<table>
<thead>
<tr>
<th>Course name</th>
<th>ECE 48700 Senior Design I</th>
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<tbody>
<tr>
<td>Credit and contact hours</td>
<td>(1 cr.) Class 1</td>
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<tr>
<td>Course coordinator’s name</td>
<td>Stanley Chien</td>
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<td>Textbook</td>
<td>None</td>
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### Course information

**2014-16 IUPUI Campus Bulletin description:**
ECE 48700 Senior Design I (1 cr.) P: Senior Standing and intent to graduate within 2 semesters. A real-life experience in engineering problem solving in a group setting from identification, planning and execution to professional-quality written and oral presentations. This is the first semester of a two semester course sequence.

### Prerequisites/ Co-Requisite
Senior standing and intent to graduate within 2 semesters

### Required, Elective, or Selected Elective:
EE Required, CE Required

### Goals for the course

Upon successful completion of the course, students should be able to

1. Identify and formulate the design problem, including bringing precision to the problem statement through a requirements specification. [e]
2. Use library resources and Internet resources to find information necessary for the project. [c]
3. Use critical thinking in its design process. [e]
4. Use creative approaches when necessary to obtain project objectives. [c]
5. Conduct design using an organized design process, including planning, literature search, requirements specification, consideration of alternative approaches, determination of strategies, and design reviews. [c]
6. Conduct design using design principles. [a, c]
7. Apply engineering principles, mathematics, and science in engineering design, not including methods, tools, and techniques. [a]
8. Apply technical knowledge to design, including methods, tools, and techniques. [c, k]
9. Analyze and interpret data. [b]
10. Determine ways to test a design to determine its functionality (success of the design). [b]
11. Value quality workmanship into the project, including neatness of the assemblies, neatness of the computer screen displays, and quality of the fit and finish, if applicable. [c]
12. Function effectively on a multi-disciplinary team through mutual support, consensus seeking, cooperation, and sharing responsibility. [d]
13. Write a project report, adhering to the specified format using an appropriate writing style, grammar, and spelling.

14. Make an oral presentation using effective visual aids.

| List of topics to be covered | 1. Introduction (use of labs, project notebooks, teamwork, etc.)  
2. Project Proposal Presentations  
3. Project Planning & Management (project preferences due)  
4. Oral Presentations (project groups assigned)  
5. Failure Mode Analysis  
6. Group Dynamics  
7. Functional Decomposition (project plans due)  
8. Written Report Preparation  
9. Design: Concept to prototype  
10. Reliability (& project assignments)  
11. Implement Safety and Standards  
12. Human Factors  
13. Performance Reviews  
15. Oral project progress reports  
16. Attend Final Oral Presentation for ECE 488 |

**Syllabi approved by**
Stanley Chien

**Date of approval**
04/29/2016