Maritime Electrical

L1 MARITIME ELECTRICAL
LEVEL 1
NEW!

Orientation to the Electrical Trade (2.5 Hours)
(Module ID 26101-17) Provides an overview of the electrical trade and discusses the career paths available to electricians.

Electrical Safety (10 Hours)
(Module ID 26102-17) Covers safety rules and regulations for electricians. Teaches the necessary precautions to take for various electrical hazards found on the job. Also covers the OSHA-mandated lockout/tagout procedure.

Electrical Theory (7.5 Hours)
(Module ID 26104-17) Introduces series, parallel, and series-parallel circuits. Covers resistive circuits, Kirchhoff's voltage and current laws, and circuit analysis.

Introduction to Electrical Circuits (7.5 Hours)
(Module ID 26103-17) Offers a general introduction to the electrical concepts used in Ohm's law applied to DC circuits. Includes atomic theory, electromotive force, resistance, and electric power equations.

Basic Electrical Construction Drawings (7.5 Hours)
(Module ID 26110-17) Focuses on electrical prints, drawings, and symbols. Teaches the types of information that can be found on schematics, one-lines, and wiring diagrams.

Alternating Current (17.5 Hours)
(Module ID 26201-17) Focuses on forces that are characteristic of alternating-current systems and the application of Ohm's law to AC circuits.

Grounding and Bonding (15 Hours)
(Module ID 26209-17) Focuses on the purpose of grounding and bonding electrical systems. Thoroughly covers NEC requirements.

Conductors and Cables (10 Hours)
(Module ID 26109-17) Focuses on the types and applications of conductors and covers proper wiring techniques. Stresses the appropriate NEC requirements.

Conductor Installations (10 Hours)
(Module ID 26206-17) Covers the transportation, storage, and setup of cable reels; methods of rigging; and procedures for complete cable pulls in raceways and cable trays.

Conductor Terminations and Splices (7.5 Hours)
(Module ID 26208-17) Describes methods of terminating and splicing conductors of all types and sizes, including preparing and taping conductors.

Pull and Junction Boxes (12.5 Hours)
(Module ID 26205-17) Driven by the NEC®. Explains how to select and size pull boxes, junction boxes, and handholes.

Circuit Breakers and Fuses (12.5 Hours)
(Module ID 26210-17) Describes fuses and circuit breakers along with their practical applications. Also covers sizing.

Electric Lighting (15 Hours)
(Module ID 26203-17) Introduces the basic principles of human vision and the characteristics of light. Focuses on the handling and installation of various types of lamps and lighting fixtures.

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### Maritime Electrical Level 3

**MODULES**
The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

- **Rigging Practices** (15 Hours)
  - (Module ID 38102) Presents basic rigging, which refers to the preparation of a load for movement, as well as the preparation of hardware and other components used to connect the load to the crane. Rigging must be completed safely and effectively, resulting in a reliable connection to the load. An understanding of rigging fundamentals is essential to safely operate cranes and move/position heavy equipment, components, and structures.

- **Distribution Equipment** (12.5 Hours)
  - (Module ID 26306-17) Discusses switchboards and switchgear, including installation, grounding, and maintenance requirements. This module also includes electrical drawings of distribution equipment.

- **Motors: Theory and Application** (20 Hours)
  - (Module ID 26202-17) Covers AC and DC motors, including the main components, circuits, and connections.

### Maritime Electrical Level 4

**MODULES**
The modules listed below are included in the Trainee Guide. The following ISBNs are for ordering individual modules only.

- **Control Systems and Fundamental Concepts** (12.5 Hours)
  - (Module ID 26211-17) Gives basic descriptions of various types of contactors and relays along with their practical applications.

- **Advanced Controls** (20 Hours)
  - (Module ID 26407-17) Discusses applications and operating principles of solid-state controls, reduced-voltage starters, and adjustable frequency drives. Also covers basic troubleshooting procedures.

- **Basic Electronic Theory** (10 Hours)
  - (Module ID 26404-17) Explains the function and operation of basic electronic devices, including semiconductors, diodes, rectifiers, and transistors.

- **Motor Controls** (12.5 Hours)
  - (Module ID 26311-17) Provides information on selecting, sizing, and installing motor controllers. Also covers control circuit pilot devices and basic relay logic.

- **Transformers** (12.5 Hours)
  - (Module ID 26307-17) Discusses transformer types, construction, connections, protection, and grounding.

- **Specialty Transformers** (10 Hours)
  - (Module ID 26406-17) Covers various types of transformers and their applications. Also provides information on selecting, sizing, and installing these devices.

- **Fire Alarm Systems** (15 Hours)
  - (Module ID 26405-17) Covers fire alarm control units, Digital Alarm Communicator Systems (DACS), wiring for alarm initiating and notification devices, and alarm system maintenance.

- **Standby and Emergency Systems** (10 Hours)
  - (Module ID 26403-17) Explains the NEC® requirements for electric generators and storage batteries.

- **Fundamentals of Crew Leadership** (22.5 Hours)
  - (Module ID 46101) Covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader’s role in safety are also discussed. Explains details and procedures for project planning, scheduling, and estimating.