**University of Arkansas – Fort Smith**
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# General Syllabus

# CGT 2834 - Machine Drawing and Design

**Credit Hours:** 4 **Lecture Hours:** 2 **Lab Hours:** 4
**Prerequisite:** CGT 2894 Parametric Modeling
**Prerequisites or Corequisite(s):** CGT 2764 CAD Level II
**Effective Semester:** Summer I 2013

## I. Course Information

### A. Catalog Description

Preparation of advanced machine detail and assembly drawings based on actual problems encountered in industry. 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.

Related topics such as basic stress analysis, heat treating and familiarity with manufacturing processes will be covered in lectures and/or tours of local industries and WC Industrial Technology facilities.

## II. Student Learning Outcomes

### A. Subject Matter

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

1. Identify proper dimensioning techniques
2. Apply geometric dimensions and tolerancing techniques

3. Recognize fit and finish symbols.
4. Properly select views for part drawings.

### B. University Learning Outcomes

**Communication Skills**
Students will be able to communicate effectively with a variety of audiences using industry standard graphic language.

**Technological Skills**
Students will be able to use computerized tools to efficiently access, communicate, analyze and evaluate electronic information.

**Analytical Skills**
Students will use analytical/critical thinking skills to draw conclusions and/or solve problems.

**Ethics**
Students will be able to recognize and analyze ethical dilemmas.

**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.

## III. Major Course Topics

### A. Professional Knowledge

1. ANSI dimensioning standards
2. Geometric dimension & tolerancing
3. ANSI fits & finishes
4. Working drawing formats
5. Manufacturing processes
6. Material specifications

### B. Visualization Skills

1. Participate in small group projects based on manufacturing industries.
2. Describe various types of drawings and their use in industry.
3. Inspect drawings for errors.