<table>
<thead>
<tr>
<th>Course</th>
<th>ECE 40500 - Senior Engineering Design I</th>
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<tbody>
<tr>
<td>Type of Course</td>
<td>Required for EE and CmpE Programs</td>
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<tr>
<td>Catalog Description</td>
<td>The first course of a two-semester sequence of senior capstone design. Provides students with experience in the process and practice of electrical/computer component/system design from concept through final design. Emphasis on teamwork, project management, oral and written communication. General lectures on issues important to the engineering profession, such as professional and ethical responsibility, the impact of engineering solutions in a global and societal context, and other contemporary issues.</td>
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<tr>
<td>Credits</td>
<td>3</td>
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<td>Prerequisite Courses</td>
<td>Senior standing in the program and permission of the senior design project advisor</td>
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<td>Prerequisites by Topics</td>
<td>Calculus and linear differential equations, basic circuit analysis.</td>
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<td>Textbook</td>
<td>None</td>
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<td>Course Objectives</td>
<td>To develop capabilities of students to solve real-life problems. Students have to apply knowledge from their previous course work to accomplish projects formulation to prototype evaluation.</td>
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<tr>
<td>General Education Category [GE]</td>
<td>C: Capstone</td>
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Upon the completion of ECE 40500, students will be able to:

8.1 Produce an original work involving the creation or application of knowledge, performance or service [CO 4]
8.2 Report the results of original work through a discipline-appropriate product. [CO 6]
8.3 Demonstrate a high level of personal integrity and professional ethics by understanding the ethical responsibilities related to the...
professions associated with the subject of the capstone project.  
[CO 4, 5]

8.4 Demonstrate critical-thinking abilities and familiarity with  
quantitative and/or qualitative reasoning. [CO 1, 2, 3, 4]

CO stands for Courses Outcomes. The numbers stand for the specific  
outcome as listed below.

**Course Outcomes [CO]** Students who successfully complete this course will have demonstrated:

1. An ability to formulate a problem statement. *(a, c, e)*
2. An ability to generate solutions (conceptual designs) using brainstorming technique. *(a, c)*
3. An ability to evaluate conceptual designs using a well-defined criteria. *(a, c)*
4. An ability to obtain a final design including safety, economic, ethical, and engineering standards considerations. *(a, c, e, f, h)*
5. An ability to function within a team. *(d)*
6. An ability to present his/her work both written and orally. *(g)*

**Lecture Topics**

1. Introduction, discuss the Capstone Senior Design guidelines  
2. Formulation of problem statement  
3. Brainstorming and conceptual designs  
4. Evaluation of conceptual designs  
5. Detailed design  

**Coordinator**  
Hossein Oloomi

**Date**  
03/02/2018