Schools of Nursing and Pharmacy, along with representatives from the College of the North Atlantic.

## PROGRAMME ENTRY

### Admission Requirements

Applicants must meet the regular admission requirements of the University.

Applicants holding a diploma from the Marine Institute or The College of the North Atlantic in an accredited area in Health Sciences or Engineering/Applied Science Technology will be awarded the degree upon satisfactory completion of the courses in the degree regulations, or

Applicants holding a diploma similar to a Marine Institute or College of the North Atlantic three-year accredited diploma will have their status adjudicated relative to the diploma requirements in the appropriate area. Appropriate exemptions will be granted and a course of study developed.

## PROGRAMME OUTLINE

### Degree Regulations

To be awarded the degree of Bachelor of Technology, a candidate shall successfully complete the following 39 credit hour programme with a minimum average of 60% in the courses required for the degree:

### Core Courses

All students enrolled in the Bachelor of Technology must complete the following courses:

Six credits hours in First Year English (preferably 1080 and 1110)

Business 1000 - Introduction to Business

Business 2301 - Organizational Behaviour

Business 3320 - Introduction to Labour Relations

Business 4320 - Introduction to Personnel and Human Resource Management OR

Psychology 3501 - Industrial Psychology

Technology 4000 - Technical Project and Report

**Two courses chosen from the following such that at least one is taken from Group B:**

### Group A

Business 1201 - Principles of Marketing

Business 3700 - Information Systems

Business 4000 - Business Law I

Business 6320 - Advanced Labour Relations  
**OR**

Economics 3360 - Labour Market Economics

### Group B

Economics 2010 - Introduction to Microeconomics I

Economics 3080 - Natural Resources and Environmental Economics

Geography 4410 - Research Seminar in Resources

History 3660 - The Scientific Revolution

Religious Studies 3830 - Religion, Science and Technology

Sociology 2120 - Technology and Society

Sociology/Anthropology 3220 - Work and Society

Sociology/Anthropology 3317 - Oil and Society

Sociology/Anthropology 4091 - Oil and Development

Women's Studies 4107 - Women and Technological Change

Students may also choose any course from the University Calendar to be used as a Group B course providing they have the permission of the Department offering the course and the course has been approved by the Programme Committee. To be so designated, the course must deal with

some aspect of the societal context of technology.

### Engineering Applied Science Courses

Students with an Engineering/Applied Science Technology Diploma must complete the following courses in addition to the core courses above:

Business 2102 - Introductory Accounting for Non-Business Students

Engineering 4102 - Engineering Economics Technology 4010 - Assessment and Implementation of Technology

Mathematics/Statistics 2500 - Statistics for Business and Arts Students

Students having completed courses as a component of their diploma programme for which a waiver of any of the above noted courses may be granted are required to complete additional electives chosen from other university courses acceptable to the Programme Committee. It should be noted that courses in the Faculty of Engineering and Applied Sciences may be used to satisfy this requirement, subject to the student being granted permission to register for the course by that faculty.

### Health Science Courses

Students with a Health Sciences Technology Diploma must complete the following courses in addition to the core courses specified above:

Nursing 4002 - Introduction to Nursing Research: Methodology and Critique

Nursing 5210 - Health Care Systems

**Plus two courses chosen from the following:**

Economics 2020 - Introduction to Macroeconomics

One of Psychology 2010, 2011 or 2012 - The Psychology of Human Development

Psychology 2800 - Drugs and Behaviour

Nursing 3023 - Counselling

Nursing 4710 - Current Concepts in Pathophysiology

One of Biology 2040 or 2041 - Modern Biology and Human Society

Sociology 2110 - Economy and Society

Students having a Health Sciences background may choose to use any course at the University to satisfy the two electives in this section, subject to the provision that permission to register for the desired course is granted by the appropriate department and the course choice is approved by the Programme Committee.



# BACHELOR OF TECHNOLOGY DEGREE

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## Technology 4000 (Technical Project and Report)

This course provides a link between the other courses of the Programme and the technical component from the diploma. It gives the student the opportunity to carry out an in-depth study of a technical topic in the broader context provided by the degree Programme. The report will be written under the supervision of a faculty member; both the topic and the advisor must be approved by the Programme Committee.

Students may begin work on their project proposal informally at any time following admission to the Programme but the report must be completed within one year of the approval of the advisor by the Programme Committee. This will normally be towards the end of the period of studies required for the degree. Students will register for Technology 4000 in the semester they expect to complete the course and must submit the report no later than 3 weeks before the end of this semester.

## Technology 4010 (Assessment of the Implementation of Technology)

Introduction to Effects Assessment; Generation of Product/Project Alternatives; Identification of Effects on the Physical Environment; Identification of Effects on the Social, Economic, Aesthetic, Cultural and Historic Environments; Effects Prediction, Verification and Mitigation; Evaluation of Project/Product Alternatives; Introduction to Federal, Provincial and Municipal Assessment Legislation. **Prerequisite:** Admission to the Bachelor of Technology Programme.

Credit Earned: Degree of Bachelor of Technology

Duration: 4 years

Normal Start: Beginning of any Semester

Contact: Coordinator or Advanced Programmes

(709) 778-0522



### NOTE:

*Specific regulations for the programme may be waived upon the approval of the Marine Institute Undergraduate Committee upon the recommendation of the Programme Committee.*

# ADVANCED DIPLOMA - AQUACULTURE

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This programme is designed to provide students from a wide range of academic disciplines with the education, training and management level skills required to participate in aquaculture development.

The goals of this programme are to provide students with:

- education and training for employment in a wide variety of fish and shellfish culture vocations.
- management level training needed to ensure the logical development of aquaculture industries.

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## PROGRAMME ENTRY

Candidates for admission to the Advanced Diploma in Aquaculture must be graduates of an appropriate diploma of technology (3 years duration), or a degree, or must possess a combination of work experience and formal education acceptable to the Admissions Committee. Candidates must also be willing to meet with an interview panel as part of the final selection process.

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*prepare students for careers as aquaculture managers, developers and researchers.*

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## PROGRAMME STRUCTURE

This programme is taught by a combination of lectures, practical sessions on finfish and shellfish farms, fieldwork and participation in aquaculture workshops. Faculty expertise is supplemented by guest lecturers from industry, government and aquaculture research institutions.

During the first semester, in addition to fish health, finfish and shellfish culture, site selection, seafood handling and computer applications, students also receive training in business-related topics including economics of aquaculture ventures, marketing and business communications. A study tour to local aquaculture sites is also included in the first semester as well as several field practical sessions.

The second semester includes courses in finfish nutrition, business management, aquaculture engineering and handling and processing aquaculture products. During this semester students also complete an in-depth research project designed to develop skills in experimental design, fish handling and aquaculture systems operations.

Students also complete a practical aquaculture course which is designed to develop skills in net making, boating safety, and seamanship.

The third semester consists of a 13 - week aquaculture work term. Students work on finfish and shellfish farms, laboratories and support agencies. Linkages for work terms have been established in Canada, the United States, South America, Australia, and Europe and on international development projects.

## PROGRAMME HIGHLIGHTS

This programme is designed to graduate students with a variety of strengths that can be used in a large array of employment areas.

- The development of practical and technical skills is emphasized throughout the programme. Students are exposed to operations on nearby aquaculture sites and receive practical training during laboratory and field sessions.
- Facilities at the Marine Institute have been established in support of a varied teaching and applied research programme. A modern aquaculture facility on the Main campus consists of a freshwater culture lab, marine culture lab, quarantine / fish health lab, warm water tank lab and a live food culture lab.
- Students also have access to food science laboratories, engineering workshops, net loft, flume tank and an approved food processing plant.
- Aquaculture faculty and staff maintain close links with the aquaculture industry through advisory work and research activities. Current research activities are focused on fish nutrition, feed development, shellfish culture techniques and remote sensing development.

A Master of Science in Aquaculture Degree is offered by Memorial University. Students in this programme may be required to complete selected courses from the Advanced Diploma in Aquaculture. Persons wishing to apply for the M.Sc. Programme must apply directly to Memorial's School of Graduate Studies.

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*designed to graduate students with a variety of strengths that can be used in a large array of employment areas*

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# ADVANCED DIPLOMA - AQUACULTURE

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## CAREERS

The goal of the Advanced Diploma in Aquaculture programme is to prepare students for careers as aquaculture managers, developers and researchers.

Graduates of the programme have gained employment in a range of aquaculture and related fields. These include fish farm management, work as scientists and aquaculture technologists, aquaculture instructors, and work on aquaculture projects in both the developed and developing world.

Graduates of this programme also find employment in the following areas: fish farm management, aquaculture advisory agencies, federal and provincial government departments, consulting companies, fish food manufacturers and aquaculture equipment manufacturers and distributors.

Credit Earned: Advanced Diploma in Aquaculture

1 Year: 2 semesters plus a 3 month work-term placement.

Normal Start: Fall

Contact: Admissions Officer  
(709) 778-0380

1-800-563-5799 (ext. 380)

email: [admissions@mi.mun.ca](mailto:admissions@mi.mun.ca)

## PROGRAMME OUTLINE

### Term 1

Aquaculture Seminar Series I  
Business & Organizational Management 4101 (Economics of Aquaculture Ventures)  
Business & Organizational Management 4102 (Marketing Aquaculture Products)  
Communication Skills 4102 (Effective Presentation)  
Computer Applications 4101  
Fisheries Technology 4102 (Shellfish Culture)  
Fisheries Technology 4103 (Fish Health)  
Fisheries Technology 4110 (Finfish Culture)  
Fisheries Technology 4111 (Site Selection)

### Term 2

Aquaculture Seminar Series II  
Business & Organizational Management 4104 (Business Management)  
Fisheries Technology 4104 (Fish Nutrition)  
Fisheries Technology 4105 (Aquaculture Engineering)  
Fisheries Technology 4106 (Practical Aquaculture - Part I - Small Boat Safety and Handling)  
Fisheries Technology 4106 (Practical Aquaculture - Part II - Aquaculture Cage Design and Maintenance)  
Fisheries Technology 4106 (Practical Aquaculture - Part III - First Aid)  
Seafood Processing 4101 (Handling and Processing Aquaculture Products)  
Technical Project 4101 (Independent Research Option)

### Term 3

Work Term 4101 (Aquaculture Work Term)  
(Placement May - July (3 calendar months))

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*education and training for employment in a wide variety of fish culture vocations*

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# ADVANCED DIPLOMA - COASTAL ZONE MANAGEMENT

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The Marine Institute Advanced Diploma in Coastal Zone Management allows graduates of degree and diploma of technology programmes to specialize in the multi-disciplinary elements associated with coastal zone development management. The programme of study focuses on the bio-ecological, socio-economic, cultural and technological elements of coastal zone development and management.

Graduates gain an integrated view of the issues and alternative solutions to the conflicts which may arise from multiple uses of coastal zones. They will be familiar with methods and tools for working with various constituents in the use and management of coastal zone areas. The focus is to support and facilitate the sustainable development of these regions and the resolution of complex issues with decision makers, planning agencies, community agencies and other constituents.

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## PROGRAMME ENTRY:

Students entering the programme must meet at least one of the following requirements:

- University graduates
- Graduates from a three year Diploma of Technology programme.
- Sufficient relevant work experiences in a discipline related to research, development and/or administration of the coastal zone, as determined by programme faculty.
- Students entering the programme are expected to have a basic understanding of microcomputers and common Windows™ based software applications.

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*designed to have an international focus and address topics of relevance to both developed and developing nations*

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## PROGRAMME STRUCTURE:

The programme has been structured in a three term format that will be delivered in two fifteen week terms and one seven week term.

### Term One (15 weeks):

The first term is descriptive in nature, providing first a general overview of the elements and disciplines required for the management of the Coastal Zone. It aims to standardize the background of the participants from different disciplines entering the programme.

Secondly, the information will be the basis for further analysis and integration in the following terms.

The first term includes a description of the ecological, human, and socioeconomic factors in coastal ecosystems and the methods and technologies utilized to implement management.

### Term Two (15 weeks):

This term is analytical in nature, providing a review and critical analysis of multiple user conflicts and interdisciplinary subjects that interact in the coastal zone. Increased emphasis is placed on legal and human aspects of coastal zone management and methods and technologies.

### Work Term:

The students will be placed in pertinent industries or agencies for practical work experience.

## PROGRAMME HIGHLIGHTS:

This programme is designed to equip graduates with in-depth knowledge and the practical skill necessary to be effectively involved in Coastal Zone Management. Some specific proficiencies graduates will develop include:

- An understanding of the nature of the multi-disciplinary elements involved in Coastal Zone Management.
- An integrated view of the problems and alternative solutions to the conflicts of multiple users of the Coastal Zone.
- The ability to manage the methodological tools required to work with stakeholders in a multi-sectorial environment.
- The ability to co-ordinate, direct and promote the work of multi-disciplinary groups.
- The ability to analyze, evaluate and propose actions on complex situations for decision makers and planning agencies.

Seminar-based teaching methods are used wherever appropriate.

The programme is designed to have an international focus and address topics of relevance to both developed and developing nations. For this reason the programme was developed in close consultation with international experts in coastal zone management. It is anticipated that a significant proportion of graduates will follow international employment opportunities.

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*developed in close consultation with international experts in coastal zone management*

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# ADVANCED DIPLOMA - COASTAL ZONE MANAGEMENT

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## CAREERS

Three quarters of the World's population live in coastal regions. As land resources become scarcer, the next century will see growth in coastal population and increased pressure on marine resources. This trend has created the need for integrated rather than sectorial management strategy.

This programme is designed for people interested in careers related to planning or management of coastal zone activities and or coastal zone development programmes. This would include persons working for organizations active in the following areas:

- Environmental, natural resource and fisheries management.
- Non-governmental environmental and community development organizations.
- Educational institutions with coastal related research and public service programmes.
- Foreign assistance agencies with natural resource and public service programmes.
- Development Banks with environmental and natural resources units.
- Government agencies involved with coastal resources management.

International consulting in the area of multi-stakeholder conflict resolution.

Credit Earned: Advanced Diploma in Coastal Zone Management

Contact: Admissions Officer  
(709) 778-0380

1-800-563-5799 (ext. 380)

email: [admissions@mi.mun.ca](mailto:admissions@mi.mun.ca)

## PROGRAMME OUTLINE

### Term I

Geography 4100  
(Remote Sensing)

Marine Environment 4100  
(Introduction to Coastal Zone Management)

Marine Environment 4101  
(Coastal Oceanography and Geomorphology)

Marine Environment 4102  
(Coastal Resources)

Marine Environment 4103  
(Human Ecology)

Statistics 4102  
(Statistics for Coastal Zone Management)

### Term 2

Business & Organizational Management  
4106 (Legal Aspects of Coastal Zone Management)

Business & Organizational Management  
4107 (Conflict Resolution Skills)

Business & Organizational Management  
4109 (Coastal Zone Economics)

Geography 4101  
(Geographic Information Systems)

Marine Environment 4200  
(Environmental Management)

Marine Environment 4201  
(Coastal Resource Management)

### Work Term

Work Term 4105

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*equip graduates with  
in-depth knowledge and the practical skill necessary to be effectively involved in  
coastal zone management*

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# ADVANCED DIPLOMA - FOOD SAFETY

This programme is designed to:

- provide a strong technical education in the areas of food safety and food inspection
- prepare students for employment in the food industry and regulatory agencies
- develop technical and analytical skills in food safety and food inspection

Credit Earned: Advanced Diploma - Food Safety

1 Year: 2 Semesters and 1 Work Term Session

Normal Start: Fall

School of Fisheries

Contact: Admissions Officer

(709) 778-0380

1-800-563-5799 (ext. 380)

email: admissions@mi.mun.ca

## PROGRAMME ENTRY

Students entering the programme must have an appropriate diploma of technology or degree (food science, food technology, bioscience, or biology) with at least one course in organic chemistry, biology, microbiology, and statistics.

## PROGRAMME STRUCTURE

The programme is divided into the following terms:

### Term One:

Students will be required to take courses in Business Communications, Business Management, Food Microbiology, as well as courses in Food Industry, Food Sanitation and Food Law.

### Term Two:

The second term continues the study of food safety and includes such courses as Foodborne Diseases, Food Inspection Techniques, Food Chemistry, and Food Toxicology. A project course allows for in depth study of an area of special interest.

### Term Three:

Students will be placed in pertinent industries or agencies for practical experience.

## PROGRAMME HIGHLIGHTS

- This programme will train students seeking employment in the food industry covering a wide variety of sub disciplines.
- This programme emphasizes the food quality/assurance component of the industry together with food safety and wholesomeness.
- The graduating students will be able to compete for jobs as food inspectors, quality control managers and sanitarians.
- The programme design enables each of the courses to stand alone or to serve as partial fulfillment of the requirements of the Advanced Diploma in Food Safety.

*compete for jobs as food inspectors and quality control managers*

## CAREERS

Graduates of this programme will find excellent opportunities for challenging and rewarding employment in production, quality control, food plant inspection services, food analysis laboratories, regulatory agencies and many other interesting careers.

### Sample Job Descriptions:

- Responsible for the plant sanitation programme
- Quality systems management, H.A.C.C.P., microbiological analysis
- Supervise all Q.A. functions
- Knowledge of national and international food regulations
- Food safety programme development, implementation, training and education
- Chemical and microbiological analyses of foods in government laboratories
- Monitor the quality and safety of agricultural products for regulatory agencies

## PROGRAMME OUTLINE

### Term 1

Business & Organizational Management 4103 (Fundamentals of Food Law)

Communication Skills 4102 (Effective Presentation)

Food Safety 4100 (Food Sanitation)

Food Technology 4100 (Food Industry Overview)

Food Technology 4101 (Food Microbiology)

Food Technology 4102 (Food Chemistry)

Statistics 4101 (Applied Statistics)

Technical Project 4103 (Food Safety)

### Term 2

Business & Organizational Management 4100 (Management Principles)

Food Safety 4102 (Food Inspection Techniques)

Food Safety 4104 (FoodBorne Diseases/Toxicology)

Technical Project 4103 (Food Safety)

\*Processing Technology 2106 (Canned Foods)

\*(Taught 5 consecutive days after end of Semester)

### Term 3

Work Term 4103

*graduates of this programme will find excellent opportunities for employment*

# DIPLOMA OF TECHNOLOGY - PRIMARY TECHNOLOGY YEAR

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The technology diploma graduate of the future must be able to integrate information and knowledge acquired from an understanding of the interdisciplinary nature of technologies. With a view to this calibre of graduate, all of the Marine Institute's two-and three-year programmes include a common first year of courses making up the Primary Technology Year.

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## PROGRAMME STRUCTURE

All students entering three-year diploma programmes complete a common set of courses in term one and term two of their first year. All students entering two year diploma programmes complete a common set of courses in term one of their first year. For the final five to seven weeks of term two, students enter a Technical Session in which they take courses from their selected technology programme.

The technology programme structure is designed to enhance the career opportunities for Marine Institute graduates. It provides students with the broad knowledge base in science and technology which is necessary for an understanding of the different technologies. The Marine Institute aims to give graduates the flexibility for career progress and the ability to compete in the world market.

Students completing the Common First Year of Engineering Technology programmes through the College of the North Atlantic may be eligible for admission to the Marine Institute, upon completion of the common core courses, to join the technical session of the programme of choice.

Due to differences in academic schedules, students who begin their studies at the College of the North Atlantic are advised to apply to the Marine Institute in the fall semester to join the winter semester in January. All admissions policies and procedures, and Marine Institute Academic Policies and Regulations apply.

The Provincial Transfer Guide published by the Newfoundland and Labrador Council on Higher Education provides details on transfers of credit available to transferring students. For further information please refer to the Academic Policies and Regulations information related to credit transfers contained in this calendar

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## ENTRANCE REQUIREMENTS

### High School Graduates

Level III graduation certificate with a minimum average of 60% in the required Math credits and a minimum average of 60% over all in the following:

Math (2 credits) 3201 or 3200

Language (1 credit) 3101, 3102, 3103, 3104 or any other 3100 level course

Science (4 credits) two from Biology 3201, Chemistry 3202, Earth Systems 3209 or Physics 3204

**or**

Grade XI Public Exam Matriculation Certificate



### NOTE:

*Geology 3203, which was part of the high school curriculum prior to the 1999-2000 academic year, will also be accepted.*

### Other:

Please refer to the section of the Marine Institute Calendar concerning Admissions where the requirements for those seeking admission to technology and technician programmes are outlined in full.

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## PROGRAMME OUTLINE

### Primary Technology Term 1

Chemistry 1100

Communication Skill 1102  
(Technical Communications)

Electrotechnology 1100

Physics 1100

One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to Calculus)

### Primary Technology Term 2

Chemistry 1200

Communication Skills 1201  
(Communication at Work)

Electrotechnology 1200

Physics 1200

One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to Calculus)  
or  
Mathematics 1200 (Calculus)

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*designed to enhance the career opportunities for  
Marine Institute graduates*

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# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING TECHNOLOGY

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This programme, approved by Transport Canada, and nationally accredited by the Canadian Council of Technicians and Technologists - Canadian Technology Accreditation Board, is designed to:

- provide a strong technical education in engineering technology.
- prepare students for employment in both land-based and marine industries.
- develop analytical and synthesis skills complemented by practical shop and industrial training.
- prepare students to challenge the MOT Fourth Class Certificate of competency as a Marine Engineer (Motor/Steam).

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## PHYSICAL REQUIREMENTS

Applicants seeking entry to Marine Institute programmes which lead to Transport Canada Certification for Seafarer's should note that Transport Canada requires proof of satisfactory physical fitness prior to sitting for any Transport Canada exams. This includes satisfactory visual acuity, colour vision, and hearing among other physical requirements.

These programmes include the Marine Institute Diplomas of Technology in Nautical Science, Marine Engineering, the Vocational Certificate in Marine Diesel Mechanics and the Technical Certificate in Pre-sea Deckhand. Proof of physical fitness is also required for students to participate in Marine Emergency Duties (MED) Training which is a compulsory part of these programmes.

Proof of physical fitness must be provided by way of a signed medical from an approved physician. **Signed Seafarer's and Marine Emergency Duties (MED) medicals from an approved physician are required for admission to each respective programme.** The list of physicians approved to conduct either the Seafarer's or MED medical is available from the Marine Institute Office of the Registrar. Details of the physical requirements for the Seafarer's Medical may be obtained from Transport Canada at the following address:

Marine Safety Directorate  
John Cabot Building  
10 Barter's Hill  
P.O. Box 1300  
St. John's, NF  
A1C 6H8  
(709) 772 - 5167

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## PROGRAMME ENTRY

Students enter the programme subject to the Institute's Application and Admission Regulations either directly following graduation from high school, or following a period of employment subsequent to graduation, or by transfer from another post-secondary institution.

The programme includes the Primary Year which is described on page 59 of this Calendar.

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*courses are designed to prepare students for summer work placements and for entry into the second year of study*

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## PROGRAMME STRUCTURE

The Marine Institute's Diploma of Technology in Marine Engineering Technology is a three and one-half year programme which includes six academic semesters and three work terms.

Besides fundamental studies in subjects such as Mathematics, Chemistry, Physics and Communication Skills, first year students receive training in Computer Applications and Engineering Graphics, including an introduction to AutoCAD. This course provides the basis of mechanical drawing using both traditional and computer aided methods. As well there are courses in Electrotechnology, which provide the basics of electrical theory.

At the end of the first year, following the two common semesters, there is a five-week technical session followed by a three-week Marine Emergency Duties (MED) course. These courses are designed to prepare students for summer work placements and for entry into the second year of study. During this technical session students are introduced to welding techniques, mechanical drafting, machinery maintenance and engineering knowledge.

The second and third years of the programme include technical courses designed to give as broad an education as possible in the mechanical discipline, while maintaining concentrated study in basic engineering subjects such as Fluids, Mechanics of Machines, Electrotechnology, Naval Architecture, Strength of Materials, and Thermodynamics. These courses are used as foundations for the courses in Marine Engineering and the other courses that complete the programme.

All students complete a technical project during the final year of the programme. This project provides the opportunity for the skills and knowledge obtained during the programme to be applied to a real life problem or design.



# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING TECHNOLOGY

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## PROGRAMME HIGHLIGHTS

This programme is designed to graduate students with a variety of strengths that can be used in a large array of employment areas.

- Discipline-related and application courses are supplemented by further courses in Mathematics, to support the technical content; by Marine Law and Communication Skills courses to support projects and the Technological Thesis, and courses in Engineering Management.
- The programme recognizes the increasing role and use of computers in the technologies. Computer application and familiarity with common engineering software is stressed wherever possible. Students have CAD courses designed to give extensive exposure to packages such as advanced AutoCAD, which is required in the job market. Other software applications are included in courses such as Engineering Management, which uses time line project management and methods of project planning and management decision making. These packages keep students current with industry standards and improve employment prospects.
- The programme is recognized and accredited by Transport Canada for remission of sea time and non-safety credited examinations at levels from Fourth Class to Second Class certificates of competency. The graduates from the Marine Engineering programme may choose from shore-based marine employment or ship-based employment as engineering officers.
- Upon graduation the student can be credited with 30-months sea service. To qualify to write the initial certificate of competency (4th Class) the graduate must submit to Transport Canada a Sea Training Manual (Vol. 1 and 2) together with proof of graduation and six months active sea service.
- The graduates are exempted from the following challenge examinations in Third and Second Class certificates: Naval Architecture, Electrotechnology, Thermodynamics and Applied Mechanics.
- The programme is nationally accredited by the Canadian Technology Accreditation Board.

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*nationally accredited by the CCTT/CTAB*

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## CAREERS

The goal of the Marine Engineering Technology programme is to prepare students for careers in engineering without limiting their options. Besides the traditional marine engineering positions, students find employment with government agencies, consulting engineering companies, and industrial production companies. Some students find employment with refineries and offshore-related industries.

The programme provides graduates not only for the local market, but also for the national and international market. With the variety of courses offered in the programme, graduating students have exposure to most of the common areas of engineering. Inclusion of courses in Management, Marine Environmental Stewardship, and Organizational Behaviour improve employment prospects.

Most graduating technologists from this programme will work initially under the supervision of a licensed marine engineer, but will, as their careers advance, work independently. Many graduates have advanced to senior supervisory positions, and some are partners in engineering enterprises.

### Sample Job Description Shore Based

- Responsible for the commission and inspection of new equipment and preparation of commissioning and inspection reports.
- Marine surveyors for Transport Canada and other inspection, insurance and class agencies.
- Work as engine fitters, supervisors and managers in shipyards.
- Positions and duties relating to power engineering can also be filled by marine engineering graduates. The certification system controlled by the provincial Department of Labour can also be attempted with sufficient boiler room operational experience.
- Involved in the design and layout of a vessel's machinery space and responsible for the installation of the equipment in new ship construction.
- Supervise the fitting out and refit of drydocked vessels.
- Represents a company's interests in the construction, fitting out and acceptance of new vessels.

### Sample Job Description Ship Based

- Fulfill technical to administrative duties from junior rank to that of the chief engineers position on ships of all power ratings (Steam/Motor).
- Responsible in developing annual vessel refit lists and supervising its completion.
- Responsible for facility, personnel and energy management.
- Identifies operational and design problem areas and implements solutions.
- A chief engineer represents shore-based management.

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*many graduates have advanced to senior supervisory positions, and some are partners in engineering*

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# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING TECHNOLOGY

## PROGRAMME OUTLINE

### Primary Technology Year Term 1

Chemistry 1100  
Communication Skills 1102  
(Technical Communications)  
Electrotechnology 1100  
Physics 1100  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus)

### Primary Technology Year Term 2

Chemistry 1200  
Communication Skills 1201  
(Communication at Work)  
Electrotechnology 1200  
Physics 1200  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus) or  
Mathematics 1200 (Calculus)

### Technical Session I

Electrotechnology 1301  
Engineering Drawing 1102  
Workshop Practice 1106 (Fitting Shop)  
Workshop Practice 1107 (Welding Shop)  
MED Training 1100

### Term 3

Business & Organizational Management  
3113 (Personnel Resource Management)  
Electrotechnology 2106  
Fluids 2100 (Fluid Mechanics)  
Marine Engineering Knowledge 2107  
Mathematics 1200 (Calculus)  
Mechanics 2102  
Naval Architecture 2101  
Thermodynamics 2100

### Work Term 1

Work Term 1103

### Technical Session 2

Materials & Processes 2101  
Thermodynamics 3101 (Thermodynamics  
/Air Conditioning)  
Workshop Practice 1108 (Machine Shop)  
Workshop Practice 2104 (Fitting Shop)

### Term 4

Marine Engineering Knowledge 2207  
Mathematics 2101 (Advanced Calculus)  
Workshop Practice 2107 (Welding Shop)  
Workshop Practice 2108 (Machine Shop)  
Workshop Practice 3100 (Machinery  
Maintenance)  
\*\*Tanker Familiarization

### Work Term 2

Work Term 2103

### Term 5

Business & Organizational Management  
3109 (Marine Law/Ethics & Environmental  
Stewardship)  
Electrotechnology 3101 (Electrical  
Machines)  
Marine Engineering Knowledge 3104  
Mechanics 2201  
Naval Architecture 3100  
Strength of Materials 2100  
Technological Thesis 3100  
Thermodynamics 2200

### Technical Session 3

Controls 2102 (Instrumentation, Controls &  
Automation)  
Marine Engineering Knowledge 3202  
Technological Thesis 3100  
Workshop Practice 3200 (Machinery  
Maintenance)

### Work Term 3

Work Term 3103

### Term 6

\*Business & Organizational Management  
3200  
(\* This course is Business 1000 at Memorial  
University)  
Controls 2202 (Instrumentation, Controls &  
Automation)  
Fluids 3100 (Hydraulics and Pneumatics)  
Mechanics 3100 (Theory of Machines)  
Naval Architecture 3200  
Strength of Materials 3100  
Technological Thesis 3100  
Thermodynamics 3103

\*\*MED C

\*\*Taught after completion of other courses in the Term

Credit Earned: Diploma of Technology  
3 Years: 6 Semesters & 3 Technical  
Sessions  
Normal Start: Fall  
School of Maritime Studies  
Contact: Admissions Officer  
(709) 778 - 0380  
1-800-563-5799 (ext. 380)  
email: admissions@mi.mun.ca

*students find employment with shipping companies, industrial production companies, consulting  
engineering companies, and government agencies.*

# DIPLOMA OF TECHNOLOGY - MARINE ENVIRONMENTAL TECHNOLOGY

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## PROGRAMME ENTRY:

Students enter the programme subject to the Institute's Application and Admission Regulations either directly following graduation from high school, or following a period of employment subsequent to graduation, or by transfer from another post-secondary institution.

The programme includes the Primary Technology year which is described on page 59 of this calendar.

## PROGRAMME STRUCTURE:

The programme is structured in a three year format to be delivered in six academic semesters with a practical skills training session after Term 4.

The first year of the programme is common to all of the Marine Institute's technology programmes. This serves to standardize the background of all Marine Institute trained technologists and prepares students for their specific field of study over the next two years.

The Marine Institute is planning to implement a new practical skills session at the end of the Primary Technology Year. The session will be 4-6 weeks in duration and details will be available in September 2000.

In the second year students begin to focus on the scientific and social problems related to the marine environment, as well as the issues relating to marine pollution and control. This year serves to give a solid background in environmental science and technology.

Practical skills training takes place in the spring after Term 4. The session takes four weeks and consists of courses in Marine Sampling, Small Boat Operation and First Aid along with some other special courses.

The final year continues to build on the background given in the second year as well as to provide participants with some of the business and communication skills in demand by industry. Environmental management issues are also presented at this time. During this year students will undertake a major technical research project under the supervision of a team of supervisors.

## PROGRAMME HIGHLIGHTS:

The programme is designed to equip graduates with the ability to work in the relatively new and expanding area of Marine Environmental Technology. The environmental sector in general is growing at a fast rate and in light of recent problems in the fisheries and the crowding of our coastal areas, there is a need for a resource management technologists who can apply technology in the ocean and coastal environments. Some of the highlights that the programme provides are given below.

- Upon graduation, students will be familiar with the underlying scientific principles of environmental operations as well as the policy and legal framework that forms current environmental regulations. They will be exposed to the multidisciplinary aspect of the environmental sector.
- To meet the needs of industry, discipline-related courses are supplemented by further training in the areas of computer applications, communications, business principles and economics.
- Students will become familiar with sampling methodologies for marine areas. In addition, they will be exposed to practical boat operations.
- The programme recognizes the increasing role of computers in the environmental sector. Computer basics are taught early in the programme allowing advanced courses to take advantage of computer related topics such as remote sensing and geographic information systems.
- In order to give participants in the programme experience in the industry, a mandatory work term is included in the programme. This eight week session allows the student to gain experience in a business setting and transfer their skills to an industrial arena.
- This programme is nationally accredited by the Canadian Technology Accreditation Board.

## CAREERS

The goal of the Marine Environmental Technology Programme is to develop environmental technologists who possess the knowledge and skills to work in the marine area. However, this does not limit them to the marine areas and students have been successful in applying their knowledge to shore related jobs.

Through extensive consultation with industry, skills that employers find useful have been identified and are focused on through the programme. Since many of the companies operating in the environmental sector are relatively small and consultancy based, communication and business skills are integrated into the programme. The result is a graduate who can fill a number of different roles in the environmental sector.

Sample job descriptions include :

- Field technologist who collects samples in a potentially polluted area. With experience, the technologist will be able to manage a field operation.
- Environmental advisor on the use, conservation and protection of coastal areas.
- Apply local laws, rules and regulations in the development of safe environmental plans, assessments, etc.
- Perform laboratory analysis on chemical and biological samples.
- Respond to chemical spills and assist with cleanup operations. With experience, students should be able to oversee cleanup operations.

Possible job titles are:

- Fishery Observer
- Environmental Technologist
- Environmental Officer
- Fishery Officer
- Pollution Abatement Officer
- Laboratory Technologist (Technician)
- Operator of Environmental Facility
- Assessment Officer
- Technical Salesperson
- Pollution Control Officer

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*The environmental field is an area of significant growth across Canada and throughout the world*

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# DIPLOMA OF TECHNOLOGY - MARINE ENVIRONMENTAL TECHNOLOGY

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## PROGRAMME OUTLINE

### Term 1

Chemistry 1100  
Communication Skills 1102  
(Technical Communications)  
Electrotechnology 1100  
Physics 1100  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101  
(Introduction to  
Calculus)

### Term 2

Chemistry 1200  
Communication Skills 1201  
(Communication at Work)  
Electrotechnology 1200  
Physics 1200  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus) or  
Mathematics 1200 (Calculus)

### Term 3

Biology 1100  
Chemistry 2101 (Environmental Chemistry)  
Computer Applications 2100  
(Communications Through Computer  
Applications)  
Marine Environment 2100  
Mathematics 1200 (Calculus)  
Mathematics 2107 (Environmental Statistics)

### Term 4

Biology 2201 (Microbiology)  
Business & Organizational Management  
2104 (Policy and Law)  
Chemistry 2201 (Environmental Chemistry)  
Communication Skills 2101 (Technical  
Communications)  
Geography 2100  
Marine Environment 2101 (Dynamics of  
Marine Pollution)

\*Marine Sampling 2100

\*Small Craft Safety & Boat Handling 2100

#### Technical Session (Practical Skills)

First Aid

\*Marine Sampling 2100

Marine Environment 3100 (Pollution  
Cleanup)

\*Small Craft Safety & Boat Handling 2100

TDG (Transportation of Dangerous Goods  
Regulations)

WHMIS (Workplace Hazardous Materials  
Information System)

\*Marine Sampling 2100 will be taught in a block  
of three hours every second week during the  
winter semester (Term 4) as well as in a three  
day block during intersession.

\*Small Craft Safety & Boat Handling 2100 will  
be offered in a block of three hours every  
second week during the winter semester  
(Term 4) as well as in a three day block during  
intersession.

### Work Term

Work Term 2104

### Term 5

Biology 3100 (Marine Biology)  
Business & Organizational Management  
3110 (Environmental Economics & Project  
Management)  
Chemistry 2300 (Environmental Chemistry)  
Geography 3100 (Mapping and GIS)  
Oceanography 2103  
Technological Thesis 3102

### Term 6

Biology 2100 (Aquatic Ecology)  
Business & Organizational Management  
3111 (Environmental Assessment and  
Auditing)  
Business & Organizational Management  
3119 (Management Principles)  
Marine Environment 3101 (Marine  
Environmental Seminar)  
Marine Environment 3102 (Fundamentals of  
Coastal Zone Management)  
Technological Thesis 3102

Credit Earned: Diploma of Technology

3 years (6 academic terms, 1 practical  
skills term)

Normal Start : Fall

School of Fisheries

Contact: Admissions Officer

(709) 778-0380

1-800-563-5799 (ext. 380)

email: admissions@mi.mun.ca

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*the ability of the Environmental Industry to  
grow is to a large extent dependent upon the  
availability of technical skilled workers*

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*nationally accredited by the Canadian Technology Accreditation Board.*

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# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING SYSTEMS DESIGN

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This programme, nationally accredited by the Canadian Council of Technicians and Technologists/Canadian Technology Accreditation Board, is designed:

- to provide a strong technical education in marine engineering systems design supported by a proper knowledge in naval architecture
- to provide a good technical education in general mechanical engineering technology
- to prepare students for employment in both land-based and marine environments
- to develop analytical and synthesis skills complemented by practical training.

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## PROGRAMME ENTRY

Students enter the programme subject to the Institute's Application and Admission Regulations either directly following graduation from high school, or following a period of employment subsequent to graduation, or by transfer from another post-secondary institution.

The programme includes the Primary Year which is described on page 59 of this Calendar.

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## PROGRAMME STRUCTURE

Besides fundamental studies in subjects such as Mathematics, Chemistry, Physics and Communication Skills, first year students receive training in Computer Applications and Engineering Graphics, including an introduction to AutoCad. This course provides the basis of mechanical drawing using both traditional and computer aided methods. As well there are courses in Electrotechnology, which provide the basics of electrical theory.

At the end of the first year, following the two common semesters, there is a 5 week technical session. Students choose courses appropriate to their discipline. These courses are designed to prepare students for entry into the second year of the Marine Engineering Systems Design Technology programme. Graphical skills are refined, and students are introduced to the basics of marine engineering and naval architecture. A course titled Auxiliary Components introduces theory and practice in the marine systems areas.

The second and third years of the programme include technical courses designed to give as broad an education as possible in the marine and general mechanical discipline, while maintaining concentrated study in basic engineering subjects such as Fluid Mechanics, Thermodynamics, Mechanics and Strength of Materials. These courses are used as foundations for the courses in marine engineering, naval architecture, piping systems design, controls and the other courses that complete the programme.

All students complete a technical project during the final year of the programme. This project provides the opportunity for the skills and knowledge obtained during the programme to be applied to a real life problem or design.

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## PROGRAMME HIGHLIGHTS

This programme is designed to graduate students with a variety of strengths that can be used in a large array of employment areas.

- Discipline-related and application/design courses are supplemented by further courses in Mathematics, to support the technical content. Communication Skills to support projects and the Technological Thesis, and courses in Engineering Management and Economics.
- The programme recognizes the increasing role and use of computers in the technologies. Computer application and familiarity with common engineering software is stressed wherever possible. Students have courses designed to give extensive exposure to packages such as advanced AutoCad, Quattro-Pro and WordPerfect, which is required in the job market. This and other packages keep students current with industry standards and improve employment prospects.
- Courses in Engineering Economy and Engineering Management are included in the Marine Engineering Systems Design Technology Programme to introduce students to the requirements for running or managing a business. The courses provide background in the financial aspects and methods of project planning and management decision making.
- The graduating students may improve their professional prospects, obtaining a technologists diploma in another mechanical engineering programme, offered by the Institute, within one extra year of study. Some of them have already obtained the second diploma in Naval Architecture.

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*nationally accredited by the CCTT/CTAB*

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*students keep current with industry standards and improve employment prospects.*

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# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING SYSTEMS DESIGN

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## CAREERS

The goal of the Marine Engineering Systems Design Technology Programme is to prepare students for careers particularly in ship building/ship repairing and offshore industries, but also in general mechanical engineering without limiting their options. Besides the shipyard positions, students find employment with government agencies, consulting engineering companies, offshore and ocean engineering companies, engineering sale and servicing companies, utility and industrial production companies. Some students find employment with the Canadian Navy, refineries and pipelines industry.

The programme provides graduates not only for the local market, but also for the national and international market. With the variety of courses offered in the programme, graduating students have exposure to most of the common areas of mechanical and marine engineering. Inclusion of courses in Management Economics, Cold Environment Design and Offshore Platform Engineering improve employment prospects.

Most graduating technologists from this programme will work initially under the supervision of a professional engineer or technologists, but will, as their careers advance, work independently. Many graduates have advanced to senior positions, and some are partners in engineering enterprises.

### Sample Job Description - Ship Systems Designer

- Working under supervision of an engineer, assists in the design and implementation of piping and pumping systems, spaces ventilation, power plant systems, propulsion systems, domestic systems and cargo handling systems.
- Preparing complicated drawings and graphic images, using traditional and computerized (CAD) methods.
- Prepares inspection reports and the field data.

### Sample Job Description - Repair Estimator

- Working under supervision of an engineer, assists in field data requisition, work scope estimation and analysis.
- Prepares needed drawings and sketches by hand or in CAD.
- Prepares material requisitions and work schedules.

### Sample Job Description - Quality Assurance Technologists

- Working under supervision of an engineer, assists in the development of a quality assurance manual for pipe spools fabrication and testing.
- Maintains quality control process on the manufacture of pipe spools.
- Identifies production problems and implements solutions.
- Prepares inspection reports and develops required inspection forms.

### Sample Job Description - Diesel Engine Salesperson

- Working under chief salesperson, assists in preparation of proposals and quotations.
- Completes installation and sales documentation.
- Identifies client's technical problems and suggests solutions.
- Prepares investigation reports and assists in insurance procedures.

### Sample Job Description - Ship Propulsion Designer

- Will work under supervision of an engineer and may have supervision over detailing draftpersons.
- Prepares shafting assembly drawings using CAD or by hand and performs classification calculation.
- Maintains technical liaison with clients, classification societies and contractors.
- Assists in investigations and prepares reports.

Credit Earned: Diploma of Technology

3 Years: 6 Semesters & 3 Technical Sessions

Normal Start: Fall

School of Maritime Studies

Contact: Admissions Officer

(709) 778 - 0380

1-800-563-5799 (ext. 380)

email: admissions@mi.mun.ca

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*some students find employment with the Canadian Navy, refineries and pipelines industry*

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# DIPLOMA OF TECHNOLOGY - MARINE ENGINEERING SYSTEMS DESIGN

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## PROGRAMME OUTLINE

### Primary Technology Year Term 1

Chemistry 1100  
Communication Skills 1102  
( Technical Communications)  
Electrotechnology 1100  
Physics 1100  
One of: Computer Applications 1100  
**or**  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
**or**  
Mathematics 1101 (Introduction to  
Calculus)

### Term 2

Chemistry 1200  
Communication Skills 1201  
(Communication at Work)  
Electrotechnology 1200  
Physics 1200  
One of: Computer Applications 1100  
**or**  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
**or**  
Mathematics 1101 (Introduction to  
Calculus) **or**  
Mathematics 1200 (Calculus)

### Technical Session I

Engineering Systems 1100 (Auxiliary  
Components)  
Ship Design 1100 (Ship Types & Systems)  
Ship Design 1102 (Ship Structural  
Geometry)

### Term 3

Engineering Systems 2100 (Auxiliary  
Systems)  
Fluids 2100 (Fluid Mechanics)  
Mathematics 1200 (Calculus)  
Naval Architecture 2100  
Ship Design 2100 (Ship Engineering Design  
Process)  
Thermodynamics 2100

### Term 4

Engineering Systems 2102 (Propulsion  
Technology)  
Engineering Systems 2103 (Power Systems  
Technology)  
Engineering Systems 2200 (Auxiliary  
Systems)  
Mathematics 2101 (Advanced Calculus)  
Naval Architecture 2200  
Thermodynamics 2200

### Technical Session 2

Engineering Systems 2104 (Ship's Space  
Ventilation)  
Engineering Systems 2300 (Ship's  
Refrigeration)  
Mechanics 2102

### Term 5

Electrotechnology 2102 (Marine Electric  
System)  
Strength of Materials 2100  
Systems Design 3100 (Cold Environment  
Design)  
Systems Design 3101 (Ship Design  
Interfacing)  
Systems Design 3102 (Propulsion  
Arrangement Design)  
Systems Design Project 3100 (Ship  
Engineering Project)

### Term 6

Business & Organizational Management  
3101 (Engineering Economics)  
Strength of Materials 3100  
Systems Design 3103 (Auxiliary Machinery  
Arrangement)  
Systems Design 3104 (Piping Arrangement  
Design)  
Systems Design 3105 (Offshore Platform  
Technology)  
Systems Design Project 3101 (Marine  
Electrical Project)  
Systems Design Project 3200 (Ship  
Engineering Project)

### Technical Session 3

Business & Organizational Management  
3105 (Shipyards Management)  
Controls 2302 (Instrumentation, Controls &  
Automation)

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*many graduates have advanced to senior  
positions, and some are partners in engineering  
enterprises*

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*provides graduates not only for the local  
market, but also for the national and  
international market*

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# DIPLOMA OF TECHNOLOGY - NAUTICAL SCIENCE

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The Diploma of Technology in Nautical Science is a globally recognized, sandwich-type programme which is accredited by Transport Canada in accordance with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 1995 (STCW Convention).

This cadet programme is designed to:

- provide a strong theoretical and practical education in the field of nautical science;
- prepare students for employment in marine transportation;
- produce graduates who are capable of accepting the responsibilities and performing the duties assigned to them as ship's officers.
- prepare students for professional recognition as seafaring cadets by Transport Canada and to sit for the remaining Transport Canada examinations for the Watchkeeping Mate (Ship) Certificate of Competence.

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## PHYSICAL REQUIREMENTS

Applicants seeking entry to Marine Institute programmes which lead to Transport Canada Certification for Seafarer's should note that Transport Canada requires proof of satisfactory physical fitness prior to sitting for any Transport Canada exams. This includes satisfactory visual acuity, colour vision, and hearing among other physical requirements.

These programmes include the Marine Institute Diplomas of Technology in Nautical Science, Marine Engineering, the Vocational Certificate in Marine Diesel Mechanics and the Technical Certificate in Pre-sea Deckhand. Proof of physical fitness is also required for students to participate in Marine Emergency Duties (MED) Training which is a compulsory part of these programmes.

Proof of physical fitness must be provided by way of a signed medical from an approved physician. **Signed Seafarer's and Marine Institute medicals from an approved physician are required for admission to each respective programme.** The list of physicians approved to conduct either the Seafarer's or Marine Institute medical is available from the Marine Institute Office of the Registrar. Details of the physical requirements for the Seafarer's

Medical may be obtained from Transport Canada at the following address:

**Marine Safety Directorate  
John Cabot Building  
10 Barter's Hill  
P.O. Box 1300  
St. John's, NF  
A1C 6H8  
(709) 772 - 5167**

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## PROGRAMME ENTRY

Students enter the programme subject to the Institute's Application and Admission Regulations either directly following graduation from high school, or following a period of employment subsequent to graduation, or by transfer from another post-secondary institution.

The programme includes the Primary Year which is described on page 59 of this Calendar. Entry to the technical session following the first year may be subject to satisfactory performance in the Primary Technology year.

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## PROGRAMME STRUCTURE

As a sandwich-type programme, the Nautical Science diploma consists of periods of study at the Marine Institute which alternate with periods at sea. The entire programme consists of:

- The two semesters of the Primary Technology Year (see page 66) followed by an eight-week technical session and;
- a two-month sea phase following the first technical session;
- a second or intermediate year of study consisting of semesters three and four, followed by a six-week technical session;
- a fifteen-month sea phase following the second technical session. This sea phase may be completed over two work term periods; and,
- a third or advanced year of study consisting of semesters five and six followed by a final eight-week technical session.

The total time to complete the programme is normally four years.

As indicated, the first year of study, commencing in September, consists of two semesters (fall and winter). Here the focus is on math, the sciences, computers and communications. It is followed by an eight-week Technical Session which may be completed in the spring or summer following term 2 of the Primary Technology year. Five weeks of this session are dedicated to

introductory courses in seamanship, cargo work and navigation. The remaining three weeks focus on short courses in Marine Emergency Duties.

The first Technical Session therefore serves the twin purposes of introducing the cadet to the technical content of the programme while carrying out practical exercises at sea and taking a series of short courses in Marine Emergency Duties (MED). The MED training prepares the students for the realities of emergencies at sea and the part that they might play in them. This, in combination with the practical exercises at sea, provides for safer sea phases for the cadets.

The second year focuses entirely on such technical subjects as navigation systems, stability, and seamanship. The second technical session serves the same purpose and its made up of technical courses which not only contribute to the overall technical competence of the cadets but provides them with other skills which employers consider essential. The student who has successfully completed all of the primary and intermediate parts of the programme may be eligible to sit for the Transport Canada examination in Bridge Watchkeeping (rating).

The final year of study covers advanced materials in courses introduced previously. Other subjects involving the business and management of shipping are also introduced here. The final session again involves technical materials including the practice of bridge resource management which, in part, is carried out on the Institute's full-mission bridge simulator.

## Sea Phases

During the programme, the cadet must accumulate a minimum of 12 months of recognized sea time in sea placements which have been approved by the Institute through the Placement Office. This is acquired through compulsory sea phase periods which are governed by the Marine Institute General Work Term Guidelines and the Nautical Science Work Term Regulations. These sea phases are, in fact, guided work terms for which accredited logbooks must be kept and the employers carry out personal evaluations of the cadets.



# DIPLOMA OF TECHNOLOGY - NAUTICAL SCIENCE

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The first sea phase is scheduled over a two-month period between the end of the first technical session and the beginning of the following semester.

Following the second Technical Session, the student commences the second sea phase. This is an extended period of time wherein the student must accumulate the remaining time required to make up the full 12 months at sea. This time is accumulated over two additional work term periods.

---

## PROGRAMME HIGHLIGHTS

This programme prepares graduates for a successful sea-going career as a ship's officer. Transport Canada recognizes the professional competence of Marine Institute graduates through the provision of exemptions for specific certification examinations. Graduates also have the option of pursuing further education.

### Transport Canada Certification

- Subject to the Marine Institute general academic regulations governing graduation, graduates of the Diploma of Technology in Nautical Science having a cumulative average of 70% and an attendance rate of at least 90% in the programme are eligible for exemptions from Transport Canada for specific examinations.
- Transport Canada recognizes the benefits of education and training in marine transportation. The reality is that these benefits translate into a remission of sea service from Transport Canada for the time spent in school at the Marine Institute. In this case it is a full 12 months. Normally, seafarers applying to Transport Canada to sit for Watchkeeping Mate (Ship) Certificate examinations would be required to have accumulated 24 months sea time. However, Marine Institute graduates are required to accumulate only 12 months for the same certificate.
- Consequently, eligible diploma graduates may apply to sit for their Transport Canada examinations in Navigation Safety 061 and General Seamanship 161 (orals). If successful in passing these examinations, the cadets will receive their Watchkeeping Mate (Ship) Certificate of Competence from Transport Canada. Transport Canada grants exam exemptions at various other certificate levels. The total list of exemptions is as follows:

**Watchkeeping Mate Ship -**  
041 Chartwork, 051 Navigation,  
012 Communications and 151 General  
Shipboard Knowledge.

**First Mate, Intermediate Voyage -**  
091 Industrial Safety and Ship  
Management, 122 Ship Construction and  
Cargo, and 132 Engineering Knowledge.

**Master, Intermediate Voyage -**  
073 Meteorology, 092 Ship  
Management, and 133 Construction and  
Engineering.

**Master Mariner -**  
093 Ship Management, 141 Electrical  
Engineering.

- Several other combinations of qualifications for Transport Canada certification for the Canadian coastal trade and offshore waters are possible through the diploma programme. Students who are interested should contact the Marine Institute School of Maritime Studies or Transport Canada for further details.
- In addition to the certification opportunities described, graduates of the Marine Institute Diploma of Technology in Nautical Science are eligible for admission to the Memorial University Bachelor of Maritime Studies programme. Upon completion of the diploma, candidates are required to complete 13 additional courses for the Bachelor of Maritime Studies degree.

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## CAREERS

The focus of the Diploma of Technology in Nautical Science is the marine transportation industry. Students in this programme are trained to become ship's officers and have the opportunity to pursue a career which can take them from the most junior ranks to that of captain in command at sea. The choice of employers and ship types available to trainee cadets today range from the largest passenger cruise ships out of Miami to the smallest coaster plying the waters of the Canadian eastern seaboard.

Subsequent sea experience further broadens the opportunities for Ship's officers who may be interested in shore-based positions. These may include positions as harbour and coastal pilots, in shipping companies, as educators in nautical institutions, and as marine consultants to name only a few. The Bachelor of Maritime Studies degree programme also opens new avenues to higher learning for diploma students, recent graduates and other certified ships officers.

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*accredited by Transport Canada in accordance with the International Standards of Training for the Certification of Watchkeepers (STCW 1978 as amended in 1995).*

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# DIPLOMA OF TECHNOLOGY - NAUTICAL SCIENCE

## PROGRAMME OUTLINE

### Term 1

Chemistry 1100  
Communication Skills 1102  
(Technical Communications)  
Electrotechnology 1100  
Physics 1100  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus)

### Term 2

Chemistry 1200  
Communication Skills 1201  
(Communication at Work)  
Electrotechnology 1200  
Physics 1200  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100  
One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus) or  
Mathematics 1200 (Calculus)

### Technical Session I

Cargo Operations & Navigation 1100  
(Orientation to Cargo Operations &  
Navigation)  
Seamanship 1100 (Basic Shipboard Skills)  
Ship Operations 1100 (Introduction to Ships)  
MED 1100 (Marine Emergency Duties)

### WORK TERM

Work Term 1102 (Sea Phase I)

### Term 3

Marine Engineering Knowledge 2102  
Mathematics 2102  
Naval Architecture 2102 (Shipbuilding)  
Navigation 2100  
Navigation Systems 2100 (SEN)  
Oceanology 2100 (Hydrography)  
\*Seamanship 2100  
(\*In order to get a credit for Seamanship 2100 a  
pass must be obtained in the Morse Light  
section of the course.)  
Stability 2101

### Term 4

Business & Organizational Management  
2110 (Law and Environment)  
Cargo Operations 2100  
Marine Engineering Knowledge 2202  
Naval Architecture 2202 (Shipbuilding)  
Navigation 2200  
Navigation Systems 2200 (SEN)  
Seamanship 2200

### Technical Session 2

Cargo Operations 2201 (Tanker Course)  
Navigation 2107 (Radio Operator's  
Certificate - Maritime Commercial)  
Navigation Safety 3101

### Work Term

Work Term 2102 (Sea Phase II)

### Term 5

Business & Organizational Management  
3116 (Ship Management)  
Cargo Operations 3100  
Navigation 3100  
Oceanology 2101 (Oceanography)  
Stability 3101  
Technical Report 3100

### Term 6

Business & Organizational Management  
3114 (Business of Shipping)  
Business & Organizational Management  
3115 (Law and Environment)  
Business & Organizational Management  
3204 (Ship Management)  
Marine Engineering Knowledge 3102  
Navigation 3200  
Oceanology 3100 (Meteorology)  
Seamanship 3100  
Stability 3201

### Technical Session 3

MED-C  
Navigation 2201 (GMDSS)  
Navigation Systems 2300 (SEN)  
Seamanship 3300

Credit Earned: Diploma of Technology  
4 years (6 semesters, 3 technical  
sessions and 2 sea phase services)  
Normal Start : Fall  
School of Maritime Studies  
Contact: Admissions Officer  
(709) 778-0380  
1-800-563-5799 (ext. 380)  
email: admissions@mi.mun.ca

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*graduates of the Marine Institute Diploma of Technology in Nautical Science are eligible for  
admission to the Memorial University Bachelor of Maritime Studies programme.*

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# DIPLOMA OF TECHNOLOGY - NAVAL ARCHITECTURE

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This programme, nationally accredited by the Canadian Council of Technicians and Technologists/Canadian Technology Accreditation Board, is designed:

- to provide a strong technical education in naval architecture and shipbuilding technology.
- to prepare students for employment in shipyards, consulting firms, government agencies, offshore oil industry.
- to develop analytical design office, drawing office, surveying and quality assurance skills.
- some are partners in engineering enterprises.

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## PROGRAMME ENTRY

Students enter the programme subject to the Institute's Application and Admission Regulations either directly following graduation from high school, or following a period of employment subsequent to graduation, or by transfer from another post-secondary institution.

The programme includes the Primary Year which is described on page 59 of this Calendar

## PROGRAMME STRUCTURE

Besides fundamental studies in subjects such as Mathematics, Chemistry, Physics and Communication Skills, first year students receive training in Computer Applications and Engineering Graphics, including an introduction to AutoCad. This course provides the basis of mechanical drawing using both traditional and computer aided methods. As well there are courses in Electrotechnology, which provide the basics of electrical theory.

At the end of the first year, following the two common semesters, there is a 5/6 week technical session. Students choose courses appropriate to their discipline. These courses are designed to prepare students for entry into the second year of the Naval Architecture Technology programme. Graphical skills are refined, and students are introduced to the basics of shipyard operations and design and drawing office practice. Drawing office exercises and labs reinforce theory and shipyard practice in all areas.

The second and third years of the programme include technical courses designed to give as broad an education as possible in the discipline, while maintaining concentrated study in basic engineering subjects such as Fluids, Electrotechnology, and Strength of Materials. These courses are used as foundations for the courses in shipbuilding, ship theory and hydrodynamics and the other courses that complete the programme.

All students complete a technical project during the final year of the programme. This project provides the opportunity for the skills and knowledge obtained during the programme to be applied to a real life problem or design.

## PROGRAMME HIGHLIGHTS

This programme is designed to graduate students with a variety of strengths that can be used in a large array of employment areas.

- Discipline-related and application/design courses are supplemented by further courses in Mathematics, to support the technical content. Communication Skills to support specification writing and the ship design package, and courses in Shipyard Management and Economics.
- The programme recognizes the increasing role and use of computers in the technologies. Computer application and familiarity with common engineering software is stressed wherever possible. Students have courses designed to give extensive exposure to packages such as advanced AutoCad, which is required in the job market. Sophisticated industrial packages like Autoship and Navcad are used in courses in Ship Theory and Resistance and Propulsion. Other software applications are included in courses such as Shipyard Management, which used time line project management. These packages keep students current with industry standards and improve employment prospects.
- Courses in Mobile Offshore Drilling and Production Units are included in the Naval Architecture Technology Programme to introduce students to the requirements of the offshore oil industry. The courses provide background to offshore vehicles and the influence of environmental factors on engineering design.
- The graduating students may improve their professional prospects, obtaining a technologists diploma in another mechanical engineering programme, offered by the Institute, within one extra year of study. Some of them have already obtained the second diploma in Marine Engineering Systems Design.

# DIPLOMA OF TECHNOLOGY - NAVAL ARCHITECTURE

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## CAREERS

The goal of the Naval Architecture Technology programme is to prepare students for careers in the ship building and boat building industries without limiting their options. Besides traditional shipyard/boatyard positions, students find employment with government agencies, consulting engineering companies, surveying and quality control. Some students find employment with classification societies and offshore--related industries.

The programme provides graduates not only for the local market, but also for the national and international market. With the variety of courses offered in the programme, graduating students have exposure to most of the common areas of ship design, ship construction, offshore vehicle design/construction. The inclusion of courses in Management, Marine Environmental Stewardship, and Organizational Behaviour improve employment prospects.

Most graduating technologists from this programme will work initially under the supervision of a registered engineer but will, as their careers advance, work independently. Many graduates have advanced to senior supervisory positions, and some are partners in engineering enterprises.

### Sample Job Description - Hull Draftsman

- Responsible for design and detail description of all elements of construction necessary for construction of a vessel.
- Responsible for specification of new equipment and preparation of commissioning reports.
- Liaison with outside contractors and prepare material lists for Purchasing Department.

### Sample Job Description - Quality Assurance Technologists

- Working under supervision of an engineer, assists in the development of a quality assurance manual for steel fabrication products.
- Maintains quality control process on the manufacture of ships.
- Identifies production problems and implements solutions.
- Prepares inspection reports and develops required inspection forms.

### Sample Job Description - Chief Draftsman

- To supervise a typical shipyard drawing office and have supervision of hull, outfit, mechanical and electrical draft persons.

#### Areas of Employment

- Piping system design and drafting
- Heating and steam boiler plant design
- Heating system layout
- Electrical working drawings
- Steel fabrication detail design
- Main propulsion and power plant

### Sample Job Description - Naval Architecture

- To be responsible for the evolution and creation of a vessel from state-of-the-art survey to tender documentation

#### Areas of Responsibility

- Create lines plan, general arrangement profile and decks
- Weight/buoyancy match
- Propulsion package selection
- Prepare ship specification
- Supervise construction on behalf of owner
- Supervise vessel sea trials

### Sample Job Description - Hull Surveyor

- To survey vessels for compliance with the requirements of the Canadian Steamship Inspection Rules.
- To write damage reports.
- To recommend appropriate remedial action.

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*The programme provides graduates not only for the local market, but also for the national and international market*

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# DIPLOMA OF TECHNOLOGY - NAVAL ARCHITECTURE

## PROGRAMME OUTLINE

### Primary Technology Year Term 1

Chemistry 1100  
Communication Skills 1102  
(Technical Communications)  
Electrotechnology 1100  
Physics 1100  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus)

### Primary Technology Year Term 2

Chemistry 1200  
Communication Skills 1201  
(Communication at Work)  
Electrotechnology 1200  
Physics 1200  
One of: Computer Applications 1100  
or  
Engineering Graphics 1100

One of: Mathematics 1100 (Pre-Calculus)  
or  
Mathematics 1101 (Introduction to  
Calculus) or  
Mathematics 1200 (Calculus)

### Technical Session I

Mechanics 2102  
Ship Design 1101 (Ship Hull Geometry)  
Ship Design 1102 (Ship Structural  
Geometry)

### Term 3

Fluids 2101 (Hydrostatics)  
Marine Engineering Knowledge 2101  
Mathematics 1200 (Calculus)  
Shipbuilding 2107  
Shipbuilding 2108  
Strength of Materials 2100

### Term 4

Fluids 2201 (Resistance & Propulsion)  
Mathematics 2101 (Advanced Calculus)  
Shipbuilding 2207  
Shipbuilding 2208  
Stability 2100 (Ship Stability)  
Strength of Materials 3100

### Technical Session 2

Electrotechnology 2104  
(Marine Electrical Engineering)  
Marine Engineering Knowledge 2201  
Ship Operations 2101  
(Ship Operations Management)  
Strength of Materials 3201

### Term 5

Fluids 3101 (Hydrodynamics & Motions)  
Mobile Offshore Drilling & Production Units  
3100  
Ship Design 3100 (Ship Design)  
Shipbuilding 3100  
Ship Design Project 3100  
(Preliminary Design Project)  
Stability 3100

### Term 6

Offshore Structures 3200  
(Environment Platform Design)  
Ship Design Project 3200  
(Ship Arrangement Project)  
Ship Design Project 3201  
(Marine Electrical Project)  
Ship Design Project 3202  
(Marine Engineering Project)  
Ship Design Project 3203  
(Hull Form Development Project)  
Ship Design Project 3204  
(Ship Structural Design Project)

### Technical Session 3

Business & Organizational Management  
3105 (Shipyards Management)  
Ship Design Project 3300

Credit Earned: Diploma of Technology

3 years: 6 semesters & 3 technical  
sessions

Normal Start: Fall

School of Maritime Studies

Contact: Admissions Officer

(709) 778-0380

1-800-563-5799 (ext. 380)

email: admissions@mi.mun.ca

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*many graduates have advanced to senior supervisory positions and some are partners in engineering enterprises*

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# VOCATIONAL CERTIFICATE - MARINE DIESEL MECHANICS

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The Marine Diesel Mechanics programme prepares students for a career in the operation and maintenance of marine diesel engines and auxiliary equipment found on marine vessels or offshore drilling installations.

- The programme lays the foundation for a student to eventually become a practicing marine engineer after required sea time is obtained.
- This programme is also an excellent foundation for those seeking positions in shore-based marine industry as technicians (Fitters) involved in the installation and servicing of marine systems or in the area of marketing associated equipment.

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## PHYSICAL REQUIREMENTS

Applicants seeking entry to Marine Institute programmes which lead to Transport Canada Certification for Seafarer's should note that Transport Canada requires proof of satisfactory physical fitness prior to sitting for any Transport Canada exams. This includes satisfactory visual acuity, colour vision, and hearing among other physical requirements.

These programmes include the Marine Institute Diplomas of Technology in Nautical Science, Marine Engineering, the Vocational Certificate in Marine Diesel Mechanics and the Technical Certificate in Pre-sea Deckhand. Proof of physical fitness is also required for students to participate in Marine Emergency Duties (MED) Training which is a compulsory part of these programmes.

Proof of physical fitness must be provided by way of a signed medical from an approved physician. **Signed Seafarer's and Marine Institute medicals from an approved physician are required for admission to each respective programme.** The list of physicians approved to conduct either the Seafarer's or MED medical is available from the Marine Institute Office of the Registrar. Details of the physical requirements for the Seafarer's Medical may be obtained from Transport Canada at the following address:

**Marine Safety Directorate  
John Cabot Building  
10 Barter's Hill  
P.O. Box 1300  
St. John's, NF  
A1C 6H8  
(709) 772 - 5167**

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## PROGRAMME ENTRY

Students require level three attainment.

Special consideration will be given for mature students, who will be assessed on an individual basis. Applications should be submitted with a resumé listing all associated experience together with letters of recommendation from employers or other individuals who can substantiate the applicant's qualifications. Applications will be evaluated by the Admissions Committee.

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## PROGRAMME STRUCTURE

This course is of approximately 11 months duration and is divided up into two terms and two work terms as follows:

**Term 1:** Covers workshop practice, use of workshop tools, and elementary practice and theory of internal combustion engines. There is also a basic review of mathematics and communication skills along with introductory treatment of machine shop skills, electrotechnology and engineering drawing.

**Work Term 1:** This will be a shore-based work term of approximately four weeks duration (minimum of 20 days documented) where a student will develop his/her practical skills in an actual industry environment. A work book must be successfully completed and employer evaluation of the student will be required to complete this credit work term.

**Term 2:** Covers the aspects of operational (watchkeeping) and maintenance practices of marine diesel engines and the associated auxiliary equipment found in engine rooms of merchant/fishing vessels, offshore oil drilling rigs (propulsion and generation plants) and elements of practical hydraulics. Instruction in mathematics, communication skills, electrotechnology, engineering drawing and machine shop will continue as well as the addition of welding practice (oxy-acetylene and shielded metal arc).

**MED Training:** Three weeks of marine emergency duties training which covers marine firefighting, survival at sea, life raft and life boat skills training with basic first aid.

**Work Term 2:** Work term two (2) will be of approximately seven weeks duration (35 days) in a sea based

environment. A sea training manual must be successfully completed and employer evaluation of the student will be required to complete this credit work term.

Upon successful completion of all the required course credits (including work terms), the student will be awarded the Vocational Certificate in Marine Diesel Mechanics. Having successfully obtained the Vocational Certificate, the graduate will be accepted as having completed nine months of machine shop service as qualifying toward the total service required for any Marine Engineering Certificate issued under Part 1 of the Canada Shipping Act regulations pertaining to Marine Engineer Examinations.

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## PROGRAMME HIGHLIGHTS

The objectives of this programme are to produce graduates who will:

- Possess the theoretical and practical knowledge to install, operate and maintain marine diesel engines and associated auxiliary equipment found on marine vessels and offshore oil drilling installations.
- Apply safe principles and practices to the operation of marine diesel engines and associated auxiliary equipment found on marine vessels and offshore oil installations.
- Develop a professional attitude and perform duties assigned to them in a thorough and responsible manner.

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*involved in installation and servicing of marine systems or in the area of marketing associated equipment.*

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# VOCATIONAL CERTIFICATE - MARINE DIESEL MECHANICS

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## CAREERS

Graduates of the Marine Diesel Mechanics Vocational programme can expect to gain employment as an Engine Room Rating on national and international merchant/fishing vessels and vessels of Transport Canada and Fisheries Patrol and Research. Employment can also be found on board offshore oil drilling platforms, in marinas, marine service centres, marine fabrication and repair yards or shops.

Credit Earned: Vocational Certificate - Marine Diesel Mechanics  
11 months: 2 Terms & 2 Work Terms  
Normal Start:  
School of Maritime Studies  
Contact: Admissions Officer  
(709) 778 - 0380  
1-800-563-5799 (ext. 380)  
email: admissions@mi.mun.ca

## PROGRAMME OUTLINE

### Term 1

Communication Skills 0102  
13 weeks - 3 lecture hours/week  
Electrotechnology 0102  
16 weeks - 2 lecture hours/week  
Engineering Drawing 0100  
16 weeks - 3 lecture hours/week  
Marine Engineering Knowledge 0100  
21 weeks - 22 lecture/lab hours/week  
Mathematics 0102  
16 weeks - 3 lecture hours/week  
Workshop Practice 0100 (Machine Shop)  
16 weeks - 3 lecture/lab hours/week

### Work Term

Work Term 1

### Term 2

Communication Skills 0202  
13 weeks - 3 lecture hours/week  
Electrotechnology 0200  
16 weeks - 4 lecture/lab hours/week  
Engineering Drawing 0200  
16 weeks - 3 lecture hours/week  
Marine Engineering Knowledge 0200  
**Duration** - 16 weeks  
**Lectures** - 13 weeks  
**Watchkeeping:**  
**Practical** - 3 weeks  
Mathematics 0200  
16 weeks - 3 lecture hours/week  
Workshop Practice 0103 (Welding Practice)  
16 weeks - 4 lab hours/week  
Workshop Practice 0200 (Machine Shop)  
16 weeks - 3 lecture/lab hours/week

### Work Term

Work Term 2

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*develop a professional attitude*

---

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*perform duties assigned to them in a thorough and responsible manner.*

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# VOCATIONAL CERTIFICATE - OFFSHORE STRUCTURAL STEEL/PLATE FITTER

---

This ten month vocational certificate programme is designed:

- to provide a theoretical and practical education in fitting and welding related to offshore construction and fabrication.
- to enable students to develop safety standards, quality assurance, and quality control procedures and production requirements related to offshore construction and fabrication.
- to prepare students for employment in offshore construction and fabrication and related industries.

## PROGRAMME STRUCTURE

The ten month Offshore Structural Steel/Plate Fitter Programme features a combination of work experience and hands-on instruction from highly qualified faculty.

The courses at the Marine Institute will include Mathematics, Communications, Science, Steelwork - Theory and Practice, Blueprint Reading and Layout, Offshore Fabrication, and Basic Survival Training

## PROGRAMME HIGHLIGHTS

This programme is designed to prepare students with the necessary skills and knowledge required to complete projects in the fabrication and manufacturing industries.

- Graduates will find employment in the construction and steel fabrication industries.
- Employers will welcome the versatility of these graduates as they will be skilled in the tasks assigned to welders and the tasks assigned to fitters.
- Presently, employers must hire two people, a welder and a fitter, to perform the required work.
- Graduates will be provided with the necessary skills and knowledge required to complete projects in the fabrication and manufacturing industries.

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## PROGRAMME ENTRY

To be eligible, students must have attained a senior High School Grade 12 (Level 3). Individuals must also pass a Marine Emergency Duties medical.

Credit Earned: Vocational Certificate  
Duration: Ten Months  
Normal Start: September  
School of Maritime Studies  
Contact: Admissions Officer  
(709) 778 - 0380  
1-800-563-5799 (ext. 380)  
email: admissions@mi.mun.ca

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## PROGRAMME OUTLINE

### Term 1

Communication Skills 0102  
Engineering Drawing 0101  
(Blueprint Reading and Layout)  
Mathematics 0101  
Offshore Technology 0100  
(Steelwork Theory)  
Offshore Technology 0101  
(Offshore Fabrication)  
Workshop Practice 0101  
(Steelwork Practical - Fitting)  
Workshop Practice 0102  
(Steelwork Practical - Welding)

**\*Successful completion of ALL courses in Term 1 before continuing to Term 2.**

### Term 2

Basic Survival Training (BST)  
Communication Skills 0202  
Engineering Drawing 0201  
(Template Development)  
Offshore Technology 0200  
(Steelwork Theory)  
Offshore Technology 0201  
(Offshore Fabrication)  
Physics 0100  
(Engineering Science)  
Workshop Practice 0201  
(Steelwork Practical - Fitting)  
Workshop Practice 0202  
(Steelwork Practical - Welding)

### Work Term

Work Term 102

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*prepare students for employment in offshore construction and fabrication and related industries.*

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*graduates will find employment in the construction and steel fabrication industries.*

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# TECHNICAL CERTIFICATE - FIREFIGHTING AND RECRUITMENT

This programme was developed in consultation with the St. John's Regional Fire Department and the Provincial Fire Commissioner's Office and addresses the need for firefighting recruits who are trained in the National Fire Protection Association's (NFPA) Professional Standard for Fire Fighters (1001).

It is an entry level program designed to provide the recruit with the theoretical knowledge and practical skills to enable him/her to successfully compete for employment in the fire service.

## PROGRAMME ENTRY

Candidates must have completed, as a minimum, Level II high school and must pass a medical examination before acceptance to the programme.

This program is the only opportunity for a student, outside of the organized fire service, to train for a future in the firefighting field.

## PROGRAMME STRUCTURE

This programme begins by starting the student at the most basic level and progressively advances him/her through all requirements of the National Fire Protection Association's Professional Standard.

## PROGRAMME HIGHLIGHTS

This programme is designed to produce a graduate who;

- can function as a member of a municipal/industrial fire department.
- is trained in specialized areas such as; high angle rescue, confined space entry and rescue, oxygen therapy/patient assessment, and hazardous materials.
- Successful completion of the 17 week on campus portion leads to eligibility to write the National Fire Protection Association (NFPA) Level I Exam. Successful completion of the full 24 week programme and the Level I NFPA Exam leads to eligibility to sit for the NFPA Level II Exam.

## CAREERS

The graduate of this programme will be qualified for a recruit level position with a municipal or industrial fire department.

## PROGRAMME OUTLINE

**Fire Fighter I/II** - This is a five week course designed to provide the student with the theory and practical competencies outlined in the National Fire Protection Association's Professional Standard for Firefighter (1001). The course is presented over a 25 day period and consists of 45% theory (classroom) and 55% practical (field). Upon successful completion, the student will have the training required to function as an integral member of a Firefighting team.

**High Angle Rescue** - This is an intermediate level course designed to enable the trainee to understand the theoretical aspects of high angle rescue and to demonstrate the practical aspects of high angle rescue.

**Pumper Operator** - This course is designed to give the firefighter the knowledge to operate and maintain a fire pumper in safe working condition.

**First Aid / CPR** - St. John Ambulance and Red Cross Certified personnel teach standard First Aid and CPR courses.

**H2S Alive** - The H2S Alive course is designed to provide students with a better understanding of the safety procedures and dangers related to hydrogen sulfide. The course consists of theory and practical sessions intended to meet the Petroleum Industry Training Service's (PITS) standards for workers in the exploration, production, transportation, and storage of petroleum products.

**Advanced Level II First Aid** - This is a two week St. John Ambulance Advanced First Aid Course.

**Company Officer** - This is a theoretical course designed to enable students to identify and be cognizant of innovative management, leadership, and human relationship models.

**Hazardous Incident Identification and Response** - This course will enable the student to identify hazardous materials and to respond to hazardous materials incidents.

**Vehicle Extrication** - This is the basic vehicle extrication course, which introduces the student to both the theoretical and practical aspects of vehicle extrication.

**Shipboard Firefighting for Land-based Fire Fighters** - This course is designed to provide land based firefighters who respond to "marine vessel fires" with the knowledge and ability to aide the master of any given type of vessel when that person is faced with a fire on board.

**Confined Space Rescue** - This intermediate course is designed to enable the trainee to understand the correct procedures involved in confined space rescues.

**Basic Trauma Life Support (BTLS)** - The Basic Trauma Life Support (BTLS) Course was developed for BTLS International and will be delivered by a qualified BTLS instructor. Upon completion of the course, a BASIC TRAUMA LIFE SUPPORT Certificate will be issued by BTLS International.

**Automated External Defibrillation (AED)** - The Automated External Defibrillation (AED) Course was developed by the National Safety Council and will be delivered by a qualified AED instructor. Upon completion of the course, an AUTOMATED EXTERNAL DEFIBRILLATION Certificate will be issued by the National Safety Council.

## Sample Schedule (Order of course delivery may vary - Schedule is subject to change)

Week 1	First Aid/CPR/H2S Alive
Week 2	St. John Ambulance Advanced Level II First Aid
Week 3	St. John Ambulance Advanced Level II First Aid
Week 4	Firefighter I/II Week 1
Week 5	Firefighter I/II Week 2
Week 6	Fire Pumper Operator
Week 7	Firefighter I/II Week 3
Week 8	Company Officer Development
Week 9	High Angle Rescue
Week 10	Hazardous Incident Identification and Response
Week 11	Confined Space Entry & Rescue
Week 12	Vehicle Extrication
Week 13	Firefighter I/II Week 4
Week 14	Shipboard Firefighting for Land Based Firefighting
Week 15	Firefighter I/II Week 5
Week 16	Basic Trauma Life Support and Automated External Defibrillation

NFPA Level I Exam\*

Weeks 17-24 Work Term

NFPA Level II Exam\*\*

Graduation Ceremony

\*NFPA Level I Exam - proctored by Office of the Fire Commissioner

Location: Fire Building, Offshore Safety & Survival Centre, Foxtrap

Duration: 3 days; (2 days practical, 1 day written)

Practical: Vehicle Extrication, Hazardous Materials, Ladder/Fire Exercises

\*\*NFPA Level II Exam - proctored by Office of the Fire Commissioner

Duration: 1 day (written)

Location: Fire Building, Offshore Safety & Survival Centre, Foxtrap

Credit Earned: Technical Certificate -  
Firefighting and Recruitment

24 weeks

School of Maritime Studies

Contact: Admissions Officer

(709) 778-0380

1-800-563-5799 (ext. 380)

email: admissions@mi.mun.ca

# TECHNICAL CERTIFICATE - PRESEA DECKHAND

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This six month technical certificate programme is designed:

- to prepare the student for employment in the merchant marine or fishing industry.
- to provide the student with a basic understanding of the organization and structure found on a typical merchant marine or fishing vessel.
- to develop and gain the knowledge and experience necessary to become part of a crew as found on any seagoing vessel.

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## PHYSICAL REQUIREMENTS

Applicants seeking entry to Marine Institute programmes which lead to Transport Canada Certification for Seafarer's should note that Transport Canada requires proof of satisfactory physical fitness prior to sitting for any Transport Canada exams. This includes satisfactory visual acuity, colour vision, and hearing among other physical requirements.

These programmes include the Marine Institute Diplomas of Technology in Nautical Science, Marine Engineering, the Vocational Certificate in Marine Diesel Mechanics and the Technical Certificate in Pre-sea Deckhand. Proof of physical fitness is also required for students to participate in Marine Emergency Duties (MED) Training which is a compulsory part of these programmes.

Proof of physical fitness must be provided by way of a signed medical from an approved physician. **Signed Seafarer's and Marine Institute medicals from an approved physician are required for admission to each respective programme.** The list of physicians approved to conduct either the Seafarer's or MED medical is available from the Marine Institute Office of the Registrar. Details of the physical requirements for the Seafarer's Medical may be obtained from Transport Canada at the following address:

**Marine Safety Directorate**  
John Cabot Building  
10 Barter's Hill  
P.O. Box 1300  
St. John's, NF  
A1C 6H8  
(709) 772 - 5167

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## PROGRAMME ENTRY

To enroll in the programme, students should be in good physical condition and successfully complete the physical examination necessary to fulfil the MED portion of the course. A Grade 8 Certificate is required.

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## PROGRAMME STRUCTURE

The overall objective of this programme is to train students in the skills of seamanship so they will be employable in the marine industry.

This programme provides training and work experience to facilitate the transition of participants from school to the labour market, as well as offering a retraining opportunity. The design of this programme includes the necessary academic skills training, as well as, the skills necessary to fill the position of deckhand. The many aspects of training in this programme focus on preparing graduates to function and work confidently in the marine industry. The 27-week programme is divided into two sections - Off-Site and On-Site training:

- 16-weeks in-class instruction
- 3-weeks MED training
- 8-weeks sea placement

Students undertake hands-on training where appropriate, using facilities in the Marine Institute's rigging room and its training vessel.

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*prepare the student for employment in the merchant marine or fishing industry.*

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## PROGRAMME HIGHLIGHTS

Graduates can expect to find employment in the marine industry aboard fishing and cargo vessels and oil tankers.

- Employment in the allied marine industries may also be available.
- This programme may be especially useful to fisherpersons who have been displaced due to a downturn in the fishing industry but who wish to upgrade and move into another aspect of the trade.

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## PROGRAMME OUTLINE

Communication Skills 0103  
(2-3 hours/week)

General Ship Knowledge 1000  
(31 hours/week)

Mathematics 0103  
(2-3 hours/week)

Credit Earned: Technical Certificate  
Duration: 6 months  
Normal Start: September  
School of Maritime Studies  
Contact: Admissions Officer  
(709) 778-0380  
1-800-563-5799 (ext. 380)  
email: admissions@mi.mun.ca

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*train young people in the skills of seamanship*

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Under the Canada Shipping Act, Transport Canada has the responsibility for the examination and certification of seafarers in Canada. Under the same legislation, specific regulations and related guidelines<sup>1</sup>, spell out the details which govern the rights and responsibilities of seafarers who hold either deck or marine engineering Certificates of Competence (Certificates) issued by Transport Canada.

Part of the federal responsibility, in addition to enacting and enforcing the rules and regulations, is to provide the opportunity for seafarers to attend education and training institutions so that they receive the appropriate preparation for such examinations. To carry out this mandate Transport Canada has designated several schools in Canada as being approved for these purposes. The Fisheries and Marine Institute of Memorial University of Newfoundland is one of those centres.

The Marine Institute carries out its agreements with Transport Canada in several ways. These include the sponsoring of cadet programmes for deck and engineering cadets (diplomas of technology), the provision of recognized pre-sea instruction (technical certificate), giving instruction in the many courses that make up the various certificates issued by Transport Canada and, in some instances, acting as the examiner on behalf of Transport Canada.

## PROGRAMME ENTRY

The process for, and regulations governing, application for admission to Transport Canada Certification Programmes falls under Application for Admission to Non-Degree Programmes described in the section of this Calendar relating to Admission to the Marine Institute. Please refer to that section for details on how to apply for admission.

All Transport Canada offered by the Marine Institute require practical experience either at sea (Deck Certificates) or shop/shipyard/sea time (Engineering Certificates). For the periods of time required for each certificate the applicant is referred to Transport Canada document TP2293 (The Examination and Certification of

Seafarers) available at the nearest Transport Canada office or libraries in which government documents are found. Transport Canada will normally assess practical experience to determine what level of certificate a candidate for certification is qualified to attempt. It is the applicant's responsibility to ensure he or she is familiar with Transport Canada's eligibility requirements, that is the regulations listed under TP2293, prior to seeking certification with Transport Canada.

All seafarers must meet certain minimum medical standards before they will receive any of the listed certificates. The medical certificate referred to here is that described in the Crewing Regulations (SOR/97-390) and contains the standards found in TP 11343 (Medical Examination of Seafarers - Physicians Guide). In addition the Marine Institute requires that certain medical standards be met before a student can do any of the Marine Emergency Duties (MED) courses which form part of the Transport Canada Certification requirements. For both these medicals there is a form that must be filled out by the designated physicians. A list of designated physicians and the medical form required may be obtained at Transport Canada and the Marine Institute respectively.

## PROGRAMME STRUCTURE

The Marine Institute offers a number courses through its School of Maritime Studies to prepare individuals for Transport Canada Certification examinations as deck officers and marine engineering officers. These courses are offered throughout the year and are organized by the various certificates as programmes. The emphasis of these courses is to train personnel who have the necessary sea-going experience to challenge each level of certification. Offerings are always subject to sufficient demand and schedules are prepared each year for the more common and popular certificate programmes. While the Marine Institute may not address certain certificates in its schedule of courses in any given period, if there is sufficient industry interest, then the Marine Institute will become involved.

The 2001-2001 programme schedules that follow outline our course offerings for the 2001-2002 year. Information on courses for which the Marine Institute is authorized to conduct exams on behalf of Transport Canada, as well as courses available by distance, is noted on these schedules. It should be noted when reading this table that Transport Canada's examination numbers are built upon a block system. That is, when you complete an examination in a course in a series, you are automatically deemed to have a credit for the courses in the same series with a number that is lower in the series. If, for example you gain credit for 052 Navigation you are assumed to have completed the requirements for 051 Navigation.

While students will be admitted only to the Certificate course that they qualify for according to Transport Canada, they may register for any course allowed under the regulations outlined in Transport Canada's TP2293. Registration for courses associated with a Certificate at a more senior level will be approved on a course-by-course basis.



### NOTE:

*The examination and certification of Seafarer's is available only to Canadian Citizens and landed immigrants.  
Only students who are eligible for Transport Canada certification are eligible for admission to the Marine Institute for certification preparation training.*

<sup>1</sup> The Regulation are the *Crewing Regulations* SOR/97-390. The guidelines to these regulations are contained in Transport Canada publication *TP2293*. These regulations and guidelines are available at the nearest Transport Canada office or the library at the Marine Institute.

# TRANSPORT CANADA PROGRAMMES

## SCHEDULE

The Transport Canada Deck Officer Certification Preparation Programme is delivered over four, seven-week periods scheduled consecutively over the academic year. Each seven-week period is referred to as a "Block". Under normal circumstances, if the student begins in Block I they should normally be able to complete their certificate before the end of Block IV. The time allotted for each course is given in the schedule that follows. It will be observed that the SEN and MED programs are offered throughout the year on an "as required" basis.

Selected courses for the Transport Canada Engineering Officer Certification Preparation Programmes are scheduled during the year.

The tables following provide the schedules in place for the 2000-2001 Academic Year for the Deck Officer / Engineering Officer Certification Preparation courses for the respective Certificates of Competency. Please note that the courses listed here will be offered on the dates shown only if there is sufficient demand. The Marine Institute reserves the right to cancel any course due to insufficient enrollment.

## TUITION AND OTHER FEES

### Tuition

All students enrolled in Transport Canada Certification Preparation Programmes are subject to the Marine Institute's Fees Payment Policy and are required to pay Marine Institute Student Union and Health Plan fees. Further details provided in the Fees and Fees Payment information included in this Calendar.

Components for the Deck Officer Certification Preparation Programmes are offered in Block I and Block II of the Fall Semester and Block III and Block IV of the Winter Semester. If a student will be attending two consecutive blocks in a given semester, they will choose the components they wish to complete during the semester and pay all applicable fees upon registration in Block I and Block III respectively. Students who will be attending in Block II or Block IV only, will be required to register at the beginning of that block.

Students registering for Engineering Officer Certification Preparation programmes are required to register and pay all fees on the first day of each course offering. Tuition fees for Engineering Officer Certification Preparation courses are set on a per course basis, not on the number of weeks allotted for each course.

The tuition fees for each individual Deck Officer/Engineering Officer Certification course are provided in the Schedules for the upcoming year. These fees are subject to change.

### Confirmation Fees

Students who plan to enrol in a combination of courses which includes any of the following simulation or practical courses are required to pay a Confirmation Fee for each course

- Simulated Electronic Navigation (SEN) I
- Simulated Electronic Navigation (SEN) II
- Propulsion Plant Simulation Level I
- Propulsion Plant Simulation Level II
- Global Maritime Distress and Safety Systems (GMDSS)
- Marine Emergency Duties (MED) A1, B1, B2, C or D
- Marine First Aid

This fee is in addition to the Confirmation Fee required for the particular Block or course the student has been admitted to. Upon registration in these courses, the Confirmation Fee is credited towards the student's tuition charges and the tuition fees owing are thereby reduced by that amount.

### Refunds

Upon formal withdrawal from the Marine Institute or through Drop/Add procedures, students may be eligible for a refund or credit towards tuition for the next scheduled course. This process must be carried out using the Marine Institute's Transport Canada Registration form.

The following is an excerpt from the Marine Institute Fees Payment Policy and relates to tuition payments for "Less than Full Semester Courses". For additional information, please refer to the Marine Institute Fees Payment and Refund Policy as described under Fees and Financial Information.

## STUDENT FEES REFUND POLICY

Tuition:	Refund:
In the first 5 days of classes	100%
6 class days to 8 class days	50%
9 class days to 11 class days	25%
12 class days and beyond	No refund

**NOTE:**  
*No refund for programmes 3 weeks or less.*

**NOTE:**  
*The general seamanship referred to here is covered in the Marine Institute's Pre-Sea Deckhand's programme and in the Diploma in Nautical Science programme. You may seek further advice on your options from the School of Maritime Studies.*

**MARINE INSTITUTE**  
**TRANSPORT CANADA ENGINEERING OFFICER CERTIFICATION TRAINING**  
**2002 - 2003**

Please complete this card and indicate here which course(s) you intend to register for in 2002-2003.				Name: _____	
Course	Start	Registration Deadline *	Finish	No. of Weeks	Fees**
<b>First/Second Class</b> ◆◆					
Math Refresher	Sept. 03, 2002	Sept. 05, 2002	Sept. 27, 2002	4	\$192
Mechanics ● - ☼	Sept. 30, 2002	Sept. 30, 2002	Nov. 15, 2002	7	\$704
Naval Architecture - Second Class	Sept. 30, 2002	Oct. 02, 2002	Nov. 15, 2002	7	\$384
Naval Architecture - First Class	Sept. 30, 2002	Oct. 03, 2002	Dec. 13, 2002	11	\$704
Blueprint Reading ●	Nov. 18, 2002	Nov. 18, 2002	Dec. 20, 2002	5	\$320
Thermodynamics ● - ☼	Jan. 06, 2003	Jan. 06, 2003	Feb. 28, 2003	8	\$384
Electrotechnology ● - ☼	Mar. 3, 2003	Mar. 5, 2003	Apr. 18, 2003	7	\$384
Engineering Knowledge - General	Apr. 21, 2003	Apr. 23, 2003	May 30, 2003	6	\$384
Engineering Knowledge - Motor	Apr. 21, 2003	Apr. 23, 2003	May 30, 2003	6	\$384
<b>Third Class</b>					
Math & Applied Mechanics ● - ☼	Sept. 30, 2002	Sept. 30, 2002	Dec. 13, 2002	11	\$704
Thermodynamics	Jan. 06, 2003	Jan. 08, 2003	Feb. 28, 2003	8	\$384
Electrotechnology	Mar. 3, 2003	Mar. 5, 2003	Apr. 18, 2003	7	\$384
Engineering Knowledge - General	Apr. 21, 2003	Apr. 23, 2003	May 30, 2003	6	\$384
Engineering Knowledge - Motor	Apr. 21, 2003	Apr. 23, 2003	May 30, 2003	6	\$384

\* **Please note:** The registration deadline is 4:00 p.m. on the third day of most courses. Registration for courses indicating ● will not be accepted beyond 9:00 a.m. on the first day of classes as these are block credit courses with mandatory attendance.

☼ Available by distance.

◆ Admission to 2nd Class approved courses will require verification of an acceptable level of Math ability demonstrated through successful completion of one of the following: MI 3rd Class Math/Mechanics; MI Math Refresher; or normal admission requirements to MI programs.

\*\* **Tuition fees are set on a per course basis, not on the number of weeks attended.**



# MARINE INSTITUTE

## Fishing Master, Fourth-Class

This certificate is valid as Second Mate of a Fishing Vessel without restriction; or Second Mate of a Fishing Vessel within the Intermediate Voyage Limits; or Master or First Mate of a Fishing Vessel under 100 gross tons within the Local Voyage Limits.

### Course Offerings (2002-2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
Nav. Safety 061	10	\$87	Chart 040	20	\$348	Nav. Safety 061	10	\$87	Chartwork 040	20	\$348	Chart 040	20	\$348
MED-A1, MAFA	5 days	\$755	Nav. Safety 061	5	\$87	MED-A1, MAFA	5 days	\$755	Orals 166	5	\$87	Nav. Inst. 020	10	\$174
ROC-MC	3 days	\$290				ROC-MC	3 days	\$290	Nav. Safety 061	5	\$87	Nav. Safety 061	5	\$87
									Nav. Inst. 020	10	\$174	Orals 166	5	\$87

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
Chartwork 040	Nine Months sea service
Navigation Safety 061	Twelve Months sea service
Navigating Instruments 020	Nine Months sea service
General Seamanship (Orals) 166	All other exams and MED A1 must be completed prior to attempting this examination
MED A1, Marine Advanced First Aid & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Fishing Master, Third-Class

This certificate is valid as Second Mate of a Fishing Vessel without restriction; or First Mate of a Fishing Vessel within the Intermediate Voyage Limits; or Master of a Fishing Vessel within the Local Voyage Limits.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
Comm. 011	10	\$174	Chart 041	20	\$348	Comm. 011	10	\$174	Chart 041	20	\$348	Chart 041	20	\$348
Nav. Safety 061	10 days	\$87	Nav. Safety 061	5	\$87	Nav. Safety 061	10	\$87	Nav. Safety 061	5	\$87	Nav. Safety 061	5	\$87
ROC - MC	3 days	\$290				ROC-MC	3 days	\$290	Orals 167	5	\$87	Nav. Inst. 020	10	\$174
MED-A1, MAFA	5 days	\$755				MED-A1, MAFA	5 days	\$755	Nav. Inst. 020	10	\$174	Comm. 011	10	\$174
												Orals 167	5	\$87
												GSK 157	10	\$174

**Please Note:** All course offerings are subject to enrollment.

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
Communications 011 (3 weeks)	Nil
Chartwork 041	Eighteen months service
General Ship Knowledge 157	Twelve months service
Navigation Safety 061	Twelve months service
Navigating Instruments 020	Nine months service
General Seamanship (Orals) 167	All other exams and MED A1 must be completed prior to attempting this examination
MED A1 & Marine Advanced First Aid & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Fishing Master, Second-Class

This certificate is valid as Second Mate of a Fishing Vessel without restriction; or Master of a Fishing Vessel within the Intermediate Voyage Limits; or Master of a Fishing Vessel within the Local Voyage Limits.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
Comm. 011	10	\$174	Chart 041	20	\$348	Comm. 011	10	\$174	Chart 041	20	\$348	Chart 041	20	\$348
ROC - MC	3 days	\$290	Nav. Safety 061	5	\$87	ROC -MC	3 days	\$290	Orals 168	5	\$87	Nav. Safety 061	5	\$87
Nav. Safety 061	5	\$87	SEN I	28	\$1575	Nav. Safety 061	5	\$87	Met. 072	15	\$261	GSK 157	10	\$174
MED-A1, B1, B2, MAFA	3 weeks	\$2335				MED-A1, B1, B2, MAFA	3 weeks	\$2335	Mgmt. 99	10	\$174	Orals 168	5	\$87
									Nav. Safety 061	5	\$87	SEN I	28	\$1575
									SEN I	28	\$1575			

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
SEN I	Eighteen months service and completion of the SEN I Course
Communications 011 (3 weeks)	Nil
Chartwork 041	Eighteen months service
General Ship Knowledge 157	Twelve months service
Navigation Safety 061	Twelve months service
Meteorology 072	Twenty-Four months service
General Seamanship (Orals) 167	All other exams and MED B1/B2 must be completed prior to attempting this examination
Ship Management 099	Twelve months service
MED A1, Marine Advanced FA & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)
MED B1 & B2	

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**





# MARINE INSTITUTE

## Fishing Master, First-Class

This certificate is valid as a Master of a Fishing Vessel without restriction

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
SEN II	28	\$855	GSK 158	10	\$174	SEN II	28	\$855	Astro 050	20	\$870	Astro 050	20	\$870
Comm. 012	10	\$174	Nav. Safety 061	5	\$87	Comm. 012	10	\$174	Orals 169	5	\$87	Comm. 012	10	\$174
ROC-MC	3 days	\$290	SEN II	28	\$855	ROC-MC	3 days	\$290	SEN II	28	\$855	Orals 169	5	\$87
Nav. Safety 061	5	\$87				Nav. Safety 061	5	\$87				SEN II	5	\$87
MED-C & D	5 days	\$800				MED-C & D	5 days	\$800						

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
SEN II (3 Weeks)	Must have passed SEN I
Communications 012 (3 weeks)	Nil
Astro Navigation 050**	Must have completed Eighteen months service
General Ship Knowledge 158	Must hold a WKMS or FM II Certificate
Navigation Safety 061	Nil
Meteorology 073	Must hold a WKMS or FM II Certificate
General Seamanship (Orals) 169	All other examinations must be completed prior to attempting this examination
MED C & D & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)

\*\* Marine Institute approved for examination of students in full time attendance at the Institute.

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Watchkeeping Mate Ship (WKMS)

This certificate is valid as Third Mate of a Foreign Going Voyage; or Second Mate of an Intermediate Voyage; or Second Mate of a Local Voyage or Minor Waters Voyage unlimited as a tonnage; or First Mate of a vessel not exceeding 350 tons or a Tug on an Intermediate, Local or Minor Waters Voyage.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
Comm. 012	10	\$174	Chart 041	20	\$348	Comm. 012	10	\$174	Astro 051 (Blocks IV & V)	20	\$870	Astro 051 (Blocks IV & V)	20	\$870
Nav. Safety 061	10	\$87	Nav. Safety 061	5	\$87	Nav. Safety 061	10	\$87	Chart 041	20	\$348	Chart 041	20	\$348
MED-A1, B1, B2 & MAFA	3 weeks	\$2335	SEN I	28	\$1575	MED-A1, B1, B2 & MAFA	3 weeks	\$2335	Nav. Safety 061	5	\$87	GSK 151	15	\$261
ROC-MC	3 days	\$290				ROC-MC	3 days	\$290	Orals 161	5	\$87	Comm. 012	10	\$174
									SEN I	28	\$1575	Orals 161	5	\$87
									SEN I	28	\$1575	SEN I	28	\$1575

**Please Note:** All course offerings are subject to enrollment.

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
SEN I	Eighteen months service and completion of the SEN I course before examination
Communications 012 (3 weeks)	Nil
Chartwork 041	Eighteen months service
General Ship Knowledge 151	Eighteen months service
Navigation Safety 061	Eighteen months service
General Seamanship (Orals) 161	All other examinations must be completed prior to attempting this examination
Astro Navigation 051 **	Eighteen months service
MED A1, C, Marine Advanced FA & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)
MED B1, B2	

\*\* Marine Institute approved for examination of students in full time attendance at the Institute.

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.ml.mun.ca/miles](http://www.ml.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Restricted Watchkeeping Mate Ship (WKMSR)

This certificate is valid as Second Mate of a Local or Minor Waters Voyage; or First Mate of a ship not exceeding 350 tons or a Tug on an Intermediate, Local or Minor Waters Voyage.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
Comm. 012	10	\$174	Chart 041	20	\$348	Comm. 012	10	\$174	Chart 041	20	\$348	Chart 041	20	\$348
Nav. Safety 061	10	\$87	Nav. Safety 061	10	\$87	Nav. Safety 061	5	\$87	Nav. Safety 061	5	\$87	GSK 151	15	\$261
MED-A1, B1, B2 & MAFA	3 weeks	\$2335	SEN I	28	\$1575	MED-A1, B1, B2 & MAFA	3 weeks	\$2335	Orals 161	5	\$87	Comm. 012	10	\$174
ROC-MC	3 days	\$290				ROC-MC	3 days	\$290	SEN I	28	\$1575	Orals 161	5	\$87
									SEN I	28	\$1575		28	\$1575

#### Please Note:

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
SEN I	Eighteen months service and completion of the SEN I course before examination
Communications 012 (3 weeks)	Nil
Chartwork 041	Eighteen months service
General Ship Knowledge 151	Eighteen months service
Navigation Safety 061	Eighteen months service
General Seamanship (Orals) 161	All other examinations must be completed prior to attempting this examination
MED A1, C, Marine Advanced FA & ROC-MC	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)
MED B1, B2	

\*\* Marine Institute approved for examination of students in full time attendance at the Institute.

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Master, Ship of Not More Than 350 Tons Gross Tonnage, or Tug, Local Voyage

This certificate as Restricted Watchkeeping Mate, Ship with a Command Endorsement Certificate is valid as Master of a vessel not exceeding 350 tons gross tonnage or a Tug or any size on a Local or Minor Waters Voyage.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
SEN II	28	\$855	SEN II	28	\$855	SEN II	28	\$855	MET 072	15	\$261	Orals 160	5	\$87
MED C & D	5 days	\$800				Mgmt. 090	20	\$174	Orals 160	5	\$87	SEN II	28	\$855

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293
SEN II (3 Weeks)	Must have passed SEN I
Ship Management 090	Restricted Watchkeeping Mate Certificate
Meteorology 072	Restricted Watchkeeping Mate Certificate
General Seamanship (Orals) 160	Three years service and all other exams must be completed before attempting 160
MED C & D	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)

- Notes:**
- 1) *Ship Management 092 and Stability 112/113 may be substituted for 090 at the applicant's request.*
  - 2) *Meteorology 073 may be substituted for 072 at the applicant's request.*

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## First Mate Intermediate Voyage (Formerly ON II)

This certificate is valid as Second Mate of a Foreign-Going Vessel, First Mate of an Intermediate or Local Voyage, or First Mate of a Minor Waters Voyage.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
MED-D	2 days	\$320	Const. 123	15	\$261	MED-D	2 days	\$320	Astro 051 (Blocks IV & V)	20	\$870	Astro 051 (Blocks IV & V)	20	\$870
			Eng. Know 132	15	\$174	Mgmt. 091	20	\$174	Stab. 113	20	\$348	Orals 162	5	\$87
									Orals 162	5	\$87	Const. 123	15	\$261
									Eng. Know. 132	15	\$174		15	\$174

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293*
Management 091	Watchkeeping Mate Ship or Restricted Watchkeeping Mate Certification
Ship Construction and Cargo 122	Watchkeeping Mate Ship or Restricted Watchkeeping Mate Certification
Astro Navigation 051**	Eighteen months service (only required if not completed in WKMS)
Stability 113	Watchkeeping Mate Ship or Restricted Watchkeeping Mate Certification
Engineering Knowledge 132	Watchkeeping Mate Ship or Restricted Watchkeeping Mate Certification
General Seamanship (Orals) 162	All other examinations must be passed before attempting this exam
MED D	Also offered Feb. 24-28 (between end of Block IV and beginning of Block V)

\* Service Requirement is Qualifying Watchkeeping service while holding a First Mate Local Voyage Certificate.

\*\* Marine Institute approved for examination of students in full time attendance at the Institute.

Courses with this symbol are also available vis Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



# MARINE INSTITUTE

## Master Intermediate Voyage (Formerly ON I)

This certificate is valid as First Mate Foreign-Going; or Master of an Intermediate Voyage Vessel; or Master of a Local Voyage Vessel; or Master of a Minor Waters Vessel unlimited as to tonnage.

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
SEN II	28	\$855	Cargo 123	15	\$261	SEN II	28	\$855	MET 073	15	\$261	Astro 052	25	\$435
			Const. & Eng. 133	15	\$174	Mgmt. 092	20	\$174	Nav. Safety 062	5	\$87	Orals 163	5	\$87
			SEN II	28	\$855				Orals 163	5	\$87	SEN II	28	\$855
									SEN II	28	\$855			

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293*
SEN II (3 Weeks)	Must have passed SEN I
Navigation Safety 062	Unless approved, it must be done in the same TC office during the same week as Orals 163 and twelve months service.
Ship Management 092	WKMSR Certificate or WKMS Certificate
Cargo 123	WKMSR Certificate or WKMS Certificate
General Seamanship (Orals) 163	12 months service and must have completed all other examinations before attempting 163
Astro Navigation 052	WKMS Certificate
Meteorology 073	WKMS Certificate
Ship Construction and Engineering 133	WKMSR/WKMS Certificate

\* Service Requirement is Qualifying Watchkeeping service while holding a First Mate Intermediate Voyage Certificate.

Courses with this symbol are also available vis Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.mi.mun.ca/miles](http://www.mi.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**



## Master Mariner

This Certificate is valid as Master of a Foreign-Going Ship unlimited as to tonnage.

# MARINE INSTITUTE

### Course Offerings (2002 - 2003)

BLOCK I Sept 23 - Oct. 11			BLOCK II Oct. 14 - Nov. 29			BLOCK III Dec. 2 - Dec. 20			BLOCK IV Jan. 6 - Feb. 21			BLOCK V Mar. 3 - Apr. 18		
Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost	Course	Hrs/wk	Cost
			Eng. Know. 134	10	\$174	Mgmt. 093	20	\$174	Elect. 141	15	\$261	Nav. Arch. 114	20	\$348
									Nav. Inst. 023	10	\$174	Orals 164	5	\$87

**Please Note:**

*All course offerings are subject to enrollment.*

Students are advised to register for no more than a maximum of 25 hours of class time per week.

Examination Required	Service or Other Requirements as specified in Transport Canada's TP 2293*
Engineering Knowledge 134	NIL
Management 093	Must have passed 092
Naval Architecture 114	Must have passed 113
General Seamanship (Orals) 164	12 months service and completion of all other examinations
Electricity 141 **	Nil
Navigating Instruments 023	Nil

\* Service Requirement is Qualifying Watchkeeping service while holding a Master Intermediate Voyage Certificate.

\*\* Marine Institute approved for examination of students in full time attendance at the Institute.

Courses with this symbol are also available via Distance delivery. To learn more, please contact the Marine Institute Registrar's Office or visit our website at [www.ml.mun.ca/miles](http://www.ml.mun.ca/miles)

**If you plan to attend any of these courses, please check with the Marine Institute before making final arrangements.**

# Course Descriptions

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# COURSE DESCRIPTIONS

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## **AQUACULTURE SEMINAR SERIES I & II**

This course will present selected topics of relevance to the development of the aquaculture industry.

Cod Farming; Rainbow Trout; Salmon Farming; Other Marine Finfish; Eel; Fish Food Production; Mussel Culture; Scallop Culture; Other Shellfish; Provincial Government (Aquaculture Mandate); Federal Government (Aquaculture Mandate); The Role of Aquaculture Associations; Student, Faculty, Visiting Lecturer Presentations

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **BASIC SURVIVAL TRAINING**

This is a basic course designed to provide personnel with an understanding of the hazards associated with working in an offshore environment, the knowledge and skills necessary to react effectively to offshore emergencies and to care for themselves and others in a survival situation.

**Prerequisite** - Medical Clearance

**Duration** - 40 hours (5 days)

**Theory** - 17.5 hours

**Practical** - 22.5 hours

## **BIOLOGY 1100**

An introductory level course designed to provide knowledge of plant and animal biology, and their relationships to foods.

**Part 1: The Chemical and Cellular Basis of Life:**

Simple Biological Chemistry; Units of Structure and Function of Cells; Energy Transformations

**Part 2: The Biology of Organisms:**

Nutrient Procurement and Processing; Gas Exchange; Internal Transport; Regulation of Body Fluids; Chemical Control; Nervous Control; Effectors; Animal Behaviour

**Part 3: The Perpetuation of Life:**

Cellular Reproduction; Patterns of Inheritance; The Nature of the Gene and its Action; Development

**Part 4: Biology of Population and Communities:**

Evolution; Ecology

**Part 5: Diversity of Organisms:**

Early Earth and the Origin of Life; The Kingdom of Life

**Lectures** - 39 hours

**Laboratories** - 26 hours

## **BIOLOGY 2100 (Aquatic Ecology)**

This is a second level course designed to cover in moderate detail various aspects of aquatic ecology with emphasis on marine ecology. A strong emphasis will be placed on the laboratory sessions which will introduce students to the kinds of data collected during ecological studies in aquatic environments.

Ecology and Ecosystems; Primary Production and the Food Chain; Population Ecology; Ecological Cycles; Aquaculture Ecology

**Prerequisite** - Biology 1100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **BIOLOGY 2102 (Microbiology)**

This course is designed to prepare students for the Food Safety 2101 and Biology 2202 courses.

Introduction to Microbiology; History of Microbiology; Microscopy and Staining; Prokaryotic Microorganisms; Microbial Growth; Viruses; Fungi; Protozoa; Algae; Microbial Genetics; Classification of Prokaryotic Microorganisms; Control of Microbial Growth; Interaction of Microbes and Host; Aquatic Microbiology

**Prerequisite** - Biology 1100

**Lectures** - 39 hours

**Laboratories** - 39 hours

## **BIOLOGY 2201 (Microbiology)**

This is an introductory level course designed to prepare the students for courses in microbiology.

Introduction to Microbiology; History of Microbiology; Microscopy and Staining; Prokaryotic Microorganisms; Microbial Growth; Viruses; Fungi; Protozoa; Algae; Microbial Genetics; Classification of Prokaryotic Microorganisms; Control of Microbial Growth; Interaction of Microbes and Host; Aquatic Microbiology

**Prerequisite** - Biology 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **BIOLOGY 2202 (Food Microbiology)**

This course will introduce students to the microorganisms and their activities in food production.

Introduction to Food Microbiology; Characteristics of Microorganisms Associated with Foods; Food Spoilage; Food Preservation Methods; Food Borne Diseases; Microbiological Analysis of Foods; Detecton of Microorganisms in Food Environment; Predictive Microbiology; Microbiological Criteria

**Prerequisite** - Biology 2102

**Lectures** - 39 hours

**Laboratories** - 39 hours

## **BIOLOGY 3100 (Marine Biology)**

This is an intermediate level course which develops the student's understanding of the types of living organisms which inhabit the ocean, tidal, and near shore areas. The interaction of the different species is emphasized throughout the course.

Marine Organisms: Function and Environment; Organisms of the Sea Bed; Organism of the Open Sea; Seaweeds and Benthic Microorganisms; Toxicology and Histopathology

**Prerequisite** - Biology 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 0100 (Supervision)**

This is an introductory course for front line supervisors in the seafood processing industry.

Supervisor's Role; Planning the Work; Organizing and Delegating the Work; Problem Solving; Human Relations; Communicating with Others; Managing Change and Conflict; Hiring Employees; Orienting and Training Employees; Improving Productivity; Evaluating and Compensating Employees; Leading Employees; Supervising Problem Employees; Supervising Groups

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 0101 (Incentive Systems)**

This course is an introductory course in incentive systems which includes motion and studies and process analysis.

Productivity; Definition and Score of Motion and Time Study; Process Analysis; Human Factors; Automation

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 0102 (Industrial Relations)**

This course is designed to give students theory and practice in Industrial Relations.

Training and Developing Employers; Purpose and Structure of Labour Relations; Constructive Discipline; Collective Bargaining Techniques

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 1101 (Plant Management)**

This course is an introductory plant management course. The course will provide the basics in preventive maintenance, time and energy management skills as related to the marine environment.

Preventative Maintenance; Time Management; Energy Management

**Duration** - 5 weeks

**Lectures** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 1102 (Management Principles)**

This course is designed to give participants an understanding of the current business management principles and practices applicable to Canadian industry in general and the food production field in particular. This course will teach participants to develop organizational and planning skills and assist them to function as a team player in food manufacturing operation.

Business and Economic Systems; The Canadian Business System; Forms of Business Ownership; Management Practices; Improving Productivity; Practicing Interpersonal Skills; Leadership Skills; Problem-Solving; Making Decisions; Contemporary Management Issues

**Duration** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2100 (Organizational Behaviour)**

This course is designed to provide an understanding of the basic principles underlying workplace behaviour and to increase the ability of the student to analyze the effects of organizational structure and processes on individual behaviour.

Introduction to Organizational Behaviour; Individual Behaviour; Group Behaviour and Process; Managing Behaviour

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2101 (Introduction To Marketing)**

This course is designed to teach students the fundamentals of marketing goods and services. Emphasis is on the components of marketing.

Modern Marketing and its Environment; Target Markets; The Product; The Price; Distribution; Promotion

**Duration** - 13 weeks

**Lectures** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2102 (Professional Ethics)**

This course will use a case study approach and will encourage the student to perform a critical examination of systems of values and standards, with a discussion of current moral/ethical issues in the shipping industry. The student will study contemporary issues and look at them within an ethical framework.

Professional Ethics; Human Relations; Contemporary Issues; Maritime Fraud; Codes of Conduct and Ethics; Decision Making

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2103 (Management Principles)**

This course is designed to give students an understanding of the current management principles and practices applicable to the industry. This course will concentrate on teaching participants how to develop organizational and planning skills and how to function as a team player.

The Evolution of Management Thought; Contemporary Management Issues; Management Practices; Practicing Interpersonal Skills; Leadership Skills; Problem Solving; Improving Productivity; Making Decisions and Taking Action; Adapting to Change; Total Quality Management

**Duration** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2104 (Policy and Law)**

This is an introductory course that looks at various aspects of marine environmental law at the regional, national and international level. It gives the students an overview of various location, the regulatory bodies that deals with them and the interaction between these various bodies.

The Policy Making Process and the Development of Laws and Regulations; International Environmental Initiatives; International Environmental Conventions; National Environmental Acts, Laws and Regulations; Provincial Laws, Acts and Regulations; Municipal Regulations; Environmental Legal Issues; Case Studies

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2109 (Maintenance & Quality)**

This course is the second in the series of management courses. It deals with aspects of maintenance and quality control and building on previous course work in this area.

Maintenance Planning; Computerized Maintenance Plans; Scheduling Maintenance; Quality Control; Quality Manuals; Quality Specifications

**Prerequisite** - Business & Organizational Management 1101

**Duration** - 13 weeks

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2110 (Law and Environment)**

This is the first of two advanced level courses designed to bring together the major elements of marine law and the marine environment such that the student might understand the importance of both in their lives as professional seafarers and the intimate connection between the two.

The Law and its Purposes; Marine Insurance; Salvage

**Prerequisites** - Cargo Operations and Navigation 1100; Ship Operations 1100; Work Term 1102 (Sea-Phase 1)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 2200 (Business Operations)**

This course is designed to teach students the fundamentals of accounting for business transactions and provide an understanding of basic accounting theory.

Purposes of Financial Accounting; Financial Statements; The Bookkeeping Cycle; Accrual Accounting; Measuring Income; Objectives of Accounting; Revenue Recognition; Financial Accounting Concepts; Cash, Receivables and Discounting; Inventory Applications

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3100 (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 as several methods of management decision making with a mathematical approach.

Engineering Planning and Scheduling; Inventory Control; Queuing Analysis; Simulation; Forecasting; Network Flow Models

**Prerequisite** - Mathematics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3101 (Engineering Economics)**

This course covers the basic principles of engineering economy with application to engineering economic decision making. The various methods for economic analysis of alternatives are investigated as well as depreciation methods and income tax consequences.

Basic Concepts of Engineering Economy; Economic Decision Making; Analysis of Multiple Alternatives; Depreciation and Income Tax Calculations

**Prerequisite** - Mathematics 1100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3103 (Marine Law)**

Since the ship is the center of the study of marine law, this introductory course will deal with the employment, regulation, and conduct of the ship.

General Ship Knowledge; Industrial Safety; Ship Management; Canada Shipping Act; Marine Insurance; Carriage of Goods by Water Act; Charter Parties; Bills of Lading; Salvage; Shipmaster's Business; Regulations; Agency

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3104 (International Trade And Transportation)**

This course is designed to introduce the student of Nautical Science to the world of marine shipping and international trade. It spells out how shipping services are produced, the types of operations involved, the organization of shipping services and how the freight market works.

The Production of Shipping Services; Types of Ship Operations; The Organization of Ship Operations; The Freight Market; Costs of Shipping Operations; Pricing in Shipping; Shipping in the National Economy; Shipping Policies and Their Evolution.

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3105 (Shipyard Management)**

This is an advanced level course designed to introduce students in the Naval Architecture and Marine Engineering Systems Design programmes to the framework and structure of Canadian shipbuilding.

Introduction to the Shipyard; Framework of the Company; The Basic Work Pattern; Tendering; Design Check and Cost Estimating; Government Agencies and Ships; Specification Writing; Ship Contracts; Liability; Shipyard Planning Department; Quality Control; Union Contracts Sub Contractor Agreement

**Prerequisite** - Ship Design 3100 or Ship Design 1100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3106 (Marine Environmental Stewardship)**

An introductory course which will increase the environmental awareness of the ship's officer by discussing complex marine environmental issues. Current decision making strategies incorporate substantial environmental input which requires a board understanding and appreciation for all points of view.

Marine Environmental Science; Pollutants; Prevention Remedies; Marine Environmental Issues; Response Remedies

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3108 (Personnel/Human Resource Management)**

This course is designed to expand on the theory learned in Business and Organizational Management 2100 (Organizational Behaviour) and put it in a practical context - that of the ship. Among the topics that the student will study are: Employee rights, leadership techniques, labour unions, discipline, and employee evaluation. Emphasis will be placed on the effective management of employees on board ship.

Seafaring - A Brief History; Employee Relations; Canada Labour Code; Organizational Management; Discipline; Training and Development / Performance Evaluation

**Prerequisite** - Business & Organizational Management 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3109 (Marine Law/Ethics & Environmental Stewardship)**

This course involves complex environmental issues, marine law and professional ethics as related to the responsibilities of the Marine Engineer employed in Canada's Merchant Marine Industry.

Human Relations; Contemporary Issues; Marine Environment; Marine Environmental Science; Marine Environmental Issues; Pollutants; Preventative Remedies; Response Remedies; Industrial Safety; Ship Management; Canada Shipping Act; Regulations

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3110 (Environmental Economics & Project Management)**

This course covers the basics of economic theory with application to the utilization and valuation of natural resources and environmental projects. The course also covers environmental project management and decision making.

Basic Concepts of the Economy; Environmental Economics; Managing and Planning Environmental Projects; and Cost/Benefit Analysis of Environmental Projects

**Prerequisites** - Mathematics 1101; Business & Organizational Management 2104

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3111 (Environmental Assessment & Auditing)**

This is an advanced level course which deals with the assessment and auditing processes as they pertain to the environmental sector.

Environmental Assessment; Project Analysis; Environmental Auditing; and Environmental Auditing Projects

**Prerequisite** - Business & Organizational Management 2104

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3112 (Business Principles)**

This course is designed to teach students the fundamentals of business management.

Entrepreneurship; Business Plan Development; Accessing Funding; and Work Environment

**Prerequisite** - Business & Organizational Management 3110

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3113 (Personnel Resource Management)**

This course will provide students with an understanding of the seafarers' job obligations, the employee managed as an asset, the importance of communication, and how the criminal code, labour unions and substance abuse regulations affect the seafarer. The student will be introduced to recent changes and amendments to the Transport Canada and the International Marine Organization regulations.

Seafaring; Human Resources; Personnel Resource Management; Employee Relations; National and International Regulations; Quality and Safety Management

**Prerequisite** - Business & Organizational Management 2109

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3114 (BUSINESS OF SHIPPING)**

This is an advanced level course designed to build on previous knowledge regarding ships and the business of shipping obtained in earlier introductory courses. It is meant to give the student an in-depth knowledge of the organization of shipping, shipping operations, and the cargo market. Its focus is the business of shipping.

The course is designed to help the ship's officer understand the evolution of the shipping industry; the production of shipping services; the types and organization of shipping operations; the cargo market and its organization; and port operations.

An Overview of International Trade and Transport ; The Freight Market; Supply, Demand, and Shipping Market Cycles; Shipping Costs and Revenue; and The International Environment of Trade and Transport

**Prerequisites** - Cargo Operations 3100; -Work Term 2102 (Sea Phase 2)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3115 (Law and Environment)**

This is the second advanced level course designed to bring together the major elements of marine law and the marine environment such that the student might understand the importance of both in their lives as professional seafarers and the intimate connection between the two.

The Carriage of Goods by Sea; The Environment and the Law; and The Ship's Master and the Law

**Prerequisite** - Business & Organizational Management 2110

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3116 (Ship Management)**

This is an advanced level course in shipboard management practices designed for future practicing ship's officers and will lead to an understanding of management practices at sea. It builds on previous knowledge derived from other courses and exposure to actual practice at sea. It is meant to give the student insight into global shipboard management practices and the role they will play as shipboard managers.

Management Issues in Marine Transportation; Basic Principles of Management; The International Safety Management Code (ISM); The International Labour Organization (ILO); The International Transport Federation (ITF); Ship Management and the Master; and Code of Professional Conduct

**Prerequisites** - Work Term 1102 (Sea-Phase 1); Cargo Operations and Navigation 1100; Ship Operations 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3117 (Food Law)**

Knowledge of food legislation is essential in order to control the safety and quality of foods. This course is designed to address the issues, and facts that are important for understanding the system of food regulations that exists in Canada.

Introduction to Food Law; Canadian Legal System; Canadian Food Inspection Agency; Health Canada; Food and Drugs Act; Food Labelling Regulations; Food Recalls; Provincial Legislation; International Food Organizations

**Lecture** - 39 hours

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3118 (Technical Problem Solving)**

This course is designed to provide students with methods to analyze and solve technical problems that arise in the food industry. It will foster a creative thinking approach to solving day to day problems as they occur in management, materials, people and processing aspects of the industry. The first quarter of this course will concentrate on problem solving theory. The remainder will consist of supervised projects in creative problem solving techniques to be carried out independently and in-groups on realistic industry case studies. The course will conclude with group reports, oral presentations and peer/instructor evaluation. The course will employ multi-disciplinary instructional approaches to avail of varied expertise of other program instructors and avail of input from experts currently working in the food industry.

Creative Thinking; Critical Thinking; Decision Making Techniques; The Problem Solving Process; Problem Solving Approaches; Team Problem Solving; Factoring Change into Problem Solving

**Prerequisite** - Communication Skills 2102

**Duration** - 13 weeks

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3119 (Management Principles)**

This course is designed to give participants an understanding of the current business management principles and practices applicable to Canadian industry in general. This course will teach participants to develop organizational decision-making and planning skills and assist them to function as a team player in the modern workplace.

Business and Economic Systems; The Canadian Business System; Small Business and Entrepreneurship; The Business Functions; Improving Productivity; Practicing Interpersonal Skills; Leadership Skills; Problem-Solving; Making Decisions and Taking Action; Contemporary Management Issues

**Duration** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3120 (Product Development)**

This course is designed to provide the knowledge and skills necessary to conduct the development. The focus of the course will be on the steps needed to develop, process and package a food product.

Introduction to Marketing Concepts; Product Planning; Product Development; Product Mix; The Product Development Process; The Food Industry; Packaging; Special Problems and Current Trends in Food Development

**Duration** - 13 weeks

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3200**

This course is Business 1000 at Memorial University.

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3203 (Marine Law)**

An in depth study and application of Canadian Admiralty Law and relevant international conventions with respect to the Canada Shipping Act.

Introduction to Contract Law; Tort Law; Marine Insurance Law; Charter Parties; Bills of Lading; The Master and Ship's Officers; Freight; Liens; Admiralty Law; Classification Societies; Shipping and International Organizations; Carriage of Goods by Sea/Water

**Prerequisite** - Business & Organizational Management 3103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 3204 (Ship Management)**

This is an advanced level course in shipboard management practices. It follows, and is an addition to, Business & Organizational Management 3116. It builds on previous knowledge and addresses such advanced topics as Port State Control and Management Practices in the Multi-ethnic Environment commonly found aboard ships at sea.

The course is designed to give students advanced materials leading to an understanding of ship control and inspection under port state principles, ship management in today's personnel environment, crisis management and managing in other adverse situations such as those found in ice navigation operations.

Port State Control; Managing in the Multi-Ethnic Environment; Managing Under Adverse Conditions and the Provision of Care; Women at Sea; The Seafarer and Occupational Health and Safety; and Accident/Incident Investigation Practices at Sea

**Prerequisites** - Business & Organizational Management 3116; Work Term 2102 (Sea-Phase 2)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4100 (Management Principles)**

This course is designed to give participants of the current management principles and practices applicable to the industry. This course will concentrate on teaching participants how to develop organizational and planning skills and how to function as a team player.

The Evolution of Management Thought; Contemporary Management Issues; Management Practices; Practicing Interpersonal Skills; Leadership Skills; Problem Solving; Improving Productivity; Making Decisions and Taking Action; Adapting to Change; Total Quality Management

**Duration** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4101 (Economics of Aquaculture Ventures)**

This course will introduce the principles of economic theory and its application to the aquaculture industry.

Introduction; Elements of Economics (Aquaculture); Supply and Demand of Fish; Production; Cost of Production; Factor - Factor and Product - Product Relationships; Farm Management; Risk Management; Government in Aquaculture

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4102 (Marketing Aquaculture Products)**

This course is designed to teach participants the fundamentals of marketing. Emphasis is on the components of marketing as they relate to the fishing industry.

The Marketing Concept; The Marketing System and the Environment; Markets and Buyer Behaviour; Market Segmentation and Marketing Plan; The Product; Product Policies; New Product Development; Brands, Packaging and Labelling; Price Determination; Distribution; Promotion; Guide to Market Planning; Preparing Market Plans; Role of Government Agencies; International Marketing

**Duration** - 13 weeks

**Lecture** - 1 hour/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4103 (Fundamentals of Food Law)**

Knowledge of food legislation is essential in order to control the safety and quality of foods. This course is designed to address the issues and facts that are important for understanding the system of food regulations that exists in Canada.

Introduction to Food Law; Canadian Legal System; Canadian Food Inspection Agency; Health Canada; Food and Drugs Act; Food Labelling Regulations; Food Recalls; Provincial Legislation; International Food Organizations

**Duration** - 39 hours total

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4104 (Business Management)**

This course is designed to provide an understanding of the current management principles and practices applicable to industry. The course will include the development of a business plan

Types of Business Organization; Business Description; Management Principles; Starting a Business; Sources and Applications of Funding; Financial Reporting; The Nature of the Control Process; Financial Statements; Ratio Analysis; Business Plan Development; Financial Plan; Government Regulation, Taxation and Assistance Course Outline; Marketing a Product or Service

**Duration** - 52 hours

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4105 (Food Quality Management)**

This course is designed to give participants an understanding of quality management in the food industry.

Quality concepts; Sanitation; Good Manufacturing Practices; Quality programmes; Statistical Quality Control; Hazard Analysis Critical Control Points; Total Quality Management; ISO 9000

**Duration** - 1 week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4106 (Legal Aspects of Coastal Zone Management)**

This course provides a general overview of the legal issues related to the administration of the marine environment. It will review the historical process involved in the making of the new Law of the Sea to regulate the use of the oceans and coastal zones. This course will also discuss some of the principles guiding national interest in their territorial waters and their relationship to the management of the coastal zones.

Historical Background of Ocean Management; National Expansion of the Marine Territory; The Search for International Agreements; The UN Conference on the Law of the Sea; National Legislation; New Fishing Laws and changes in Property Rights; Environment Protection Laws; The Legal Framework of Coastal Zone Management

**Prerequisites** - Marine Environment 4100; Marine Environment 4103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4107**

### **(Conflict Resolution Skills)**

This course is to provide participants with an understanding of the basic principles of conflict resolution and increase their skills to assume a leading role in the coordination of multidisciplinary groups and the solution of inter-sectoral conflicts relevant to the Coastal Zones.

Introduction to Conflict Resolution;  
Elements of Effective Leadership;  
Organizational Behavior; Decision Making and Problem Solving

**Prerequisite** - Marine Environment 4103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4108**

### **(Coastal Zone Economy)**

This course introduces the participants to the economic factors related to the production and management of the Coastal Zone. Participants should have a general (non-specialist) understanding of principles of economic science.

The course will provide an updated view of the global macro economic framework, its relationship with the production economy of the Coastal Zone and a critical discussion on the present and future of the coastal zone economics

General Aspect of Macroeconomics;  
Resources Economics; The Role of Microeconomic Agents in Sustainable Development of the Coastal Zone;  
Importance of NAFTA in the Regional Economics

**Prerequisites** - Marine Environment 4100;  
Marine Environment 4103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **BUSINESS & ORGANIZATIONAL MANAGEMENT 4109**

### **(Coastal Zone Economics)**

This course introduces participants to the economic factors related to the management of Coastal Zones. It will look at the current problems facing these areas and policies in force to regulate and sustain development. Participants should have a general (non-specialist) understanding of the principles of economic science.

The course will make an effort to provide an updated view of the global issues of the Coastal Zone maturation and encourage a critical discussion on the present and future of coastal zone growth.

Introduction to Economics; The Nature of Economics; Economic Systems, Roles, Sectors and Functions; Market Forces and Business Concepts: Price, Utility, Production, and Costs; Natural Resource Economics; Analytical Tools and Environmental Analysis; The Development of Economics and Ecology; Problems and Principles of Ecological Economics; Policies, Institutions and Instruments; Coastal Management Decision-Making

**Prerequisites** - Marine Environment 4100;  
Marine Environment 4103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **CARGO OPERATIONS & NAVIGATION 1100**

(Orientation to Cargo Operations and Navigation)

An introductory course designed to explore the key aspects of a deck officer's responsibility, namely navigation and cargo operations.

Navigation/Chartwork; Cargo Operations

**Duration** - 5 weeks

**Lectures** - 8 hours/week

## **CARGO OPERATIONS 2100**

This course is designed to build on the basic knowledge acquired in Cargo Operations and Navigation 1100 and to give the student an advanced course of study into the understanding of the principles and practices of cargo operations.

IMDG Code; Deck Cargo Safety Code; General Cargo Vessels; Bulk Carriers; Oil Tankers; Container Ships; Code of Safe Practice for Solid Bulk Cargoes; Ventilation and Ventilation Systems, Cargo Care and Refrigeration; Cargo Stowage, Space Occupied and Prevention of Damage; Palletization of Cargo; Cargo Officer; Bulk Grain; Grain Loading Regulations; Oil Pollution Prevention Regulations; Dangerous Bulk Materials Regulations; Dangerous Goods Shipping Regulations

**Prerequisites** - Cargo Operations & Navigation 1100; Chemistry 1200

**Duration** - 13 weeks

**Lectures** - 4 hours/week

## **CARGO OPERATIONS 2201 (Tanker Course)**

This is an introductory level course designed for non-certified ratings so that they may understand the hazards associated with working in a tanker environment. It also provides them with the knowledge required to work safely in this environment. This course meets and/or exceeds the standards set down in Transport Canada TP 8129E.

Petroleum Tanker Design and Construction; Applied Science; Cargo Handling Systems; Operating Procedures; Inert Gas Systems; Crude Oil Washing; Safety in Tank Cleaning and Gas Freeing; Oil Pollution (Sea and Air); Fire Fighting; Emergency Procedures; Regulations and Codes of Practice; Safety Practices and Equipment; Health Issues; Safety in Terminal Operations; Environmental Response.

**Prerequisites** - Technical Session 1 courses which include: (Cargo Operations & Navigation 1100; Seamanship 1100; Ship Operations 1100; MED Training); Work Term 1102 (Sea-Phase 1); Cargo Operations 2100

**Duration** - 28 hours (4 days)

**Theory** - 24 hours

**Practical** - 4 hours

# COURSE DESCRIPTIONS

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## **CARGO OPERATIONS 3100**

This course is designed to build on previous courses to increase the student's knowledge and understanding of cargo and cargo operations in a practical sense.

Ro-ro Vessels; Self-unloading Bulk Carriers; Liquefied Gas Carriers; Chemical Tankers; Passenger Vessels; Timber Deck Cargoes; Timber Deck Cargo Code; Timber Deck Cargo Regulations; Livestock; Coal Cargoes; Voyage Planning and Loadline; Port Wardens; Cargo Surveys; Cargo Liner Trade; and Future Trends

**Prerequisite** - Cargo Operations 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **CHEMISTRY 1100**

This is an introductory course designed to give students a knowledge and understanding of the fundamental chemical concepts which will form the basis for further studies in science and technology.

Introduction to Chemistry and Nature of Matter; Atomic Structure; Periodic Table; Chemical Bonding and Nomenclature; Stoichiometry and Chemical Reactions; Intermolecular Forces, Crystal Structure and Alloys.

**On Site Sections:**

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

**Distance Sections:**

**Duration** - 13 weeks

**Lectures** - Synchronous/Asynchronous discussion forum available throughout duration of course. Other appropriate instructional methods as required

**Laboratories** - 13 - 2 hour sessions

## **CHEMISTRY 1200**

This course will develop further the fundamental concepts of chemistry, with emphasis on those relevant to the processes of chemical reaction rates and equilibrium, and to electron and proton transfer reactions. These processes will provide the basis for applications in various technologies.

Solutions and Solubility; Rates of Reaction and Chemical Equilibrium; Acids and Bases; Oxidation and Reduction Reactions; Electrochemistry

**Prerequisite** - Chemistry 1100 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CHEMISTRY 2100**

### **(Environmental Chemistry)**

This course is designed to provide students with the basic skills required to perform chemical analysis on environmental samples. The course will build upon knowledge obtained in basic chemistry with applications solely to the environmental industry.

Introduction to Environmental Chemistry; Laboratory Management, Sampling, and Chain of Custody; Reporting Results and Statistical Analysis; Basic Environmental Chemistry; Introduction to Organic Chemistry; and The Chemistry of Surface Water

**Prerequisite** - Chemistry 1200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CHEMISTRY 2101**

This course is designed to provide students with the basic skills required to perform chemical analysis on environmental samples. The course will build upon knowledge obtained in basic chemistry with applications to the environmental industry.

Introduction to Environmental Chemistry; Laboratory Management, Sampling and Chain of Custody; Basic Environmental Chemistry; Chemistry of Surface Water; Chemistry of Subsurface Water; Water and Wastewater Treatment

**Prerequisite** - Chemistry 1200 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CHEMISTRY 2102**

### **(Biological Chemistry)**

This is an intermediate level course designed to provide the student with the basics of organic chemistry and how it relates to biologically important substances such as lipids, carbohydrates, and amino acids and proteins.

Introduction to Organic Chemistry; Bonding and Isomerism; Alkanes and Cycloalkanes; Conformational and Geometric Isomerism; Alkenes and Alkynes; Aromatic Compounds; Stereoisomers; Alcohols, Phenols, and Thiols; Ethers; Aldehydes and Ketones; Carboxylic Acids and their Derivatives; Amines and Related Nitrogen Compounds; Carbohydrates; Amino Acids, Peptides, and Proteins

**Prerequisite** - Chemistry 1200

**Lectures** - 39 hours

**Laboratories** - 39 hours

## **CHEMISTRY 2200**

### **(Environmental Chemistry)**

This course is designed to provide students an understanding of the present day concerns in environmental chemistry. It will build upon knowledge obtained in Chemistry 2100 (Environmental Chemistry) (Term 3).

Site Sampling; Subsurface Water; Organic Toxins and Contaminants; Biological Toxins and Contaminants; Inorganic Contaminants; and Water and Wastewater Treatment

**Prerequisite** - Chemistry 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CHEMISTRY 2201**

This course is designed to provide students with an understanding of the present day concerns in environmental chemistry. The course will build upon knowledge obtained in Chemistry 2101 (Environmental Chemistry)

Introduction to Organic Chemistry; Organic Toxins and Contaminants; Biological Toxins and Contaminants; Water and Wastewater Treatment

**Prerequisites** - Chemistry 2101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CHEMISTRY 2300**

This is an advanced level course designed to provide knowledge in the methods and instrumental equipment used to analyze environmental samples.

Inorganic Contaminant; Instruments

**Prerequisites** - Chemistry 2201

**Duration** - 70 hours

**Lecture** - 35 hours

**Laboratories** - 35 hours

## **CHEMISTRY 3100**

### **(Food Chemistry)**

This is an advanced level course designed to provide the student with an understanding of the various aspects of food chemistry.

Introduction to Food Chemistry; Water; Carbohydrates; Lipids; Amino Acids, Peptides, and Proteins; Vitamins and Minerals; Food Additives; Toxic Substances; Pigments and Colourants; Characteristics of Edible Muscle Tissues

**Prerequisites** - Chemistry 2102; Food Technology 2105

**Lectures** - 39 hours

**Laboratories** - 39 hours



# COURSE DESCRIPTIONS

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## **CHEMISTRY 3101 (Food Analysis)**

This is an advanced level course designed to provide the student with a detailed understanding of food analysis and how it relates to food chemistry and food technology.

Introduction to Food Analysis;  
Spectroscopy; Chromatography;  
Electrophoresis

**Prerequisites** - Chemistry 2102; Physics 1200

**Lectures** - 39 hours

**Laboratories** - 39 hours

## **COMMUNICATIONS SKILLS 0102**

This course is designed to introduce students to the basic elements of technical communication. Emphasis is placed on the skills and standards necessary to produce clear and concise technical writing, verbal competency, and computer literacy.

Learning Strategies; Technical Writing;  
Business Correspondence; Computer Skills;  
Oral Communication

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **COMMUNICATIONS SKILLS 0202**

This course is designed to enhance and further develop the student's technical communication skills and verbal competency. Emphasis is placed on job-related skills and World Wide Web searches.

Writing; Job Search Skills; The Internet and the World Wide Web; Oral Communication

**Prerequisite** - Communications Skills 0102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **COMMUNICATION SKILLS 1001 (Career Orientation)**

Career Orientation provides an opportunity for students to develop and enhance the skills that are important to success in technology diploma programmes. In addition to enhancing student success skills, participants will assess their interests and aptitudes, explore various technology career options, investigate provincial technology programmes, and identify transferable skills for the workplace. Course curriculum will be resource based and opportunities for learning will be provided through readings, discussions, mini-lectures, guest lectures, group problem solving, assignments, journal writing, and various classroom exercises and activities.

Student Success Skills; Career Awareness;  
Diploma Programme Options; Career Plan;  
Transferable Skills

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **COMMUNICATION SKILLS 1100 (Introduction To Technical Reporting)**

This course is designed to teach technology students the fundamentals of technical reporting in both oral and written forms. Emphasis is on strategies of technical reporting, researching techniques and organizational skills.

Introduction; Characteristics of Technical Writing; Technical Descriptions;  
Introduction to Oral Reporting; Technical Abstract; Technical Correspondence

**Duration** - 13 weeks

**Lecture** - 3 hours/week

## **COMMUNICATION SKILLS 1101 (Clear Writing)**

This is an individualized clear writing course designed to refine skills in Written Communication. All Diploma students will be assessed upon entry, and those with identified deficiencies will follow the schedule below. Graduation is contingent upon satisfactory completion of the course evaluation requirements. Primary emphasis will be on developing the ability of students to express themselves clearly, accurately, concisely, and coherently in written communication.

Content; Organization; Style; Mechanics;  
Pre-Writing Strategies.

**Duration** - 50 minutes weekly until learning outcomes are achieved

## **COMMUNICATION SKILLS 1102 (Technical Communication)**

The purpose of this course is three-fold; it is designed to provide technology students with the opportunity to enhance student success skills, to explore various career options, and to develop technical reporting skills in both oral and written forms. Emphasis is on strategies of technical reporting and organizational skills. Students will also be exposed to guest panels to aid in the exploration of various career options.

Student Success Skills; Diploma Programme Options; Characteristics of Technical Reading and Writing; Technical Descriptions; Oral Reporting; Technical Abstracts; Technical Correspondence

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Seminar** - 4 hours (compulsory)\

## **COMMUNICATION SKILLS 1200 (Technical Reporting)**

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.

The Strategy of Technical Reporting;  
Informal Reporting; Semi-Formal Reporting; Reporting Technical Information Orally; Job Search

**Prerequisite** - Communication Skills 1100 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **COMMUNICATION SKILLS 1201 (Technical Communication at Work)**

This course is designed to introduce informal and semi-formal report writing, enhance oral reporting techniques through persuasive and semi-formal report presentations, assess career interests/aptitudes, and introduce effective job search techniques.

The Strategy of Technical Reporting;  
Informal Reporting; Semi-formal Reporting; Reporting Technical Information Orally; Career Planning; Job Search

**Prerequisites** - Communication Skills 1102 or equivalent

**Duration** - 13 weeks

**Lectures** - 4 hours/week

# COURSE DESCRIPTIONS

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## **COMMUNICATION SKILLS 2101 (Technical Communications)**

This course is designed to help students prepare formal proposals, interact professionally with the public, develop basic strategies for resolving conflict, and participate effectively in meetings.

Proposal Writing; Media Relations; Conflict Resolution; Meetings; and Ethical and Legal Responsibilities

**Prerequisite** - Computer Applications 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **COMMUNICATION SKILLS 2102 (Interpersonal Communications)**

The food industry operates in a people intensive environment. This course will prepare students to develop and enhance various interpersonal communications skills, positive attitude and self-confidence through effective listening, non-verbal perception skills, and information handling. Emphasis will also be given to assertiveness training, conflict resolution and handling difficult behaviour with employees and the public. Presentation skills, team building and group dynamics will form important components of this course. Emphasis in this course will be on practical application, case studies, simulation and role-playing.

Communications as Listening Skills; Information Gathering Methods and Information Management; Assertiveness Training; Oral Presentation Skills; Conflict Resolution and Handling Difficult Behaviour; Developing and Managing Teams; Customer Service

**Prerequisite** - Communication Skills 1201

**Duration** - 13 weeks

## **COMMUNICATION SKILLS 4100 (Effective Presentation)**

This course is designed to improve the effectiveness of students' organization and delivery of written and oral presentations. Emphasis will be on the application of effective presentation skills.

Communication Process; Audience; Persuasion; Formal Report Writing; Oral Presentation; Job Search

**Prerequisite** - Restricted to students in graduate programs.

**Duration** - 52 hours total

## **COMMUNICATION SKILLS 4102**

This course is designed to provide students with effective communications skills and practices to apply in their future workplaces and communities, and with direct application to other advanced diploma programme modules. Emphasis will be on presentation skills, meeting management, report and proposal writing, and proficiency in the basic concepts and applications of computer and internet technology as communications tools.

Communications Process in Industry and Business; Report and Proposal Writing; Effective Oral Presentation; Group Discussions and Meeting Management Techniques; Business Letters, Office Memos, Electronic Inter-office Networks; Information Technology Applications; Employment Acquisition Strategies

**Prerequisite** - Restricted to student in graduate programmes

**Duration** - 52 hours total

## **COMPUTER APPLICATIONS 1100**

This course is designed to introduce students to the use of computers as communication and learning tools.

Computer Fundamentals; Work-processing Software Applications; Electronic Research and Communication; Presentation Software Applications; Spreadsheet Software Applications

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **COMPUTER APPLICATIONS 2100 (Communications through Computer Applications)**

This course will further develop the concept of the computer as a personal productivity tool. Emphasis will be on the integration of software packages in effective communications with reference to specific examples from the Marine Environmental area.

Accessing Information; Presentations; Document Production/Integration; Database; Group Dynamics; and Argument

**Prerequisites** - Computer Applications 1100; Communication Skills 1200 or equivalents

**Duration** - 13 weeks

**Lectures/Laboratories** - 7 hours/week

## **COMPUTER APPLICATIONS 4100**

This is an introductory course in microcomputer applications designed to introduce students to the use of microcomputers as personal productivity tools.

Microcomputer System Hardware and Software; Wordprocessing; Spreadsheet

**Duration** - 13 weeks

**Lectures/Laboratories** - 2 hours/week

## **COMPUTER APPLICATIONS 4101**

This course concentrates on applications and problem solving using spreadsheet and statistical analysis software.

Spreadsheet; Statistical Analysis Software

**Duration** - 10 weeks

**Lectures/Laboratories** - 2 periods/week

## **CONTROLS 2102**

### **(Instrumentation, Controls & Automation)**

This is an introduction to process instrumentation and control systems, designed to provide the students with the basics of measurement and final control elements.

Introduction to Process Control; Pressure Measurement; Signal Transmission; Level Measurement; Flow Measurement; Temperature Measurement; Final Control Elements

**Prerequisite** - Electrotechnology 1200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

**OR**

**Duration** - 5 weeks

**Lectures** - 7 hours/week

**Laboratories** - 4 hours/week

# COURSE DESCRIPTIONS

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## **CONTROLS 2103 (Motor Control Systems)**

This is an advanced level course designed for electrical engineering technology students. It introduces the student to relay control systems, motor controllers and variable speed motor drives. Upon successful completion, the student should be able to design and analyze typical relay control systems. Also the student should be able to select and analyze typical motor controllers and variable speed drives.

Relay Control Systems; Full Voltage Starters; Reduced Voltage Controllers; Multi-Speed Controllers; Wound Rotor Controllers; Synchronous Controllers; Direct Current Controllers; Direct Current Drives; Alternating Current Drives

**Prerequisite** - Electrotechnology 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **CONTROLS 2104 (Instrumentation Lab)**

This course introduces students to the more frequently used process sensors, indicators, and controlling devices used to measure such physical variables as temperature, pressure, position, and speed.

On/Off Level Control; Proportional-Integral Level Control; Proportional Flowrate Control; Proportional-Integral Flowrate Control; Proportional Pressure Control; Proportional-Integral Pressure Control; Proportional-Integral Derivative Temperature Control; Local Loop Temperature Control; Foxboro Spec 200 Familiarization; Foxboro Spec 200 Pressure Control; Closed-Loop Position Control; Closed-Loop Velocity Control

**Prerequisites** - Controls 2102

**Duration** - 13 weeks

**Lectures** - 1 hour/week

**Laboratories** - 4 hours/week

## **CONTROLS 2105 (Electro-mechanical Logic)**

This course introduces the student to the general concepts and programming techniques associated with programmable controllers. Specific training will be provided on the OMRON C20K family of programmable controllers, along with the Sysmate Ladder Support Software. Special emphasis on Fluids Control.

Electro-mechanical/Electronics Devices; Programmable Controllers (PC's); The Memory Map; The Ladder Diagram; Operating a Programmable Controller; Discrete Input and Output Operations; Timers; Counters; Auxiliary Commands and Functions; Arithmetic Functions; Program Control; Bit Manipulation; Sequencers; Analog Operations, with special emphasis on Fluids Control

**Prerequisites** - Controls 2102; Electronics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CONTROLS 2200 (Automatic Controls)**

The course is intended to show the application of classical control theory to actual industrial systems, including DC drives. Control system components will be studied in theory and in the lab.

DC Drive Control System Analysis; Feedback Systems and Servomechanisms; Final Correcting Devices and Amplifiers; Input Transducers - Measuring Devices; Closed - Loop Control with an On-Line Microcomputer

**Prerequisites** - Electronics 2105; Electronics 3100 (can be taken concurrently)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **CONTROLS 2202 (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 and overview or more advanced systems.

PID Control; Advanced Control Techniques; Digital Control Systems; Steam Plant Control; Steam Turbine Control; Diesel Plant Control; H.V.A.C. Control; Chiller/Boiler/Distribution System Control.

**Prerequisite** - Controls 2102

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 2 hours/week

## **CONTROLS 2203**

This course is intended to show the application of classical control theory to industrial control systems, including Bode Analysis. Control system components will be studied in theory and in the laboratory.

Modes of Control; Measurement Devices; Operational Amplifier Circuits; Bode Analysis

**Prerequisite** - Electronics 2108 or Electronics 2109

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **CONTROLS 2204**

This is an introduction to process instrumentation and controls systems, designed to provide the students with the basics of measurement, final control elements and advanced control systems.

Review of Process Control; Pressure Measurement; Signal Transmission; Level Measurement; Flow Measurement; Final Control Elements; Advanced Control Techniques

**Prerequisite** - Electronics 2108 or Electronics 2109

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## **CONTROLS 2302**

### **(Instrumentation, Controls and Automation)**

This is an introduction to process instrumentation and controls systems, designed to provide the students with the basics of measurement and final control elements and process control.

Introduction to Process Control; Pressure Measurement; Signal Transmission; Level Measurement; Flow Measurement; Temperature Measurement; Final Control Elements; PID Control; Advanced Control Techniques; Digital Control Systems

**Prerequisite** - Electrotechnology 1200

**Duration** - 5 weeks

**Lectures** - 8 hours/week

**Laboratories** - 6 hours/week

## **CONTROLS 3204**

### **(Programmable Logic Controllers)**

This course introduces the student to the general concepts and programming techniques associated with programmable controllers. Specific training will be provided on the OMRON C20K family of programmable controllers, along with the Sysmate Ladder Support Software.

Introduction to Programmable Controllers; System Description; The Memory Map; The Ladder Diagram; Operating a Programmable Controller; Discrete Input and Output Operations; Timers; Counters; Auxiliary Commands and Functions; Arithmetic Functions; Program Control; Bit Manipulation; Sequencers; Analog Operations.

**Prerequisites** - Controls 3103 or Electronics 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **ELECTRICAL PRACTICE 1100**

### **(Electronic Fabrication Techniques)**

This is a practical electrical/electronics course for students entering the primary electrical/electronics technical session. This course enables the student to obtain practical knowledge in soldering, wiring, fabrication and proper use of electronic test equipment as related to accepted procedures found in industry.

General Safety Procedures; Basic Handtools used in Electronic Repair and Fabrication; Soldering and Desoldering Techniques; Schematic Diagrams and Component Identification; Proper Circuit Wiring Techniques; Care and Use of Basic Test Equipment; Construction of a Radio Receiver, Using Hardwiring and Printed Circuit Techniques

**Duration** - 13 weeks

**Lectures** - 1 hour/week

**Laboratories** - 3 hours/week

## **ELECTRONICS 1100**

### **(Electronic Devices)**

The course will include the description, operation and application of simple electronic components with particular emphasis on semiconductor theory. Analysis techniques involving diode equivalent circuits will be introduced and expanded to bipolar transistor DC blasting.

Semiconductors; Diode Applications; Bipolar Junction Transistors; Field-Effect Transistors; Generalized Amplifier Operations

**Prerequisite** - Electrotechnology 1200 (may be taken concurrently)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **ELECTRONICS 1101**

### **(Electronics for Instrumentation)**

This is an introductory electronics course intended to introduce students to the electronics circuitry used in instrumentation. This course provides the necessary prerequisite electronics for subsequent coursing in marine engineering process control and instrumentation.

Semiconductor Devices; Integrated Circuits; Transistor Switching Circuits, and Microprocessors/Computers/PLCs as Control Devices

**Prerequisite** - Electrotechnology 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTRONICS 1102**

### **(Basic Electronic Devices)**

This course will include the description, operation and application of simple electronic components with particular emphasis on semiconductor theory. Analysis techniques involving diode equivalent circuits will be introduced and expanded to bipolar transistor D.C. Biasing

Semiconductors; Diode Applications; Bipolar Junction Transistors

**Prerequisite** - Electrotechnology 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **ELECTRONICS 2102**

### **(Digital Logic)**

This course introduces students to the field of digital electronics. They will be taught design and diagnosis techniques applicable to digital electronics.

Introduction to Digital Circuits; Combinatorial Logic; Logic Families; Programmable Logic Arrays; Sequential Logic

**Duration** - 13 weeks

**Lectures** - 5 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONICS 2105**

### **(Power Control Devices)**

This is an introduction to thyristors. It is designed to provide the student with the basic design and operation of Silicon Controlled Rectifiers, common breakover devices, and other common thyristors.

Silicon Controlled Rectifier; Breakover Devices; Other Thyristors

**Prerequisite** - Electronics 1100

**Duration** - 13 weeks

## **ELECTRONICS 2106**

### **(Analog Transistor Circuits)**

This course involves the application of linear circuit theory to transistor circuits. The student will be introduced to linear models of discrete transistors and will learn how to use them to build up Generalized Amplifier systems.

Network Theory; Transistor Biasing; Small Signal Models; Small Signal Analysis; Multistage Amplifiers; Frequency Response

**Prerequisite** - Electronics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

# COURSE DESCRIPTIONS

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## **ELECTRONICS 2107**

### **(Electronic Troubleshooting)**

This course applies Problem Solving to typical Electronics equipment repair situations. The student will work through approaches to typical problems using divergent thinking methods to create solutions and convergent thinking methods to apply them.

Review of Problem Solving;  
Troubleshooting Audio Frequency Systems;  
Troubleshooting Radio Frequency Systems;  
Troubleshooting Digital Circuits;  
Troubleshooting Microcomputer Circuits

**Prerequisite** - Electronics 1102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONICS 2108**

### **(Control Devices and Basic Control Theory)**

This course is designed as an introduction to thyristors and basic control theory. It will provide the student with the basic design and operation of Silicon Controlled Rectifiers, common breakover devices, other common thyristors, and the basics of process control.

Silicon Controlled Rectifier; Breakover Devices; Other Thyristors; Transducers and Sensors; Process Control Theory

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 2 hours/week

## **ELECTRONICS 2109**

### **(Control Devices)**

This course is designed as an introduction to thyristors and transducers. It will provide the student with the basic design and operation of silicon controlled rectifiers, common breakover devices, other common thyristors, and transistors.

Silicon Controlled Rectifier; Breakover Devices; Other Thyristors; Transducers and Sensors

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 2 hours/week

## **ELECTRONICS 2200**

### **(Analog Transistor Circuits)**

This course continues with the application of linear circuit theory to transistor circuits. The course will introduce the concept of negative and positive feedback. The study of the basic integrated operational amplifier and its application will be covered in this course.

Power Amplification; Integrated Amplifier Systems; Feedback Systems; Pulse Circuits

**Prerequisite** - Electronics 2100 or 2106

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONICS 2201**

### **(Power Supply Design)**

This course introduces student to the many types of DC voltage regulation methods starting from the simplest capacitor filter, through zener and transistor linear regulators to the more complex switching regulator designs.

Capacitive Filters; Zener Shunt Regulators; Transistor Series Pass Regulators; Operational Amplifier Series Pass Regulators; Current Protection Techniques; Switching Regulators

**Prerequisites** - Electronics 2106; Mathematics 1100

**Duration** - 13 weeks

## **ELECTRONICS 2202**

### **(Analog Transistor Circuits)**

This course involves the application of linear circuit theory to transistor circuits. The student will be introduced to linear models of discrete transistors and will learn how to use them to build up Generalized Amplifier modes of complete amplifier systems.

Transistor DC Biasing; Small Signal Models; Small Signal Analysis; Multistage Amplifiers; Power Amplifiers; Frequency Response

**Prerequisites** - Electronics 1102 or equivalent; Electrotechnology 1201 or equivalent

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 13 labs @ 3 hours per week

## **ELECTRONICS 3100**

### **(Analog Integrated Circuits)**

The purpose of this course is to provide the student with an understanding of the theory relating to differential and operational amplifiers, analog filters and signal generators. The theory covered in class will be applied and validated during the laboratory periods.

The Design of an Operational Amplifier; Operational Amplifier Characteristics; Linear Applications; Active Filters; Non-Linear Applications

**Prerequisite** - Electronics 2202

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONICS 3102**

### **(Microcomputer Interfacing)**

This course provides the student with a knowledge of the hardware associated with a microprocessor system and the interfacing requirements for communication with the environment.

Microprocessor Systems; Memory Systems; Digital Input/Output; Analog Input/Output; Microprocessor System Support Circuits; Interrupt Controllers; Counter/Timer Chips; Direct Memory Access

**Prerequisites** - Electronics 2102; Programming 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONICS 3104**

### **(Digital Signal Processing)**

Advanced Electronics course intended to introduce the student to digital signal processing concepts.

Introduction to Digital Signal Processing; Signal Analysis; Digital Signal Processing; Digital Filters

**Prerequisite** - Mathematics 1101

**Duration** - 13 weeks instruction, exclusive of final exam

**Lectures** - 3 hours/week

**Laboratories** - 10 weeks @ 3 hours/week

# COURSE DESCRIPTIONS

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## **ELECTRONICS 3105**

### **(Pulse and Switching Circuits)**

This course will expose students to circuits used in pulse and switching applications. Analysis and design of the circuits will be emphasized along with the idea of utilizing such circuits as building blocks to larger scale digital circuits.

Pulse Fundamentals; RC Circuits; Switching Circuits; Active Filtering Circuits (Using Op-Amps); Applications

**Prerequisites** - Electronics 2202; Electronics 2108 or Electronics 2109; Mathematics 1101

**Duration** - 13 weeks

**Lectures** - 5 hours/week \* 13 weeks

**Laboratories** - 3 hours/week \* 10 weeks

## **ELECTRONICS 3108**

### **(Microcomputer Interfacing)**

This course provides the student with the knowledge of the hardware associated with a microprocessor system and the interfacing requirements for communication with the environment.

Microprocessor Systems; Memory Systems; Digital Input/Output; Analog Input/Output; Specific Applications; Microprocessor System Support Circuits; Buses; Testing and Troubleshooting

**Prerequisites** - Electronics 2102; Programming 2100

**Duration** - 13 weeks

**Lectures** - 6 hours/week

**Laboratories** - 3 hours/week

## **ELECTRONICS 3202**

### **(Microcomputer Applications)**

This course provides the student with a knowledge of the hardware and software associated with microcomputer systems and peripherals. The course provides opportunity for students to develop interest in microcomputer systems through project work.

Microprocessor Types; Displays; Keyboards; Microcomputer Busses; Printers; Plotters; Tape and Disk Storage; Operating Systems; High Level Languages

**Prerequisite for Electronics Technician** - Electronics 3108; Mathematics 1101

**Prerequisite for Electro-mechanical Technician** - Mathematics 1101

**Co-requisite** - Electronics 3108

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours per week

## **ELECTRONIC**

### **COMMUNICATIONS 2100**

#### **(Analog Communications)**

This is an intermediate level electronics course designed to provide students with an introduction to the area of analog communications.

Introduction to Analog Communications; Amplitude Modulation and AM Systems; Single-Sideband Techniques; Frequency and Phase Modulation; Matching Circuits; Noise

**Prerequisites** - Mathematics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **ELECTRONIC**

### **COMMUNICATIONS 3104**

#### **(Radar and Sonar Systems)**

An introductory course in radar and sonar system fundamentals.

**Radar:** The Radar System; Display System; The Radar Equation; Clutter and Multipath Effects; Processing Techniques;

**Sonar:** Sonar Systems; The Sonar Equation; Underwater Transducers; Transmission Loss in an Ocean Environment; Noise and Reverberation; Sonar Prediction

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Demonstrations** - 3 hours/week

## **ELECTRONIC**

### **COMMUNICATIONS 3105**

#### **(Radar)**

An introductory course in radar system fundamentals.

The Radar System; Display Systems; The Radar Equation; Clutter and Multipath Effects; Processing Techniques

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Demonstrations** - 3 hours/week

## **ELECTROTECHNOLOGY 0102**

This is an introductory course in electrical practice covering the concepts of electricity, circuit analysis, and magnetism

Safe Workshop Techniques; Safety Precautions; The Electric Circuit; Ohm's Law; Cells and Batteries; Electrical Measuring Instruments; Magnets and Magnetism; Conductor Types and Sizes; Maintenance Procedures

**Duration** - 16 hours

**Lectures** - 2 hours/week

## **ELECTROTECHNOLOGY 0200**

This course further deals with safety in the marine environment, the development of skills required in the use of test, equipment, marine electrical maintenance, troubleshooting procedures; paralleling AC and DC generators, and the maintenance of AC and DC motors.

Safe Workshop Techniques; Electrical Measuring Instruments; DC Generators; AC Generators; Switchboards; Ground Lamps; Navigation Lights; AC Motors; DC Motors; Maintenance; Troubleshooting

**Prerequisite** - Electrotechnology 0102 or equivalent

**Duration** - 16 weeks

**Lectures** - 1 hour/week

**Laboratories** - 3 hours/week

## **ELECTROTECHNOLOGY 1100**

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, use of electrical measuring instruments and reinforce theoretical concepts.

Introduction to Electricity; Ohm's Law and Electric Circuits; Magnetism and Electromagnetism; Electrical Measurement; Inductance; Cells and Batteries

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 1101**

This is an introductory course in electrical theory covering the basic concepts of electricity, resistive circuit analysis, network 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.

Introduction to Electricity; Ohm's Law and Electric Units; Network Theory; Magnetism and Electromagnetism; Cells and Batteries

**Prerequisite** - Introduction to Mathematics 1000 or appropriate level of mathematics skills demonstrated on a mathematics placement test.

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## **ELECTROTECHNOLOGY 1200**

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.

Basic A.C. Theory; Inductance A.C. Circuits; Capacitance and its Effect in A.C. Circuits; Resonance; Introduction to Transformers; Introduction to Polyphase A.C.

**Prerequisite** - Electrotechnology 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 1201**

This course 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.

Basic A.C. Theory; Inductance; Capacitance; Parallel and Series Parallel A.C. Circuits; Resonance; Introduction to Transformers; Introduction to Polyphase A.C.

**Prerequisite** - Electrotechnology 1101

**Duration** - 13 weeks

**Lectures** - 5 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 1301**

This is a basic electrotechnology course designed to give the Marine Engineering student practical electrical experience.

Marine Safety; Marine Cabling and Glanding; Fuses and Breakers; Single and Three Phase Wiring; Multi-Meters and Meggas; Batteries; Electrical Panels; Gauges and Sensors; Starting Motors and Alternators; A.C. and D.C. Motors and Generators; Internal Communications

**Prerequisite** - Electrotechnology 1100

**Duration** - 5 weeks

**Lectures** - 2 hours/week

**Laboratories** - 6 hours/week (2 labs - 3 hours each)

## **ELECTROTECHNOLOGY 2100**

This is an intermediate level electrotechnology course designed for mechanical engineering technology students. It is intended to familiarize the student with the construction, connection, operation and maintenance of rotating electric machines. Additionally, this course should expand the student's understanding of Electro-mechanical conversion principles. The laboratory work is included to reinforce theoretical concepts and enhance skills in the use of measuring instruments.

D.C. Machines; Three-Phase Induction Motors; Synchronous Machines; Single-Phase Motors

**Prerequisite** - Electrotechnology 1200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 2101 (Marine Electrical Engineering)**

This is an introductory course in ships electrical systems.

Ships Electrical Systems (General); Small Ship System; Large Ship System; Design Philosophy and Regulations; Load Analysis; Typical Shipboard Electrical Systems

**Prerequisite** - Electrotechnology 1200

## **ELECTROTECHNOLOGY 2102 (Marine Electric System)**

This is an intermediate course in ships electrical systems.

Ships Electrical Systems (General); Small Ship System; Large Ship System; Electrical Propulsion; Automation

**Prerequisite** - Electrotechnology 1200

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## **ELECTROTECHNOLOGY 2103**

This is an intermediate level course designed to introduce students to the safe operation of electric systems and machines.

DC Machines; AC Machines; Marine Electrical Power Systems

**Prerequisite** - Electrotechnology 1200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 2104 (Marine Electrical Engineering)**

This is an introductory course in ships electrical systems.

Ships Electrical Systems (General); Small Ship System; Large Ship System

**Prerequisite** - Electrotechnology 1200

**Duration** - 5 weeks

**Lectures** - 7 hours/week

## **ELECTROTECHNOLOGY 2106**

This is an introductory course in electrical machine theory. It covers the basics of DC machines and transformers and provides students with a background in electrical machines. It will give students an appreciation of rotating machinery and an idea of the type and operating characteristics of various DC machines. The course will expand students' knowledge of transformers and their applications, as well as enhance their ability to analyze electric circuits. The laboratory work is included to reinforce theoretical concepts and to enhance skills in the use of measuring instruments.

DC Machine Construction; DC Generators; DC Motors; Single-phase Transformers; Special Transformers

**Prerequisite** - Electrotechnology 1200 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 2107**

This course is an introductory course in electrical machine theory. It covers the basics of A.C. and D.C. machine theory and provides the necessary background for subsequent courses in electrical machines. It also provides the students with an understanding of various types of controls devices for A.C. and D.C. machines.

D.C. Machines; A.C. Machines; Synchro mechanisms and Servomechanisms; Final Correcting Devices and Amplifiers; Input Transducers - Measuring Devices; Typical Industrial Systems

**Prerequisite** - Electrotechnology 1201 or Electrotechnology 1200 or equivalent

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## **ELECTROTECHNOLOGY 2108**

This course is an introductory course in electrical machine theory. It covers the basics of A.C. and D.C. machine theory and provides the necessary background for subsequent courses in electrical machines. It also provides the students with an understanding of various types of switches used with A.C. and D.C. machines.

D.C. Machines; A.C. Machines; Mechanical and Electro-mechanical Switches

**Prerequisite** - Electrotechnology 1201 or Electrotechnology 1200 or equivalent

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 2 hours/week

## **ELECTROTECHNOLOGY 3100**

This course is designed to give the student a knowledge and understanding of the fundamentals of electrical equipment maintenance and repair.

Safety; Electricity Fundamentals; Conductors and Insulators; Electrochemistry; Measuring Instruments; D.C. Theory; D.C. Distribution; A.C. Alternators; A.C. Distribution; Practical Laboratory Work

**Prerequisite** - Electrotechnology 2100 or Electrotechnology 2103

**Duration** - 5 weeks

## **ELECTROTECHNOLOGY 3101**

This is an advanced level course which covers topics in AC machines. The course is designed to provide the student with the necessary background information concerning the types characteristics, and applications of AC machines.

Three-phase Transformers; Three-Phase Induction Motors; Three-phase Synchronous Motors; Motor Branch Circuit and Enclosures; Alternators; Single-phase Induction Motors

**Prerequisite** - Electrotechnology 2106 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ENGINEERING DRAWING 0100**

This is an basic course in the fundamentals of engineering drawing.

Drafting Fundamentals; Applied Geometry; Orthographic Projection; Dimensioning; and Production Processes and Operations

**Duration** - 16 weeks

**Lectures** - 3 hours/week

## **ENGINEERING DRAWING 0101 (Blueprint Reading and Layout)**

An introductory course designed to develop the skills necessary for the student to interpret working sketches and prints common to the offshore fabrication industry.

Purpose and Make-up of Blueprints; Basic Lines and Views; Sketching; Notes and Specifications; Dimensions; Structural Shapes; Other Views; Sections; Detail and Assembly Prints; Abbreviations and Symbols; Weld Symbols

**Duration** - 16 weeks

**Lectures/Labs** - 3 hours/week

## **ENGINEERING DRAWING 0200**

This is an introductory course in the preparation and interpretation of detail and assembly working drawings.

Pictorial Projection; Sectional Views; Fasteners; Working Drawings; Piping Drawings; Welding Drawings; and Hydraulic Drawings

**Prerequisite** - Engineering Drawing 0100 or equivalent

**Duration** - 16 weeks

**Lectures/Laboratories** - 3 hours/week

## **ENGINEERING DRAWING 0201 (Template Development)**

An introductory course designed to familiarize the student with template development covering the fabrication of pipe and plate intersections used in to the offshore fabrication industry.

Structural Shapes; Layout; Plate Development; and Pipe Development

**Duration** - 16 weeks

**Lectures/Laboratories** - 3 hours/week

## **ENGINEERING DRAWING 1100**

This is a course designed to familiarize students with basic drafting instruments, techniques of mechanical drafting and freehand sketching.

Drafting Fundamentals; Orthographic Projection; Sectional Views; Dimensioning; Assembly Working Drawings

**Duration** - 5 weeks

**Lectures** - 8 hours/week

## **ENGINEERING DRAWING 1101**

This is an introductory level course designed to provide students with the basics of mechanical drafting and freehand sketching. Included will be topics addressing drafting fundamentals, use of drafting equipment, and informative retrieval from mechanical blueprints. This course is NOT a drafting course nor a course directed to CAD.

Drafting Fundamentals; Applied Geometry; Orthographic Projection; Sectional Views; Dimensioning; Detail and Assembly Working Drawings

**Duration** - 13 weeks

**Lectures/Laboratories** - 3 hours/week

## **ENGINEERING DRAWING 1102**

This course is designed to build on the basic drafting completed in Engineering Graphics 1100 with primary application to marine machinery assembly drawings. The student will apply basic machine shop and engineering knowledge to select materials and make working assembly drawings, using traditional methods, of selected marine machinery. Blueprint reading exercises are used to extract information as required in the work place.

**Prerequisite** - Engineering Graphics 1100

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **ENGINEERING GRAPHICS 1100**

Engineering Graphics provides visually oriented data that is useable by technical, engineering, and manufacturing personnel to assist in the production of goods and services. The method of creating Engineering Drawings has changed from manual drafting to Computer Aided Drafting; however, the technical content of Engineering Graphics has not changed.

Introduction to Technical Drawing; Introduction to CAD; Geometric Constructions; Orthographic Projection; Pictorial Sketching; Dimensioning; Sectional Views

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week



# COURSE DESCRIPTIONS

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## **ENGINEERING GRAPHICS 2101**

This course is designed to build on the basic drafting and CAD work done in Engineering Graphics 1100 with primary application to marine machinery assembly drawings. The student will apply basic machine shop and engineering knowledge to select materials and make working assembly drawings using traditional and CAD methods of selected marine machinery. Blueprint reading exercises of detailed marine and mechanical assemblies are used to extract information as required in the work place.

Sectional Views; Dimensioning and Notes; Welding Drawings; Hydraulic Drawings; and Assembly Drawings

**Prerequisite** - Engineering Graphics 1100

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **ENGINEERING GRAPHICS 2103**

This course is designed to build on the basic drafting and CAD work done in Engineering Graphics 1100 with primary application to marine machinery assembly drawings. The student will apply basic machine shop and engineering knowledge to select materials and make working assembly drawings using traditional and CAD methods of selected marine machinery. Blueprint reading exercises of detailed marine and mechanical assemblies are used to extract information as required in the work place.

AutoCAD<sup>®</sup>; Piping Drawings; Welding Drawings; Electrical Drawings; Assembly Drawings

**Prerequisite** - Engineering Graphics 1100

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **ENGINEERING SYSTEMS 1100 (Auxiliary Components)**

This is an introductory course designed to give students a knowledge and understanding of the components required to design and construct the auxiliary piping systems of ships and offshore platforms.

Marine Materials; Piping for Marine Application; Valves; Strainers and Steam Traps; Piping Supports and Expansion Joints; Vibration Isolators; Pipe Insulation; Heat Exchangers; Piping Arrangement Drafting.

**Prerequisite** - Engineering Graphics 1100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

**Laboratories** - 4 hours/week

## **ENGINEERING SYSTEMS 2100 (Auxiliary Systems)**

This is a technical course structured to give students the necessary knowledge of how a particular auxiliary system must function and what operational criteria must be considered in order to design a given system. Various permutations are considered depending on vessels or offshore platform types. The end result will be the production by the student of his or her own vessel diagrams for the systems listed below.

Pumps; Pressure Losses in Pipelines; Bilge, Ballast and Fire Systems; Sea and Fresh Water Cooling Systems; Fuel Oil Systems; Compressed Air Systems

**Prerequisites** - Engineering Systems 1100; Ship Design 1100 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **ENGINEERING SYSTEMS 2102 (Propulsion Technology)**

This course is designed to provide the students of the Marine Engineering Systems Design programme with the engineering knowledge needed to participate in the professional process of ship propulsion systems design.

Ship Propulsion Units Geometry and Function; Propulsion Shafting Design and Arrangement; Propulsion Shafting Components Design and Selection; Propellers; Thrusters; Reduction Gears and Other Transmission Systems; Electric Propulsion Motors; Ship Propulsion Shafting Vibration; Installation Procedures and Testing

**Prerequisites** - Ship Design 1100; Ship Design 1102

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **ENGINEERING SYSTEMS 2103 (Power Systems Technology)**

This course is designed to provide the students of the Marine Engineering Systems Design programme with the engineering knowledge needed to participate in the professional process of ship power plants and systems design.

Ship Power Plants; Marine Diesel Engines; Marine Gas Turbines; Marine Steam Generators; Marine Steam Turbines; Machinery Lay-outs.

**Prerequisites** - Engineering Systems 1100; Ship Design 1100; Ship Design 1102

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **ENGINEERING SYSTEMS 2104 (Ship's Spaces Ventilation)**

This course is designed to give the students a knowledge and understanding of how to calculate the heat accumulation from all operating equipment, size, select and produce drawings for the ventilation systems of all machinery spaces. All required components will be explained and assimilated.

Mechanical and Natural Ventilation; Ventilation Guidelines for Accommodations; Ventilation Guidelines for Control Rooms; Ventilation Guidelines for Machinery Spaces; Marine Ventilation Fans; Low and High Velocity Systems; Heating and Air Conditioning; Ventilation System Drafting

**Prerequisite** - Engineering Systems 1100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

**Laboratories** - 4 hours/week

## **ENGINEERING SYSTEMS 2200 (Auxiliary Systems)**

This course completes the Auxiliary Systems programme, permitting the student to assimilate the functions and operating criteria and to apply them to the design of the systems listed below. Production of some systems in diagrammatic form will help in the assimilation of the subject matter.

Sanitary Supply and Discharge Systems; Lubricating Oil Systems; Stream Heating Systems; Exhaust Gases Systems and Gas Turbine Intakes; Hull Machinery Systems

**Prerequisite** - Engineering Systems 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## **ENGINEERING SYSTEMS 2300 (Ship's Refrigeration)**

The course is designed to give students in the Marine Engineering Systems Design programme a knowledge of refrigeration and plant design which will form the basis for selection, recommendation, installation and testing of refrigeration plants.

Principles of Refrigeration; Refrigerants; Compressors, Lubrication, Drives; Condensers; Evaporators; Expansion Values; Flow Equipment; Electric Controls, Control Valves, Instruments and Meters; Insulation; Heat Load Calculations; Compressor Calculations; Expansion Value Sizing and Piping Calculations; Brine Systems; Refrigerated Systems; Case Studies

**Prerequisite** - Engineering Systems 1100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

**Laboratories** - 4 hours/week

## **FISHERIES DEVELOPMENT 4100 (World Fisheries)**

This course is designed to give students an overview of the current status of world fisheries and the prospects for the future.

Fisheries in North America; Fisheries in South America; Fisheries in Europe; Fisheries in Asia; Fisheries in Africa; Fisheries in Australia and Oceania

**Duration** - 52 hours total

## **FISHERIES DEVELOPMENT 4101 (Fisheries Resource Management)**

This course is designed to familiarize managers within the seafood industry with the principles and techniques involved in fisheries resource management.

The Fishery Resource; Why Manage; Understanding the Goals of Fisheries Management; The Methods Employed in Fisheries Management; Managing our Resources; Agencies and Organizations in Research and Decision Making in Fisheries Management; How have we Fared? The Successes and the Failures of Ten Years of Fisheries Management; Sharing our Resources - Foreign Fishing in the Northwest Atlantic; Summing Up

**Duration** - 52 hours total

## **FISHERIES DEVELOPMENT 4102 (Fisheries Planning and Policy Development)**

This course is designed to familiarize managers with the principles and techniques used in fisheries planning and policy development.

Introduction to Planning; National Fisheries Plans; National Fisheries Departments; Fisheries Investment Projects; Student Project

**Duration** - 52 hours total

## **FISHERIES DEVELOPMENT 4103 (Fisheries Oceanography)**

An advanced level course designed to provide background knowledge of oceanography and how it influences fish physiology and behaviour.

The Composition of the Oceans; The Effects of Temperature, Light, Salinity and Other Environmental Factors on Fish; Effects of Environment on the Life History of Fish; Effects of Environment on the Behaviour and Migration of Fish; Distribution of Fish Relative to the Environment

**Lectures** - 26 hours

**Laboratories** - 39 hours

## **FISHERIES DEVELOPMENT 4104 (Extension Methodology)**

This course is designed to familiarize students with the principles and methods used in fisheries extension work.

Concepts and Philosophy; Fisheries Extension and National Development; The Target Group: Small Scale Fisheries; Extension Programmes; Communication Design and Development; Human Resource Requirements

**Duration** - 52 hours total

## **FISHERIES TECHNOLOGY 4100 (Harvesting Technology)**

This course is designed to provide students with a working knowledge of all harvesting technologies, and especially their influence on fisheries development and management.

Introduction and Harvesting Overview; Fishing Methods; Fishing Gear Technology; Fisheries Equipment Extensions; Scientific Methodology and Harvesting; Allocations and Regulations; Future Trends

**Duration** - 52 hour

## **FISHERIES TECHNOLOGY 4101 (Finfish Culture)**

This course is designed to provide an overview of finfish culture including husbandry practices and culture technology for salmon marine species and warm water fish

Aquaculture: An Overview; Water Requirements; Fish Farm Planning; Salmonids; Marine Species; Warmwater Species

**Duration** - 13 weeks

**Lectures/Laboratories** - 6 per week

## **FISHERIES TECHNOLOGY 4102 (Shellfish Culture)**

This course is designed to provide and overview of shellfish culture including mollusk and crustacean culture techniques

The Status Quo; Mussel Culture; Oyster Culture; Scallop Culture; Culture of Other Mollusca and Echinoderms (Calm and Abalone Culture to be examined); Crayfish Culture; Freshwater Prawn Culture; Shrimp Culture; Lobster Culture; Culture of Other Crustaceans; Future Considerations

**Duration** - 13 weeks

**Lectures/Laboratories** - 6 per week

## **FISHERIES TECHNOLOGY 4103 (Fish Health)**

This course is designed to provide an understanding of the various diseases of fish and methods to control these health risks.

Introduction to the Disease Process; Anatomy and Physiology; Stress and the Disease Process; Immunity; Bacterial Diseases; Viral Diseases; Parasitic Diseases; Non-Communicable Diseases; Disease Control; Legislation

**Duration** - 13 weeks

**Lectures/Laboratories** - 6 per week

## **FISHERIES TECHNOLOGY 4104 (Fish Nutrition)**

This course is designed to provide and understanding of nutrient requirements and feed practices for finfish.

Introduction to Fish Nutrition Studies; Feeding Habits and Adaptations; Nutrient Requirements; Diet Formulation; Larval Feeds; Food Requirements; Feeding Practices; Natural Foods in Extensive Culture; Growth and Feeding; Current Developments

**Duration** - 13 weeks

**Lectures/Laboratories** - 3 per week

# COURSE DESCRIPTIONS

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## **FISHERIES TECHNOLOGY 4105 (Aquaculture Engineering)**

This course is designed to provide an understanding of engineering principles as they apply to aquaculture technology.

Properties of Water; Water Supply; Mechanics of Fluids; Water Level and Flow Measurement; Pumps; System Construction Materials; Pond Systems; Sedimentation and Solids Removal; Recirculation Systems; Disinfection; Aeration; Degassing; Heating and Cooling

**Duration** - 13 weeks

**Lectures** - 3 instructional periods per week

## **FISHERIES TECHNOLOGY 4106 (Practical Aquaculture, Part I - Small Boat Safety and Handling)**

This is an introductory course in the principles and practices of small boat safety and handling.

Boat Safety; Legislation; Safety Equipment; Stability; Deckwork; Towing; Emergency Procedure

**Duration** - 35 hours

## **(Part II - Aquaculture Cage Design and Maintenance)**

This is an introductory course outlining floating net cages as containment systems for finfish.

Introduction to Cage Aquaculture; Cage Type and Design; Cage Collars; Flotation; Net Bags; Mooring of Cages; Predator Devices; Cage Maintenance and Cleaning; Commercially Produced Aquaculture Cages; Care, Maintenance and Use of Ropes; Net Mending and Patching; Cage Construction Project; Flume Tank Observation of Model Cage

**Duration** - 35 hours

## **(Practical Aquaculture, Part III - First Aid)**

This is the St. John Ambulance standard first aid course which has been created to satisfy the needs of the general business and industrial market.

Compulsory Modules; Elective Modules

**Duration** - 3 days

## **FISHERIES TECHNOLOGY 4107 (World Aquaculture Overview)**

This course is designed to give students insight into the development of global aquaculture. Aquaculture is the most dynamic component of the fishery in many countries. It has the potential for sustainable development and is predicted to increase significantly in the near future. All students of fisheries development should be aware of the many points of interaction between the natural fisheries resource and the captive fishery.

Aquaculture Overview; Introductory Culture Methods; Site Evaluation; General Husbandry; Salmonid Aquaculture Review; marine Finfish Aquaculture Review; Shellfish Culture Review; Fish Health; Regulations and Licensing; Marketing

**Duration** - 52 hours total

## **FISHERIES TECHNOLOGY 4110 (Finfish Culture)**

This course is designed to provide an overview of finfish culture including husbandry practices and culture technology for salmonids, marine species and warm water fish.

Aquaculture: An Overview; Water Requirements; Salmonids; Marine Species; Warmwater Species

**Duration** - 13 weeks

**Lectures/Laboratories** - 6 per week

## **FISHERIES TECHNOLOGY 4111 (Site Selection)**

This course is designed to provide an overview of the criteria for selecting a suitable aquaculture site, including land-based and open-water sites for finfish and shellfish species.

Water Requirements; Technical Site Studies; Finfish and Shellfish Farm Planning

**Duration** - 13 weeks

**Lectures/Laboratories** - 6 per week

## **FLUIDS 2100 (Fluid Mechanics)**

This is an introductory Fluid Mechanics course designed to develop both the knowledge of the laws and principles governing Fluid Mechanics and the ability to apply this knowledge in analyzing related engineering applications. The course also provides a base for advanced courses in piping design, ducting design, and fluid power systems.

Introduction to Fluid Mechanics; Forces on Submerged Surfaces; Work and Energy of Fluids in Motion; Steady Flow of Incompressible Fluids; Flow Measurement

**Prerequisites** - Mathematics 1100; Physics 1100 or Physics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **FLUIDS 2101 (Hydrostatics)**

This is an intermediate level course designed to introduce students in the Naval Architecture programme to the principles of hydrostatics in preparation for further courses in ship stability.

Basic Hydrostatics; Numerical Calculations; Hydrostatics Calculations; Hydrostatic Curves; Ship Mass and Center of Mass; Small Angle Stability; Longitudinal Stability and Trim

**Prerequisites** - Mathematics 1101; Ship Design 1101; Ship Design 1102; Mechanics 2102

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## **FLUIDS 2201 (Resistance and Propulsion)**

This is an intermediate level course intended to introduce students in the Naval Architecture programme to the concepts associated with the resistance associated with ship movement. The course will develop students' ability to perform calculations associated with propulsion and propeller selection.

Ship Resistance; Ship Friction Resistance; Wave Making Resistance; Similarity and Model Testing; Systematic Series; Other Resistance Components; Propulsion; Powering Calculation; Fuel Consumption; Screw Propeller; Propeller Ship Interaction; Propeller Cavitation.

**Prerequisite** - Mathematics 1200; Fluids 2101; Marine Engineering Knowledge 2101

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

# COURSE DESCRIPTIONS

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## **FLUIDS 3100**

### **(Hydraulics and Pneumatics)**

This is an intermediate level course designed primarily for students in the Marine Engineering Technology programme

Hydraulic Principles; Hydraulic System and Schematics; Hydraulic Fluids; Hydraulic Hoses and Pipes; Seals and Packing; Reservoir, Design and Function; Contamination Control and Filtration; Linear Activators; Pumps and Motors; Directional Control Valves; Pressure Control; Flow Control; Hydraulic System Accessories; Pneumatic Principles; Air Compressors and Receivers; Air Distribution and Auxiliary Equipment

**Prerequisite** - Physics 1100 or Physics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **FLUIDS 3101**

### **(Hydrodynamics & Motions)**

This is an introductory course designed to give students a knowledge and understanding of basic hydrodynamics, ship motion and their application to ship design.

Introduction to Fluid Statics and Dynamics; Types and Forms of Liquid Flow; Dimensional Analysis; Ideal Fluid and Ideal Fluid Flow; Flow of Ideal Fluid around Ship Form; Flow of Real Fluid; Real Fluid Flow Around Curves; Friction Resistance; Wave-Making Resistance; Forces Involved in Steady Ship Motion; Wave Theory; Ocean Waves; Propulsion Devices; Advance Marine Vehicles; Theory of Vibration; Ship Hull Vibration; Hull Vibration Problems; Simplified Theory of Ship Maneuvering; Ship Maneuvering - Design Aspects; Simplified Theory of Ship Motion; Ship Motion - Design Aspects; Motion Control

**Prerequisite** - Mathematics 2101; Stability 2100; Fluids 2201

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **FLUIDS 3102**

### **(Hydraulics & Pneumatics)**

This is an intermediate level course designed primarily for students in the Electro-mechanical Technician programme

Hydraulic Principles; Hydraulic System and Schematics; Hydraulic Fluids; Hydraulic Hoses and Pipes; Seals and Packing; Reservoir, Design and Function; Contamination Control and Filtration; Linear Activators; Pumps and Motors; Directional Control Valves; Pressure Control; Flow Control; Hydraulic System Accessories; Pneumatic Principles; Air Compressors and Receivers; Air Distribution and Auxiliary Equipment

**Prerequisite** - Physics 1100

**Duration** - 13 weeks

## **FOOD SAFETY 2100**

### **(Industrial Sanitation)**

This course is designed to provide students with an in-depth knowledge in the plant sanitation and hygiene practices which are important to the production of a quality product and a necessary prerequisite for registration of the processing plant.

Regulations Affecting Seafood Industry; Microbiology; Organizing and Developing a Sanitation Programme; Personal Hygiene Practices; Chemistry of Sanitation; Applied Sanitation and Food Safety; Pest Control; Quality Assurance and Sanitation; Management and Sanitation; Hazard Analysis Critical Control Points (HACCP)

**Prerequisite** - Processing Technology 1100 or 1101

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **FOOD SAFETY 2101**

### **(Food Sanitation)**

This course is designed to introduce students to the various aspects of sanitation and to provide students the necessary tools to design, and implement an effective sanitation program.

Sanitation Programs for Food Plants; Hazard Avoidance and Quality Management; Cleaning and Sanitizing; Micro-organisms; Personal Hygiene; Pest and Pest Control; Food Plant Design and Equipment Design; Sanitation of Incoming Materials; Water Sanitation; Waste Treatment; Food Regulations

**Prerequisite** - Biology 1100

**Duration** - 13 weeks instruction

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **FOOD SAFETY 4100**

### **(Food Sanitation)**

This course is designed to provide students with an detailed information concerning sanitation and good hygiene practices. The course will enable students to set policies and design cost-effective programmes.

Regulations Affecting the Food Industry; Organizing and Developing a Sanitation Programme; Microbiology; Chemistry of Detergents and Sanitizers; Sanitation and Quality Assurance; Warehouse Sanitation; Sanitary Construction of Buildings and Equipment; Water Supply; Food Plant Pests; Sanitation Equipment and Systems; Dairy Processing and Product Sanitation; Meat and Poultry Processing; Seafood Processing and Finished Product Sanitation; Beverage Plant Sanitation; Food Service Sanitation; The Training and Education of Food Handlers

**Duration** - 39 hours total

## **FOOD SAFETY 4101**

### **(Food-Borne Diseases)**

This course is designed to provide the student with an understanding of the various aspects of diseases caused by microorganisms, parasites, toxins and other chemicals associated with foods. Most inspection activities endeavour to prevent these threats from affecting products or to prevent affected products from reaching the consumer.

Foodborne Illnesses: An Overview; Disease Process; Sources of Illness; Intoxications; Bacterial Intoxications; Mycotoxin; Miscellaneous Microbial Intoxications; Chemical Intoxications; Bacterial Infections; Viral Infections; Protozoal Infections; Illnesses caused by Worms

**Duration** - 78 hours total

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

## **FOOD SAFETY 4102**

### **(Food Inspection Techniques)**

This course is designed to provide general guidelines useful for a wide range of inspection activities for monitoring the safety and quality of foods.

Introduction; General Inspection Approach; Sampling; Establishment Inspection; Laboratory Visit; Special Investigations; Evidence Development; Voluntary and Mandatory Compliance; Export-Import Surveillance; Foodborne Diseases

**Duration** - 78 hours total

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

# COURSE DESCRIPTIONS

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## **FOOD SAFETY 4103 (Food Toxicology)**

This course is designed to provide students with knowledge regarding the toxic substances associated with foods and methods for their detection.

An Overview of Food Safety; International Additives; Accidental Additives; Naturally Occurring Toxicants and Constituents; Microbiological Hazards; Nutritional Hazards; Food Irradiation; Food Processing; Nutritional Quality and Food Safety

**Prerequisite** - Food Technology 4100

**Duration** - 78 hours total

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

## **FOOD SAFETY 4104 (Food-Borne Diseases/Toxicology)**

This course is designed to provide the student with the knowledge of the biological and chemical agents associated with foods and their effect on human health.

Introduction; Chemical Toxicants in Food: an Overview; Naturally Occurring Toxicants; Unnatural Chemical Agents: Accidental; Unnatural Chemical Agents: Additives; Nutritional Biohazards; Food Irradiation; Food Processing, Nutritional Quality and Safety; Biological Agents

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

## **FOOD TECHNOLOGY 1100 (Introduction to Food Science & Technology)**

An introductory course that describes the fields of food science and food technology including introductions to nutrition, food chemistry, microbiology, and food processing. Selected aspects of marketing and product development will also be introduced. Size, scope, functions and contemporary problems of the food industry will be discussed. The laboratory component will involve a study of common methods of food processing/preservation.

Food Science and Technology; Characteristics of the Food Industry; Food Constituents; Nutrition; Food Changes: Causes and Control; Food Processing; Marketing and Product Development; Speciality Foods; Issues

**Prerequisite** - Chemistry 1200

**Lectures** - 30 hours

**Laboratories** - 20 hours

## **FOOD TECHNOLOGY 2100 (Microbiology)**

This course is designed to prepare the students for the Sanitation and Food Microbiology courses.

Introduction to Microbiology; History of Microbiology; Microscopy and Staining; Prokaryotic Microorganisms; Microbial Growth; Viruses; Fungi; Protozoa; Algae; Microbial Genetics; Classification of Prokaryotic Microorganisms; Control of Microbial Growth; Interaction of Microbes and Host; Aquatic Microbiology

**Duration** - 13 weeks

**Lectures** - 3 hours/day

**Laboratories** - 3 hours/day

## **FOOD TECHNOLOGY 2101 (Food Microbiology)**

This course will introduce students to the microorganisms and their activities in food production.

Introduction; Characteristics of Microorganisms Associated with Foods; Microbial Growth and Nutrition; Microbial Analysis of Foods; Factors Influencing Microbial Growth in Foods; Food Spoilage; Food Preservation Methods; Microbiology of Foods; Microbial Safety of Foods

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **FOOD TECHNOLOGY 2102 (Food Analysis)**

This course is designed to provide a student with the basic skills required to perform chemical analysis on food samples. The course will build upon knowledge obtained in basic chemistry with applications solely to the food industry.

Introduction to Food Chemistry; Laboratory Management and Sampling; Reporting Results and Statistical Analysis; Water and Moisture; Minerals, Ash and Vitamins; Carbohydrates; Lipids; Nitrogenous Compounds

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **FOOD TECHNOLOGY 2103 (Food Engineering Principles)**

This is an advanced level course designed to provide the student with a rudimentary understanding of food engineering principles enabling students to comprehend food engineering applications and unit operations.

Introduction; Energy and Mass; Liquid Food Transport/Rheology; Energy for Food Processing; Heat Transfer in Food Processing; Refrigeration; Freezing of Food; Evaporation; Psychometrics; Dehydration of Foods

**Prerequisites** - Mathematics 1200; Physics 1200

**Lectures** - 39 hours

**Laboratories** - 26 hours

## **FOOD TECHNOLOGY 2104 (Seminar Series)**

This course will present participants with selected topics of relevance to food technology.

Current Issues in Food Technology

**Duration** - 13 weeks

## **FOOD TECHNOLOGY 2105 (Nutrition)**

This course provides the basics concepts in nutrition and introduces the nutrients of importance to human nutrition.

Nutrition Concepts; Proteins; Lipids; Carbohydrates and Dietary Fibre; Minerals and Vitamins; Water; Current Issues in Consumer Nutrition

**Prerequisite** - Food Technology 1100

**Lectures** - 39 hours

## **FOOD TECHNOLOGY 3100 (Food Engineering - Unit Operations)**

This is an advanced level course designed to introduce food engineering unit operations to students.

Introduction; Preliminary Operations; Conversion Operations; Preservation Operations; Materials Handling

**Prerequisite** - Food Technology 2103

**Lectures** - 39 hours

**Laboratories** - 26 hours

# COURSE DESCRIPTIONS

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## **FOOD TECHNOLOGY 3101 (Food Biotechnology)**

This is an advanced level course designed to provide the student with an understanding of the various aspects of food biotechnology.

Overview: Food Biotechnology; Tools of Biotechnology; Cell Culture Technology; Plant Cell Culture; Fermentation Technology; Enzyme Technology; Immobilization Technology; Applications in Agriculture; Applications in Food; Marine Biotechnology; Safety of Foods Developed by Biotechnology; Biotechnology in Waster Management in Food Industry; Biosensors for Biological Monitoring; Safety and Regulatory Issues of Biotechnology-derived Foods

**Prerequisites** - Biology 2202; Chemistry 2102; Processing Technology 2107; Processing Technology 3100

**Lectures** - 39 hours

## **FOOD TECHNOLOGY 4100 (Food Industry Overview)**

This introductory course is designed to give students a basic understanding of the food industry. The course covers the history of foods, preservation methods, packaging, food safety, and the other various components that make up the food industries.

History of World Food Production; Food and Human Consumption; Processes for Food Preservation; Packaging of Foods; Food Safety; Meat, Poultry and Fish; Fruit and Vegetables Industry; Dairy Industry

**Duration** - 39 hours total

**Lectures** - 39 hours total

## **FOOD TECHNOLOGY 4101 (Food Microbiology)**

This course is designed to provide the student with an understanding of interactions between microorganisms and foods. This will be helpful in dealing with the problems in microbial quality control and food safety.

Introduction; Characteristics of Microorganisms Associated with Foods; Microbial Growth and Nutrition; Microbial Analysis of Foods; Factors Influencing Microbial Growth in Foods; Food Spoilage; Food Preservation Methods; Microbiology of Foods; Microbial Safety of Foods

**Prerequisite (Food Safety Programme)** - Acceptance into the Advanced Diploma Food Safety Programme

**Prerequisite (Food Technology Programme)** - Acceptance into the Advanced Diploma in Food Technology

**Duration** - 13 weeks

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

## **FOOD TECHNOLOGY 4102 (Food Chemistry)**

This is an advanced level course designed to build on pre-existing knowledge so as to enhance a student's understanding of food chemistry while introducing a student to chemical concepts related to food safety.

Introduction to Food Chemistry; Reporting Results and Reliability of Analysis; Instrumentation; Naturally Occurring Food Components; Chemical Additives; Indirect Additives, Residues and Contaminants; Naturally Occurring Toxicants

**Lectures** - 39 hours total

**Laboratories** - 39 hours total

## **FOOD TECHNOLOGY 4103 (Food Processing 1)**

This is a foundation course that covers the basic principles and technology of food preservation.

Deteriorative Factors; Heat Preservation of Foods; Cold Preservation of Foods; Food Dehydration and Concentration; Radiation Preservation of Foods; Other Food Preservation Processes; Food Packaging

**Duration** - 3 weeks instruction

**Lectures** - 13 hours/week

**Laboratories** - 13 hours/week

## **FOOD TECHNOLOGY 4104 (Food Chemistry A)**

This is an advanced level course designed to build on pre-existing knowledge to enhance a student's understanding of chemistry while introducing a student to chemical concepts related to foods.

Introduction; Sampling; Analysis; Reporting; Water and Moisture; Minerals, Ash and Vitamins; Carbohydrates; Lipids; Nitrogenous Compounds

**Duration** - 3 weeks instruction

**Lectures** - 10 hours/week

**Laboratories** - 15 hours/week

## **FOOD TECHNOLOGY 4105 (Food Biotechnology)**

This course will cover the principles and applications of biotechnology as they relate to food production and food processing.

Introduction; Tools of Biotechnology; Applications of Biotechnology in the Food Industry; Plant Cell Culture and its Applications; Biotechnology in Waste Management in Food Industry; Biosensors in Biological Monitoring; Regulatory Considerations

**Duration** - 3 weeks

**Lectures** - 3 hours/day

**Laboratories/Projects** - 4 hours/day

## **FOOD TECHNOLOGY 4106 (Food Processing Engineering)**

This course introduces the student to food engineering principles. It includes the essential processes of critical thinking and problem solving and also prepares the student for interaction with colleagues in the food industry.

Introduction to Food Engineering; Energy in Food Processing; Heat Transfer in Food Processing; Application of Steady State Heat Transfer; Systems for Heating and Cooling Food Products; Microwave Heating; Thermal Processing; Aseptic Processing and Packaging; Refrigeration and Food Freezing; Psychometrics and Food Dehydration; Mass Transfer

# COURSE DESCRIPTIONS

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## **FOOD TECHNOLOGY 4203 (Food Processing 2)**

This is an advanced level course designed to give participants an overview of the processes currently employed in the food processing industry worldwide.

Processing of Meat, Poultry and Eggs; Milk and Dairy Products; Cereal Grains, Legumes and Oilseeds; Processing of Fruits and Vegetables

**Duration** - 3 weeks instruction  
**Lectures** - 13 hours/week  
**Laboratories** - 13 hours/week

## **FOOD TECHNOLOGY 4204 (Food Chemistry B)**

This is an advanced level course designed to build on pre-existing knowledge so as to enhance a student's understanding of chemistry while introducing the student to chemical concepts related to foods.

Emulsions; Enzymes; Chemical Additives; Instrumentation

**Duration** - 2 weeks instruction  
**Lectures** - 10 hours/week  
**Laboratories** - 15 hours/week

## **FOOD TECHNOLOGY 4205 (Food Processing 3)**

This is an advanced level course designed to give participants an overview of the processes currently employed in the food processing industry worldwide.

Alcoholic and Non-Alcoholic Beverages; Fats, Oils and their Products; Confectionery and Chocolate Products; Seafood

## **GEOGRAPHY 2100**

This course is designed to provide the student with an understanding of the types and uses of maps and of remote sensing for use by marine environmental technologists.

Projections and Coordinates; Map Use and Calculations; Remote Sensing; Applications

**Duration** - 13 weeks  
**Lectures/Laboratories** - 3/1

## **GEOGRAPHY 3100 (Mapping and GIS)**

This course is designed to introduce the student to the application of maps in environmental problems. Computer based applications such as Geographic Information Systems and their use are emphasized.

Background to Maps; Extraction and Application of Data from Maps; Computer Representations of Maps; Geographic Information Systems; and Map Related Publications

**Prerequisite** - Geography 2100

**Duration** - 13 weeks  
**Lectures** - 1 hour/week  
**Laboratories** - 2 hours/week

## **GEOGRAPHY 4100 (Remote Sensing)**

This course will examine the technologies available to collect information on coastal zones, including oceanographic, climatological resources and land mapping. It will also review the principles of data processing and the use of data with special applications to the marine areas.

Introduction to Remote Sensing (RS); Airborne Systems; Space Based Platforms; RADARs; Data Acquisition and Analysis; Underwater Acoustic Technologies; Mapping; Case Studies

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 1 hour/week

## **GEOGRAPHY 4101 (Geographic Information Systems)**

This course is designed to provide the participants with an outline of the opportunities and limitations of the use of GIS and remote sensing technologies in the management of the CZ/S.

Data Quality Evaluation; Application of RS to CZ Area Studies; Geographic Information System; Basic Functions of GIS; Applications of GIS

**Prerequisites** - Geography 4100; Statistics 4102

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Practical Exercises/Laboratories** - 1 hour/week

## **INDUSTRIAL SANITATION 0100 (Sanitation & Hygiene)**

This course will provide students with the necessary theoretical and practical skills to effectively set up and monitor a sanitation programme in a food processing plant.

Areas of Concern; Control of Microorganisms; Cleaning Practices; Personal Hygiene; Insect and Rodent Control; Good Housekeeping Practices; Inspection Techniques; Water Treatment and Government Compliances

## **INDUSTRIAL SEMINARS 0100/FIRST AID 0100**

This course is designed to acquaint the students with industry and government agencies that would affect their work environment.

Training Managers; Human Rights Commission; Worker's Compensation; Public Service Commission; Consumer Affairs; Workplace Health and Safety; Labour Relations; First Aid

## **MACHINE DESIGN 2100**

This course is an introduction to the primary considerations in the design of machines as they relate to each other, to their operators and to the environment. Machines will be seen as converters of energy and as the extension of human power. The composition and characteristics of machines will be presented and the underlying principles of mechanics of machines and strength of materials demonstrated, thus enabling the student to design machinery supplemented by practical manufacturing exposure and experience.

Nature and Composition of Machines; The Many Aspects of Machine Design; Design for Strength; Belt Drives and Band Brakes; Friction Clutches; Gear Trains; Cam Design; Detachable Fasteners; Springs

**Prerequisites** - Mechanics 1101; Strength of Materials 2101

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## **MACHINE DESIGN 3100**

This course is an introduction to the primary considerations in the design of machines as they relate to each other, to their operators and to the environment. Machines will be seen as converters of energy and as the extension of human power. The composition and characteristics of machines will be presented and the underlying principles of mechanics of machines and strength of materials demonstrated, thus enabling the student to design machinery supplemented by practical manufacturing exposure and experience.

Nature and Composition of Machines; The Many Aspects of Machine Design; Design for Strength; Design for Rigidity, Stability and Resistance to Wear; Machine Frames and Housings; Permanent Connections; Detachable Fasteners; Springs

**Prerequisites** - Mechanics 2102; Strength of Materials 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **MARINE EMERGENCY DUTIES - A1 - Basic Safety**

This course is designed to provide first time seafarers with the minimum knowledge of emergency response required to safely work aboard a vessel.

Hazards and Emergencies; Emergency Response; Firefighting; Lifesaving Appliances; Survival; Signaling Devices; Rescue

**Duration** - 20 hours - 3 days

**Theory** - 12 hours

**Practical** - 8 hours

## **MARINE EMERGENCY DUTIES B1 - SURVIVAL CRAFT**

This course is intended to train individuals in personal marine survival techniques, and in the use of survival craft to an extent appropriate to the functions of crew members of ships. It complies with or exceeds the requirements of Transport Canada's (Marine Safety Directorate), Marine Emergency Duties B1.

Survival Craft and Launching Systems; Small Team Leadership Techniques; Abandoning and Practical Boatwork; Survival; Distress Signals; and Rescue

**Duration** - 35 hours

**Lectures** - 15 hours

**Practical** - 20 hours

## **MARINE EMERGENCY DUTIES B2 - FIREFIGHTING**

This is a basic firefighting course which introduces the student to both the theoretical and practical aspects of Marine firefighting.

Fire Science; Cause and Prevention; Equipment; Construction and Arrangement; Firefighting Procedures; Fixed Fire Detection and Extinguishing Systems

**Duration** - 5 days

**Theory** - 15 hours

**Practical** - 14 hours

## **MARINE EMERGENCY DUTIES C - OFFICER CERTIFICATION**

This Marine Emergency Duties course is designed for junior officers and key personnel. It gives the student the knowledge and skills necessary to inspect, maintain, and effectively utilize their equipment to respond to any shipboard emergency. The course is approved by Transport Canada and meets the international convention on standards of training certification and watchkeeping for seafarers (STCW 1978). Deck officers and engineering officers requiring a Continued Proficiency Endorsement are required to complete this course.

Fixed Fire Detection and Extinguishing Systems; Inspection and Maintenance of Emergency Equipment; Response of Bridge, Deck, and Engine Room Watch to Emergencies; Emergency Response Team Leadership; Firefighting On-scene Leader Plan of Attack; Incident Reporting; Crowd Management; Search and Rescue; Internal Communications; Conduct of Training Sessions

**Prerequisites** - Successful completion of Marine Emergency Duties Training Course B1, and successful completion of Marine Emergency Duties Training Course B2 within the past five years (Recommendation)

**Duration** - 21 hours

**Theory** - 16 hours

**Practical** - 5 hours

## **MARINE ENGINEERING KNOWLEDGE 0100**

This introductory course will provide students with the necessary knowledge and skill to gain employment in a marine related/mechanically oriented field, and through continued studies, to obtain a marine engineer's certificate.

Safety; Introduction to Basic Hand Tools; Introduction to Combustion Engines (Gasoline); Engine Systems; Introduction to Diesel Engines; Diesel Engine Fuel Injection Systems; Governors; and Supercharging

**Duration** - 21 weeks

**Lectures/Laboratories** - 22 hours/week

**Work Term** - 4 weeks

**Examinations** - 1 week

## **MARINE ENGINEERING KNOWLEDGE 0200**

This advanced course will provide students with the necessary knowledge and skills to gain employment in a marine related/mechanically oriented field, and through continued studies, to obtain a marine engineer's certificate.

Safety; Nautical Terms and Practices; Marine Diesel Engine Systems; Pumps and Pumping Systems; Air Compressors; Refrigeration; Purifiers; Bilge and Ballast Systems; Hydraulics; Propellers and Shafting; Steering Gear; Watchkeeping

**Prerequisite** - Marine Engineering Knowledge 0100

**Duration** - 16 weeks

**Lectures** - 13 weeks

**Watchkeeping:**

**Practical** - 3 weeks

## **MARINE ENGINEERING KNOWLEDGE 1100**

This is an introductory course in marine engineering designed to give the student an understanding of marine technology and shipboard systems.

Marine Living; Marine Terminology; Main Machinery (Diesel Engines); Marine Auxiliary Machinery

**Duration** - 5 weeks

**Lectures** - 8 hours/week



# COURSE DESCRIPTIONS

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## MARINE ENGINEERING KNOWLEDGE 2100

The course is designed to give students in Marine Engineering a working knowledge of internal combustion engines which can be applied to their operation and maintenance.

Fuels; Power Plants; Diesel Engine Classification and Stationary Parts; Diesel Engine Moving Parts; Tribology and Engine Lubricating; Engine Power and Fuel Consumption; Intake and Exhaust Systems; Fuel Burning Systems; Cooling Systems; Governing

**Prerequisite** - Marine Engineering Knowledge 1100

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## MARINE ENGINEERING KNOWLEDGE 2101

This is an introductory course designed to give students in the Naval Architecture programme a knowledge of Marine Engineering Systems and their components.

Fasteners; Piping Material, Specifications, Connections and Hangers; Valves and Cocks; Fuels and Properties; Pumps; Compressors; Bilge System; Ballast System; Fuel Oil System; Seawater Systems; Freshwater System; Compressed Air System. Lubricating Oil System

**Prerequisites** - Mathematics 1101; Chemistry 1200; Electrotechnology 1200; Ship Design 1101; Ship Design 1102; Mechanics 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories/Projects** - 2 hours/week

## MARINE ENGINEERING KNOWLEDGE 2102

This is a marine engineering course designed to give the students knowledge and understanding of the basic operational principles of ships' machinery.

Fuels; Instrumentation and Controls; Valves; Pumps and Pumping Stations; Steam Boilers

**Prerequisite** - Ship Operations 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## MARINE ENGINEERING KNOWLEDGE 2103

The course is designed to give students in Marine Engineering a working knowledge of internal combustion engines which can be applied to their operation and maintenance.

Fuels; Power Plants; Diesel Engine Classification and Stationary Parts; Diesel Engine Moving Parts; Tribology and Engine Lubricating; Engine Power and Fuel Consumption; Intake and Exhaust Systems; Fuel Burning Systems; Cooling Systems; Governing.

**Duration** - 13 weeks

**Lectures** - 5 hours/week

**Laboratories** - 2 hours/week

## MARINE ENGINEERING KNOWLEDGE 2107

This is the first course in marine engineering knowledge designed to give the student an understanding of marine terminology, propulsion equipment, shipboard systems, marine pollution and an engineer's duties.

Marine Living; Marine Terminology; Main Propulsion Machinery (Diesel Engines); Marine Auxiliary Machinery; Steam Boilers and Steam Plants; Power Plants; Bilge, Ballast Systems, and Oil Pollution; Engineer's Duties

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## MARINE ENGINEERING KNOWLEDGE 2200

This course is designed to give Marine Engineering students a knowledge of auxiliary systems and equipment that can be applied to their operation and maintenance.

Steam Boilers and Steam Plants; Pumps; Air Compressors and Systems; Coolers and Cooling Systems; Windlass; Bilge, Ballast Systems and Oil Pollution; Sewage Plant and Pollution; Steering Gears; and Fuel Oil Pretreatment and Burning Systems

**Prerequisite** - Marine Engineering Knowledge 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## MARINE ENGINEERING KNOWLEDGE 2201

The course is designed to give the Naval Architecture students the further knowledge of Marine Engineering Systems and the basic knowledge of Power Plant components.

Shafting Arrangements; Prime Movers; Steam Generation and Systems; Exhaust Gas Systems; Engine Room Ventilation; Fire Fighting Systems; Domestic Sanitary Systems; Hull Machinery

**Prerequisite** - Marine Engineering Knowledge 2101

**Duration** - 5 week

**Lecture** - 6 hours/week

**Laboratories/Project** - 4 hours/week

## MARINE ENGINEERING KNOWLEDGE 2202

This is a marine engineering course designed to give the student's knowledge and understanding of the basic operational principles of ship's machinery.

Internal Combustion Engines; Steam Turbines; Propulsion Systems; Steering Gears; Tank Level and Draft Measurement; and Deck Machinery Layout

**Prerequisite** - Marine Engineering Knowledge 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## MARINE ENGINEERING KNOWLEDGE 2203

This course is designed to give Marine Engineering students a knowledge of auxiliary systems and equipment that can be applied to their operation and maintenance.

Steam Boilers and Steam Plants; Pumps; Air Compressors and Systems; Coolers and Cooling Systems; Windlass; Bilge, Ballast Systems and Oil Pollution; Sewage Plant and Pollution; Steering Gears; and Fuel Oil Pretreatment and Burning Systems

**Prerequisite** - Marine Engineering Knowledge 2103

**Duration** - 13 weeks

**Lecture** - 3 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## MARINE ENGINEERING KNOWLEDGE 2207

This course is designed for the marine engineering student who has complete the first work term. This course will provide the student with the concepts of internal combustion engines and associated subsystems. It is offered using the Propulsion Plant Simulator (PPS) and Diesel/Fitting Shops for the application of theory as well as providing the student with the requirements for the Level 1 PPS course.

Diesel Engine Cooling Water Systems; Diesel Engine Liner and Jacket Water-cooled Systems; Piston and Piston Cooling; Intake and Exhaust Systems; Air Compressors and Systems; Diesel Engine Starting Systems; Diesel Engine Lubrication, Crankcase Explosions, and Scavenge Fires; Pumps; Fuels; Fuel Burning Systems; Waste Heat Recovery Systems; Fresh Water Generation and Treatment.

**Prerequisite** - Marine Engineering 2107; Work Term 1103

**Duration** - 13 weeks

**Lectures** - 8 hours/week

## MARINE ENGINEERING KNOWLEDGE 3100

This course is designed to give the student the knowledge of design considerations for internal combustion engines suitable for marine applications whereby the student will be able to diagnose machinery problems.

Fuel Treatment; Valve Timing and Gas Exchange Processes; Fuel Injection Systems; Diesel Engine Liner and Jacket Water-Cooled Systems; Piston and Piston Cooling Systems; Diesel Engine Lubrication, Crankcase Explosions, and Scavenge Fires; Diesel Engine Starting Systems; Bearing Design; Reduction Gears and Couplings; Intermediate Shafting and Thrust Block.

**Prerequisite** - Marine Engineering Knowledge 2200

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## MARINE ENGINEERING KNOWLEDGE 3102

This is a marine engineering course designed to give students a knowledge and understanding of the basic operational principles of ship's machinery.

Cargo Piping and Pumps; Refrigeration; Vibration; Venturi Systems; Engine Power, Propeller Pitch, and Power

**Prerequisite** - Marine Engineering Knowledge 2202

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## MARINE ENGINEERING KNOWLEDGE 3103

This course is designed to give the student the knowledge of design considerations for internal combustion engines suitable for marine applications whereby the student will be able to diagnose machinery problems.

Fuel Treatment; Valve Timing and Gas Exchange Processes; Fuel Injection Systems; Diesel Engine Liner and Jacket Water-Cooled Systems; Piston and Piston Cooling Systems; Diesel Engine Lubrication, Crankcase Explosions, and Scavenge Fires; Diesel Engine Starting Systems; Bearing Design; Reduction Gears and Couplings; Intermediate Shafting and Thrust Block.

**Prerequisite** - Marine Engineering Knowledge 2203

**Duration** - 13 weeks

**Lectures** - 5 hours/week

**Laboratories** - 2 hours/week

## MARINE ENGINEERING KNOWLEDGE 3104

This course is designed to develop students' ability to understand an internal combustion engine's fuel/governing system and to determine power developed. It will also lead students in a study of reduction gearing, main shafting, controllable pitch propellers and steering gears.

Fuel Treatment; Valve Timing and Gas Exchange Process; Fuel Injection Systems; Engine Power and Fuel Consumption; Governors; Bearing Design; Reduction Gears and Couplings; Intermediate Shafting and Thrust Block; Stern Tubes and CP Propellers; Steering Gears

**Prerequisite** - Marine Engineering Knowledge 2207

**Duration** - 13 weeks

**Lectures** - 4 hours/week

## MARINE ENGINEERING KNOWLEDGE 3200

This course is designed to give the Marine Engineering students the knowledge of systems, regulations and safety whereby they can use the knowledge in their professional life.

Water Tube Boilers; Steam Turbines and Steam Plants; Gas Turbines; Boiler Water Treatment and Testing; Waste Heat Recovery Systems; Fresh Water Generation and Treatment; Tanker Safety and Inert Gas Systems; Stern Tubes and C.P. Propellers; Fire Prevention Systems, Regulations, and Safety; Introduction to Vibrations; Crank Shaft Alignment and Deflection; Maintenance Procedures; Engineer's Duties

**Prerequisite** - Marine Engineering Knowledge 3100

**Duration** - 13 weeks

**Lecture** - 3 hours/week

## MARINE ENGINEERING KNOWLEDGE 3201

This is an intermediate level course designed to give students in Marine Engineering a working knowledge of gas turbines which can be applied to their operation and maintenance.

Gas Turbine Types and Classification; Principle of Operation; Structure of Gas Turbines; Gas Turbine Systems; Reduction Gearing for Gas Turbine Installations; Operation and Monitoring; Overview of Naval Gas Turbines

**Prerequisite** - Marine Engineering Knowledge 2203

**Duration** - 13 weeks

**Lecture** - 3 hours/week

**Laboratories** - 2 hours/week

## MARINE ENGINEERING KNOWLEDGE 3202

This is the final marine engineering course and it is designed to deal with steam/gas propulsion, vibration pollution, and maintenance requirements.

Water Tube Boilers; Steam Turbines and Steam Plants; Boiler Water Treatment and Testing; Gas Turbines; Introduction to Vibration; Sewage Plant and Pollution; Maintenance; Tanker Operations; Deck Machinery

**Prerequisite** - Marine Engineering 3104

**Duration** - 5 weeks

**Lectures** - 8 hours/week

# COURSE DESCRIPTIONS

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## **MARINE ENGINEERING KNOWLEDGE 3203**

This course is designed to give the Marine Engineering students the knowledge of systems, regulations and safety whereby they can use the knowledge in their professional life.

Water Tube Boilers; Steam Turbines and Steam Plants; Gas Turbines; Boiler Water Treatment and Testing; Waste Heat Recovery Systems; Fresh Water Generation and Treatment; Tanker Safety and Inert Gas Systems; Stern Tubes and C.P. Propellers; Fire Prevention Systems, Regulations, and Safety; Introduction to Vibrations; Crank Shaft Alignment and Deflection; Maintenance Procedures; Engineer's Duties

**Prerequisite** - Marine Engineering Knowledge 3103

**Duration** - 13 weeks

**Lecture** - 3 hours/week

**Laboratories** - 2 hours/week

## **MARINE ENVIRONMENT 2100**

This is an introductory course to environmental science and some of the major environmental issues. Emphasis is placed on causes and effects of marine pollutants.

Environmental Citizenship; Major Environmental Issues; Ocean Users and Uses; Marine Pollution; and Case Studies

**Prerequisite** - Chemistry 1100

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 2101 (Dynamics of Marine Pollution)**

This is an introductory course of the mechanisms involved in the movement of pollutants in the marine environment. This includes oil and chemical spills and also the spread of pollution from land based sources.

Properties; Spill Behaviour in the Marine Environment; Environmental Factors; Introduction to Pollution Response; Effluent Plume Dispersion; Limnology; Modelling of Spill Movement; Open Channel Flow; Case Studies

**Prerequisite** - Chemistry 1200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 3100 (Pollution Cleanup)**

This is an advanced level course that deals with aspects of pollution control and cleanup. It incorporates a variety of aspects associated with marine pollution. (THIS IS NOT AN OIL SPILL RESPONSE COURSE.)

Legal Requirements; Hazard Awareness; Personal Safety; Spill Response; Survey and Assessment; Wildlife Protection; and Impact of Cleanup Activities

**Prerequisites** - Marine Environment 2101; Business and Organizational Management 2104

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **MARINE ENVIRONMENT 3101 (Marine Environmental Seminar)**

This course will present selected topics of relevance to the marine environment as well as land based pollution sources. The format will consist of presentations by faculty and invited speakers.

Air Pollution; Solid Waste Management; Pollution Control; Marine Protected Areas; Pollution Cleanup Technology; Environmental Policy; Environmental Biology; Environmental Assessment and Audit; and Bioremediation

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 3102 (Fundamentals of Coastal Zone Management)**

This course is designed to familiarize participants with the multidisciplinary nature of the elements involved in Coastal Zone Management and the complexity of their interactions. It will also provide an overall review of the program rationale, particularly the three phases: description, analysis and synthesis that constitute the basis for the Coastal Zone Management Program.

Land/Ocean/Atmosphere Interface; Coastal Ecosystems; Production Economy; Social Ecology; Coastal Technologies; Environmental Hazards; Multiple User Conflicts; Legal Issues; and Integrated Coastal Zone Management

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 4100 (Introduction to Coastal Zone Management)**

This course is designed to familiarize participants with the multidisciplinary nature of the elements involved in CZM and the complexity of their interactions. It will also provide an overview of the program rationale, particularly the three phases: description, analysis and synthesis that constitute the basis for CZM.

Introduction to the Coastal Zone; The Coastal Systems; Coastal Zone Protection; Development in Coastal Zone; Environmental Hazards; Multiple User Conflict; Integrated Coastal Zone Management; Conceptual Framework for Integrated Coastal Zone Management; Coastal Zone Management Programs

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 4101 (Coastal Oceanography and Geomorphology)**

This is an introductory course on General Oceanography and Geomorphology designed to provide the participants with an integral view of the physical-chemical, biological and geological components of the ocean and its interaction with the continent in the structuring of the coastal zones. It will also review the interactions of ocean-atmosphere in the generation of climate.

Physical-Chemical Oceanography; Biological Oceanography; Ocean Dynamics; Ocean-Atmosphere Interaction; Oceanographic Data Collection and Analysis; Geological Structure of the Continents and Oceans; Erosional and Depositional Shores; Man made Alterations of the Coastline

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Tutorials** - 1 hour/week

# COURSE DESCRIPTIONS

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## **MARINE ENVIRONMENT 4102 (Coastal Resources)**

This course will introduce participants to the concept of Coastal Ecosystem, Natural Resource, Ecological balance and Ecosystem dynamics. It describes the various types of coastal ecosystems and its main components. The main objective will be to provide participants with a multi-sectoral perspective of the different types of resources available in the coastal zones.

Major Types of Marine Ecosystems; Elements of Coastal Ecosystem; Biodiversity on the Coastal Environment; Energy Flow and Food Webs; Concept of Marine Resources; Living Resources; Mineral and Energetic Resources; Coastal Space as Resource; Resource Valuation and Decision Making

**Duration** - 13 weeks

**Lecture** - 3 hours/week

## **MARINE ENVIRONMENT 4103 (Human Ecology)**

This course provides the conceptual backgrounds on social aspects that will be utilized in the foregoing Conflict Resolution Skills course. It is designed for coastal zone managers involved with problems related to present development issues of coastal communities.

The course will review the historical background of human settlement in the coastal zones and the influence of the marine environment and the ocean in the social structure of coastal communities. It will also examine and discuss the impact of human activities in the use and further deterioration of the coastal environment.

Historical Review of the Human Colonization of the Coastal Zones; The Influence of Industrial Society on Coastal Zone; Present and Future uses of the Coastal Zones; The Role of Coastal Communities in the Management of the Coastal Zone.

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 4200 (Environmental Management)**

This course will elaborate on the conceptual elements described in the basic course Coastal Resources and Coastal Resource Management to provide the participants with an overall view of the methods used to assess the status of the coastal environment and the impact of Man activities on the natural environment. It will also review examples of environmental legislation and protective measures.

Environmental Carrying Capacity; Environmental Impact Assessment; UNCED- Agenda 21 Framework; Contemporary Acknowledge and Trends in Environmental Quality; Effectiveness and Adequacy of Environmental Protection Measures; The Role of GESAMP

**Prerequisites** - Marine Environment 4100; Marine Environment 4102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 4201 (Coastal Resource Management)**

This is an intermediate level course designed to introduce participants to the conceptual elements involved in Resource Management. The course discusses the types of resources available in the CZ, the different levels of management, private and public use of resources and difficulties involved in establishing management policies in a multi-sectoral environment. It will also review the methodology for resource surveys and assessment, resource value and management options through review of practical examples.

Type of Coastal Resources; Elements of Coastal Resources Management; Historical Overview of Managing Coastal Resources; Protecting the Coastal Environment; Development and Coastal Resources Management; Legal Aspect of Managing Coastal Resources; Interdisciplinary Tools for Resolving Coastal Conflicts; Managing Coastal Resources

**Prerequisites** - Marine Environment 4101; Marine Environment 4102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MARINE ENVIRONMENT 4300 (Contemporary Issues in Coastal Zone Management)**

This course is designed to provide the participants with an overall view of the various issues relating to coastal zone management and provide a forum for discussion. It will also integrate all the elements examined in detail in the other courses of the program to provide an in-depth understanding of the complexities involved in managing the coastal zones. The course is structured as a seminar with lectures being delivered by invited guest instructors from educational institutions, government agencies and private sector organizations.

Fisheries Management; The Management of Offshore Oil and Gas Operations; Coastal and Marine Protected Areas; Coastal Tourism; Introduction to Aquaculture; Vessel Source Pollution; Community Based Management; Co-Management; Management of Land-Based Activities/Sources of Pollution; The Shipping Industry; Port Operations

**Prerequisites** - Term 1 and Term 2 Courses which include: **(Term 1)** - Marine Environment 4100; Marine Environment 4101; Marine Environment 4102; Marine Environment 4103; Geography 4101; Statistics 4102; **(Term 2)** - Marine Environment 4200; Marine Environment 4201; Business & Organizational Management 4106; Business & Organizational Management 4107; Business & Organizational Management 4108; Geography 4100

**Duration** - 6 weeks

**Seminar Sessions** - 6 hours/week

## **MARINE SAMPLING 2100**

This course will provide the students with the practical skills necessary to plan and conduct a basic marine sampling program. The course is one week in duration and will be delivered through a series of laboratories and practical exercises. Students will spend 1.5 days going through sampling procedures at sea, 1.5 days performing biological analysis of specimens and two days looking at cruise planning and equipment care and maintenance. Students will document all field work in a journal which will be submitted for evaluation.

Introduction to Marine Sampling; Basic Sampling Tools; Cruise Planning; Oceanographic Sampling; Environmental Observations; and Biological Sampling

**Duration** - 5 days

# COURSE DESCRIPTIONS

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## **MARITIME STUDIES 4000 (Technical Report)**

This report, which must be completed in the final term of studies, is designed to tie together the final year of the programme with the technical component dealt with in earlier semesters. It gives the student the opportunity to carry out an in-depth study into some particular aspect of the maritime milieu involving such areas as safety, management, national and international regulation, sea-survival or any number of topics involving the business of shipping. The report will be written under the supervision of a faculty member within the School of Maritime Studies and agreement must be reached with a particular faculty member before the study is undertaken.

## **MARITIME STUDIES 4001 (Ship Operations Management)**

Supervision and inspection of new construction and repair work, planned maintenance system design and management, vessel performance and productivity control using cost accounting and other vessel performance measurement techniques; vessel scheduling; labour relations, behavioural science and general management consideration in hiring and managing vessel officers and crew; an introduction to marketing of marine transportation services and the structure of marine transportation markets; an introduction to marine insurance. There will be laboratory exercises and/or projects associated with this course.

## **MATERIALS AND PROCESSES 2100**

The purpose of this course is to provide students with a knowledge of the behaviour and characteristics of common engineering materials and an understanding of basic industrial processes. This is to enable students to select suitable materials and fabrication methods for the design and manufacture of parts to ensure successful service.

Production of Steel; Refining Other Metals; Identification of Materials by Standard Specifications; Physical and Mechanical Properties of Metals; Structure of Metals; Phase Diagrams and Isothermal-Transformation Diagrams; Heat Treatment of Plain Carbon Steels; Heat Treating Non-ferrous Alloys

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **MATERIALS AND PROCESSES 2101**

The purpose of this course is to provide students with a knowledge of the behaviour and characteristics of common engineering materials and an understanding of basic industrial processes. This is to enable students to select suitable materials and fabrication methods for the design and manufacture of parts to ensure successful service.

Production of Steel and Other Metals; Identification of Metals; Physical and Mechanical Properties of Metals; Structure of Metals; Phase Diagrams; Heat Treating; Plastics; Adhesive, Ceramics, and Wood

**Prerequisite** - Chemistry 1100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

## **MATERIALS AND PROCESSES 2103**

The purpose of this course is to provide students with the knowledge of the behaviour and characteristics of common engineering materials and give them an understanding of basic industrial processes. This will enable students to select suitable materials and fabrication methods for the design and manufacture of parts to ensure successful service.

Production of Steel and Other Metals; Identification of Metals; Physical and Mechanical Properties of Metals; Structure of Metals; Phase Diagrams; Heat Treating; Plastics; Adhesives, Ceramics and Wood

**Duration** - 13 weeks

**Lectures** - 3 hour/week

**Laboratories** - 2 hours/week

## **MATERIALS AND PROCESSES 2200**

The purpose of this course is to familiarize the student with production and fabrication processes and practices used in the industrial environment. The course provides an understanding of welding processes, non-destructive testing, corrosion, and casting-processes. An introduction to plastics and other engineering materials is provided.

Effects of Machining on Metals; Welding Processes; Metallurgy of Welds; Non-destructive Testing; Corrosion; Casting Processes; Plastics and Elastomers; Adhesives, Ceramics, and Wood Products.

**Prerequisite** - Materials & Processes 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **MATHEMATICS 0101**

A basic mathematics course designed to ensure students have a solid foundation in basic mathematics and related concepts. Topics covered will assist students in better understanding concepts encountered in other courses.

Whole Numbers; Common Fractions; Decimal Fractions; Percent; SI Units; Applied Linear Measure; Applied Area Measure; Applied Volume and Surface Area; and Bending Metal

**Duration** - 13 weeks

**Lectures** - 4 hours/week

## **MATHEMATICS 0102**

This basic course is designed to help alleviate specific weaknesses in the student's basic mathematical skills.

Whole Numbers; Decimal Fractions; Common Fractions; Percent; Scientific Notation; and Introduction to SI Units

**Duration** - 16 weeks

**Lectures** - 3 hours/week

## **MATHEMATICS 0200**

This introductory course is designed to strengthen the student's technical and mathematical skills and to enhance their problem solving ability.

Applied Linear Measure; Applied Area Measure; Applied Volume and Surface Area; Ratio and Proportion; and Shop Formulas

**Prerequisite** - Mathematics 0102

**Duration** - 16 weeks

**Lectures** - 3 hours/week

## **MATHEMATICS 1000 (Essential Mathematics)**

This is a course in basic mathematics designed to help alleviate specific weaknesses in students' mathematical skills. This course is a non-credit prerequisite for Mathematics 1100 for those students identified by the placement testing procedure.

Operations with Whole Numbers and Fractions; Operations with Decimals and Percents; Operations with Integers and Exponents; Linear Equations, Operations with Algebraic Expressions; Operations with Fractional Expressions, Solving Formulas; Graphing, Systems of Linear Equations; Basic Geometry and Trigonometry

**Duration** - 13 weeks

**Lectures** - 6 hours/week

# COURSE DESCRIPTIONS

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## **MATHEMATICS 1100 (Pre-Calculus)**

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.

Review of Fundamental Algebra; Trigonometric Functions; Operations Involving Algebraic Expressions; Operations Involving Fractional Algebraic Expressions Exponents and Radicals: The Quadratic Formula; Logarithms; Systems of Linear Equations and Determinants.

**Duration** - 13 weeks

**Lectures** - 6 hours/week

## **MATHEMATICS 1101 (Introduction to Calculus)**

This is a course designed to prepare students for the study of calculus as well as to introduce them and give them a facility with the concepts of differentiation necessary for a better understanding of a variety of technology courses.

Functions; Analytic Geometry; Trigonometry; Algebraic Operations and Complex Numbers; The Derivative.

**Prerequisite** - Diagnostic Test or Mathematics 1100

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## **MATHEMATICS 1200 (Calculus)**

In this course students will study 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.

Curve Sketching; Transcendental Functions and Their Derivatives; Applications of the Derivative; Differentials; Introduction to Integration; The Definite Integral; Further Applications of Indefinite and Definite Integrals

**Prerequisite** - Mathematics 1101 or equivalent

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## **MATHEMATICS 2101 (Advanced Calculus)**

This is primarily an applied calculus course designed to meet the specific requirements of the following technology programmes:

- 1) Naval Architecture Technology
- 2) Marine Engineering Systems Design
- 3) Marine Engineering Technology

Integration Techniques; Applications of Integration; Double Integration; Differential Equations;

**Prerequisite** - Mathematics 1200 or equivalent

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## **MATHEMATICS 2102**

This is a course comprised of a variety of topics designed to meet specific needs of the Nautical Science Diploma programme.

Formula Manipulation; Mensuration; Geometric Construction; Interpolation; Moments; Trapezoidal Rule; Simpson's Rule; Spherical Trigonometry

**Prerequisite** - Mathematics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **MATHEMATICS 2104 (Statistics)**

This course is designed to introduce participants to statistics and to prepare them to apply statistical concepts in the context of food production.

Descriptive Statistics; Important Probability Distributions; Statistical Inference; Applications

**Prerequisite** - Mathematics 1101

**Lectures** - 39 hours

**Laboratories** - 13 hours

## **MATHEMATICS 2107 (Environmental Statistics)**

This course is designed to provide students with a working knowledge of how to describe data and assess it statistically.

Sampling; Descriptive Statistics; Probability; Binomial Distribution; Normal Distribution; Statistical Inference.

**Prerequisite** - Mathematics 1101

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **MATHEMATICS 2108 (Applied Statistics)**

This course is designed to provide the student with a working knowledge of descriptive statistics and the statistical treatment and interpretation of data.

Sampling; Methods for Describing Sets of Data; Probability; Binomial Distribution; Normal Distribution; Inferences Based on a Single Sample: Estimation; Statistical Inference: Tests of Hypothesis; Analysis of Variance; Non-Parametric Statistics; Simple Linear Regression

**Prerequisite** - Mathematics 1101

**Lectures** - 39 hours

**Laboratories** - 26 hours

## **MECHANICS 1100**

This is a foundation course which provides the fundamental concepts required for the analysis of basic engineering problems and builds on the principles introduced in previous physics courses. Students are introduced to elements of statics and dynamics which are appropriate for a first course for technicians studying marine engineering.

Analysis of Force Systems; Principal of Moments; Equilibrium; Analysis of Trusses and Machines; Friction; Centroids, Moments of Area, and Moments of Inertia; Kinematics of Rigid Bodies; Plane Motion; Kinetics of Rigid Bodies; Work, Power, and Energy; and Simple Machines

**Prerequisites** - Mathematics 1100; Physics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hour slots shared on a rotating basis with two other courses (average - 1 hour/week)

# COURSE DESCRIPTIONS

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## MECHANICS 1101

This is a foundation course which provides the fundamental concepts required for the analysis of basic engineering problems and builds on the principles introduced in previous physics courses. Students are introduced to elements of statics and dynamics which are appropriate for a first course for technicians studying marine engineering.

**(Statics)** - Analysis of Force Systems; Principal of Moments; Equilibrium; Friction; **(Dynamics)** - Kinematics of Rigid Bodies; Plane Motion; Kinetics of Rigid Bodies; Work, Power, and Energy; Simple Machines; Equations of Motion

**Prerequisites** - Mathematics 1100; Physics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## MECHANICS 2100

This a follow-on from the introductory course, Physics 1100. The course will develop and expand on basic principles and laws necessary in the design, and understanding of mechanical engineering applications.

Statics; Velocity and Acceleration; Velocity Diagrams; Acceleration Diagrams; Mass Moment of Inertia; Energy; Flywheel Design; Centrifugal Force; Governors ; Balancing

**Prerequisites** - Mathematics 1101 (can be taken concurrently); Physics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

## MECHANICS 2102

This is a foundation course that provides the fundamental concepts required for the understanding and development of basic engineering sciences, and builds on the principles developed in Physics 1100. This first course in mechanics concentrates on the all important concepts of statics.

Statics of Particles, Force Systems and Their Equivalents; Statics of Rigid Bodies; Rigid Bodies in Space; Centroids and Centres of Gravity; Analysis of Frames and Machines; Friction; Second Moments of Area and Moments of Inertia

**Prerequisites** - Mathematics 1100 (can be taken concurrently); Physics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hour slots shared on rotating basis with two other courses (average - 1 hour/week)

## MECHANICS 2200

This course will develop further the student's understanding of the basic principles of Mechanics of Machines and will lead to a deeper understanding of the more involved principles of more complex systems while focusing on some major areas of Mechanical Engineering Technology.

Simple Harmonic Motion; Gyroscopic Effects; Belt Drives; Balancing of Masses; Clutches; Gear Trains; Gear and CAM Design; Vibrations of Shafts and Beams.

**Prerequisite** - Mechanics 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 6 experiments

## MECHANICS 2201

This second course in mechanics introduces the fundamental concepts of dynamics and builds on the basic principles of statics presented in Mechanics 2102. The two course sequence is a basic requirement for the analysis of engineering problems, and for understanding the design principles of various machines and mechanisms.

Dynamics of Particles; Dynamics of Rigid Bodies; Mechanical Vibrations

**Prerequisite** - Mechanics 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 6 experiments

## MECHANICS 3100

### (Theory of Machines)

This course develops and expands the principles and theories of basic engineering mechanics which are necessary for the design and understanding of various common mechanisms for standard mechanical engineering applications.

Velocity and Acceleration Diagrams; Crank and Effort Diagrams and Flywheel Design; Governors; Balancing of Rotating Masses; Gyroscopes; Belt Drives and Band Brakes; Friction Clutches; Gear Trains; Cam Design; Transverse Vibration of Beams; Whirling of Shafts

**Prerequisites** - Mathematics 1200; Mechanics 2201

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 6 experiments

## MOBILE OFFSHORE DRILLING AND PRODUCTION UNITS 3100

This is an advanced level course designed to introduce students in the Naval Architecture programme to the evolution, design, fabrication and installation of mobile platforms used to drill for and produce petroleum from beneath the sea.

Evolution of Mobile Drilling and Production Units; Jackups; Semi-submersibles; Catenary Moorings; Catenary Mooring Installations; Tension Leg Platforms; Tether Systems; Drillships; Tanker Based Storage and Offloading Systems

**Prerequisite** - Shipbuilding 2207; Shipbuilding 2208

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## NAVAL ARCHITECTURE 2100

This is a course designed to develop students' ability to perform ship area and volume calculations with emphasis on practical skills to read lines plan and extract data to create cross-section drawings in way of machinery spaces.

Lines Plan; Draft and Trim; Coefficients of Hull Form; Integrating Rules and Methods; Tonnes per Centimetre of Immersion (TPC); Centre of Flotation; Volume and Displacement; Buoyancy and the Centre of Buoyancy(VCB, LCD); Centre of Gravity; Hydrostatic Curves.

**Prerequisites** - Ships Design 1100; Ship Design 1102

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 1 hour/week

# COURSE DESCRIPTIONS

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## NAVAL ARCHITECTURE 2101

This is an intermediate year course designed for students in the Marine Engineering Diploma of Technology programme to prepare them for Transport Canada examinations as Second and Chief Engineers.

Ship Arrangements and Configurations; Ship Terms and Definitions; Stresses in Ships' Structures; Steel Sections used in Shipbuilding; Aluminum used in Shipbuilding; Classification Societies and Regulatory Agencies; Welding and Cutting Processes; Keels; Framing Systems; Single-bottom Construction; Double-bottom Construction; Shell Plating; Strengthening for Navigation in Ice; Bulkheads; Deck Structures; Hatch Covers; Forward End Structural Arrangements and Details; Anchoring and Mooring Arrangements; Testing of Anchors and Cables; Aft End Structural Arrangements and Details; Shafting and Stern Tube Alignment

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## NAVAL ARCHITECTURE 2102 (Shipbuilding)

This is the first of two courses to develop the students' understanding of ship structures and the rules and regulations which affect the design, construction, and repair of ships.

The Ship's Environment; Stresses on a Ship; Ship Construction Terminology; Plates and Sections; The Hull Girder; Framing Systems; Construction Details; Interpretation of Ships' Drawings; Construction of Typical Ship Types; Fore End Structures; and Aft End Structures

**Prerequisites** - Ship Operations 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

## NAVAL ARCHITECTURE 2200

This course is designed to develop the student's understanding of ship's stability as well as national and international regulations and standards related to stability criteria.

Stability at Small Angles of Heel; Longitudinal Stability; Stability at Large Angles of Heel; Effect on Stability by Lifting Weight; Angle of List Caused by Transverse Shift of Items of Deadweight

**Prerequisite** - Naval Architecture 2100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 1 hour/week

## NAVAL ARCHITECTURE 2202 (Shipbuilding)

This course is designed to develop a student's understanding of ship structures and the rules and regulations which affect the design, construction, and the repair of ships.

Rudders; Steering and Maneuvering; Ice Strengthening; Superstructures and Deckhouses; Construction Materials; Welding and Cutting Procedures; Riveting; Shipyard Practice; Rules and Regulations; Structural Fire Protection; Watertight Divisions; Loadlines; Tonnage; Surveys and Maintenance; Repair Procedures and Damage Reports

**Prerequisite** - Naval Architecture 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

## NAVAL ARCHITECTURE 3100

This is an intermediate year course designed for students in the Marine Engineering Diploma of Technology programme to prepare them for Transport Canada examinations as Second and Chief Engineers.

Rudder Construction; Rudder Theory; Resistance, Powering, and Fuel Consumption; Propellers; Tailshafts and Propeller Mountings; Kort Nozzles or Ducted Propellers; Voith Schneider Propulsion Units; Engine and Boiler Rooms; Casings; Superstructures and Deckhouses; Bulwarks and Freeing Ports; Testing of Compartments and Tanks; Shipyard Practices; Safety Related Issues; Insulations; Ventilators, Air Sounding Pipes, and Filling Pipes; Tonnage, Freeboard, and Hull Markings

**Prerequisite** - Naval Architecture 2101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## NAVAL ARCHITECTURE 3200

This is an advanced year course designed for students in the Marine Engineering Diploma of Technology programme to introduce them to the fundamentals and applications of stability theory.

Laws of Flotation; Coefficients of Form, Areas, Volumes, and Moments; Pressures and Centres of Pressure; Centre of Gravity; Free Surface Effects; Transverse Statical Stability; Waves and Rolling; Dynamical Stability; Longitudinal Stability; Change in Draft due to Bilging; Dry-docking and Grounding

**Prerequisite** - Naval Architecture 3100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## NAVIGATION 2100

This is an introductory course in the fundamentals of the theory and practice of navigation. It is essential to have a sound knowledge of the basic skills of navigation and the ability to apply this knowledge, despite the many technological advances in marine navigation.

Navigation; The Terrestrial Sphere; The Nautical Chart; Nautical Chart Symbols and Abbreviations; The Compass; Direction; Navigational Aids; Obtaining a Position Line; Position Fixing; Current and Leeway; Tides and Tidal Streams; Publications; The Sailings

**Prerequisites** - Cargo Operations and Navigation 1100; Mathematics 1100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 6 hours/week

## NAVIGATION 2101 (Radio Telephone Seminar)

This seminar is designed to enable students to understand and demonstrate techniques for using radio telephone in communications at sea, as well as identify and utilize publications connected with radio communications at sea. Furthermore, it will lead to certification by Industry Canada on the awarding of a radio operator's telephone license.

Marine Radio Communications; Radio Regulations; Radio Aids to Marine Navigation (RAMN) and Annual Notices to Mariners

**Prerequisites** - Cargo Operations & Navigation 1100; Seamanship 2100 with Morse Code

**Duration** - 3 days/20 hours



# COURSE DESCRIPTIONS

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## **NAVIGATION 2107 (Radio Operator's Certificate - Maritime Commercial)**

This course enables radio station personnel, ashore and afloat, operating in accordance with the Global Maritime Distress and Safety System (GMDSS) to utilize efficiently aspects of the GMDSS communications matrix applicable to Sea Area A1 operations. In addition, this course adheres to the fundamental recommendations for training of maritime radio personnel as outlined in the International Maritime Organization's Resolution A.769(18).

**Prerequisites** - Cargo Operations and Navigation 1100; Seamanship 2100 with Morse Code

**Duration** - 3 days - 24 hours

## **NAVIGATION 2200**

Celestial Navigation may be defined as the art and science of determining a ship's position through observation of the celestial bodies - the sun, moon, planets, and stars. The instrument used to observe the heavenly bodies, the sextant, is symbolic of the history and tradition of the navigator. Although presently somewhat overshadowed by electronic systems, celestial navigation remains a basic and widely used procedure for determining position at sea.

This is an introductory course in celestial navigation. The emphasis will be on developing an in depth knowledge of the theory and terminology associated with nautical astronomy.

Sailings; Nautical Astronomy; The Celestial Sphere; The Sextant; Altitude Correction; Time; The Marine Chronometer; The Nautical Almanac; Figure Drawings; Amplitudes, Azimuths, and Twilight; Body Identification

**Prerequisite** - Navigation 2100

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 3 hours/week

## **NAVIGATION 2201 (GMDSS)**

This is a comprehensive course which enables radio station personnel, ashore and afloat, operating in accordance with the Global Maritime Distress and Safety System (GMDSS) to utilize efficiently all aspects of the GMDSS communications matrix. In addition, this course adheres to the fundamental recommendations for training of maritime radio personnel as outlined in the International Maritime Organization's Resolution A.703(17).

The Global Maritime Distress and Safety System (GMDSS); Regulations and Publications Pertaining to the GMDSS; Radio Theory; Practical Radio Communication Operations on VHF/MF/HF; Digital Selective Calling (DSC); Practical DSC Procedures on VHF/MF/HF; Inmarsat; Practical Inmarsat Communication Procedures on Inmarsat A and C; Enhanced Group Calling (EGC) Telex Over Radio (TOR); NAVTEX; Power Supplies & Maintenance; Emergency Position Indicating Radio-Beacon (EPIRB); Search and Rescue Radar Transponder (SART)

**Prerequisite** - Navigation 2101

**Duration** - 10 days

**Lectures/Practical Exercises** - 6.5 hours/day

## **NAVIGATION 2300 (Communications)**

This course is designed to teach the student signalling drills and international signalling procedures; to give the student an understanding of the basic concepts for radio communications; to familiarize the student with and enable him/her to use radio aids to marine navigation; and to create an awareness of radio legislation and regulations

International Code of Signals; Morse Code; Marine Radio Communications; Radio Regulations; Radio Aids to Marine Navigation (RAMN)

**Prerequisite** - Navigation 2200

**Duration** - 13 weeks

**Lectures/Laboratories** - 2 hours/week

## **NAVIGATION 3100**

This advanced course in navigation prepares for a pre-scheduled MOT 041 exam. In addition it develops the student's knowledge to analyze and solve problems connected with the safe and economic conduct of a passage. The aim of this course is to develop an understanding of chartwork and pilotage up to and beyond that required for the Watchkeeping Mate Certificate of Competency.

Navigation Procedures; Advanced Chartwork; The Compass; Pilotage; GPS; and Navigation Passage Making/Planning

**Prerequisites** - Navigation 2200; Work Term 1102 (Sea Phase 1)

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 4 hours/week

## **NAVIGATION 3200**

The aim of this course is to develop an understanding of practical navigation to a level required for all ocean and offshore navigation on board ship. Navigation principles are briefly revisited to ensure the student is fully conversant with the theoretical knowledge covered in other courses.

Navigation Principles; Latitude and Time of Meridian Passage; Latitude by Polaris; Position Lines and Position Circles; Ex-Meridian Method of Sight Reduction; Longitude by Chronometer; Sight Reduction Tables and Sight Planning

**Prerequisites** - Navigation 3100; Work Term 2102 (Sea Phase 2)

**Duration** - 13 weeks

**Lectures** - 5 hours/week

**Laboratories** - 5 hours/week

## **NAVIGATION SAFETY 3101 (Collision Regulations)**

This course in Navigation Safety covers the Collision Regulations TP 10739 and the Recommended Code of Nautical Procedures and Practices (It includes the IMOs Basic Watchkeeping Principles.)

General; Steering and Sailing Rules; Lights and Shapes; Sound and Light Signals; Distress Signals; Exemptions and Canadian Provisions; Details of Light and Sound Signals; and Code of Nautical Procedures and Practices

**Prerequisites** - Ship Operations 1100; Work Term 1102 (Sea Phase 1)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **NAVIGATION SYSTEMS 2100 (SEN)\***

Navigation Systems 2100 is the first part of a three-part mandatory safety related course credit which the student must complete to obtain a credit in the Nautical Science Diploma of Technology Program and a Canadian Watchkeeping Mate Certificate. The purpose of Navigation Systems 2100 is to provide the student with the principles, practical usage and the operation of shipboard navigation equipment identified in the course outline.

\*Successful completion required as partial requirement for SEN I (Transport Canada) credit.

Radar; Radar Plotting Techniques; Automatic Radar Plotting Aid (ARPA); and Voyage Planning

**Prerequisites** - Cargo Operations and Navigation 1100; Electrotechnology 1200; Technical Session 1 courses which include: Seamanship 1100; Ship Operations 1100; MED Training 1100

**Duration** - 13 weeks

**Lectures/Laboratories** - 13 weeks

## **NAVIGATION SYSTEMS 2200 (SEN)\***

NAVIGATION SYSTEMS 2200 is the second part of a three-part mandatory safety related course credit which the student must complete to obtain a credit in the Nautical Science Diploma and Canadian Watchkeeping Mate Certificate. The purpose of Navigation Systems 2200 is to provide the student with the principles, practical usage and the operation of shipboard navigation equipment identified in the course outline.

\*Successful completion required as partial requirement for SEN I (Transport Canada) credit.

Loran C; Decca; Omega; Satellite Positioning Systems; Echo Sounder; Radio Direction Finding; Bridge Manoeuvring/Communication Systems; ECDIS

**Prerequisite** - Navigation Systems 2100

**Duration** - 13 weeks

**Lectures/Laboratories** - 13 weeks

## **NAVIGATION SYSTEMS 2300 (SEN)\***

Navigation Systems 2300 is the third part of three-part mandatory safety related course credit which the student must complete to obtain a credit in the Nautical Science Diploma of Technology Program and the Canadian Watchkeeping Mate Certificate. Students experience proper bridge watchkeeping practices and procedures on a blind pilotage simulator.

A simulated course designed for ship's officers in order to execute proper bridge watchkeeping on board ships.

\* Successful completion will satisfy the requirements for SEN I (Transport Canada) credit.

Radar Simulator's Ownship's Controls and Characteristics (IMO); Review of Plotting Skills (Basic Radar); Bridge Navigational Watch; Open Water Navigation (IMO); Operational use of ARPA; Coastal Water Navigation; and Navigate in or near Traffic Separation Schemes

**Prerequisite** - Navigation Systems 2200

**Simulation** - 70 hours (minimum of 10 days)

## **OCEANOGRAPHY 2103**

An introductory oceanography course designed to cover a variety of topics with emphasis on physical and coastal oceanography and the practical skills necessary to sample this environment.

Composition of the Oceans; Physical Oceanography; Coastal Processes; and Atmosphere and Climate

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **OCEANOLOGY 2100 (Hydrography)**

An introductory course which explores the field work of the hydrographic surveyor and introduces the student to the complexities involved in producing a finished nautical chart.

Introduction; Plane Surveying; Geodesy; Projections

**Prerequisites** - Cargo Operations & Navigation 1100

**Duration** - 13 weeks

**Lectures** - 1 hour/week

**Laboratories** - 2 hours/week

## **OCEANOLOGY 2101 (Oceanography)**

This is an introductory course which acquaints the student with fundamental physical, chemical and biological oceanographic concepts.

Physical Oceanography; Chemical Oceanography; and Biological Oceanography

**Prerequisites** - Ship Operations 1100; Work Term 1102 (Sea Phase 1); Technical Session 2 courses which include: Cargo Operations 2201; Navigation 2101; Navigation Safety 3101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **OCEANOLOGY 2200 (Hydrography)**

A course which builds on the fundamentals explored in Hydrography 2100. The work of the hydrographic surveyor is investigated and the complex procedure involved in transforming raw sounding data into a finished nautical chart is examined.

Projections; Echo Sounding; Positioning; Introduction to Aerial Photogrammetry

**Prerequisite** - Oceanology 2100

**Duration** - 13 weeks

**Lectures** - 1 hour/week

**Laboratories** - 2 hours/week

## **OCEANOLOGY 3100 (Meteorology)**

This is an introductory course which develops fundamental meteorological theory, and links the concepts to shipboard practice.

Instruments; The Atmosphere; Pressure; Temperature; Water Vapour; Clouds; Precipitation; Visibility and Fog; Wind; Temperate and Polar Zone Circulation; Tropical and Subtropical Circulation; Organization and Operation of Meteorological Services; Forecasting

**Prerequisites** - Ship Operations 1100; Work Term 1102 (Sea Phase 1); Work Term 2102 (Sea Phase 2)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

# COURSE DESCRIPTIONS

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## **OFFSHORE STRUCTURES 3200 (Environment Platform Design)**

This is an advanced level course designed to introduce students in the Naval Architecture programme to the environmental wind, wave, current, ice forces acting on offshore platforms and the interaction of those forces. Platform concepts, loadings, development, evaluation, optimization and preliminary design, certification.

Wind; Waves; Currents; Handling, Transportation and Installation Forces; Ice; Other Forces - Mudslides, Earthquakes; Environmental Concerns - Offshore Newfoundland; Design Criteria and Preliminary Design; Platform Loadings; Development of the Modern Semi-Submersible; Development of the Modern Tension Leg Platform; Modification of Drilling Platforms for Production Units; Classification and Certification

**Prerequisites** - Mobile Offshore Drilling and Production Units 3100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **OFFSHORE TECHNOLOGY 0100 (Steelwork Theory)**

An introductory level course designed to familiarize the student with the theoretical aspects of fitting and welding as they relate to offshore construction.

Introduction to Trade; Safety; Tools of the Trade; Material Preparation; and Auxiliary Equipment

**Duration** - 16 weeks

**Lectures** - 2 hours/week

## **OFFSHORE TECHNOLOGY 0101 (Offshore Fabrication)**

An introductory level course designed to familiarize the student with the offshore fabrication environment and the responsibilities of the fabricator in that environment.

The Offshore Fabrication Work Environment; Safety Requirements; Structural Steel; and Quality Control and Quality Assurance

**Duration** - 16 weeks

**Lectures** - 2 hours/week

## **OFFSHORE TECHNOLOGY 0200 (Steelwork Theory)**

An intermediate level course designed to enhance the student's theoretical knowledge and to further his/her practical skills in fitting and welding as they relate to offshore construction.

Metallurgy; Metal Forming; Marking Out; and Fabrication

**Duration** - 16 weeks

**Lectures** - 2 hours/week

## **OFFSHORE TECHNOLOGY 0201 (Offshore Fabrication)**

An intermediate level course designed to enhance the student's theoretical knowledge and practical skills in offshore fabrication.

Codes and Standards; Heat Treatments; and Quality Control and Quality Assurance

**Duration** - 16 weeks

**Lectures** - 2 hours/week

## **PHYSICS 0100 (Engineering Science)**

This is an introductory level physics course designed to encourage an understanding of basic physics concepts, applications, and problems.

Measurement and Systems of Measurement; Precision Measurement; Graphing and Graphical Analysis; Buoyancy and Specific Gravity; Electricity; Force and Torque; Work; and Simple Machines

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **PHYSICS 1100**

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.

The Nature of Physics; Describing Motion, Kinematics in one Dimension; Kinematics in two Dimensions, Vectors; Motion and Force, Dynamics; Circular Motion, Gravitation; ; Rotational Kinematics; Bodies in Equilibrium; Work and Energy; Linear Momentum.

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **PHYSICS 1101**

This is an introductory level Physics course designed to extend the student's knowledge and understanding of basic Physics principles, concepts, and applications. A selection of practical exercises designed to augment and extend classroom instruction will complement the course.

The Nature of Physics; Motion and Vectors; Dynamics; Work, Energy, and Power; Rotation and Circular Motion; Properties of Matter; Wave Motion; Sound; Heat; Light

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **PHYSICS 1200**

This is a second semester course designed to extend the students' knowledge and understanding of basic Physics principles, concepts and applications relating to kinetic theory, heat, vibrations, sound and light. It also extends abilities in data handling, problem solving and experimentation.

Properties of Materials; Fluid Mechanics; Vibrations and Wave Motion; Sound; Kinetic Theory; Heat and Heat Transfer; Light;

**Prerequisite** - Physics 1100 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **PROBLEM SOLVING 2100**

This course acquaints the student with a model of the process of human problem solving. Students will be encouraged to analyze and improve their abilities by approaching new types of problems.

Introduction; Morphology of Design; Improving Your Solution Techniques; Solution Strategies

**Duration** - 13 weeks

**Lectures** - 2 hours/week

## **PROCESSING TECHNOLOGY 0100**

### **(Fish Handling)**

This course will provide students with knowledge in the proper holding and handling practices for fish and shellfish.

Icing; Boxing; Bleeding; Intrinsic and Extrinsic Quality Factors; Unloading; Transportation; Grading and Sorting; Finished Product Analysis; Pre-Rigor and Post-Rigor and Rigor Fish

# COURSE DESCRIPTIONS

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## **PROCESSING TECHNOLOGY 0101**

This course is designed to provide students the necessary skills needed to perform the day to day duties in a seafood processing plant. It will focus specifically on the different processes enrolled in the shellfish, pelagic and groundfish industry.

Pelagic, Groundfish and Shellfish Processing; Yield Studies; Quality Factors; Freezing and Drying; Harvesting and Handling

## **PROCESSING TECHNOLOGY 1100**

This is an introductory course designed to familiarize students with the basic principles involved in processing technology and to provide a basis for further studies in this area.

Food Industry; Seafood Industry; Sanitation; Quality Control; Aquaculture

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 3 hours/week

## **PROCESSING TECHNOLOGY 1101**

### **(Food Processing Technology)**

This course is designed to provide an introduction to the food industry with emphasis on basic preservation principles in food processing including: chilling, freezing, and cold storage, heat processing, smoking, pasteurization, salting, pickling, marinating and drying.

Food Industry Overview; Food Processing Overview; Chilled Food Processing Methods; Food Preservation Methods; Food Packaging

**Duration** - 6 weeks  
**Lectures** - 7 hours/week  
**Laboratories** - 6 hours/week

## **PROCESSING TECHNOLOGY 1200**

This is an introductory course designed to familiarize students with the basic techniques involved in seafood processing technology and to provide a basis for further studies in this area.

Primary Processing; Secondary Processing; Marketing; Processing Plant Operations

**Prerequisite** - Processing Technology 1100  
**Duration** - 6 weeks  
**Lectures** - 42 hours total  
**Laboratories** - 42 hours total

## **PROCESSING TECHNOLOGY 2100**

### **(Groundfish Processing)**

This course is designed to familiarize students with the Handling & Processing of a variety of major groundfish species.

Cod-Primary Processing; Flatfish-Primary Processing; Redfish-Primary Processing; Lumpfish - Salted Roe

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 2 ½ hours/week  
**Laboratories** - 3 ½ hours/week

## **PROCESSING TECHNOLOGY 2101**

### **(Shellfish Processing)**

This course is designed to familiarize students with the handling and processing of a variety of major shellfish species.

Snow Crab; Pink Shrimp; Lobster; Blue Mussels; Scallops and Surf Clam; Squid

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 4 hours/week

## **PROCESSING TECHNOLOGY 2102**

### **(Pelagic Processing)**

This course is designed to familiarize students with the handling and processing of a variety of major pelagic species.

Capelin; Atlantic Herring; Atlantic Mackerel; Salmon.

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 4 hours/week

## **PROCESSING TECHNOLOGY 2103**

### **(Secondary Processing)**

This course is designed to familiarize students with the production of secondary products and knowledge of underutilized species processing and by-product utilization.

Smoked Seafoods; Breaded and Battered Products; Roes and Caviars; Marinated Products; Specialty Seafood Products; Underutilized Species; By-Products

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 2 hours/week  
**Laboratories** - 4 hours/week

## **PROCESSING TECHNOLOGY 2104**

### **(Seafood Processing Engineering)**

This course is designed to give students a knowledge and understanding of the engineering design of seafood plants and operating systems.

Seafood Engineering Systems; Processing Machinery; Distribution Systems

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 2 hours/week

## **PROCESSING TECHNOLOGY 2105**

### **(Food Processing Technology)**

This course is designed to provide an introduction to the handling and processing of the major food groups.

Processing of Fruits and Vegetables; Processing Cereal Grains and Oil Seeds; Processing Milk and Dairy Products; Processing of Meat, Poultry and Fish; Processing of Alcoholic and Non-Alcoholic Beverages; Food Additives and Food Ingredients

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks  
**Lectures** - 3 hours/week  
**Laboratories** - 3 hours/week

## **PROCESSING TECHNOLOGY 2106**

### **(Canned Foods)**

The Canadian Food Industry Code of Practice for the Heat Processing of Low Acid and Acidified Low Acid Foods in Hermetically Sealed Containers states that supervisors and operators responsible for processing systems, retorts, aseptic processing and packaging systems and product formulating systems and container closure inspectors should have attended an approved school and have been identified by that school as having satisfactory completed the prescribed course of instruction.

Introduction to Site Microbiology; Product Preparation; Processing Equipment and Procedure; Container Integrity; Post Container Handling; Incubation; Regulations and Codes of Practice

**Prerequisite** - Enrolled in, or graduation from, an appropriate education program. Recommended by government and industry.

**Duration** - 5 days (35 hours)

# COURSE DESCRIPTIONS

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## **PROCESSING TECHNOLOGY 2107**

### **(Food Processing I)**

This course is designed to provide student with an understanding of muscle foods, their composition and their role in the food industry.

Government Regulations; Red Meat Production; Dairy Production; Poultry and Egg Production; Seafood Production

**Prerequisites** - Biology 1100; Food Technology 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **PROCESSING TECHNOLOGY 2201**

### **(Seafood Processing Technology)**

This course is designed to familiarize students with the techniques and technology involved in the production of seafood products.

Fisheries Overview; Preservation Methods; Primary Processing; Secondary Processing; By-products Utilization

**Prerequisites** - Food Technology 1100; Processing Technology 2107; Quality Assurance 2104

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **PROCESSING TECHNOLOGY 3100**

### **(Food Processing II)**

This course is an advanced level course designed to provide the student with an understanding of a variety of food processing techniques for foods of plant origin.

Introduction to Food Processing; Fruit and Vegetable Processing; Processing of Edible Fats and Oils; Sugars and Sweeteners; Confectionary Products; Cereals and Grains; Baking Technology; Beverage Technology; Food Hydrocolloids; Food Regulations

**Prerequisites** - Biology 2102; Food Safety 2101; Food Technology 2103; Processing Technology 2107

**Lectures** - 3 hours/week

**Laboratories** - 3 hours/week

## **PROGRAMMING 2100**

### **© Language Programming)**

This course introduces the student to the fundamentals of programming in the C language. The student will learn the syntax of a C module, and how to define and manipulate the standard C data types. Textual input and output with streams will be mastered.

A Simple Program; Data Types; Simple Input and Output; Program Flow Chart; Pointers; Structures; Files

**Prerequisites** - Computer Applications 1100; Mathematics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 lab @ 3 hours/week

## **QUALITY ASSURANCE 2100**

### **(Food Production Quality)**

This course is designed to provide students with an introduction to quality assurance in the food industry.

Quality Assurance Planning; Quality Concepts; Quality Programs; Quality of Design: Product; Food Safety; Health Canada; Agriculture and Agri-Foods Canada; Fisheries and Oceans; Common Inspection Approach; International Organizations

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **QUALITY ASSURANCE 2101**

This course is designed to provide the student with an in-depth knowledge of the design and implementation of quality programmes for the seafood processing industries as well as the various standards regulating such programmes.

Quality Assurance Planning; Quality of Design: Product; Quality of Design: Production and Processes; Quality of Design: Raw Materials; Quality of Conformance: Inspection; Quality of Conformance: Statistical Control; Quality of Conformance: Workmanship; Quality of Conformance: Customer Contact and Reliability; Quality Management Information System; Quality Cost Accounting; Quality Programme Standards; Quality Programme Implementation; Quality Management Programme; Total Quality Management

**Prerequisite** - Quality Assurance 2103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **QUALITY ASSURANCE 2102**

### **(Food Production Quality)**

This course is designed to provide in-depth knowledge of the quality assessment techniques involved in food product evaluation.

Product Evaluation; Sensory Analysis; Packaging and Container Integrity Evaluation; Viscosity Evaluation; Texture Evaluation; Colour Evaluation; Size, Shape, Symmetry & Style; Defects; Standards of Measurement and Calibration

**Prerequisites** - Biology 1100; Work Term 1100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **QUALITY ASSURANCE 2103**

### **(was referred to as Quality Control 2100)**

This course is designed to provide students with an in-depth understanding of the various techniques utilized by quality control practitioners in assessing the quality of seafoods at the raw material, in-process and finished product stages of production.

Quality Assessment Techniques; Specifications; Intrinsic Quality; Fish Spoilage and Fish Spoilage Control; Point-of-Sale Grading; Final Product Grade Standard; Packaging, Coding, and Labelling Requirements; Record Keeping;

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **QUALITY ASSURANCE 2104**

This course is designed to provide an in-depth knowledge of the quality assessment techniques involved in the food industry.

Product Evaluation; Sensory Analysis; Viscosity Evaluation; Texture Evaluation; Colour Evaluation; Size, Shape, Symmetry & Style; Defects; Standards of Measurement and Calibration; Chemical Measurements

**Prerequisites** - Food Technology 1100; Mathematics 2108

**Lectures** - 2 hours

**Laboratories** - 3 hours

# COURSE DESCRIPTIONS

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## **QUALITY ASSURANCE 2200 (Food Production Quality)**

This course is designed to provide an in-depth knowledge of the continuous improvement techniques that are used in the food industry.

Quality of Design: Production & Processes; Quality of Conformance: Inspection; Food Safety Enhancement Program; Hazard Analysis Critical Control Points; Quality Management Program; Problem Solving; Statistical Quality Control; Statistical Process Control

**Prerequisites** - Mathematics 2104; Quality Assurance 2100; Quality Assurance 2102

**Duration** - 13 weeks

**Lectures** - 4 hours/week

**Laboratories** - 3 hours/week

## **QUALITY ASSURANCE 2201 (Food Production Quality)**

This course is designed to provide students with an understanding of the design and implementation of quality programs in the food industry.

Total Quality Management; ISO 9000 Quality Standards; Quality Costs; Quality of Conformance: Workmanship; Quality of Conformance: Customer Contact and Reliability; Quality Management Information System; Quality Program Implementation

**Prerequisites** - Quality Assurance 2100; Quality Assurance 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **QUALITY ASSURANCE 3101**

This course is designed to provide students with an understanding of the design and implementation of quality programs in the food industry.

Quality and The Food Industry; Quality Concepts; Quality of Design: Product; Quality of Design: Production and Processes; Quality Costs; Hazard Analysis Critical Control Point; Food Safety Enhancement Program; Quality Management Program; Total Quality Management; ISO 9000 Quality Standards; Quality Management System

**Prerequisites** - Biology 2202; Food Safety 2101; Processing Technology 2201; Processing Technology 3100; Quality Assurance 2104

**Lectures** - 39 hours

**Practical** - 26 hours

## **QUALITY CONTROL 0100**

This course is an introductory course which will acquaint the students with the various element comprising a quality programme.

Basics of Quality Control; Quality Control programmes; Organization; Specifications; Intrinsic Quality, Extrinsic Quality; Fish Handling; Yield Study; Quality Assessment Groundfish, Pelagic, and Shellfish; Process Specifications; Mechanical Techniques; Chemical Assessment; Microbiology; Sampling; Statistical Quality Control; Quality Control Costs

## **QUALITY CONTROL 2100 (Currently referred to as Quality Assurance 2103)**

This course is designed to provide students with an in-depth understanding of the various techniques utilized by quality control practitioners in assessing the quality of seafoods at the raw material, in-process and finished product stages of production.

Quality Assessment Techniques; Specifications; Intrinsic Quality; Fish Spoilage and Fish Spoilage Control; Point-of-Sale Grading; Final Product Grade Standard; Packaging, Coding, and Labelling Requirements; Record Keeping;

**Prerequisite** - Work Term 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SAFETY 3101 (Navigation Safety)**

This course in Navigation Safety covers the Collision Regulations TP 10739 and the Recommended Code of Nautical Procedures and Practices.

General; Steering and Sailing Rules; Lights and Shapes; Sound and Light Signals; Distress Signals; Exemptions and Canadian Provisions; Details of Sound and Light Signals; Code of Nautical Procedures and Practices

**Prerequisite** - Seamanship 2300

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **SEAFOOD PROCESSING 4100 (Handling & Processing Seafood Products)**

This course intended to give students an overview of the processes currently employed in the seafood processing industry world wide and the current issues affecting the viability of the industry.

Introduction; Harvesting Marine Foods; Handling and Holding; Basic Composition of Seafood; Effects of Processing on Nutrients; Processing (Preservation) Primary Processing of Groundfish; Primary Processing of Pelagic; Primary Processing of Shellfish; Secondary Processing/ Underutilized Species and By-Products

**Duration** - 52 hours total

## **SEAFOOD PROCESSING 4101 (Handling & Processing Aquaculture Products)**

This course is designed to familiarize aquaculture students with the handling, processing and preservation of Newfoundland & Labrador farmed fish and shellfish.

Fisheries Overview; Seafood Quality Control; Sanitation; Farmed Cod Handling & Processing; Farmed Salmon & Trout Handling & Processing; Farmed Blue Mussel Handling & Processing; Sea Scallop Handling & Processing; Secondary Processing

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 2 hours/week

## **SEAMANSHIP 1100 (Basic Shipboard Skills)**

This is an entry level course which will develop linkages between theoretical and practical seamanship.

Practical Training for Deck Personnel; Rope, Wire, Chains, and Tackles

**Duration** - 5 weeks

**Lectures** - 13 hours/week

**Laboratories** - 7 hours/week

# COURSE DESCRIPTIONS

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## **SEAMANSHIP 2100\***

This course is designed to give students and in-depth knowledge and practical understanding of work aboard a ship, thus enabling the student to become an efficient and effective cadet. The concepts taught here will form the basis for further studies in seamanship.

Ships; Deck Appliances; Lifting Gear; Rope, Wire and Chain; Advanced Rigging; International Code of Signals; Morse Code

**Prerequisites** - Seamanship 1100; Work Term 1102 (Sea-Phase 1)

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 1 hour/week

## **SEAMANSHIP 2200**

This course is designed to further a cadet's knowledge and practical understanding of work aboard a ship in preparation for becoming an efficient, effective junior officer. The concepts taught here will form the basis for further studies in seamanship.

Principles of Ship Handling; Anchoring; Mooring; Towing; Offshore Supply Vessel Operations; Navigating in Locks

**Prerequisite** - Seamanship 2100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 1 hour/week

## **SEAMANSHIP 2300**

This course is designed to give students an advanced knowledge and understanding of the techniques required to be an efficient and responsible ship handler, and to prepare students to be observant cargo officers who are prepared to make cargo lashing adjustments if and when necessary.

Ship Handling; Cargo Lashing; On Board Practical Training

**Prerequisite** - Seamanship 2200

**Duration** - 5 weeks

**Lectures/Laboratories** - 9 hours/week

## **SEAMANSHIP 3100**

This course deals with advanced topics in seamanship and is designed to build on both the sea phase experience of the student as well as other courses in this series covering seafaring skills. Like the other courses in the series, it is meant to prepare the student to become a professional seafarer and an officer.

Shipboard Emergencies (At Sea and In Port); Search and Rescue Operations; Ice Navigation; SOLAS 1974 as amended (The International Convention for the Safety of Life at Sea)

**Prerequisite** - Seamanship 2200

**Duration** - 13 weeks

**Lectures** - 2 hour/week

**Laboratories** - 1 hour/week

## **SEAMANSHIP 3300**

This course is designed to give students an advanced knowledge and understanding of the techniques required to be an efficient and responsible ship handler, and to prepare students to be observant cargo officers who are prepared to make cargo lashing adjustments if and when necessary.

Ship Handling; Heavy Lifts and Cargo Lashing; On Board Practical Training

**Prerequisites** - Seamanship 3100; Work Term 2102 (Sea Phase 2)

**Duration** - 5 weeks

**Lectures/Laboratories** - 9 hours/week

## **SEN 2100**

**(Simulated Electronic Navigation)**

## **SEN 2200**

**(Simulated Electronic Navigation)**

## **SEN 3100**

**(Simulated Electronic Navigation)**

This is an introductory level course designed to provide the student with practice in a simulated environment, to use radar and other electronic aids, to plot the ship's position and progress, and, in an one-on-one ship situation, take necessary action to avoid collision without putting the vessel at risk.

Radar; ARPA; Radar Plotting; LORAN C; Satellite Navigation & GPS; Echo Sounder; DECCA; Radio Direction Finding; OMEGA; Gyro Compass and Course Recorder; Autopilot; Logs; Radiotelephone (VHF); Weather Fax; Signalling Apparatus; Engine Controls; Internal Communication

## **SHIPBUILDING 2107**

This is the first of two intermediate level courses designed to give the students a working knowledge of the methods and practices of modern steel ship construction.

Fore End Structure; Aft End Structure; Rudders and Nozzles; Main Machinery, Auxiliary Machinery and Deck Machinery Seatings; Shell; Casings Superstructures and Deckhouses

**Prerequisites** - Mathematics 1101; Chemistry 1200; Ship Design 1101; Ship Design 1102; Mechanics 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SHIPBUILDING 2108**

This is an intermediate level course designed to give the student a working knowledge of the materials, methods and regulations used in outfitting of steel ships.

Crew Accommodation Regulations; Joiner Bhds, Linings, and Ceilings; Deck Coverings; Insulation; HVAC; Furniture and Fittings; Ladders and Stairs; Anchoring and Mooring Equipment; Life Saving Equipment; Cargo Handling Equipment, Masts and Derricks; Hatches, Man Holes, and Doors; Painting and Preservation

**Prerequisites** - Mathematics 1101; Chemistry 1200; Ship Design 1101; Ship Design 1102; Mechanics 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SHIPBUILDING 2207**

This is the second of two intermediate level courses designed to give the student a working knowledge of the methods and practices of modern steel ship yards.

Development of Unit Construction; Unit Breakdown; Unit Drawing; Methods of Joining Structural Parts; Weights and Centroids; Material List and Coding; Lofting; Cutting and Erecting Steel; Forming of Steel Plate; Structural Repair Work

**Prerequisites** - Marine Engineering Knowledge 2101; Shipbuilding 2107; Shipbuilding 2108

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

# COURSE DESCRIPTIONS

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## SHIPBUILDING 2208

This is the first of two courses designed to give the student a working knowledge of the structural calculations involved in the design of a ship.

Ship Building Materials; Simple Ship Stresses; Ship Hull Girder; Longitudinal Strength Calculation; Transverse Strength; Sea Loads; Fatigue/Brittle Fracture; Classification Societies; Midship Section Scantlings and Sections Drawing

**Prerequisites** - Fluids 2101; Shipbuilding 2107; Shipbuilding 2108; Strength of Materials 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## SHIPBUILDING 3100

This is the second of two courses designed to give the student a working knowledge of the structural calculations involved in the design of a ship.

Evolution of Structural Design; Survey and Inspection; Non-Destructive Examination Techniques; Testing of Compartments and Tanks; Drydocking Facilities and Docking Procedures; Launching

**Prerequisites** - Shipbuilding 2207; Shipbuilding 2208; Strength of Materials 3200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## SHIP CONSTRUCTION 2100 (Ship Construction Practice)

This is the first of two intermediate level courses designed to give the student a working knowledge of the methods and practices of modern steel ship yards.

Structural Drawings; Yard Equipment and Layout; Lofting; Cutting and Erecting Steel; Forming of Steel Plate; Joining Methods; Painting and Preservation; Launching; Repair Work; Survey and Inspection.

**Prerequisites** - Ship Design 1100; Ship Design 1102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## SHIP CONSTRUCTION 2200 (Ship Construction Practice)

This is the second of two intermediate level courses designed to give the student a working knowledge of the methods and practices of modern steel ship yards.

Development of Unit Construction; Unit Breakdown; Unit Drawing; CAD Unit and Parts Definition; Steel Work Detailing; Rudders and Nozzles.

**Prerequisite** - Ship Construction 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## SHIP DESIGN 1100 (Ship Types And Systems)

This is an introductory course designed to provide students with engineering knowledge about ship types.

Introduction to Modern Ship Concept; Ship Terminology; Materials Used in Ship Construction; Commercial Ships; Special Purpose Ships; Dynamically Supported Vessels; General Arrangement Drawing; Ship Operations Onboard M.I. Training Vessel; Propulsion Systems; Prime Movers; Pumping and Piping Systems; Control Systems; Marine Engineering Drawing

**Prerequisite** - Engineering Graphics 1100

**Duration** - 5 weeks

**Lectures** - 10 hours/week

## SHIP DESIGN 1101 (Ship Hull Geometry)

This course will develop an ability to define the complex geometry of a ship's hull form with emphasis on practical draughting skills required to attain a fair and accurate form

Lines Plan Interpretation; Terminology and Form Coefficients; Hull Forms; Draughting Techniques; Lifting Hull Lines; Computer Modelling

**Prerequisites** - Engineering Graphics 1100; Mathematics 1101; Physics 1200; Communications Skills 1201;

**Duration** - 5 weeks

**Lectures** - 10 hours/week

## SHIP DESIGN 1102 (Ship Structural Geometry)

This is an introductory course to ship structures designed to familiarize students with structural arrangements and nomenclature and to improve their computer aided drafting ability.

Framing Systems; Bottom Structure; Side Structure; Deck Structure; Bulkhead Structure; Shell Structure; Fore End Structure; Aft End Structure

**Prerequisite** - Engineering Graphics 1100; Mathematics 1101; Communications Skills 1201; Physics 1200

**Duration** - 5 weeks

**Lectures** - 20 hours

**Laboratories** - 30 hours drawing laboratory

## SHIP DESIGN 2100 (Ship Engineering Design Process)

This course sets the methodology for the development of the student's engineering design project. At the same time it offers an opportunity to assimilate some economic aspects by preparing an owner specification in conjunction with an economic study.

Analysis and Response to Request For Proposal; Indexing and Scheduling; Estimating Ship Construction Costs and Life Cycle Costing; Design Package Documentation; Relationship of Auxiliary Systems to Vessel Type; Owner Specification for Ship Engineering Project Selected by Student; Cost Analysis Study for the Same Project; Presentation of Owner Specification and Cost Analysis

**Prerequisites** - Communication Skills 1200; Ship Design 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## SHIP DESIGN 2101 (Ship Structural Analysis)

This is the first of two courses designed to give the student a working knowledge of the structural calculations involved in the design of a ship.

Ship Building Steel; Simple Ship Stresses; Ship Hull Girder; Longitudinal Strength Calculation; Transverse Strength; Sea Loads; Fatigue; Midship Section Scantlings

**Prerequisites** - Fluids 2101; Ship Construction 2100; Strength of Materials 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week



# COURSE DESCRIPTIONS

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## **SHIP DESIGN 2102**

### **(Ship Outfit)**

This is an intermediate level course designed to give the student a working knowledge of the materials, methods and regulations used in outfitting of steel ships.

Machinery Seats; Crew Accommodation Regulations; Joiner Bhds, Linings, and Ceilings; Deck Coverings; Insulation; HVAC; Furniture and Fittings; Ladders and Stairs; Anchoring and Mooring Equipment; Life Saving Equipment; Cargo Handling Equipment, Masts and Dericks; Hatches, Man Holes and Doors

**Prerequisites** - Physics 1200; Ship Design 1100; Ship Design 1102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SHIP DESIGN 3100**

This course is designed to introduce students of Naval Architecture to the concept of rational design, and to provide them with the standard tools required.

Mission Profile; State of the Art; Proportions; Lines; Hull Shape Calculations; Preliminary Structural Calculations; General Arrangement; Powering;; Weight Estimate; Electrical Considerations; Machinery Considerations; Capacities; Trim and Stability; Damaged Stability; Regulations; Economic Considerations

**Prerequisites** - Strength of Materials 3200; Electrotechnology 2104; Marine Engineering Knowledge 2201; Ship Operations 2101

## **SHIP DESIGN 3101**

### **(Ship Structural Analysis)**

This the second of two courses designed to give the student a working knowledge of the structural calculations involved in the design of a ship.

Aft End Scantlings; Fore End Scantlings; Ice Strengthening; Superstructures and Deck Houses; Point Loading of Decks; Optimization, Finite Element Analysis

**Prerequisite** - Ship Design 2101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SHIP DESIGN PROJECT 3100**

### **(Preliminary Design Project)**

This course is designed to give students of Naval Architecture the opportunity to apply skills learned in preceding courses and in the ship design course, which must be taken concurrently.

Mission Profile; State of the Art; Proportions; Lines; Hull Shape Calculations; Preliminary Structural Calculations; General Arrangement; Powering;; Weight Estimate; Electrical Considerations; Machinery Considerations; Capacities; Trim and Stability; Damaged Stability; Regulations; Economic Considerations

**Prerequisites** - Strength of Materials 3200; Electrotechnology 2104; Marine Engineering Knowledge 2201; Ship Operations 2101

## **SHIP DESIGN PROJECT 3200**

### **(Ship Arrangement Project)**

This course is designed to give students of Naval Architecture the opportunity to apply skills learned in preceding courses.

Proportions; Freeboard; General Arrangement; Powering

**Prerequisite** - Ship Design 3100; Ship Design Project 3100

## **SHIP DESIGN PROJECT 3201**

### **(Marine Electrical Project)**

This is a project course designed for advanced Naval Architecture students. It is intended to familiarize the students with the design of the electrical system aboard ships and to enable them to complete the electrical design required for their technical project.

Planning; System Analysis; Project Research; System Design; Report Preparation; Report Presentation

**Prerequisite** - Ship Design 3100; Ship Design Project 3100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **SHIP DESIGN PROJECT 3202**

### **(Marine Engineering Project)**

This (course) project is designed to give students the guided possibility to develop marine engineering design drawings and calculations. The exercise is closely inter-connected with the student Ship Design Project enhancing correctness of ship structure design and space division to accommodate machinery.

Tanks Capacity Plan; Bilge, Ballast and Fire Fighting Water Pipelines Diagram; Shafting Arrangement (sketch); Preliminary Machinery Arrangement and List of Machinery

**Prerequisites** - Ship Design 3100; Ship Design Project 3100

## **SHIP DESIGN PROJECT 3203**

### **(Hull Form Development Project)**

This course develops an understanding of the factors influencing hull form design. Hand lines and computer generated lines are developed by the student to satisfy particular design criteria. Throughout, emphasis is placed on practical application.

Defining the Hull; Factors Influencing Hull Form; Coefficients of Form; Development from Basis Hull Form; First Principle Approach; Preliminary Lines; Hydrostatic Software as a Design Tool; Hand Generated Lines; Computer Generated Lines; Developable Hull Forms; Modelling

**Prerequisite** - Ship Design 3100; Ship Design Project 3100

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **SHIP DESIGN PROJECT 3204**

### **(Ship Structural Design Project)**

This course is intended to expand and reinforce the knowledge gained in previous Ship Structure courses.

Structural Logic; Scantling Approximations; Scantling Calculations; Detailing; Weight Estimate

**Prerequisite** - Ship Design 3100; Ship Design Project 3100

# COURSE DESCRIPTIONS

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## SHIP DESIGN PROJECT 3300

This course is designed to give students of Naval Architecture the opportunity to apply skills learned in preceding courses.

Capacities; Trim and Stability; Damaged Stability; Cost Estimates; Oral Presentation

**Prerequisites** - Ship Design Project 3200; Ship Design Project 3201; Ship Design Project 3202; Ship Design Project 3203; Ship Design Project 3204

## SHIP OPERATIONS 1100 (Introduction To Ships)

This is an introductory course designed to give the student a broad working knowledge of the shipping industry and its related unique terminology.

Introduction/Business of Shipping; Terminology; General

Arrangements/Equipment; Rules of the Road; Cadet Book; Field Trips/Introduction to Ships

**Duration** - 5 weeks

**Lectures** - 4 hours/week

**Field Trip**- 3 hours/week

## SHIP OPERATIONS 2101 (Ship Operations Management)

This course will develop a students understanding of the basics of engineering economic analysis and the economic environment in which ships operate.

Ship Owners; Income and Expenses; The Time Value of Money; Methods of Economic Analysis; Sensitivity Analysis; Mission Profiles

**Prerequisites** - Fluids 2201; Stability 2100; Shipbuilding 2207; Shipbuilding 2208

**Duration** - 5 weeks

**Lectures/Instruction** - 7 hours/week

## SMALL CRAFT SAFETY & BOAT HANDLING 2100

This is an introductory course in the principles and practices of small boat safety and handling.

Boat Safety; Legislation; Safety Equipment; Stability; Deckwork; Towing; Emergency Procedures

**Duration** - 35 hours

## STABILITY 2100 (Ship Stability)

This course develops an understanding of static stability theory, criteria for stability assessment and rules and regulations impacting on vessel stability. Emphasis is placed on practical application of the theory to generate a complete Trim and Stability Booklet to Transport Canada standards.

Large Angle Stability; Free Surface; Inclining Test; Tank Calibrations; Condition Sheets; Rules and Regulations - Stability; Trim and Stability Booklet; Computer Software Application

**Prerequisite** - Fluids 2101

**Duration** - 13 weeks

**Lectures** - 5 hours/week

## STABILITY 2101

This is a course designed to develop students' ability to perform basic ship hull geometry calculations with emphasis on practical skills, to extract data from hydrostatic curves and perform calculations related to ships draft, trim and centre of gravity.

Geometry of the Ship; Principal Ship Dimensions; Lines Plan; Draft and Trim; Coefficients of Hull Form; Approximate Integration Rules; Tonnes per Centimetre Immersion (TPC); Centre of Flotation; Volume and Displacement; Buoyancy and the Centre of Buoyancy (VCB, LCB); Centre of Gravity, Moment to Change Trim (MCT); Adding and Shifting Masses; Hydrostatic Curves

**Prerequisites** - Mathematics 1100; Physics 1200; Ship Operations 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

## STABILITY 3100

This course develops an understanding of the effect of dynamic forces on stability and studies in detail methods of assessing damaged ship stability including computer software applications. Methods of launching are described and end launch calculations performed. The student becomes familiar with Loadline and Tonnage regulations and their application. Throughout, emphasis is placed on calculations and presentation required by regulatory agencies.

Dynamic Stability; Subdivision; Damaged Stability; Docking and Grounding; Launching; Freeboard; Tonnage

**Prerequisite** - Stability 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hour/week

## STABILITY 3101

This course builds on the basic theory offered in Stability 2101 to develop students' ability to understand the principles governing small and large angles and intact stability. Practical skills to solve onboard ship stability problems are developed. The elements of Dynamic Stability are discussed and the IMOs Intact Stability Requirements are covered.

The Metacentre and Metacentre Height; Small Angle Stability; Free Surface; Cross Curves; Large Angle Stability; Trim and Stability Assessment; Dynamical Stability; Special Criteria for Certain Ships; Considerations for Watertight Integrity

**Prerequisite** - Stability 2101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

# COURSE DESCRIPTIONS

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## **STABILITY 3201**

This advanced course links stability theory to practical applications. Drawing on the student's knowledge of cargo operations and vessel stability criteria, this course will, through calculations, enhance the student's ability to optimize cargo distribution and to provide adequate static and dynamical stability for a vessel's safe passage.

Damaged Stability; Grounding and Docking; Pressure Exerted by a Liquid; Vessel Stresses; Longitudinal Strength; M.V. Merindus and M.V. Sept-Iles; Ship Motions; Cargo Loading and Stress Measuring Instruments and Software

**Prerequisites** - Stability 3101; Mathematics 1101; Work Term 2102 (Sea-Phase 2); Mathematics 2102

**Duration** - 13 weeks

**Lectures/Work Periods** - 4 hours/week

## **STATISTICS 4100 (Data Collection and Assessment)**

This course is designed to provide students with a working knowledge of how to collect data, describe it and assess it statistically.

Describing Data; Sampling; Important Distributions; Inference; Other Applications

**Prerequisite** - Entry to a Marine Institute Post-Diploma Program

**Duration** - 52 hours

**Lectures** - 3 hours/week

**Laboratories** - 1 hour/week

## **STATISTICS 4101 (Applied Statistics)**

This course is designed to provide participants with experience in applying statistical concepts to analytical methods related to food safety.

Descriptive Statistics; Statistical Inference; Attribute Sampling; Food Quality Assurance

**Lectures** - 26 hours

**Laboratory** - 26 hours

## **STATISTICS 4102 (Statistics for Coastal Zone Management)**

This course will provide the participants with the necessary statistical tools for decision making in Coastal Zone Management.

Descriptive Statistics; Data Collection and Surveys; Statistical Inference

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 (consecutive hours/week)

## **STRENGTH OF MATERIALS 2100**

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.

Basic Stress Systems; Strain and Elasticity; Mechanical Properties of Materials; Shear Force and Bending Moments; Stress Due to Bending; Torsional Shearing Stress; Statically Indeterminate Systems

**Prerequisites** - Mathematics 1101; Physics 1200 (can be taken concurrently)

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **STRENGTH OF MATERIALS 2101**

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.

Basic Stress Systems; Strain and Elasticity; Mechanical Properties of Materials; Shear Force and Bending Moments; Stress Due to Bending; Torsional Shearing Stress; Combined Bending and Direct Stress; Deflection of Beams

**Prerequisites** - Mathematics 1101; Mechanics 1101

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **STRENGTH OF MATERIALS 3100**

This second Strength of Materials course expands on previously studied concepts of simple stress, strain and elasticity, and provides a basis for elementary calculations in engineering design.

Strain Energy, Impact Loads; Combined Bending and Direct Stresses; Bolted, Riveted and Welded Joints; Deflection of Beams; Columns; Complex Stress and Strain Systems.

**Prerequisite** - Strength of Materials 2100 or equivalent

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## **STRENGTH OF MATERIALS 3200**

This advanced course in Strength of Materials extends on the application of fundamental principles presented in Strength of Materials 2100 and Strength of Materials 2200. Additional topics beyond the scope of these previous courses are also investigated.

Statically Indeterminate Frames; Plates Under Transverse Loading; Effects of Temperature on Steel Properties; Stress Concentrations; Strength of Welded Joints; Fatigue; Strength of Non-Planar Surfaces

**Prerequisite** - Strength of Materials 3100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

## **STRENGTH OF MATERIALS 3201**

This advanced course in Strength of Materials extends on the application of fundamental principles presented in Strength of Materials 2100 and Strength of Materials 3100. This course is intended to familiarize students with elements of structural design and machine component design often observed aboard ships.

Calculation Sheets; Design Morphology; Evaluation of Criteria and Constraints; Problem Analysis; Design Considerations; Codes and Standards; Precision and Rounding of Dimensions

**Prerequisite** - Strength of Materials 3100

**Duration** - 5 weeks

**Lectures** - 6 hours/week

# COURSE DESCRIPTIONS

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## **SYSTEMS DESIGN 3100 (Cold Environment Design)**

This is a technical course structured to give students comprehensive information and detailed knowledge of how the cold environment of the Arctic and Sub-Arctic impact on the design of ship operating in these regions. In addition, the students will learn how the engineer must apply the lessons learned in the past and use innovative ideas and techniques to design ice operating ship propulsion systems, auxiliary systems and equipment that are actually working in the cold environment.

Ice and Environmental Conditions; Propulsion of Icebreaking Ships; Selection of Propulsion Systems; Propulsion Shafting for Icebreaking Ships; Ship Service, Controls, Instrumentation and Electric Requirements; Cooling Systems for Icebreaking Ships; Icebreaking, Ice Releasing and Roll Stabilization Systems; Steering and Augmentation to Maneuverability in Ice; Protective Measures against the Cold Environment; Cold Design Special Features

**Prerequisites** - Engineering Systems 2102; Engineering Systems 2200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SYSTEMS DESIGN 3101 (Ship Design Interfacing)**

This course establishes the methodology and process of selection of a propulsion system from among the available options, including the evaluation of engines and machinery. In addition it offers the opportunity to study how an engineer must interface separately produced design documents and establish the compatibility of various elements of complex systems.

Propulsion Options; Engine Selection Techniques; Relationships between Auxiliary Systems; Ship's Design Package Including Final Calculation Book; Disciplines Interfacing

**Prerequisites** - Engineering Systems 2102; Engineering Systems 2103; Ship Design 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SYSTEMS DESIGN 3102 (Propulsion Arrangement Design)**

This course concentrates on the complete design and lay-out of ship's propulsion systems. The students will be able to complete propulsion train drawings taking in account Shaft Diameters, Propellers, Bearings, Thrust Block, Couplings and Clutches, capable of absorbing torsional and vibration forces

Propulsion Shafting Design; Propeller Selection; Sterntubes and Glands Design; Bearings Selection; Reduction Gears Selection; Coupling and Clutches Selection; Brakes, Turning Gears and Chocking

**Prerequisites** - Engineering Systems 2102; Engineering Systems 2103

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/week

## **SYSTEMS DESIGN 3103 (Auxiliary Machinery Arrangement)**

This is a technical course that will enable students to determine the appropriate auxiliary systems, including control room equipment, to be included in their ship engineering project, and to determine their location in the design. It will also enable students to prepare for the development of an electrical load analysis. Additionally, students will be introduced to a number of specialized systems, including the J.P.5 aviation fuel system and various suspension transfer systems.

Sizing, Locating and Reducing Auxiliary Components; Sizing, Locating and Reducing Electrical Components; Estimating Electric Loads; Specialized Systems

**Prerequisite** - Engineering Systems 2200

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **SYSTEMS DESIGN 3104 (Piping Arrangement Design)**

This is a technical course structured to give students the required skills to produce drawings of piping arrangements to be fitted within the irregular and confined space of a ship's machinery compartment. In addition students will learn how to select components, avoid interferences, minimize drafting time, produce a Bill of Material and perform final calculations. They will also acquire techniques to produce pipe spooling using modern methodologies.

Component Selection; Piping Arrangement Techniques; Piping Arrangement Layout; Development of Drawings; Pipe Spooling Technique; Bill of Material and Drawing Components Identification; Velocity and Sizing Calculations Checks

**Prerequisite** - Engineering Systems 2200

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **SYSTEMS DESIGN 3105 (Offshore Platform Technology)**

This is a technical course structured to give students a general idea of drilling operations and comprehensive information and details of how offshore platform are designed and how systems are designed and installed. The Auxiliary Systems, Power Plants, Controls, Production Systems, Floating Facility, Off Loading Method and Maintenance Vehicles are discussed and assimilated for functions and details.

Offshore Environmental Conditions; Type of Offshore Platforms and Operating Methods; Drilling Operations and Components used for Offshore Work; Platform and Auxiliary Systems Utilized both for Unit Operation or for Drilling Work; Sub-Sea Production and Remote Controls; Arctic Offshore Methods; Offshore Platform Protection from Freezing; Project

**Prerequisites** - Engineering Systems 2102; Engineering Systems 2200

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

# COURSE DESCRIPTIONS

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## **SYSTEMS DESIGN PROJECT 3100**

### **(Ship Engineering Project)**

This course is structured so that the student will prepare the first phase of most of the documents required for a design project package. The results from other specialized courses are incorporated into the preparation of this Ship Engineering Project.

Machinery Arrangement; Ventilation Arrangement; Exhaust Arrangement; Sea Suction Technology; Bow Thruster Compartment; Auxiliaries

**Prerequisites** - Engineering Systems 2102; Engineering Systems 2103; Engineering Systems 2200; Naval Architecture 2200

**Duration** - 13 weeks

**Lectures** - 1 hour/week

**Laboratories** - 4 hours/week

## **SYSTEMS DESIGN PROJECT 3101**

### **(Marine Electrical Project)**

This is a project course designed for advanced Marine Engineering Systems Design students. It is intended to familiarize the students with the design of the electrical system aboard ships and to enable them to complete the electrical design required for their technical project.

Planning; System Analysis; Project Research; System Design; Report Preparation; Report Presentation

**Prerequisite** - Electrotechnology 2102

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 3 hours/week

## **SYSTEMS DESIGN PROJECT 3200**

### **(Ship Engineering Project)**

This course is structured to bring to completion, the preparation of the documents required for a design project package started with the course Systems Design Project 3100. In addition to original work the results of other specialized courses are also incorporated in the machinery arrangement of the ship engineering project.

Machinery Arrangement; Specification; Auxiliary Components Finishing; Calculation Book; Integration of Systems; Presentation Methods; Final All Day Exam

**Prerequisite** - System Design Project 3100

**Duration** - 13 weeks

**Lectures/Laboratories** - 5 hours/week

## **TANKER FAMILIARIZATION**

This is an introductory level course designed for non-certified ratings so that they may understand the hazards associated with working in a tanker environment. It also provides them with the knowledge required to work safely in this environment. This course meets and/or exceeds the standards set down in Transport Canada TP8129E and STCW 95.

Tankers; Cargoes; Toxicity; Hazards; Hazard Control; Personal Safety and Protective Equipment; Pollution Prevention

## **TECHNICAL PROJECT 2100 (Technical Report - Nautical Science)**

This course is designed to allow students to conduct individual study into a selected topic in an area of Nautical Science. Each topic, and subsequently - the final draft, must be approved by the Technical Report committee.

Selecting a Topic; Researching the Topic; Documentation of Sources; Developing and Incorporating illustrations; Using Appendices; Organizing the Report; Formatting the Report

**Prerequisite** - Communication Skills 1200

## **TECHNICAL PROJECT 2101 (Seafood Processing)**

This course is designed to provide students with an opportunity to organize, design, implement, and report, through experimental techniques and analysis, a technical project which is beneficial to the secondary processing industry.

This course could entail one or a combination of any of the following subject areas: Processing Technology 2100; Processing Technology 2101; Processing technology 2101; Industrial Sanitation 2100; Quality Control 2100; Quality Assurance 2101; Processing Technology 2104; Business and Organizational Management 2101; Business and Organizational Management 2100; Business and Organizational Management 2200

**Prerequisite** - Processing Technology 1200

**Duration (Term 3)** - 13 weeks

**Lectures** - 4 hours/week

**Duration (Term 4)** - 13 weeks

**Lectures** - 4 hours/week

## **TECHNICAL PROJECT 2102 (Food Production Quality)**

This course is designed to provide students the opportunity to design a quality assurance program for a food processing plant.

Proposal; Bi-Weekly Reports; Literature Searchers; Design a Quality Assurance Program; Written Program; Oral Presentation

**Prerequisites** - Work Term 1100; All Term 3 Courses which include: Food Safety 2100; Food Technology 2100; Mathematics 2104; Processing Technology 2105; Quality Assurance 2100; Quality Assurance 2102

**Duration** - 13 weeks

**Lectures** - 3 hours/week

## **TECHNICAL PROJECT 3100 (Technical Project A&B)**

This course provides students with the opportunity to design, implement and report on a technical project with potential benefits to the Canadian food processing industry.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Prerequisites** - Biology 2202; Communication Skills 2102; Food Technology 2103; Mathematics 2108; Processing Technology 2107; Quality Assurance 2104

**Duration:**

- Term 5 (39 hours)

- Term 6 (78 hours)

## **TECHNICAL PROJECT 4101 (Advanced Diploma in Aquaculture - Independent Research Option)**

This course provides students the opportunity to design, implement, and report on a research project with potential benefits to the aquaculture industry.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Duration** - 13 weeks (20 periods per week)

# COURSE DESCRIPTIONS

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## **TECHNICAL PROJECT 4102 (Advanced Diploma in Fisheries Development)**

This course provides students the opportunity to design, implement, and report on a technical project with potential benefits to the Fisheries Resource Conservation Council (FRCC) and processing sectors of the industry.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Prerequisites** - Term 1 Courses (Fisheries Development 4100; Communication Skills 4100; Fisheries Technology 4107; Statistics 4100; Fisheries Development 4101; Business & Organizational Management 4104)

**Duration** - 39 hours total

## **TECHNICAL PROJECT 4103 (Advanced Diploma in Food Safety)**

This course provides students the opportunity to design, implement, and report on a technical project with potential benefits to the Canadian food processing industry with regard to inspection activities.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Duration** - Fall Semester - 26 hours  
Winter Semester - 39 hours

## **TECHNICAL PROJECT 4104 (Advanced Diploma in Food Technology)**

This course provides students the opportunity to design, implement, and report on a technical project with potential benefits to the Canadian food processing industry with regard to inspection activities.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Duration** - 1 week

## **TECHNICAL REPORT 3100**

One of the objectives of the Diploma of Technology in Nautical Science program is to provide the graduate with oral and written communication skills necessary for the accurate, efficient and effective operation of sea-going vessels. The School of Maritime Studies believes that this is one of the most important skills that its graduates can possess.

The School of Maritime Studies further believes that the skill of technical writing can be taught and with practice, acquired. To ensure that potential graduates of the Diploma program meet the required standards in technical communication they are required to successfully complete a technical report.

**Prerequisites** - Communication Skills 1200; Work Term 1102 (Sea Phase 1); Technical Session 1 and 2 courses which include: **(Technical Session 1)** - Cargo Operations & Navigation 1100; Seamanship 1100; Ship Operations 1100; MED Training 1100; **(Technical Session 2)** - Cargo Operations 2201; Navigation 2101; Navigation Safety 3101

## **TECHNICAL REPORT 4101 (Research Paper) - Coastal Zone Management**

Information to be distributed by the Instructor.

## **TECHNOLOGICAL THESIS 3100**

The technological thesis enables the student completing a Diploma Programme to demonstrate the application of knowledge and skills developed throughout the programme. Students taking this course will work independently on a project, under the supervision of a faculty supervisor. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

Problem Solving and the Engineering Design Process; Project Identification; Oral Presentation; Project Analysis; Project Research; Progress Report (Oral and Written); Draft of Project Report; Final Report Preparation; Oral Report Presentation

**Prerequisite** - Successful Completion of all Intermediate Level Courses

## **TECHNOLOGICAL THESIS 3101**

The technological thesis enables the student completing the Diploma of Industrial Engineering Technology 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 perform analysis of a problem, design or technological application, and fully document and present their findings.

Problem Solving and the Engineering Design Process; Project Identification; Oral Presentation; Project Research; Project Analysis; Written Progress Report; Final Project Report; Oral Report Presentation

**Prerequisites** - The Technological Thesis will normally be prepared concurrently with, or following completion of, courses at an advanced level focusing on technology applications in a student's chosen field of specialization. Communication Skills 1200 is a specific prerequisite course.

## **TECHNOLOGICAL THESIS 3102**

The technological thesis enables the student completing a Diploma Programme to demonstrate the application of knowledge and skills developed throughout the programme. Students taking this course will work independently on a project, under the supervision of a faculty advisory committee. They will carry out an in-depth study of a problem, design or technological application, and fully document and present their findings.

Problem Solving and the Engineering Design Process; Project Identification; Project Analysis; Project Research and Documentation; Progress Report (Oral and Written); Draft of Project Report; Final Report Presentation; Oral Report Presentation

**Prerequisite** - Successful Completion of all Intermediate Level Courses

# COURSE DESCRIPTIONS

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## TECHNOLOGY 4000

### (Technical Project and Report)

This course provides a link between the other courses of the Programme and the technical component from the diploma. It gives the student the opportunity to carry out an in-depth study of a technical topic in the broader context provided by the degree Programme. The report will be written under the supervision of a faculty member; both the topic and the advisor must be approved by the Programme Committee.

Students may begin work on their project proposal informally at any time following admission to the Programme but the report must be completed within one year of the approval of the advisor by the Programme Committee. This will normally be towards the end of the period of studies required for the degree. Students will register for Technology 4000 in the semester they expect to complete the course and must submit the report no later than 3 weeks before the end of this semester.

## TECHNOLOGY 4010

### (Assessment of the Implementation of Technology)

Introduction to Effects Assessment; Generation of Product/Project Alternatives; Identification of Effects on the Physical Environment; Identification of Effects on the Social, Economic, Aesthetic, Cultural and Historic Environments; Effects Prediction, Verification and Mitigation; Evaluation of Project/Product Alternatives; Introduction to Federal, Provincial and Municipal Assessment Legislation.  
**Prerequisite:** Admission to the Bachelor of Technology Programme.

## TECHNOLOGY 4020

### (Economic Management for Technologists)

Introduction to economics of engineering and technological projects; interest and assessing the time value of money; benefit cost ratio analysis and the feasibility of projects; comparison of present worth and annual cost compositions; risk assessment and project selection; planning proposals and project scheduling.

**Credit Restriction:** Students may not receive credit for both Engineering 4102 and Technology 4020

**Prerequisite:** None

## THERMODYNAMICS 2100

This is an introductory course in thermodynamics. The course will provide the student with the basics of thermodynamics and its application to various processes.

Introduction to Thermodynamics; First Law and Applications; Second Law and Applications; Gas Laws; Processes; Gas Power Cycles.

**Prerequisite** - Physics 1101 or Physics 1100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## THERMODYNAMICS 2200

This course follows from thermodynamics 2100 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 or her future work.

Steam; Internal Combustion Engines; Combustion.

**Prerequisite** - Thermodynamics 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## THERMODYNAMICS 3101 - Applied (Refrigeration/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.

Refrigeration Cycles; Refrigeration Processes-Thermodynamics; Refrigerants-Properties; System Analysis; Component Analysis; Psychrometry; Air Conditioning Processes

**Prerequisite** - Thermodynamics 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## THERMODYNAMICS 3102

This course is an intermediate level course following Thermodynamics 2100 and 2200 with specific applications to systems in the marine industry.

Nozzles; Steam Turbines; Gas Turbines; Heat Transfer; Heat Exchangers

**Prerequisite** - Thermodynamics 2200

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## THERMODYNAMICS 3103

This course is an intermediate level course following Thermodynamics 2100 and 2200 with specific applications to systems in the marine industry.

Air Compressors; Steam Turbines; Gas Turbines; Heat Transfer; Heat Exchangers

**Prerequisite** - Thermodynamics 2100

**Duration** - 13 weeks

**Lectures** - 3 hours/week

**Laboratories** - 2 hours/2 week period

## WORKSHOP PRACTICE 0100 (Machine Shop)

This is an introductory machine shop course designed to introduce the student to machine shop safety, terminology, and machinery and to provide hands-on experience with the hand and power tools used in a machine shop.

Machine Shop Safety; Layout and Layout Tools; Selection, Care, and the Use of Files; Selection, Care, and the Use of Hacksaws; Drills and Drill Presses; Selection and the Use of Taps; Selection and the Use of Dies; Metrology

**Duration** - 16 weeks

**Lectures/Laboratories** - 3 hours/week

## WORKSHOP PRACTICE 0101 (Steelwork Practical - Fitting)

An introductory level course designed to familiarize the student with the practical aspects of structural fitting.

Safety; Hand Tools; Machines; Cutting; Auxiliary Equipment; Oxyacetylene Cutting

**Duration** - 16 weeks

**Lectures/Shop** - 9 hours/week

## WORKSHOP PRACTICE 0102 (Steelwork Practical - Welding)

An introductory level course designed to familiarize the student with the practical aspects of structural welding.

Introduction to Safety; Metal Preparation; Weld Using Shielded Metal Arc Welding; and Weld Using GMAC and FCAW

**Duration** - 16 weeks

**Lectures/Shop** - 9 hours/week

# COURSE DESCRIPTIONS

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## **WORKSHOP PRACTICE 0103 (Welding Practice)**

This is an introductory welding course designed to introduce the student to welding shop safety, terminology, and tools and equipment and to provide hands-on experience with the welding tools and equipment used in a welding shop.

Safety; Oxy-Acetylene Equipment Orientation and Set-Up; Operating Oxy-Acetylene Cutting Equipment; Oxy-Acetylene Fusion Welding; Oxy-Acetylene Non-Fusion (Brazing); Shielded Metal Arc Welding; and Testing

**Duration** - 16 weeks  
**Shop** - 4 hours/week

## **WORKSHOP PRACTICE 0200 (Machine Shop)**

This course is designed to add to, and further develop the skills acquired in Workshop Practice 0100. The student will be given instruction and hands-on experience in the use of machine shop machinery and methods.

Lathe Components and Their Functions; Use, Care, and Maintenance of the Lathe; Use, Care, and Maintenance of Pedestal and Bench Grinders; HSS and Carbide Tool Bit Terminology and Geometry; HSS Tool Bit Grinding; and Sawing Machines

**Prerequisite** - Workshop Practice 0100

**Duration** - 16 weeks  
**Lectures/Shop** - 3 hours/week

## **WORKSHOP PRACTICE 0201 (Steelwork Practical - Fitting)**

An intermediate level course designed to increase the student's knowledge and practical training in structural fitting.

Forming; Assembling and Joining; Plate Girder; Floor Beam; NODE; Major Fabrication

**Duration** - 16 weeks  
**Lectures/Shop** - 9 hours/week

## **WORKSHOP PRACTICE 0202 (Steelwork Practical - Welding)**

An intermediate level course designed to increase the student's knowledge and practical training in structural welding.

Inspection and Testing Welds; Weld Using GMAW and FCAW; Arc-air Cutting

**Duration** - 16 weeks  
**Lectures/Shop** - 9 hours/week

## **WORKSHOP PRACTICE 1103 (Fitting Shop)**

This is a pre-employment skills training course designed to teach the student to identify and to select the proper tools for a

given application. The student will also learn the safe and proper use of tools

Hand Tools; Wrenches; Special Tools; Precision Tools; Gasket Making; Value Stem Packing; Metal Shaping

**Duration** - 13 weeks  
**Laboratory** - 4 hours/week

## **WORKSHOP PRACTICE 1104 (Machine Shop)**

This is an introductory course designed to give instruction and hands-on practice in metrology, basic lathe operations, and the use and maintenance of bench girders.

Introduction to Machine Shop; Lathe Components and their Functions; Use, Care, and Maintenance of the Lathe; Use, Care, and Maintenance of Bench and Pedestal Grinders; HSS and Carbide Tool Bit Terminology and Geometry; HSS Tool Grinding; Spindle Nose Tooling; Methods of Chucking; Metrology; Machining of 60 Degree External and Internal Unified Thread; Thread Terminology

**Duration** - 13 weeks  
**Laboratories** - 4 hours/week

## **WORKSHOP PRACTICE 1105 (Welding Shop)**

This course is designed to provide students with step-by-step theoretical welding instruction and applications to permit them to develop practical skills in a welding shop environment. As the level of training progresses, students are shown how their newly developed skills can be used in repair techniques.

Welding Safety; Oxygen-Acetylene Cutting; Oxygen-Acetylene Fusion Welding; Oxygen-Acetylene Non-Fusion Welding; Testing

**Duration** - 5 weeks  
**Lectures** - 2 hours/week  
**Laboratories** - 8 hours/week

## **WORKSHOP PRACTICE 1106 (Fitting Shop)**

This is a pre-employment skills training course designed to teach the student to identify and to select the proper tools for a given application. The student will also learn the safe and proper use of tools.

Hand Tools; Wrenches; Copper Tubing; Gasket Making; Value Stem Packing; Piping; Metal Shaping

**Duration** - 5 weeks  
**Lectures** - 1 hour/week  
**Laboratory** - 7 hours/week

## **WORKSHOP PRACTICE 1107 (Welding Shop)**

This course is designed to provide students with step-by-step theoretical welding instruction and applications to permit them to develop practical skills in a welding shop environment. As the level of training progresses, students are shown how their newly developed skills can be used in repair techniques.

Welding Safety; Oxygen Acetylene Cutting; Oxygen-Acetylene Welding; Oxygen-Acetylene Brazing; Testing

**Duration** - 5 weeks  
**Lectures** - 1 hour/week  
**Laboratory** - 7 hours/week



# COURSE DESCRIPTIONS

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## **WORKSHOP PRACTICE 1108 (Machine Shop)**

This is an introductory course designed to give instruction and hands-on practice in metrology, basic lathe operations, and the use and maintenance of bench grinders.

Introduction to Machine Shop; Lathe Components and Their Functions; Use, Care, and Maintenance of the Lathe; Use, Care, and Maintenance of Bench and Pedestal Grinders; HSS and Carbide Tool Bit Terminology and Geometry; HSS Tool Grinding; Spandex Nose Tooling; Methods of Chucking; Metrology; Machining of 60-degree External and Internal Unified Thread; Thread Terminology

**Duration** - 5 weeks

**Lectures** - 1 hour/week

**Laboratory** - 7 hours/week

## **WORKSHOP PRACTICE 2103 (Fitting Shop)**

This is a pre-employment skills training course designed to give the student practice in identifying and selecting the proper tools for a given application. The student will also practice the safe and proper use of these tools

Special Tools; Precision Tools; Metal Fasteners; Electrical Test Equipment; Minor Overhaul and Repair; Rigging

**Prerequisite** - Workshop Practice 1103 or equivalent

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **WORKSHOP PRACTICE 2104 (Fitting Shop)**

This is a pre-employment skills training course designed to give the student practice in identifying and selecting the proper tools for a given application. The students will also practice the safe and proper use of these tools.

Special Tools; Metal Fasteners; Rigging; Minor Overhaul and Repair

**Prerequisite** - Workshop Practice 1106 or equivalent

**Duration** - 5 weeks

**Lectures** - 1 hour/week

**Laboratory** - 7 hours/week

## **WORKSHOP PRACTICE 2105 (Welding Shop)**

This course is designed to give the student fundamental theoretical knowledge and to develop practical skills in electric arc welding.

Welding Safety; Metal Preparations; Electrode Selection; Welding Technique; Welding Processes; Destructive/Non-Destructive Testing

**Prerequisite** - Workshop Practice 1105

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **WORKSHOP PRACTICE 2107 (Welding Shop)**

This course is designed to give the student fundamental theoretical knowledge and to develop practical skills in electric arc welding.

Welding Safety; Metal Preparation; Electrode Selection; Welding Processes; Metallurgy of Welds; Welding Positions; Electric Arc Welding Processes; Destructive/Non-Destructive Testing

**Prerequisite** - Workshop Practice 1107 or equivalent

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Shop Work** - 6 hours/week

## **WORKSHOP PRACTICE 2108 (Machine Shop)**

This course is designed to add to, and to further develop skills acquired in WORKSHOP PRACTICE 1108 (Machine Shop). The student will be given instruction and hands-on practice in the speeds and feeds for various machining operations, cutting fluids, power saws, drills and drilling (lathe), and taper turning, as well as in the use of steady and follower rests, and other lathe operations such as boring, reaming, knurling, parting, recessing, tapping, milling machine speeds and feeds, indexing head, and machining of spur gears, machinability of various metals, uses of Acme Threads, machining of Acme Threads, uses of Square Threads, machining of Square Threads, Tool Bit Grinding and Drill Bit Sharpening.

Cutting Speeds and Feeds; Cutting Fluids; Sawing Machines; Drills and Drilling (Lathe); Taper Turning; Other Lathe Operations; Use of Steady and Follower Rests; Indexing Heads; Spur Gear Cutting; Machinability; Acme Threads; Square Threads; Tool Bit Grinding; Drill Bit Sharpening

**Prerequisite** - Workshop Practice 1108 or equivalent

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 6 hours/week

## **WORKSHOP PRACTICE 3100 (Machinery Maintenance)**

This course is designed to give students a knowledge and understanding of the fundamentals of machinery maintenance programs, machinery construction and function. In addition, the course will provide hands-on experience with machinery and related equipment.

Safety; Gauges; Alignment; Pumps; Air Compressors; Heat Exchangers; Bearings; Burner Fundamentals; Diesel Engines; Maintenance Planning; Maintenance Plans; Scheduling Maintenance

**Prerequisite** - Workshop Practice 2104

**Duration** - 13 weeks

**Lectures** - 2 hours/week

**Laboratories** - 6 hours/week

# COURSE DESCRIPTIONS

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## **WORKSHOP PRACTICE 3103 (Machinery Maintenance)**

This course is designed to give students a knowledge and understanding of the fundamentals of machinery and machinery construction, function, and maintenance. In addition, the course will provide hands-on experience with machinery and related equipment.

Safety; Special Tools; Metal Fasteners; Gauges; Pumps; Air Compressors; and Minor Overhaul and Repair

**Prerequisite** - Workshop Practice 2103

**Duration** - 13 weeks

## **WORKSHOP PRACTICE 3104 (Machine Shop)**

This course is designed to add to, and further develop skills acquired in Workshop Practice 1104 (Machine Shop) (TS 2). The student will be given instruction and hands-on practice in the speeds and feeds for various machining operations, cutting fluids, power saws, drills and drilling (lathe), and taper turning, as well as in the use of steady and follower rests, and other lathe operations such as boring, reaming, knurling, parting, recessing, tapping, milling machine speeds and feeds, indexing head, and machining of spur gears.

Cutting Speeds and Feeds; Cutting Fluids; Sawing Machines; Drills and Drilling (lathe); Taper Turning; Other Lathe Operations; Use of Steady and Follower Rests; Indexing Heads; Spur Gear Cutting

**Prerequisite** - Workshop Practice 1104

**Duration** - 5 weeks

**Lectures/Laboratories** - 8 hours/week

## **WORKSHOP PRACTICE 3200 (Machinery Maintenance)**

This course is designed to give students a knowledge and understanding of the fundamentals of the quality control used with maintenance requirements for marine equipment. In addition, the course will provide hands-on experience with equipment to familiarize the student with the assembly, dismantling, inspection, and part replacement of machinery and related equipment.

Safety Relief Valves; Purifiers; Oily Water Separators; Gearing; Steering Systems; Diesel Engines (ICE); Quality Control; Quality Manuals; Quality Specifications

**Prerequisites** - Workshop Practice 3100 (Machinery Maintenance)

**Duration** - 5 weeks

**Lectures** - 2 hours/week

**Laboratory** - 6 hours/week

## **WORKSHOP PRACTICE 3203 (Machinery Maintenance)**

This course is designed to give students a knowledge and understanding of the fundamentals of the maintenance procedures involved for machinery used in industry. In addition, the course will provide hand-on experience with equipment to familiarize the student with the assembly, dismantling, inspection, and part replacement of machinery and related equipment.

Safety Relief Values; Purifiers; Oily Water Separators; Gearing; Steering Systems; Diesel Engines (I.C.E.)

**Prerequisite** - Workshop Practice 3103

**Duration** - 13 weeks

## **WORK TERM 0100 AND 0200 (Marine Diesel Mechanics)**

These courses are designed to ensure that the student gains the practical experience to begin development of the competency requirements of a Ship's Engineering Rating or a shore-based Marine Diesel Mechanic with practical applicable knowledge.

**Work Term 0100 Prerequisites** - Marine Engineering Knowledge 0100; Engineering Drawing 0100

**Work Term 0200 Prerequisite** - Marine Engineering Knowledge 0200; Engineering Drawing 0200; MED II (Sea Phase students only); Valid Seafarers's Medical (Sea Phase students only)

## **WORK TERM 0102 (Offshore Structural Steel/Plate Fitter)**

The work term is designed to ensure that the student gains the practical experience to begin development of the competency requirements of an Offshore Structural Steel/Plate Fitter with practical applicable knowledge.

The successfully completed work term is regarded as one course credit.

To meet the requirements of graduation from the Offshore Structural Steel/Plate Fitter Vocational Certificate Program, the student must have successfully completed the work term.

**Prerequisites** - Successful completion of **all Term 2 Courses** - Communication Skills 0202; Engineering Drawing 0201; Offshore Technology 0200; Offshore Technology 0201; Physics 0100; Workshop Practice 0201; Workshop Practice 0202

## **WORK TERM 1100 (Seafood Processing & Food Production Quality)**

This is a practical work term designed to familiarize students with basic standards normally found in a work environment and provide students with exposure to one or more of the Primary Intercession Topics.

Work Term Evaluation Form; Progress Report Form; Technical Report; Student Information Booklet

**Prerequisite** - (Food Production Quality) Processing Technology 1101

**Prerequisite** - (Seafood Processing) Processing Technology 1200

**Duration** - 5 weeks

## **WORK TERM 1102 (Sea Phase 1 - Nautical Science)**

This is the first of two Sea Phases designed to ensure that the Officer Cadet gains the practical experience to become a competent ship's officer. For most students, the first sea phase represents the beginning of their sea-going career and, as such, they will be expected to gain a full understanding of the vessel's operation, safety awareness and discipline.

**Prerequisites** - All Primary Technical Session Courses which include: MED 1100; Cargo Operations and Navigation 1100; Ship Operations 1100 and Seamanship 1100

## **WORK TERM 1103 (Marine Engineering)**

Work Term 1103, Work Term 2103, and Work Term 3103 are designed to ensure that the student gains the practical experience under **Option 1** to begin development of the competency requirements of a Ship's Engineering Officer or under **Option 2**, a Marine Engineering Technologist with practical application knowledge.

**Prerequisite** - A valid seafarer's medical certificate is required for all sea based work terms. In addition, the student must have successfully completed the following courses before acceptance in approved work terms:

**Work Term 1103:** Marine Engineering Knowledge 2107; Work Practice 1106; Marine Emergency Duties Training 1100 (MED); Meet Marine Institute requirements for clear standing.

# COURSE DESCRIPTIONS

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## WORK TERM 2102

### (Sea Phase 2 - Nautical Science)

This is the second of two Sea Phases designed to ensure that the Officer Cadet gains the practical experience to become a competent ship's officer. It should be understood that by the end of the second Sea Phase the student must have accumulated a minimum of twelve (12) months sea time in order to meet the requirements of the program and Transport Canada's Marine Safety Directorate. Without this sea experience the student cannot graduate.

**Prerequisites** - Work Term 1102 (Sea Phase 1) and all Technical Session 2 courses which include: Navigation Safety 3101; Navigation 2101; and Cargo Operations 2201

## WORK TERM 2103

### (Marine Engineering)

Work Term 1103, Work Term 2103, and Work Term 3103 are designed to ensure that the student gains the practical experience under **Option 1** to begin development of the competency requirements of a Ship's Engineering Officer or under **Option 2**, a Marine Engineering Technologist with practical application knowledge.

**Prerequisite** - A valid seafarer's medical certificate is required for all sea based work terms. In addition, the student must have successfully completed the following courses before acceptance in approved work terms:

**Work Term 2103:** Marine Engineering Knowledge 2207; Work Practice 3100; Work Term 1103; Meet Marine Institute requirements for clear standing.

## WORK TERM 2104

### (Marine Environmental)

This course will provide students with practical on-the-job experience and the opportunity to develop skills in the application of theory to environmentally-related work situations.

**Prerequisite** - Clear Standing (CL) or better in the academic semester immediately prior to the Work Term Semester; Chemistry 2201; Communication Skills 2101; Business & Organizational Management 2104; Biology 1100; as well as the Technical Session (Practical Skills) Training courses: Chemistry 2300; First-Aid; Marine Sampling 2100; Small Craft Safety & Boat Handling 2100; TDG and WHMIS (following academic Term 4)

**Duration** - Students are available from mid-May to the end of August. They must successfully complete at least 8 consecutive weeks in an environmentally related work situation approved by the Placement Office to obtain work term credit.

## WORK TERM 3103

### (Marine Engineering)

Work Term 1103, Work Term 2103, and Work Term 3103 are designed to ensure that the student gains the practical experience under **Option 1** to begin development of the competency requirements of a Ship's Engineering Officer or under **Option 2**, a Marine Engineering Technologist with practical application knowledge.

**Prerequisite** - A valid seafarer's medical certificate is required for all sea based work terms. In addition, the student must have successfully completed the following courses before acceptance in approved work terms:

**Work Term 3103:** Work Term 1103; Work Term 2103; Meet Marine Institute requirements for clear standing.

## WORK TERM 4101

### (Advanced Diploma in Aquaculture)

This course is designed to provide practical skills through work related experiences in the aquaculture industry.

Identification of Potential Projects/Work Terms; Project Selection; Design and Analysis; Implementation; Reporting

**Duration** - 13 weeks (12 weeks minimum placement + 1 week report preparation)

## WORK TERM 4102

### (Advanced Diploma in Fisheries Development)

This course provides students the opportunity to gain related work experience and to report on a technical project associated with some aspect of industry mutually beneficial to the employer and the student.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Prerequisites** - Term 1 and Term 2 courses which include: **(Term 1)** - Fisheries Development 4100; Communication Skills 4100; Fisheries Technology 4107; Statistics 4100; Fisheries Development 4101; Business & Organizational Management 4104; **(Term 2)** - Fisheries Development 4102; Fisheries Development 4103; Seafood Processing 4100; Fisheries Development 4104; Fisheries Technology 4100; Technical Project 4102

**Duration** - 325 hours total

## WORK TERM 4103

### (Advanced Diploma in Food Safety)

This course provides students with the opportunity to gain related work experience and to report on a technical project with potential benefits to the food industry.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Prerequisites** - Term 1 and Term 2 courses which include: **(Term 1)** - Communication Skills 4100; Food Technology 4100; Business & Organizational Management 4100; Food Technology 4101; Statistics 4101; Food Safety 4100; Business & Organizational Management 4103; **(Term 2)** - Food Safety 4104; Food Safety 4102; Food Technology 4102; Technical Project 4103; Processing Technology 2106

**Duration** - 13 weeks

## WORK TERM 4104

### (Advanced Diploma in Food Technology)

This course provides students with the opportunity to gain related work experience and to report on a technical project with potential benefits to the food industry.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Duration** - 13 weeks

## WORK TERM 4105

### (Coastal Zone Management)

This course provides students the opportunity to gain related work experience and to report on a technical project with potential benefits to coastal zone concerns.

Identification of Potential Projects; Project Selection; Design and Analysis; Implementation; Reporting

**Prerequisites** - Terms One and Two, Advanced Diploma in Coastal Zone Management

**Duration** - 13 weeks