MECHANICAL TECHNIQUES - MARINE ENGINE MECHANIC

Program Outline

Major: MTME
Length: 1 Year
Delivery: 2 Semesters
Credential: Ontario College Certificate
Effective: 2012-2013
Location: Midland
Start: Fall (Midland)

Description

The one-year post secondary certificate program prepares an individual for a career as a Marine Engine Mechanic, or further education in a related field. This program offers a concentrated understanding of 2 and 4 stroke cycle engine principles and design, with a significant hands-on component that will allow individuals to develop practical and technical skills to meet the current needs of the recreational marine service industry, and that will provide a basis to respond to emerging trends in the field. Finally, students will become effective communicators and problem solvers who will have an awareness of environmental issues, effective customer service, and basic business operations. Once the one-year certificate has been achieved, the graduate may return for further specialization.

Career Opportunities

Graduates may find a range of occupations in the mechanical field, including manufacturing, dealers, operations, sales, service, and self-employment. A graduate may find employment in marine service and operations, boat and engine dealerships, manufacturing, and parts and accessories.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- use effective communication and interpersonal skills to facilitate customer service;
- work effectively as an individual and team member in the mechanical service industry;
- utilize current technology to access information in the mechanical service industry;
- role model professional behaviour consistent with ethical and legal integrity in the workplace;
- incorporate analytical thinking to implement a systematic approach to problem solving and decision making, for the purpose of engine and equipment systems repair and service;
- incorporate the principles of customer service specific to the mechanical service industry;
- select and utilize appropriate tools and equipment to assess and repair recreational marine engines and their support systems.

The Program Progression:

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Fall Intake - Midland

Sem 1 | Sem 2
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Fall  | Winter
2012  | 2013
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Articulation:

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at http://www.georgianc.on.ca/academics/articulations/

Admission Requirements:

Applicants must meet ONE of the following requirements to be eligible for admission to this program:

- OSS Curriculum: OSSD or equivalent with Grade 12 English (C) or (U) (ENG4C, ENG4U). Also reccommended: Grade 12 College Mathematics (MAP4C or MCT4C), or any Grade 12 University Mathematics.
- Academic and Career Entrance Certificate (ACE) program with: Communications
- Ontario High School Equivalency Certificate (GED)

- Mature applicant with standing in the required courses and/or mature student testing that meets the minimum standards for admission

Applicants who are 19 years of age or over by the first day of classes, and who lack the academic entrance qualifications, may be considered for entrance to an appropriate post-secondary diploma or certificate program as mature applicants. Each applicant will be considered on an individual basis and acceptance will be determined by counselling, Communication Placement Assessment (CPA), previous post-secondary education and evaluation of experience. Some programs also have specific prerequisite requirements that must be met prior to admission. Mature applicants must meet all program specific prerequisites. Those applying as mature students and having no documentation of Grade 12 education must supply, if required, proof of age, such as a copy of an official birth certificate or driver's licence. Refer to Section 2.5 and 2.6 of the Academic Calendar for further details.

Additional Information:
The very nature of the work requires manual dexterity and lifting. Applicants are advised to consult with the Program Co-ordinator if they have specific questions related to the physical demands of the program and future employment.

Graduation Requirements:
11 Mandatory Courses
1 Communications Course
2 Optional Courses
1 Field Placement

Graduation Eligibility:
To graduate from this program, the passing weighted average for promotion through each semester, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Mandatory Courses
MARE1000 Alternate Marine Propulsion Systems
MARE1001 Recreational Boat Principles
MARE1002 Stern Drive System Repair Principles
MARE1003 Outdoor Motor Repair Principles
MATH1007 Mathematics Techniques
MENG1000 Workshop Procedures

MENG1001 Engine Fuel Systems Principles
MENG1002 Engine Electrical Systems Diagnostics
MENG1003 Engine Function and Design
MENG1009 Basic Electrical Principles
MENG1011 Health and Safety Fundamentals

Communications Course
To be selected at time of registration from the College list, as determined by testing.

Optional Courses
BUSI1004 Service and Information Techniques
MENG1010 Diesel and Overhead Valve Engines
MENG1015 Gas Metal Arc Welding
MENG1016 Gas Tungsten Arc Welding

Field Placement
MARE1020 Field Placement - MTME

Course Descriptions:
BUSI1004 Service and Information Techniques 42.0 Hours
This course provides the student with an overview of customer service and small business operations. It also provides the student with an understanding of electronic parts catalogues, service manuals, and technical information access via the Internet.

MARE1000 Alternate Marine Propulsion Systems 42.0 Hours
This course provides the student with an understanding of the repair and maintenance of common alternate marine propulsion units, including inboard and jet drive configurations, and the systems and components relative to their operation. It also reinforces the use of information systems, specialty tools, and equipment during the practical repair section.

MARE1001 Recreational Boat Principles 42.0 Hours
This course provides the student with an understanding of common recreational boat terms and definitions, transportation, land storage methods, extended storage procedures, and common onboard operational systems. It also reinforces the use of information systems, specialty tools, and equipment during the practical repair section.

MARE1002 Stern Drive System Repair Principles 42.0 Hours
This course provides the student with an understanding of the repair and general maintenance of common stern drive propulsion units and systems, and components

relative to their operation. It also reinforces the use of information systems, specialty tools, and equipment during the practical repair section.

MARE1003 Outdoor Motor Repair Principles 42.0 Hours
This course provides the student with an understanding of the repair and general maintenance of common outboard motors and systems and components relative to their operation. It also reinforces the use of information systems, specialty tools, and equipment during the practical repair section.

MARE1020 Field Placement - MTME 160.0 Hours
Students are placed in field related agencies to apply their previously learned skills under the direction and supervision of a qualified professional.

C- BUSI1004 Service and Information Techniques and P- MENG1000 Workshop Procedures and P- MENG1003 Engine Function and Design and P- MENG1001 Engine Fuel Systems Principles and P- MENG1002 Engine Electrical Systems Diagnostics and C- MARE1003 Outdoor Motor Repair Principles and C- MARE1000 Alternate Marine Propulsion Systems and C- MARE1002 Stern Drive System Repair Principles and C- MARE1001 Recreational Boat Principles and C- MENG1010 Diesel and Overhead Valve Engines and C- MENG1009 Basic Electrical Principles and P- MENG1011 Health and Safety Fundamentals

MATH1007 Mathematics Techniques 42.0 Hours
This is a consolidation and review of the principles and techniques of mathematics, which are required for the technical trades. Developing and promoting the use of mental arithmetic, estimation skills, problem solving, and reasoning skills.

MENG1000 Workshop Procedures 42.0 Hours
This course will provide the student with the necessary knowledge and skills to perform essential mechanical workshop duties. Function and safe use of hand and select power tools, measurement devices, and related equipment for the technical trades will be emphasized.

MENG1001 Engine Fuel Systems Principles 42.0 Hours
This course provides the student with an understanding of common internal combustion engine fuels, fuel supply, and fuel management systems. It also provides the student with access to relative engine fuel system manufacturer information technology.

MENG1002 Engine Electrical Systems Diagnostics 42.0 Hours
This course provides the student with an understanding of the nature of electricity and its function relating to common internal combustion engines. It also provides the student with a comprehension of electrical system diagnostics and testing procedures.

MENG1003 Engine Function and Design 42.0 Hours

This course provides the student with an understanding of the design and function of common internal combustion engines and components relative to their operation. It also provides the student with access to relative engine manufacturer information technology.

MENG1009 Basic Electrical Principles 42.0 Hours
This course introduces the student to the basic concepts of electricity. The electrical circuit is the fundamental building block for these concepts. With these concepts and OHMS law the behaviour of most electrical components will be understood.

MENG1010 Diesel and Overhead Valve Engines 42.0 Hours
This course covers the theory and operating principles of diesel and overhead valve engines. This course also develops the skills to diagnose, disassemble, analyze and repair the diesel and overhead valve engines and the components relative to their operation.

MENG1011 Health and Safety Fundamentals 42.0 Hours
This course introduces the student to basic fundamentals of safety in the workplace, sound environmental procedures in and around the workplace and home safety. It will assist the student in identifying personal health and safety concerns and problems in the environment.

MENG1015 Gas Metal Arc Welding 84.0 Hours
In this course students learn how to use the Gas Metal Arc Welding (GMAW) process on mild steel, stainless steel and aluminum. Students also learn the application of Flux Cored Arc Welding (FCAW). Throughout the course safety principles and equipment requirements of GMAW are emphasized. Students successfully completing this course will be eligible to take the Canadian Welding Bureau Certificate test (CWB).

MENG1016 Gas Tungsten Arc Welding 42.0 Hours
In this course students learn the Gas Tungsten Arc Welding (GTAW) process. They complete welding projects on mild steel, stainless steel and aluminum to acceptable industry standards. Throughout the course safety principles and equipment requirements are emphasized.

Course Description Legend
P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses,

timetables or campus locations subject to sufficient enrolment, and the availability of courses.