Maritime Welding

Oxyfuel Cutting (175 Hours)
(Module ID 29102) Describes the setup of oxyfuel cutting equipment. Explains how to use oxyfuel cutting equipment, protective clothing, and procedures applicable to the cutting and welding of metals.

GMAW Electrodes
Library: 978-0-13-418027-4
(Module ID 29108) Describes the setup of GMAW equipment and how to select and use various types of GMAW electrodes. Explains how to use the GMAW equipment and how to make multiple-pass fillet and V-groove welds on carbon steel plate in various positions.

SMAW - Groove Welds with Backing (50 Hours)
(Module ID 29111) Introduces groove welds and explains how to set up welding equipment for making groove welds. Describes how to make groove welds with backing. Provides procedures for making fillet, horizontal, and overhead groove welds.

GMAW & FCAW - Equipment and Filler Metals (10 Hours)
(Module ID 29205) Describes general safety procedures for GMAW and FCAW. Identifies GMAW and FCAW equipment and explains the filler and shielding gas used to perform GMAW and FCAW. Explains how to set up and use GMAW and FCAW equipment and how to clean GMAW and FCAW welds.

GMAW - Plate (60 Hours)
(Module ID 29209) Explains how to use GMAW equipment and how to select and use various types of GMAW electrodes. Explains how to use the GMAW equipment and how to make multiple-pass fillet and V-groove welds on carbon steel plate in various positions.

FCAW - Plate (60 Hours)
(Module ID 29210) Explains how to use FCAW equipment and how to select and use various types of FCAW electrodes. Explains how to make multiple-pass fillet and V-groove welds on carbon steel plate in various positions.

GTAW - Equipment and Filler Metals (10 Hours)
ISBN 978-0-13479698
(Module ID 29207) Explains GTAW safety, identifies and explains the use of GTAW equipment, filler metals, and shielding gases. Covers the setup of GTAW equipment.

GTAW - Plate (60 Hours)
(Module ID 29208) Explains how to use GTAW equipment and how to select and use various types of GTAW electrodes. Explains how to use the GTAW equipment and how to make multiple-pass GTAW welds on carbon steel plate coupons in the 1F, 2F, 3F, and 4F positions, and how to make GTAW V-groove welds in the 1F, 2F, and 3F positions.

Reading Welding Detail Drawings (10 Hours)
(Module ID 29202) Explains the setup of welding equipment. Describes welding equipment and welding procedures applicable to the setup of welding equipment. Explains how to read welding symbols on drawings, specifications and Welding Procedure Specifications (WPS).

SMAW - Equipment and Setup (5 Hours)
(Module ID 29107) Describes SMAW welding and welding safety. Explains how to select and use SMAW equipment. Also explains how to use tools for cleaning welds.

SMAW - Beads and Fillet Welds (100 Hours)
ISBN 978-0-13-418025-0
(Module ID 29109) Describes the setup of SMAW equipment and the process of setting up an arc. Explains how to set up welding equipment and the process of striking an arc. Explains how to detect and correct arc blow. Explains how to make square, overlap, and V-groove welds.

Joint Fit-up and Alignment (5 Hours)
(Module ID 29101) Describes the setup of SMAW equipment. Explains how to use fit-up gauges and measuring devices to check fit-up and alignment. Explains how to properly prepare joints. Explains how to check for joint misalignment and poor fit.

Maritime Welding and Welding Procedure Specifications (WPS).
Explains how to read welding symbols on drawings, specifications and Welding Procedure Specifications (WPS).

NEW!
Maritime Aluminum Welding
(Module ID 29206) Explains how to set up welding equipment and the process of striking an arc. Explains how to detect and correct arc blow. Explains how to make square, overlap, and V-groove welds.

Level 1
Maritime Welding

Curriculum Notes
• 275 Hours
• Includes 100 hours of Maritime Industry Fundamentals, which is a prerequisite for Level One completion.
• Published: 2019
• Downloadable instructor resources that include module tests, PowerPoint® and performance profile sheets are available at www.nccer.org/irc.

New!
Maritime Welding
Explains how to read welding symbols on drawings, specifications and Welding Procedure Specifications (WPS).

(Module ID 29202) Describes welding equipment and welding procedures applicable to the setup of welding equipment. Explains how to read welding symbols on drawings, specifications and Welding Procedure Specifications (WPS).

New!
Maritime Welding
Explains how to read welding symbols on drawings, specifications and Welding Procedure Specifications (WPS).

(Module ID 29208) Explains how to use GTAW equipment and how to select and use various types of GTAW electrodes. Explains how to use the GTAW equipment and how to make multiple-pass GTAW welds on carbon steel plate coupons in the 1F, 2F, 3F, and 4F positions, and how to make GTAW V-groove welds in the 1F, 2F, and 3F positions.

Continued on following page
Physical Characteristics/Mechanical Properties of Metal (7.5 Hours)
(Module ID 29203) Explains physical characteristics, mechanical properties, composition, and classification of common ferrous and nonferrous metals. Identifies the various standard metal forms and structural shapes. Shows how to extract metal information from Welding Procedure Specifications (WPS) sheets and Procedure Qualification Records (PQRs). Covers visual inspection, magnetic testing, and X-ray fluorescent spectrometry methods used to identify metals.

GMAW - Pipe (60 Hours)
(Module ID 29202) This module explains how to set up GMAW equipment for open-root V-groove welds, and how to prepare for and make open-root V-groove welds on carbon steel pipe. It provides procedures for making open-root V-groove welds with GMAW equipment on pipe in the 1G-ROTATED, 2G, 5G, and 6G positions.

FCAW - Pipe (60 Hours)
(Module ID 29203) This module explains how to set up FCAW equipment for open-root V-groove welds, and explains how to prepare for and make open-root V-groove welds on carbon steel pipe. It provides procedures for making open-root V-groove welds with FCAW equipment on pipe in the 1G-ROTATED, 2G, 5G, and 6G positions.

GTAW - Carbon Steel Pipe (80 Hours)
(Module ID 29204) This module explains how to set up GTAW equipment for open-root V-groove welds, and explains how to prepare for and make open-root V-groove welds on carbon steel pipe. It provides procedures for making open-root V-groove welds with GTAW equipment on pipe in the 1G-ROTATED, 2G, 5G, and 6G positions.

Preheating and Postheating of Metals (5 Hours)
(Module ID 29204) Explains preheating, interpass temperature control, and postheating procedures that sometimes need to be done to preserve weldment strength, ductility, and weld quality. Covers the equipment used for heat treating metals.

GMAW - Low Alloy and Stainless Steel Pipe (70 Hours)
(Module ID 29205) This module explains how to set up GMAW equipment for open-root V-groove welds on low-alloy and stainless steel pipe, and how to prepare for and make open-root V-groove welds on low-alloy and stainless steel pipe. It provides procedures for making open-root V-groove welds with GMAW equipment on low-alloy and stainless steel pipe in the 2G, 5G, and 6G positions.

SMAW - Stainless Steel Plate and Pipe Groove Welds (100 Hours)
(Module ID 29206) This module explains stainless steel metallurgy, how to select SMAW electrodes for stainless steel welds, and how to weld different types of stainless steels. It covers safety issues associated with welding on stainless steels, how to prepare weld coupons, and how to set up SMAW equipment for welding stainless steel. It provides procedures for making open-root V-groove welds with SMAW equipment on stainless steel plate in the 1G, 2G, 3G, and 4G positions, and procedures for making open-root V-groove welds with SMAW equipment on stainless steel pipe in the 1G-ROTATED, 2G, 3G, and 6G positions.

Maritime Welding Level 2 (continued)

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