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

General Syllabus

DFTG 2864 Machine Drawing and Design

Credit Hours: 4 **Lecture Hours:** 4 **Lab Hours:** 0

Prerequisite: DFTG 2834 Parametric Modeling

Effective Catalog: 2023-2024

I. Course Information

A. Catalog Description

Preparation of advanced machine detail and assembly drawings. Drawings are prepared applying machine finishes and consideration of appropriate manufacturing processes. Supplementary topics are stress analysis and scheduling of design and drafting projects in industry.

B. Additional Information

This course will cover topics emphasizing how design requirements, material selection and manufacturing methods determine the extent and type of information required on an engineering drawing.

The functional relationship of mechanical parts in a typical machine assembly will be analyzed and based on this information, dimension, manufacturing tolerances, machine finishes, and the selection of proper materials will be incorporated into detail and assembly drawings.

The study of a number of industry references and standards, e.g., ANSI, SAE, ASTM, etc., and the selection of standard machine parts from industry sources will increase student proficiency in research data and applying the solution to practical problems.

II. Student Learning Outcomes

A. Subject Matter

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

1. Apply ANSI standards to identify proper dimensioning techniques.

2. Apply geometric dimensions and tolerancing techniques.
3. Recognize and properly note fit and finish symbols.
4. Properly select views for part drawings.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking - Students will create models and graphical representations of objects using correct dimensions.

Quantitative Reasoning - Students will be able to assign and use numbers, read and analyze data, create models, draw inferences and support conclusions based on sound mathematical reasoning.

Communication Skills (written and oral)

Students will apply a variety of industry standards for engineering graphic communications in manufacturing applications. These standards include American National Standards Institute (ANSI) for imperial measurement units and International Organizational of Standards (ISO) for most foreign countries.

III. Major Course Topics

A. ANSI dimensioning standards
B. Geometric dimension & tolerancing
C. ANSI fits & finishes
D. Working drawing formats
E. Manufacturing processes
F. Material specifications