WELD A223: ADVANCED WELDING LEVEL 1

Item	Value
Curriculum Committee Approval Date	04/22/2015
Top Code	095650 - Welding Technology
Units	1.5 Total Units
Hours	54 Total Hours (Lecture Hours 18; Lab Hours 36)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

An advanced welding course teaching the theory and practice of joining ferrous and non-ferrous metals. Includes certification requirements joint design and use of welding symbols. Lectures include preparation for Los Angeles City testing. PREREQUISITE: WELD A100 or WELD A101 or WELD A140. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Demonstrate proper safety procedures.
2. Join metals utilizing the SMAW welding process.
3. Weld metals in and out-of-position.

Course Objectives

- 1. Demonstrate an understanding and practice of personal welding safety.
- 2. Demonstrate safe use of arc welding machines.
- 3. Demonstrate safe use of oxygen acetylene cutting equipment.
- 4. Demonstrate an understanding of arc welding polarity.
- 5. Demonstrate an understanding of constant current welders.
- 6. Demonstrate an understanding of constant voltage welders.
- 7. Demonstrate an understanding of alternating current.
- 8. Demonstrate an understanding of air arc gouging.
- 9. Demonstrate an understanding of SMAW.
- 10. Demonstrate the ability to join metals using SMAW.
- 11. Demonstrate the ability to join metals in and out of position.
- 12. Prepare metals for various geometric joints prior to welding.

Lecture Content

Safety A. General safety rules B. Welding equipment safety C. Personal safety in welding II. Shielded metal arc welding (SMAW) Equipment AC and DC machines Transformers Inverters Constant current machines Constant voltage machines Combination machines Different Weld positions Weld Symbols Information on L.A. City Testing Preparation for the written examination Los Angeles City Code Code book interpretation Thermal Cutting A. Oxy-acetylene cutting B. Plasma cutting

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture, demonstrations, skills evaluation, and critique

Reading Assignments

Students will spend a minimum of one hour per week reading assigned material.

Writing Assignments

Students will spend a minimum of one hour per week on written examinations

Out-of-class Assignments

Students will spend a minimum of two hours per week demonstrating proficiency and completing written examinations

Demonstration of Critical Thinking

Weld projects Written testsInstructors evaluation of welding skills as described in a specification or code standard

Required Writing, Problem Solving, Skills Demonstration

Weld projects Written testsInstructors evaluation of welding skills as described in a specification or code standard

Eligible Disciplines

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

Textbooks Resources

1. Required Galvery, William and Frank Marlow. Welding Essentials: Questions and Answers , 2nd ed. New York: Industrial Press, 2007 Rationale: . 2. Required Galvery, W. Welding Essentials Second Edition, 2d ed. Industrial Press, 2009 Rationale: .

Other Resources

1. Orange Coast College welding safety test Selected handout materials to be provided and distributed by instructor