Syllabus: Computer Aided Engineering (MEEG202)

About the Course
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:
- 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;
- Apply mechanical engineering principles from statics, strength of materials, materials science, and dynamics towards developing simple mechanical systems;
- Understand and apply iterative design processes towards solving an open-ended design challenge, including problem identification, concept generation & selection, design details, and design validation;
- Design and manufacture a simple mechanical system using the tools in the student machine shop.

Your Teaching Team

Professor
Dr. Jenni Buckley
106 Spencer Lab
jbuckley@udel.edu
Office Hours: MW 10-11, 1:30-2:30

Machinist
Mr. Steve Beard
104 Spencer Lab

Teaching Assistants (Office Hours TBD)

Graduate TA: Adam Stager, astager@udel.edu

Undergraduate TA’s:
Vince Stuhltrager, vince@udel.edu
Joe Boyce, jboyce@udel.edu
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Rebecca Runkle, rrunkle@udel.edu
Zach Marks, zmarks@udel.edu
Jess Penman, jpenman@udel.edu

Course Details

Lectures: 9:30-10:45 am, Tues & Thurs, Smith 140

Labs (Colburn 046)
Section 020: 11:00-12:15 PM, Tues
Section 021: 2:00-3:15 PM, Tues
Section 022: 3:30-4:45 PM, Tues
Section 023: 11:00-12:15 PM, Thurs
Section 024: 2:00-3:15 PM, Thurs

Resources
- (Required) Sakai
- (Required) Clicker
- (Recommended) Developing Spatial Thinking, Sorby, ISBN: 978-1111139063
- (Recommended) SolidWorks Student Edition, Free Download, See Undergrad TA’s first week of class

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Evaluation

Grade Distribution
40% Homework
20% Lab
30% Design Project (10% reports, 5% presentations, 15% prototype)
10% Class & Lab Participation (Attendance & Periodic Quizzes)

Homework
Homework is no joke in this course. You will have weekly homework assignments that will be a combination of hands-on mini-projects, computer modeling, and anything else that we fancy. They are due through Sakai unless otherwise noted. During the second half of the course, most of the homework assignments will be related to an individual design project (paper design only).

Labs
You will have weekly labs in this course, and the labs are very, very helpful for the homeworks and the design project. You will be graded on your lab work by the TA’s, according to the following scale: 25% attendance, 25% in-lab effort, 25% demonstration of independent mastery, 25% quality of final drawings/exercise.

Design Project
You will have one overarching design project in this course that you will complete with a partner of your choosing. Paper design is due at mid-term, and you will build and test a physical prototype during the second half of the course.

Class Participation
You must attend all lectures and labs. You may have one unexcused absence. Outside of that, you need to have an officially documented illness or emergency to miss class without penalty. 10% reduction in Class Participation grade for each absence. You will be screened at the beginning of the semester, and some students will be required to take supplemental spatial visualization training, which will also count towards your Class Participation grade.

Academic Honesty
Homework must be completed individually unless otherwise specified in the assignment. You can support each other and work in study groups, but you need to complete the work individually. We will not tolerate cheating on homework, quizzes, or other individual assignments. First offense is an automatic grade letter deduction for all parties involved, and you will be reported immediately to the Office of Student Conduct for any future violations. Plus, we’ll be disappointed in you. Seriously. Don’t do it.

Hands-On Work

The Machine Shop
You will learn how to make stuff in the machine shop during this course. You must complete safety training with Mr. Beard in order to get started in the shop. Starting after spring break, you will sign up for safety training appointments.

The Design Studio
The Design Studio (Spencer 109) is always open for you during this course, and we encourage you to use the resources that are in there, e.g., tool check-out. We will have a general Design Studio orientation during lab sections in the first two weeks of class.

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