WELD A105: WELD TESTING BASIC

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 or IV in Shielded Metal Arc Welding process. A Welder Qualification Certification will be issued. When completed, may lead to 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 weld or welds for qualification for certification to an American National Standard Institute codes such as: American Welding Society; American Society of Mechanical Engineers; Military Specification; or other welding qualification tests.

Course Objectives

- 1. Demonstrate mastery in joint assembly.
- 2. Demonstrate the ability to adjust the welding machine.
- 3. Demonstrate an understanding of electrode selection.
- 4. Demonstrate the ability to manipulate welding electrode, welding gun, or filler metal to minimum standard.
- 5. Demonstrate an understanding of shielding required for welding process.
- 6. Explain polarity for electrodes, and welding process.
- 7. Demonstrate the correct manipulation of electrodes, welding gun, or filler metal in the root weld of the test plate or plates as required by the test standard.
- 8. Demonstrate the correct preparation (if required) for subsequent welding passes (grinding and or brushing).
- 9. Demonstrate the correct manipulation of electrodes, welding gun, or filler metal for intermediate welding passes.
- 10. Demonstrate the correct preparation (if required) for subsequent intermediate welding passes (grinding and or brushing).
- 11. Demonstrate the correct manipulation of the welding electrode, welding gun, or filler metal for the cover pass.
- 12. Demonstrate the correct cleaning of the surface of the completed weld.

Lecture Content

lab course only

Lab Content

Preparation of Test Plates Determine test plate thickness and alloy (refer to code requirements); prepare test plates by flame or machine cutting to correct dimensions and 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, tests are repeatable, depending on the code requirements of the job license. American Welding Society American Society of Mechanical Engineers Military Specifications Other Weld position Refer to code requirements for welding positions Plate welding positions 1-flat, 2-horizontal, 3-vertical, 4-overhead Pipe welding positions 1-flat, 2-horizontal, 5-fixed on horizontal plane, 6-fixed at 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 (stringer or weave) Inform the welder of the code requirements for this test Bead cleaning procedure Refer to code requirements for weld bead cleaning requirements Inform the welder of the code requirements for this test Test coupon preparation Refer to code requirements for weld test coupon selection Mark test coupons to be removed from the weld specimen Flame or cold cut and remove weld coupons Prepare coupons for testing according to code req uirements Test evaluation Determine code requirements for welded coupon evaluation Follow code requirements for processing weld test coupons Refer to code standards for acceptability or rejection of processed weld coupons Document welding testing results according to code requirement

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 result

Reading Assignments

homework hours not assigned

Writing Assignments

Proficiency demonstrated by passing a physical test to the required standard

Out-of-class Assignments

out-of-class assignments not required

Demonstration of Critical Thinking

Critical thinking skills demonstrated by welding test results

Required Writing, Problem Solving, Skills Demonstration

Proficiency demonstrated by passing a physical test to the required 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.