

University of Arkansas - Fort Smith
5210 Grand Avenue
P. O. Box 3649
Fort Smith, AR 72913-3649
479-788-7000

General Syllabus

WELD 12344 Introduction to Welding and Print Reading

Credit Hours: 4

Lecture Hours: 2

Laboratory Hours: 4

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Major emphasis on shop safety, oxy-fuel set-up, cutting, and shut down, plasma cutting, arc/Mig/Tig equipment set-up. Develops basic skills in reading blueprints and introduces the student to various types of working drawings for fabrication and manufacturing purposes.

B. Additional Information

This is an introductory course for welding. Welding and shop equipment will be introduced and the student will demonstrate the proper use of equipment. This course is intended to provide the necessary range of topics to ensure that the student will understand how to interpret drawings used in the welding industry. Class assignments provide practice in visualizing a product from a blueprint to its final form. Other topics covered are materials, welding processes, understanding supplementary information on drawings, and Geometric Dimensioning and Tolerance.

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 cutting equipment
2. Use proper eye, clothing and hearing protection.
3. Demonstrate proper equipment set-up.
4. Identify common welding and drawing terms on a typical welding part drawing.
5. Correctly interpret information given in drawing.
6. Visualize objects by applying orthographic drawing principles.
7. Calculate missing part dimensions, identify tolerance requirements and determine part material requirements.

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. Plasma cutting equipment
- D. Arc welding equipment
- E. TIG welding equipment
- F. MIG welding equipment
- G. Choosing the correct metal
- H. Track torch Introduction: definition of common welding and drawing terms and the purpose and utilization of blueprints in industry.
- I. Visualization concepts: engineering drawing projection and visualization concepts and isometric (pictorial drawing) sketches.
- J. Orthographic drawing principles: arrangement, selection and relationship of view.
- K. Reading the drawing: alphabet of lines, dimensions on drawing, geometric dimensioning and tolerance, notes and symbols, weld and welding symbols.
- L. Understanding supplementary information: drawing scale, basic joints, title block and bill of materials.
- M. Special views and assembly drawings: sectional views, auxiliary views, assembly drawings.
- N. Types of weld: fillet, groove, spot, plug, back and melt-thru, surfacing.