Instructors: Dr. Richard Ruhala, Associate Professor, Mechanical Engineering

Office: G-162

Phone: 678-915-6855  812-589-2983
  office  mobile

Email: rruhala@spsu.edu

Class times: W 6:00—8:30 pm in Q-217 or Q314

Office Hours: 

Wednesday: 1:30-4:30 pm
Thursday: 2:00-3:00 pm & 7:30—8:30 pm
or by appointment

Required Texts
FE Review text or online text of your choice

Recommended Material
Calculator – FE Exam requirement -- Casio FX-115 ES Plus
Lab notebook or organized binder to keep notes on your senior design project.

Pre-Requisite: ME 4201 – Senior Design I

Grading:
40%  Written report
20%  Oral report/presentation
20%  FE Exam or Simulated FE Exam
10%  Assignments and class participation
10%  Peer & Self Evaluations

Nominal Grading Scale:
90-100 A  80-89 B  70-79 C  60-69 D  0-59 F
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
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
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<tbody>
<tr>
<td>August 15--21</td>
<td><em>Course Introduction</em> -- Review Design Process &amp; Phases 1—5, ABET Design Definition, review Proposals, HW 1 – Rewrite Proposals &amp; Review Chps. 6 &amp; 7 for next week</td>
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<tr>
<td>August 22--28</td>
<td>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</td>
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<td>Sept 5 – 11</td>
<td><em>Phase 5 – Implementation</em> – 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 <em>TBA</em>__</td>
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<td>Sept 12—18</td>
<td>Ethics &amp; Product Liability Issues, NSPE Code of Ethics, Sustainability, Read Chp 9 for next week, Review FE exam topic <em>TBA</em>__</td>
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<td>Sept 19—25</td>
<td>Hazards &amp; Failure Analysis, Review FE exam topic <em>TBA</em>__</td>
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<td>Sept 26—Oct 2</td>
<td>Social &amp; Political design constraints, Review ME FE exam topic <em>TBA</em>__</td>
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<td>October 3—9</td>
<td>Review FE exam topic <em>TBA</em>__</td>
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<td>October 10—16</td>
<td>Written report format, Technical report writing review</td>
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<td>October 17—23</td>
<td>Outline for Report Due, Final Preparation &amp; Advice for FE morning and ME afternoon exams, Technical speaking &amp; presenting format</td>
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<td>October 24—30</td>
<td>Take Real <strong>FE Exam</strong> October 27 or Simulated FE October 24</td>
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<td>Oct 31—Nov 6</td>
<td>Draft Paper Due, Draft presentation PowerPoint Slides Due</td>
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<td>November 7—13</td>
<td>Work on Paper revisions and PowerPoint slides</td>
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<td>November 14—20</td>
<td>Final Paper Due, Peer &amp; Self Evaluations, Course Evaluations,</td>
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<td>Dry Run for Team Oral Presentations (all must participate)</td>
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<td>November 21—25</td>
<td>THANKSGIVING BREAK</td>
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<td>November 28</td>
<td>Project Presentations</td>
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<td>December 3</td>
<td>Written Reports due (after revisions) – 1 for each team</td>
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<tr>
<td>December 5—11</td>
<td>FINAL EXAM WEEK – no final exam in this course</td>
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<tr>
<td>December 12</td>
<td>Grades due for graduating seniors</td>
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<tr>
<td>December 15</td>
<td><strong>Commencement</strong> for those graduating</td>
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