

1. **MEEG401** **Senior Design**
2. **Credits 6** **Contact Hours [project based; ~20 hours per week, per student]**
3. **Fall 2016** ME Professors: Buchanan, Buckley, Cloud, Glancey, Harris, Keefe, Roberts, Wang; Spencer Lab
4. **Textbook** None.

Other Supplemental Materials: None.

5. Specific course information

- a. **Catalog Description:** Capstone engineering practice where teams develop real engineering system designs; discover customer requirements; benchmark best practices; develop engineering specifications; generate concepts; and justify a specific concept. Design, fabricate, assemble, test and improve an actual prototype.
- b. **Prerequisite:** MEEG304, Machine Design - Elements.
- c. **Course is required.**

6. Specific goals for the course

- a. **Specific Outcomes of Instruction:** Senior Design is the Capstone Course in the engineering undergraduate curriculum for several engineering programs at University of Delaware, including Mechanical Engineering (MEEG401) and Biomedical Engineering (BMEG450). During this semester-long course, teams of senior-level students work with sponsors and faculty advisers to develop real engineering system designs. The objective of the course is for students to learn through the experience of developing a product-process system from concept through proof of concept in response to a real project sponsor's need. The course structure is fairly open, giving students ample time to work on their projects.

b. Student Outcome Addressed:

Covers all the outcomes; however, for Fall 2016, specifically asked to address:

Outcome f: an understanding of professional and ethical responsibility; and

7. Brief list of topics to be covered

- Discover customer requirements, and develop a business value based framework for their project
- Generate valid engineering concept alternatives
- Propose & justify a specific concept that promises to best meet identified goals/needs
- Develop a detailed resource management plan
- Develop the detailed design of a prototype of the best concept, including engineering specifications
- Create a working prototype
- Validate the concept using math based modelling technology in concert with the design and execution of an experimental process
- Continuously communicate project results, status, and plans with all constituencies.