

ATMW-1490: MILLWRIGHT PILE DRIVER WELD I

Cuyahoga Community College

Viewing: ATMW-1490 : Millwright Pile Driver Weld I

Board of Trustees:

2007-05-24

Academic Term:

Fall 2025

Subject Code

ATMW - Appld Ind Tech - Millwrighting

Course Number:

1490

Title:

Millwright Pile Driver Weld I

Catalog Description:

Study of basic concepts and implementation of shielded metal arc welding. Topics include theory of arc welding, operation of welding equipment, safety practices, electrode characteristics and selection, identification of weld joint types, and personal protective equipment (PPE).

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Acceptance to Millwrighting Technology apprenticeship program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.

Outcomes

Course Outcome(s):

A. Create specified welds wearing correct PPEs while following OSHA safety procedures.

Objective(s):

1. Relate welding history, techniques, and applications.
 2. Safely make a flat 6010 weld using appropriate welding equipment.
 3. Safely make a flat 6013 fillet weld using appropriate welding equipment.
 4. Safely make a vertical 7018 fillet weld using appropriate welding equipment.
 5. Use proper cutting techniques with an oxy-ace-torch.
 6. Identify, explain, and apply critical OSHA safety procedures for cutting and welding.
 7. Explain principles of shielded metal arc welding.
 8. Select the correct electrode for various welding projects.
 9. Select the correct joint type for various welding projects.
 10. Identify properties and uses of welding rods.
 11. Differentiate between types of welding rods.
 12. Apply knowledge of proper weld polarity.
 13. Identify, explain, and apply knowledge of the purpose of PPEs.
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Methods of Evaluation:

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of assigned projects

Course Content Outline:

1. Concepts
 - a. Welding history
 - b. Welding techniques
 - c. Welding applications
 - d. Welding equipment
 - e. Cutting
 - f. Welding
 - g. Flat welds
 - h. Fillet welds
 - i. PASTA (position, amps, speed, technique, and arc length)
 - j. Flat 6010 weld
 - k. 6010 rod
 - l. Flat 6013 fillet weld
 - m. 6013 rod
 - n. Vertical 7018 fillet weld
 - o. 7018 rod
 - p. Oxy-ace torch
 - q. Oxy-ace torch cutting
 - r. Oxy-ace tanks
 - s. OSHA safety procedures
 - t. Shielded metal arc welding
 - u. Weld polarity
 - v. Welding rod identification
 - w. Welding rod properties
 - x. Welding rod types
 - y. Welding rod uses
 - z. Electrodes
 - aa. Electrode selection
 - bb. Joint types
 - cc. Joint type selection
 - dd. PPEs
2. Skills
 - a. Safely making a flat 6010 weld using appropriate welding equipment
 - b. Safely making a flat 6013 fillet weld using appropriate welding equipment
 - c. Safely making a vertical 7018 fillet weld using appropriate welding equipment
 - d. Using proper cutting techniques while operating an oxy-ace torch
 - e. Identifying, explaining, and applying critical OSHA safety procedures for cutting and welding
 - f. Applying principles of shielded metal arc welding to various welding projects
 - g. Selecting the correct electrode for various welding projects
 - h. Selecting the correct joint type for various welding projects
 - i. Applying knowledge of the properties and uses of welding rods
 - j. Differentiating between types of welding rods
 - k. Applying knowledge of proper weld polarity
 - l. Identifying, explaining, and applying knowledge of PPEs
3. Issues
 - a. Safety
 - b. Proper use of PPEs
 - c. Professional demeanor to promote credibility of the trade
 - d. Communication skills to promote effective interpersonal skills

Resources

Carpenters International Training Fund. *Welding and Cutting*. Las Vegas, NV: Carpenters International Training Fund, 2007.

Pocket Welding Guide: A Guide to Better Welding 32nd Edition. Troy, OH: Hobart Institute of Welding Technology, 2019.

Occupational Safety and Health Administration, United States Department of Labor. Code of Federal Regulations 1926. National Safety Compliance, 2022.

Resources Other

Carpenter's International Training Fund. <https://www.carpenters.org/citf-training/> . 2024.

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