ISET-2120: SHIELDED METAL ARC WELDING (STICK)

Cuyahoga Community College

Viewing: ISET-2120 : Shielded Metal Arc Welding (STICK)

Board of Trustees:
May 2023

Academic Term:
Fall 2023

Subject Code
ISET - Integrated Systems Engineering

Course Number:
2120

Title:
Shielded Metal Arc Welding (STICK)

Catalog Description:
Develop skills in Shielded Metal Arc Welding (STICK). Extensive guided instruction provided and prepares a student for the SMAW (STICK) certification test.

Credit Hour(s):
4

Lecture Hour(s):
2

Lab Hour(s):
4

Requisites

Prerequisite and Corequisite
ISET-1101 Welding Blue Print Reading or departmental approval.

Outcomes

Course Outcome(s):
Utilize skills in Shielded Metal Arc Welding (STICK) to prepare parts or complete assigned work tasks according to job specifications.

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).

Course Outcome(s):
Be prepared to take the AWS welding certification test for Shielded Metal Arc Welding (SMAW).

Objective(s):
1. Prepare welded work samples to American Welding Society Standards (AWS).
2. Apply welding skills to the Shielded Metal Arc Welding process.

Methods of Evaluation:

a. Laboratory assignments of welding operations
b. Written and hands-on quizzes covering homework and in-class demonstrations
c. Classroom participation

Course Content Outline:

a. Concepts
    i. Safety when operating STICK equipment
    ii. STICK equipment set up and operation
    iii. Types of joints used in STICK welding
    iv. Metal preparation for STICK welding
    v. Depth of bevel, size, and strength for STICK welding
    vi. Tools
    vii. Supplies used in STICK welding
    viii. Basic math
    ix. Shielding of the weld puddle
    x. DNA to STICK
    xi. Measurement
b. Skills: Utilizing STICK equipment, the student will perform the following welding operations:
    i. Weld joints in flat position
    ii. Weld joints in horizontal position
    iii. Weld joints in vertical position
    iv. Weld joints in overhead position
    v. Weld butt, tee, and lap joints
    vi. Setup and turn down of welding station
    vii. Safety rule application
    viii. Select the proper welding process for type of metal
    ix. Prepare metal for the weld
    x. Select proper measuring and hand tools for specific jobs.
    xi. Apply safety procedures
c. Issues
    i. Safe installations
    ii. Math
    iii. Relate theory to practical application

Resources

Althous, Turnquist, Bowditch, Bowditch, Bowditch. *Modern Welding.* 11th. Goodheart-Wilcox, 2012.

Walker, Polanin. *Welding Print Reading.* 6th. Goodheart-Wilcox, 2012.

Bennett, Siy. *Blueprint Reading for Welders*. 9th. Delmar, 2019.

Jeffus. *Welding, Principles and Applications*. 8th. Delmar, 2020.

Bohnart. *Welding Principles and Practices*. 5th. McGraw Hill, 2021.

Resources Other

U/LINC Learning Management System Lincoln Electric Education.
http://education.lincolnelectric.com/the-lincoln-weld-school/educator-professional-courses/ulinc/

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