ISET-2170: FLUX-CORED ARC WELDING (FCAW)

Cuyahoga Community College

Viewing: ISET-2170 : Flux-Cored Arc Welding (FCAW)

Board of Trustees:
January 2023

Academic Term:
Fall 2023

Subject Code
ISET - Integrated Systems Engineering

Course Number:
2170

Title:
Flux-Cored Arc Welding (FCAW)

Catalog Description:
Presents both a practical and theoretical understanding of Flux-Cored Arc Welding (FCAW) processes through extensive hands-on instruction. Provides solid background for field-competitive FCAW certification.

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 Flux-Cored Arc Welding (FCAW) to prepare parts or complete assigned work tasks according to job specifications.

Objective(s):
1. Develop different positions of structural FCAW.
2. Properly prepare material surfaces for fit-up.
3. Identify different welding positions.
4. Perform small repairs to damaged equipment.
5. Practice safe grinding techniques.
6. Practice safety when operating different types of FCAW equipment.
7. Interpret different types of welding joints.
8. Develop metal preparation for both thick and thin materials.
9. Develop accurate multiple welding passes for strength and thickness requirements.
10. Learn to use different FCAW settings and temperatures.
11. Demonstrate extensive knowledge setting-up equipment.
12. Demonstrate knowledge mastery with different types of structural beams, brackets, plates, and strength of tack welds.
13. Handle different types of fire extinguishers.

Course Outcome(s):
Be prepared to take the AWS welding certification test for Flux-Cored ARC Welding (FCAW).

Objective(s):
1. Apply welding skills to the Flex Core Arc Welding (FCAW) process.

Methods of Evaluation:
A. Laboratory assignments
B. Written assignments
C. Online course development (aws.org (http://aws.org))
D. Classroom participation
E. Quizzes
G. Midterm Exam
H. Final Exam

Course Content Outline:
A. Concepts
1. Safety when working with different tools
2. FCAW positions terminology
3. OSHA safety standards/codes
4. Welding equipment safety and set-up
5. Different types of structural FCAW mechanisms
6. Trade science
7. Trade theory
8. Complex blueprint reading
9. Advanced trade math
10. Structural fabrication tools
11. Different plate perforations according to prints
12. Different tack welding strength

B. Skills
1. Weld "T" joints in a flat, horizontal, vertical up, and overhead positions
2. Weld grooved joints in a flat, horizontal, vertical up, and overhead positions
3. Set-up and turn-down of welding station
4. Selecting proper tools for the job
5. Apply safety procedures

C. Issues
1. Safe installations
2. Math
3. Relate theory to practical application

Resources
Althous, Turnquist, Bowditch, Bowditch, Bowditch. *Modern Welding*. 11th. Goodheart-Wilcox, 2018.

Bowditch, Bowditch, Bowditch. *Welding Fundamentals*. 5th. Goodheart-Wilcox, 2021.

Minnick. *Flux Cored Arc Welding Handbook.* 3rd. Goodheart-Wilcox, 2008.

NCCER. *Welding Level 2 Trainee Guide.* 5th. Pearson, 2015.

American Metallurgical Consultants. *Welding Procedures and Techniques: Flux Cored Welding.* http://www.weldingengineer.com/1flux.htm, 2006.

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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