WELD A111: WELD TESTING PIPE

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 and/or II in the Pipe Welding process or Gas Tungsten Arc and Shielded Metal Arc Welding processes. A Welder Qualification Certification will be issued. 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: A. American Welding Society B. American Society of Mechanical Engineers C. Military Specification D. American Petroleum Institute D. Other welding qualification or certification tests.

Course Objectives

- 1. Demonstrate mastery in joint preparation and assembly.
- 2. Demonstrate understanding of machine adjustments.
- 3. Demonstrate understanding of electrode selection.
- 4. Demonstrate an understanding of polarity and electrodes requirements.
- 5. Demonstrate the correct manipulation in the root pass of the test pipe joint to the required standard.
- 6. Demonstrate the correct preparation for subsequent welding passes (grinding and brushing).
- 7. Demonstrate the correct manipulation for intermediate welding passes of the test pipe joint to the required standard.
- 8. Demonstrate the correct preparation for subsequent intermediate welding passes (grinding and brushing).
- 9. Demonstrate the correct manipulation for welding cover passes of the test pipe joint to the required standard.
- 10. Demonstrate the correct cleaning of the surface of the weld.

Lecture Content

lab course

Lab Content

Preparation of Test Pipe Joint Determine pipe diameter and wall thickness to be tested (refer to code requirements); flame, or machine cut pipe bevel angles; prepare weld root face; if fillet welds are required prepare fillet weld materials to 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 American Petroleum Institute Military Specifications Others Weld position Refer to code requirements for welding positions Position pipe for welding; 1-flat, 2-horizontal, 5-fixed on horizontal plane, 6-fixed 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 Bead cleaning procedure Refer to code for requirements for cleaning procedure Inform the welder of the code requirements for this test Test coupon preparation Determine top of the weld test and mark Determine bottom of the weld test and mark Refer to code requirement for weld coupon selection Mark weld coupons to be removed Flame or machine cold cut and remove weld coupons Test evaluation Determine code requirements for weld coupon evaluation Follow code requirements for processing weld coupons Refer to 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 standard as determined by applicable code; evaluate and document results

Reading Assignments

outside assignments not required; lab course

Writing Assignments

outside assignments not required; lab course

Out-of-class Assignments

outside assignments not required; lab course

Demonstration of Critical Thinking

Welding test result

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.