

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

General Syllabus

MEEG 20041 CAD for Engineering

Credit Hours: 1

Lecture Hours: 0

Lab Hours: 2

Prerequisite: None

Effective Catalog: Summer I 2021

I. Course Information

A. Catalog Description

Introduction to industry standards for graphical representation of objects, 2D presentations, and 3D modeling utilizing mechanical parametric modeling software.

B. Additional Information

Subjects covered will include the use of computerized equipment to produce parts, drawings, and assemblies, geometric construction, section views, auxiliary views, dimensioning and tolerancing, pictorial representations of objects, fastening devices, and parametric 3D modeling utilizing the commands resident in 3D modeling software.

II. Student Learning Outcomes

A. Subject Matter

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

1. Identify common pictorial representations of objects.
2. Create and print properly scaled and dimensioned standard engineering drawings using multiviews, section views, and auxiliary views.
3. Utilize parametric modeling to create 3D models of parts and combine those parts into a working assembly.
4. Create a set of working drawings including assembly drawings with an itemized Bill of Material.
5. Create a working animation showing movement of mechanical assemblies.
6. Generate rendered images of objects utilizing materials and lighting capabilities resident in the software.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking - Students will visualize three-dimensional models in two-dimensional space and create 3D models of objects. They will then use these models to generate engineering industry-standard construction drawings.

Quantitative Reasoning - Students will utilize mathematical skills to calculate the needed dimensions from given dimensions as necessary to create their computerized models.

III. Major Course Topics

- A. Standard pictorial representations and engineering drawing terminology
- B. Multi-views, section views, auxiliary views
- C. Dimensioning and tolerancing
- D. 3D parametric part modeling using sketches and features
- E. Assembly drawings and motion studies
- F. Generating drawings from 3D models
- G. Threads and fasteners
- H. Introduction to Static and Fluid Flow Simulation
- I. Introduction to photorealistic renderings