ATPD-2700: MILLWRIGHT-PILE DRIVER WELD IV

Cuyahoga Community College

Viewing: ATPD-2700 : Millwright-Pile Driver Weld IV

Board of Trustees:
September 2025

Academic Term:
Fall 2025

Subject Code
ATPD - Applied Ind Tech-Pile Driving

Course Number:
2700

Title:
Millwright-Pile Driver Weld IV

Catalog Description:
Reinforcement of necessary skills required for large multi-pass welds. Preparation for A.W.S. D1.5 vertical up unlimited thickness certification test. Includes in-depth review of blueprint reading for welders.

Credit Hour(s):
2

Lecture Hour(s):
2

Requisites

Prerequisite and Corequisite
ATMW-2520 Millwright Pile Driver Weld III and departmental approval: admission to Pile Driving Technology apprenticeship program.

Outcomes

Course Outcome(s):
Recognize welding symbols while reading blueprints and make multi-pass welds and run root passes and stringer beads.

Objective(s):
1. Demonstrate ability to make large multi pass welds according to the American Welding Society D1.5 criteria by applying welds in projects presented in class.
2. Recognize without fault welding symbols on blueprints and incorporate them into the job at hand.
3. Run root passes and stringer beads, by using passes & beads on projects presented in class.

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

Course Content Outline:
1. Concepts
   a. Characteristics of track burners including rigid and positive tracking of torch and ability to set constant non-variable travel speed.
   b. Applications of track burners in the field.
   c. Welding symbols.

   d. Appropriate uses of low, medium, and high carbon steel.
   e. Causes of weld crack formation.
2. Skills
   a. Creating accurate, fluent welds in the field.
   b. Operating a track burner including a single-head flame and multi-head burner.
   c. Creating a multi-pass flat position weld using plates and considering size of object to be welded.
   d. Creating plasma arc cut and air carbon cut using flame cutting and cutting torch by determining pressure, piercing holes, and using safety precautions.
   e. Identifying and using low, medium, and high-carbon steels.
   f. Controling heat by preheating, using process control, and applying postweld heat treatment.
   g. Identifying the formation of weld cracks including crater cracks, root cracks, and porosity.
3. Issues
   a. Applications of track burners in the field such as permit predictability and accuracy as ability to use exclusively over handcutting.
   b. Safety.

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Resources for the Instructor

Giachino, J.W. *Welding Skills Practice.* 5th ed. Homewood, IL: American Technical Publishers, Inc., 1985.

Lincoln Electric Co. *The Procedure Handbook of Arc Welding.* Current ed. Cleveland, OH: Lincoln Electric Co., 1973.

Lincoln Electric Co. *New Lessons in Arc Welding.* 3rd ed. Cleveland, OH: Lincoln Electric Co., 1981.

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