

University of Arkansas - Fort Smith
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General Syllabus

WELD 1454 Layout and Fabrication – Sheet Metal

Credit Hours: 4

Lecture Hours: 2

Laboratory Hours: 4

Prerequisite or corequisite: WELD 1234 Introduction to Welding and Print Reading

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Study of the theory and practice of layout and the fabrication of basic fittings using sheet metal. The student will learn the process of fabricating these basic fittings from sheet metal using different methods.

B. Additional Information

This course covers the theory and practice of layout and the fabrication of basic fittings using sheet metal. The student will learn the process of fabricating basic fittings from sheet metal using parallel line development and triangulation. These processes will be done on paper and sheet metal using instruction and practice fitting information.

II. Student Learning Outcomes

A. Subject Matter

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

1. Given shop equipment and hand tools, identify, recognize and demonstrate their safe use.
2. Perform, use and set up equipment.
3. Identify and demonstrate the correct procedure of measuring and the use of layout tools.
4. Identify and recognize geometric shapes.
5. Identify and perform math and plane figures exercises.
6. Identify and demonstrate angles and angular layouts.

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 use trigonometry as well as make precision measurements and figure acceptable tolerances within American Welding Society guidelines.

Ethical Decision Making

Students will evaluate work to meet American Welding Society standards and guidelines as well as evaluate how stakeholders are affected by the quality and safety of the finished welds.

III. Major Course Topics

- A. Rectangular pipe
- B. 90 degree square elbow with square throat and heel
- C. 90 degree curved elbow with square throat
- D. 90 degree curved elbow with curved throat
- E. 45 degree elbow with curved throat and heel
- F. 90 degree two-way Y branch with straight throat and heel
- G. Change joint with three sides straight
- H. Change joint-center flair two sides straight
- I. Offset with straight heels
- J. 90 degree offset elbow with square throat and heel combined
- K. Transition change joint with two sides straight
- L. Transition change joint center with one side straight
- M. Double offset with flat cheeks and heels
- N. 90 degree tee intersecting a round pipe
- O. Square to round (centered)
- P. Handout, offset square to round