

University of Arkansas - Fort Smith
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General Syllabus

WELD 12844 Arc Welding - Basic

Credit Hours: 4

Lecture Hours: 2

Laboratory Hours: 4

Prerequisite or corequisite: WELD 12344 Introduction to Welding and Print Reading

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Designed to give students knowledge of equipment, safety precautions and shop practice. They will make basic types of fillet welds in most positions and study welding nomenclature, design of joints and electrode classifications.

B. Additional Information

This is an introductory course for shielded metal arc welding (SMAW). Basic welding techniques will be used with the electric arc process, cutting with the oxy-acetylene torch and testing of weldments using destructive and non-destructive national standards.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Demonstrate the safe use of oxy-fuel cutting equipment, arc welding equipment and proper eye, clothing and hearing protection.
2. Demonstrate proper equipment set-up by attaching leads to a work piece and identifying work leads and electrode leads according to polarity.
3. Identify and employ the correct metal for the assignment according to welding standards.
4. Perform striking and stopping an arc at the proper location.
5. Demonstrate control of electrode angles and travel speed by size and appearance of weld beads according to code standards.
6. Perform acceptable weld clean-up procedures before, during and after welding according to code standards.
7. Distinguish between currents and polarities resulting in acceptable

- weldments according to welding codes and standards.
8. Identify and list the different characters according to the American Welding Society electrode classification system.
 9. Evaluate finished project for design and fit according to welding codes and standards testing procedures.
 10. Perform single and/or multiple pass fillet welds according to essential variables of American Welding Society D1.1 structural welding code for visual inspection.
 11. Perform a groove weld according to essential variables of American Welding Society D1.1 structural welding code for guided bend test.
 12. Distinguish and perform weldments in positions according to welding codes and standards.
 13. Demonstrate the proper use of the track torch when cutting metal.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills: Students must analyze situations and make decisions in materials and techniques and make judgments in accordance with American Welding Society standards.

Quantitative Reasoning: Students must make precision measurements and figure acceptable tolerances within American Welding Society guidelines.

III. Major Course Topics

- A. Safety and clean up procedures
- B. Oxy-fuel cutting equipment
- C. Arc welding equipment
- D. Choosing the correct metal
- E. Electrode angles and travel speed by size and appearance of weld beads according to code standards
- F. Welding codes and standards
- G. American Welding Society electrode classification system
- H. Single and/or multiple pass fillet welds according to essential variables of American Welding Society D1.1 structural welding code for visual inspection
- I. Groove welds according to essential variables of American Welding Society D1.1 structural welding code for guided bend test
- J. Track torch