

# MNG 335 - ELECTRIC MACHINES AND CONTROLS

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## Course Description

This course covers the theory, application, operation, and maintenance of rotating machines as typically found aboard U.S. Merchant Ships and related industrial applications. Generators (DC and AC), motors (DC, multiple and single phase AC), transformers, and related equipment are covered. Special attention is given to magnetic relay and electronic logic control circuits. Regulations specific to CFR title 46 and IEEE are reviewed. STCW.

## Credit Hours

4

## Contact Hours

4

## Lecture Hours

4

## 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.

## Corequisites

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## Course Learning Outcomes

### Knowledge:

- Describe the basic principles behind operation of rotating electrical machines and control equipment.

### Application:

- Demonstrate knowledge of rotating electrical machines and control equipment.
- Demonstrate the proper operation rotating electrical machines and control equipment.

### Integration:

- Correlate shipboard equipment and performance and the readings of technical instruments.
- Apply academic concepts to real world applications.

### Human Dimension:

- See themselves as engineering officers responsible for a broad array of electrical equipment and systems.

### Caring - Civic Learning:

- Determine expectations of licensed officers with respect to industrial electrical safety, shock hazards, and emergency procedures.

### Learning How to Learn:

- Demonstrate competency on the STCW Code Knowledge, Understanding and Proficiencies (KUP) for Officer in Charge of an Engineering Watch Task No.: 6.3.A.