

# MNG 314 - DIESEL ENGINEERING

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## Course Description

A comprehensive course dealing with the development of the diesel engine as it applies to marine propulsion. This course is designed to cover the construction, operation, and maintenance of the marine diesel engine and its support systems. Lecture is reinforced with extensive use of hands-on labs and computerized simulations. STCW.

## Credit Hours

7

## Contact Hours

7

## Lecture Hours

4

## Lab Hours

6

## Required Prerequisites

All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

## Course Learning Outcomes

### Knowledge:

- Describe the history of the development of the marine diesel engine.
- Describe how a modern diesel engine is employed as an integral part of a ship's propulsion system.
- Describe how all the auxiliary components work to keep the diesel plant operating.
- Identify the components of a marine diesel engine.

### Application:

- Perform an overhaul on the diesel.
- Conduct tests and inspections as part of the evaluation of used parts.
- Demonstrate the ability to diagnose malfunctions that commonly occur in the operation of the diesel.

### Integration:

- Disassembly of the engine.
- Inspection of parts.
- Reconditioning of parts.
- Reassemble of the engine.
- Diagnosis of engine problems.
- Tune-up procedures.
- Fuel injection system diagnosis and repair.

### Human Dimension:

- Develop as merchant marine officers.
- Learn how to work with others to accomplish a common goal.
- Serve as leaders of a team responsible for maintenance and repair of large horsepower diesel engine.

- Work as a team in a laboratory setting to accomplish repair and maintenance tasks.

### Caring - Civic Learning:

- Make a connection between the skills learned and their civic duties to ensure a large power plant on an ocean going vessel is operated, maintained, and repaired in a way that is in full compliance with applicable environmental laws and laws designed to ensure the safety of others; either while underway or in a shipyard.

### Learning How to Learn:

- Demonstrate the STCW Code Knowledge, Understanding and Proficiencies (KUPs) for Ratings Forming Part of an Engineering Watch: 1.1.B, 1.1.C, 1.1.H (M), 1.1.I (M), 1.3.A, 1.3.B, 2.1.C, 2.3.A, 3.1.B, 3.1.D.
- Demonstrate the STCW Code KUPs for Able Seafarer-Engine Task numbers: 4.1.A, 5.2.A.
- Demonstrate the STCW Code KUPs for Officer in Charge of an Engineering Watch: 1.2.A, 1.3.A, 4.2.A, 4.3.A, 4.3.C, 4.3.F, 4.3.I, 4.3.M, 4.3.N, 4.3.O, 4.3.R, 4.3.S, 5.3.A, 6.1.B, 7.3.A, 7.5.A, 10.1.B.