ISET-1120: 3G SHIELDED METAL ARC WELDING (STICK)

Cuyahoga Community College

Viewing: ISET-1120 : 3G Shielded Metal Arc Welding (STICK)

Board of Trustees:
June 2024

Academic Term:
Fall 2024

Subject Code
ISET - Integrated Systems Engineering

Course Number:
1120

Title:
3G Shielded Metal Arc Welding (STICK)

Catalog Description:
Throughout this course, students will learn the skills necessary to prepare a 3G 1" plate certification test using the Shielded Metal Arc Welding process. Students will become familiar with different stick electrodes including E6010 1/8", E7018 3/32", and E7018 1/8". Students will be given an opportunity to submit a 3G 1" plate weld sample to an internal or external testing site. Students will be awarded a certification if their weld sample met the requirements of the American Welding Society's (AWS) D1.1 Code Test for 3G welding.

Credit Hour(s):
1

Lecture Hour(s):
0

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
Departmental approval: prior welding experience or recommendation from employer.

Outcomes

Course Outcome(s):
Students will be able to safely weld a common joint in the 3G position with 1" plate beveled plate stock to industry standards.

Objective(s):
1. Interpret the different welding processes.
2. Practice welding safety through laboratory activities.
3. Utilize STICK in a proper standard of operation, that is, following STICK procedures that produce strong, mechanically sound welds.
4. Demonstrate mastery of STICK welding techniques in all positions.
5. Demonstrate mastery of welding technique in all positions.
6. Prepare welded work samples to American Welding Society Standards (AWS).

Methods of Evaluation:
The students are evaluated through completion and results of their plate certification test.

Course Content Outline:

1. **Concepts**
   a. Safety while operating weld equipment
   b. Supplies used in welding
   c. Shielding
2. **Skills**
   a. Apply safety procedures in lab
   b. Metal preparation
   c. Weld equipment set up and operation
   d. Welding joints 3G position
   e. Setup and turn down of welding station
   f. Prepare metal for welding
   g. Select proper hand tools for specific jobs.
   h. Perform a 3G 1″ plate certification test.

Resources

Althous, Turnquist, Bowditch, Bowditch, Bowditch. *Modern Welding*. 13. Goodheart-Wilcox, 2023. January 9, 2023.

Larry Jeffus. (2020) (February 14, 2020) *Welding. Principles and Applications*, Cengage Learning.

William A. Bowditch, Kevin E. Bowditch, Mark A. Bowditch. (2020) (October 6, 2020) *Welding Fundamentals*, G&W Publishers.

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