

1. **MEEG202**            **Computer-Aided Engineering Design**
2. **Credits 3**            **Contact Hours 3**
3. **Spring 2017**        Dr. Jennifer Buckley, Dr. Michael Keefe, Spencer Lab
4. **Textbook**            none required.

**Other Supplemental Materials:** Current edition of any standard textbook; such as, “Fundamentals of Graphics Communication,” Bertoline and Wiebe, McGraw Hill, and “Engineering Drawing and Graphic Technology,” French et al, McGraw Hill

## 5. Specific course information

- a. **Catalog Description:** Introduces computer-aided mechanical engineering design by developing student's ability to 1) think visually, 2) communicate spatial information to an engineering audience through parametric solid modeling drafting standards and 3) begin to recognize connection between a virtual design and an actual component.
- b. **Prerequisite:** none.
- c. **Course is required.**

## 6. Specific goals for the course

- a. **Specific Outcomes of Instruction:** Simply put, the purpose of this course is to learn how to make stuff, which is fundamentally what it means to be a mechanical engineer. So, we're going to treat you like real engineers in this course and expect a professional level of effort and enthusiasm from you. When you finish this course, you'll be able to: 1) use computer aided engineering tools to create common engineering models for design and manufacture of mechanical systems, including sketches, 2-D detailed engineering drawings, 3-D models, and complete design packets including all of these components; 2) apply mechanical engineering principles from statics, strength of materials, materials science, and dynamics towards developing simple mechanical systems; 3) understand and apply iterative design processes towards solving an open-ended design challenge, including user-centered research, problem identification, concept generation & selection, design details, and design validation; 4) design and manufacture a simple mechanical system using the tools in the student machine shop..

### b. Student Outcomes Addressed:

This course can cover Outcomes a, c, e, g, k; however, for Spring 2017, no outcomes were asked specifically from this course

## **7. Brief list of topics to be covered**

- Engineering Design;
- Design Methodology;
- CAE Intro;
- Definitions;
- Sketching;
- Computer package (SolidWorks);
- Engineering Geometry;
- Visualization;
- Solid Modeling;
- Standard Multiview Drawing - including Auxiliary and Sections;
- Pictorials,
- Dimensions & Tolerancing - including exposure to GD&T;
- basic exposure to Working Drawings (primarily assembly drawings);
- includes an exposure to rapid-prototyping application driven by solid-modeling and parametric solid modeling