WELD A102: WELD TESTING GMAW 1

Item	Value
Curriculum Committee Approval Date	09/23/2015
Top Code	095650 - Welding Technology
Units	.5 Total Units
Hours	27 Total Hours (Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	Yes
Grading Policy	Pass/No Pass (B)

Course Description

Weld testing for mastery of levels I, II, III and/or IV in the Gas Metal Arc Welding process. A Welder Qualification Certification will be issued. When completed, may lead to a Certificate of Specialization. Enroll only when ready to test. Fee charged for qualification test. PREREQUISITE: WELD A100, WELD A101, or concurrent enrollment, or industry experience. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Complete a series of welds for qualification for certification to I-CAR standards or other welding qualification tests
2. Complete a weld or welds for qualification for certification to an American National Standard Institute codes. A. American Welding Society B. American Society of Mechanical Engineers C. Military Specification

Course Objectives

- 1. Demonstrate mastery in joint assembly.
- 2. Demonstrate an understanding of welding machine adjustments.
- 3. Demonstrate an understanding of electrode selection.
- 4. Demonstrate an understanding of shielding gases and their use.
- 5. Explain polarity for electrodes.
- 6. Demonstrate correct welding gun manipulation in the root pass of the test plate or plates as required by test standard.
- 7. Demonstrate the correct preparation (if required) for subsequent welding passes (grinding and or brushing).
- 8. Demonstrate the correct manipulation of welding gun for intermediate welding passes.
- 9. Demonstrate the correct preparation for subsequent intermediate welding passes (grinding and or brushing).
- 10. Demonstrate the correct manipulation of the welding gun for cover passes.
- 11. Demonstrate the correct cleaning of the surface of the weld.

Lecture Content

Lab course

Lab Content

Preparation of Test Plates Determine test plate thickness (refer to code requirements); prepare test plates by flame or machine cutting to correct bevel angles; if open root, prepare root face; if backing is required prepare and attach backing in accordance with code requirements. Test Procedures Determine applicable American National Standards Institute code for testing the welder, test are repeatable depending on the code requirements of the job license. American Welding Society American Society of Mechanical Engineers Military Specification Other Weld position Refer to code requirements for welding positions Plate welding positions; 1-flat, 2-horizontal, 3-vertical, 4-over head Pipe welding positions; 1-flat, 2-horizontal, 5-fixed position on horizontal plane, 6-fixed and a 45? angle Inform the welder of the code requirements for this test Electrode selection and manipulation Refer to code requirements for electrode selection Refer to code requirements for welding direction and manipulation Inform the welder of the code requirements for this test Welding sequence Refer to code requirements for welding sequencing Refer to code requirements for welding bead layers (stringers or weave) Inform the welder of the code requirements for this test Test coupon preparation Refer to code requirements for weld test coupon selection. Mark coupons to be removed from the weld specimen. Flame or cold cut and remove weld coupons. Prepare coupons for testing by grinding and buffing. Test evaluation Determine code requirements for welded coupon evaluation. Follow code requirements for processing welded coupons. Refer t o code standards for acceptability or rejection of processed weld coupons. Document welding testing results according to code requirements.

Method(s) of Instruction

- Lab (04)

Instructional Techniques

Proctor a hands-on welding test; observe the test while in progress; compare the ability of the student to minimum industry standards as applicable to code; evaluate and document results

Reading Assignments

lab course does not require out-of-class assignments

Writing Assignments

lab course does not require out-of-class assignments

Out-of-class Assignments

lab course does not require out-of-class assignments

Demonstration of Critical Thinking

Welding test result to an American National Standard Institute (ANSI) code

Required Writing, Problem Solving, Skills Demonstration

Proficiency demonstrated by passing physical test to the required industry standard

Eligible Disciplines

Welding: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Other Resources

1. Selected handout materials to be provided and distributed by instructor.