

Marine Maintenance Technician Certificate

With 3,822 miles of coastline, Michigan has the longest freshwater coastline in the country and the second largest number of registered boats. The Marine Technician pathway teaches students essential skills needed to maintain the boats in Michigan's waterways. Students will learn how to diagnose and maintain inboard and outboard engines and propulsion systems. Electrical wiring and plumbing systems are included. Safety, terminology and customer service will be discussed.

Non-Credit Course Code	Course Title	Hours	Days
MRNE 8000	Marine Fundamentals	8	1
OSHA-8001	OSHA 10	16	2
CMTH 8004	Shop Math	16	2
CBPR 8000	Blueprint Reading Essentials	16	2
MRNE 8007	Marine Electrical Systems	16	2
MRNE 8006	Hand Tools/Power Tools/ Diagnostics	8	1
MRNE 8003	Marine Plumbing Systems	16	2
CMNF 8305	Marine Hydraulics	16	2
CMNF 8306	Marine Rigging	8	1
MRNE 8002	Marine Engines	40	5
MRNE 8010	Marine Carpentry & Structural Materials	8	1
MRNE 8001	Marine Industry Customer Service	8	1
MRNE 8004	Marine Propulsion Systems	16	2
HLTH-8095	Heart Saver First Aid & CPR/AED	6	1
MSSS-8004A	Critical Thinking	1.5	Partial
MSSS-8029B	Problem Solving	1	Partial
MSSS-8002A	Communication Skills	1	Partial
MRNE-8011	Marine Service Technology Exam	2.5	Partial
ENTR-8000A	Starting a business for Marine Tech Students	4	½
A certificate of completion will be awarded to students who successfully complete the above courses.		208 hours	27 days

Students will have an opportunity to earn the OSHA 10-Card, American Heart Association Child & Adult Heartsaver first aid, CPR, & AED Certification's. Successful completers of this program content will sit for the ABYC NOCTI exam.

Non-Credit Course Descriptions

Marine Fundamentals – MRNE 8000 – 8 hours

Prerequisite: None

This course will introduce students to the Marine Industry. Common practices and terminology will be covered.

OSHA 10 Hour-Maritime– OSHA-8001 – 16 hours

Prerequisite: MRNE 8008/ Marine Fundamentals

Safety practices and fundamental to working in the Marine Industry will be covered. Students that meet the necessary requirements will earn an OSHA 10 card in Maritime.

Shop Math– CMTH 8004 – 16 hours

Prerequisite: None

Students will learn the fundamentals of math needed in the marine industry. Topics will include basic fractions and decimals **and relevant** geometry.

Blueprint Reading-Basic – CBPR 8000 - 16 hours**Prerequisite: CMTH 8004/Shop Math**

An introduction to blueprint reading; interpretation of various kinds lines, position of views, symbols, conventions, dimensioning practices, sectioning, auxiliary views and symmetry with emphasis on techniques employed to show detail in relation to assembly drawings.

Marine Electrical Systems– MRNE 8007 – 16 hours**Prerequisite: None**

Fundamentals of electrical theory will be covered, such as AC and DC circuits, wire color coding and reading wiring diagrams. Students will learn how to properly install and troubleshoot electrical systems and equipment in boats.

Hand Tools/Power Tools/Diagnostics – MRNE 8007 – 8 hours**Prerequisite: None**

Different tools necessary for working on boats and boat engines will be covered. Tools specific to certain marine products will be included. How to properly use diagnostic tools for troubleshooting and maintenance.

Marine Plumbing Systems – MRNE 8003 – 16 hours**Prerequisite: None**

Discover different marine pumps and hoses. Portable water systems and marine sanitation devices will be included. Students will also learn how to winterize plumbing systems in boats.

Marine Hydraulics – CMNF 8305 – 16 hours**Prerequisite: CMTH/Shop Math**

The participant will gain an understanding of hydraulics technology, componentry, component variables, symbology, fundamental print reading, simple and moderate circuit dynamics and fluids/filtration fundamentals.

Marine Rigging – CMNF 8306 – 8 hours**Prerequisite: None**

Proper hoisting techniques will be taught as well as how to properly lower equipment into boats.

Marine Engines – MRNE 8002 - 40 hours**Prerequisite: None**

Functions of both inboard and outboard engines are covered. Students will learn basic maintenance and repair of both kinds of engines.

Marine Carpentry & Structural Materials-MRNE 8010-8 hours**Prerequisite: None**

Core materials in boats and their properties will be discussed, including common types of corrosion and prevention. Students will also learn about resins and composite layup techniques.

Marine Industry Customer Service – MRNE 8001 – 8 hours**Prerequisite: None**

Customer Service is key to any industry. Common terminology and customer service concerns will be emphasized. Topics will include work orders, required records and reporting.

Marine Propulsion Systems - MRNE 8004 - 16 hours**Prerequisite: None**

The four types of propulsion systems will be discussed: outboard, inboard, stern (inboard/outboard) and jet. Students will learn **the** differences between the four types, maintenance and installation.

Heart Saver First Aid & CPR/AED-HLTH-8095**Prerequisite: None**

This course meets the American Heart Association requirements for adult & child Heart Saver first aid, CPR and AED certification. A practical-based course aimed at developing skills in basic first aid, CPR for children and adults, care for the choking victim, and use of an automatic external defibrillator. Additional topics specific to the Marine Industry will be discussed.

Critical Thinking-MSSS-8004A***Prerequisite: None***

Learn and practice the steps to critical thinking, why employers and educators feel this is an important skill for success, and how to sharpen your logical thinking skills.

Problem Solving-MSSS-8029B***Prerequisite: None***

Learn how to clarify your thoughts, develop key questioning techniques, use analytical skills, and develop creative solutions to problems.

Communication Skills-MSSS-8002A***Prerequisite: None***

Learn appropriate speech parameters, develop attentiveness skills, learn to manage emotions, learn to deal with difficult situations/ learn to employ tact and diplomacy, and learn to communicate professionally.

Marine Service Technology Exam-MRNE-8011***Prerequisite: Completion of the Marine Maintenance Technician Program***

Completion of the Marine Maintenance Technician program enables you to sit for this NOCTI proctored exam.
