ISET-2110: GAS TUNGSTEN ARC WELDING (TIG)

Cuyahoga Community College

Viewing: ISET-2110 : Gas Tungsten Arc Welding (TIG)
Board of Trustees:
May 2023

Academic Term:
Fall 2023

Subject Code
ISET - Integrated Systems Engineering

Course Number:
2110

Title:
Gas Tungsten Arc Welding (TIG)

Catalog Description:
Develop skills in Gas Tungsten Arc Welding (GTAW-TIG). Extensive guided instruction provided and prepares a student for the TIG 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 GTAW-TIG 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 GTAW equipment in a proper standard of operation, that is, following GTAW-TIG procedures that produce strong, mechanically sound welds.
4. Demonstrate mastery of TIG welding technique 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 sit for Gas Tungsten Arc Welding GTAW-TIG certification test.

Objective(s):
 a. Demonstrate the welding proficiency capable of passing GTAW-TIG certification tests.
 b. Demonstrate proper GTAW-TIG welding form and techniques to consistently produce structurally sound welds.

Methods of Evaluation:
a. Laboratory assignments of welding operations
b. Written and hands-on quizzes covering homework and in-class demonstrations
c. Classroom participation
d. Final exam

Course Content Outline:
a. Concepts
   i. Safety when operating GTAW equipment
   ii. GTAW Equipment set up and operation
   iii. Types of joints used in GTAW welding
   iv. Metal preparation for GTAW welding
   v. Depth of bevel, size, and strength for GTAW welding
   vi. Tools
   vii. Supplies used in GTAW welding
   viii. Basic math
   ix. Shielding
   x. Shielding gas
   xi. Measurements
b. Skills Utilizing GTAW 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 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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