





## ME 4202 – Senior Design II

### CATALOG DESCRIPTION

*3-credits. Part 2 of a two-course senior design capstone project for mechanical engineering. Synthesis and analysis of an open-ended mechanical engineering design project, including written and oral communication. Students will also be prepared to take the FE Exam.*

### General LEARNING OUTCOMES

Upon the completion of this course, you should be able to:

- 1. An ability to apply knowledge of mathematics, science, and engineering to a design project.**
- 2. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.**
- 3. An ability to function on multidisciplinary teams.**
- 4. An ability to communicate effectively by writing and submitting a design report and oral presentation.**
- 5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**

### AMERICANS WITH DISABILITIES ACT COMPLIANCE

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the ATTIC counselor working with disabilities at 678-915-7316, now in the *Basement* of the Student Center, as soon as possible to better ensure that such accommodations are implemented in a timely fashion. Accommodations are best implemented at the beginning of the semester. I will work with you to provide reasonable accommodations to ensure that you have a fair opportunity to perform and participate in class.

This syllabus is subject to revision. Rev 22Aug2012



**ME 4202 – Senior Design II**

**Fall 2012 Schedule**

<b>Week</b>	<b>Topics</b>
August 15--21	<i>Course Introduction</i> -- Review Design Process & <i>Phases 1–5</i> , ABET Design Definition, review Proposals, HW 1 – Rewrite Proposals & Review Chps. 6 & 7 for next week
August 22--28	Review Final Exams from ME 4201 (FE prep), Modeling types (Chp 6), Occam’s Razor, Freehand sketching, Synthesis (Chp 7), Brainstorming, HW 2 – TBA, Read Chp. 10 – Design Analysis for next week, Review weak topics for morning FE exam
Aug 29—Sept 4	<i>Phase 4 – Analysis</i> – Design Analysis, weighting factors to Design Goals, Decision/Design Matrix & Concept Design Review, Detailed Design, FEA, CFD, Simulations, Economic Analysis, HW 3 – Assign weighting factors and prioritize Goals, Read Chp. 11 –for next week, Review ME FE exam topic <u>TBA</u>
Sept 5 – 11	<i>Phase 5 – Implementation</i> – Chp. 11, Design for Manufacturing, DFX, HW 4 – Apply one of the DFXs to your design or design concept(s), Read Chp 8 for next week, Review ME FE exam topic <u>TBA</u>
Sept 12—18	Ethics & Product Liability Issues, NSPE Code of Ethics, Sustainability, Read Chp 9 for next week, Review FE exam topic <u>TBA</u>
Sept 19—25	Hazards & Failure Analysis, Review FE exam topic <u>TBA</u>
Sept 26—Oct 2	Social & Political design constraints, Review ME FE exam topic <u>TBA</u>
October 3—9	Review FE exam topic <u>TBA</u>
October 10—16	Written report format, Technical report writing review
October 17—23	Outline for Report Due, Final Preparation & Advice for FE morning and ME afternoon exams, Technical speaking & presenting format
October 24—30	Take Real <b>FE Exam</b> October 27 or Simulated FE October 24
Oct 31—Nov 6	Draft Paper Due, Draft presentation PowerPoint Slides Due



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November 7–13	Work on Paper revisions and PowerPoint slides
November 14--20	Final Paper Due, Peer & Self Evaluations, Course Evaluations, Dry Run for Team Oral Presentations (all must participate)
November 21--25	THANKSGIVING BREAK
November 28	Project Presentations
December 3	Written Reports due (after revisions) – 1 for each team
December 5–11	FINAL EXAM WEEK – no final exam in this course
December 12	Grades due for graduating seniors
December 15	<b>Commencement</b> for those graduating