

# MNG 234 - ELECTRONIC FUNDAMENTALS

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- Demonstrate the STCW Code Knowledge, Understanding and Proficiencies for Officer in Charge of an Engineering Watch: 6.2.A.

## Course Description

This course bridges the gap between theoretical physics and practical hands on technology. Industrial electrical safety, shock hazards and emergency procedures are stressed. The cadet receives practical hands on experience with both analog and digital meters. Digital and analog circuits are created both in the lab and as computer simulations. Practical considerations of circuit construction in the field are discussed in terms of ABS, USCG, and IEEE regulations and requirements.

## Credit Hours

4

## Contact Hours

4

## Lecture Hours

3

## Lab Hours

1

## 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:

- Demonstrate the proper use of VOM for measuring voltage, resistance and current.
- Demonstrate complex processes by use of logic charts and flow diagrams.

### Application:

- Construct simple series circuits, parallel circuits, and complex circuits.
- Analyze circuits both mathematically and practically with standard test equipment.

### Integration:

- Learn to make the connection to shipboard equipment and performance and the readings of technical instruments.

### Human Dimension:

- Evaluate digital and analog circuits created in the lab as simulations.

### Caring - Civic Learning:

- Recognize the importance of safety of self and shipmates in regards to danger; industrial electric safety, shock hazards and emergency procedures.

### Learning How to Learn:

- Demonstrate the STCW Code Knowledge, Understanding and Proficiencies for Able Seafarer-Engine Task numbers: 6.2.A, 6.3.A, 10.1.A, 10.2.A.