

University of Arkansas - Fort Smith
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General Syllabus

DFTG 1234 Engineering Graphics

Credit Hours: 4

Lecture Hours: 4

Lab Hours: 0

Corequisite: None

Effective Catalog: 2023-2024

I. Course Information

A. Catalog Description

Drawing fundamentals, including orthographic projection, geometric construction, lettering, dimensioning, sectioning, auxiliary views, measuring, and sketching large areas. Course is based on hand-drafting with a focus on creating accurate sketches.

II. Student Learning Outcomes

A. Subject Matter

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

1. Prepare basic engineering drawings using manual drafting techniques and drafting instruments.
2. Follow general safety procedures, adjust equipment for maximum comfort and usability, and describe ergonomic considerations.
3. Describe career options, identify educational experience and personal traits that benefit a drafter, and describe the code of ethics which drafters should follow.
4. Describe various types of drawings, care for basic drafting equipment and tools, and employ the proper use of drafting tools based on instructor criteria.
5. Demonstrate proper measuring techniques using architects', engineers', and metric scales.
6. Identify standard size, types of drawing media and apply line conventions.
7. Perform metric to U.S. system conversions, apply basic mathematical skill to drawing operations, and apply mathematical calculations involving practical geometry and trigonometry.
8. Use geometric construction methods for drawing bisectors, angles, plane figures, circles and areas.
9. Draw multiple views using the principle of orthographic projection.
10. Draw auxiliary views using orthographic projection and reference plane or

folding line methods.

11. Draw section views using orthographic projection and cutting planes.
12. Based on lectures and textbooks, create drawings using the following American National Standards Institute documentation:
 - a. Line Conventions and Lettering
 - b. Multi and Sectional View Drawing
 - c. Abbreviations
 - d. Dimensions for all types of drawings
 - e. Select appropriate types of projections
14. Plan, organize, and present a portfolio that will be added to throughout other courses in the program.
15. Identify major areas of the user interfaces of the major 3D software packages used in the CAD program.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Quantitative Reasoning- Students will be required to apply accurate dimensioning principles to all drawings that are completed. Students will be required to complete the quantitative reasoning required in computing text height, line type scale and dimension scale.

III. Major Course Topics

- A. Manual drafting techniques and drafting instruments.
- B. Code of Ethics and other standards of behavior expected of drafters.
- C. Measurement using standard rulers and architect, engineer, and metric scales.
- D. Drawing characteristics using the following American National Standards Institute documents:
 - E. Line Conventions and Lettering.
 - F. Multi and Sectional View Drawing.
 - G. Abbreviations.
 - H. Dimensions for all types of drawings.
 - I. Selection of appropriate types of projections.
 - J. Paper images.
 - K. Industry standard drafting symbols.
 - L. View generation of 2D or 3D representation of objects.
 - M. Geometric construction methods for drawing bisectors, angles, plane figures, circles and areas.
 - N. Brief introduction of major 3D modeling software packages used in the CAD program.