

Course Syllabus	EECS 4010 – Senior Design I
Credits & Contact Hours	1 credit hour & one 50-minute recitation contact hour per week.
Instructor's Name	Dr. Mohammed Niamat
Textbook	Design for Electrical and Computer Engineers: Theory, Concepts, and Practice by Ralph M. Ford and Chris S. Coulston, McGraw Hill, 2007.
Course Information	<p>Student teams select and research a design project and propose a design. Topics covered include entrepreneurship, business plan, technical communications, design process, design teams, standards, ethics, safety and environment, and intellectual property. A fully developed senior design project proposal is required.</p> <p>Prerequisites: Senior standing and EECS 3100</p> <p>Required course</p>
Specific Goals-Student Learning Objectives (SLO's)	<p>The students will be able to:</p> <ol style="list-style-type: none"> 1. write an effective technical correspondence (i.e. abstract, letter, requirements document, project proposal etc.) and give an effective oral presentation. 2. identify the stages of team development and give examples of team behaviors that are characteristic of each stage. 3. summarize effective strategies for dealing with a variety of interpersonal and communication problems that commonly arise in teamwork, choose the best of several given strategies for a specified problem, and justify the choice. 4. demonstrate an understanding of professional responsibility and ethical obligations as engineers, which aims to safeguard life, and health and property; to promote the public welfare; and to establish and maintain a high standard of integrity and practice. 5. recognize the rapidly evolving nature of technological landscape in engineering (for both EE majors and CSE majors) and computer science (only for CSE majors) and resulting need for continuous learning. 6. identify important contemporary regional, national, or global socio-economic problems (such as global warming, over population, depletion of natural resources, energy and water supplied, nuclear waste, environmental pollution, trade, human rights, etc.) that involve engineering.

7. propose a solution or critique a proposed solution to an engineering problem, identifying possible global, societal, economic and environmental consequences and recommending ways to minimize or avoid them.
8. propose and discuss ways engineers are contributing or might contribute to the solution of specified regional, national, and global socio-economic problems (such as global warming, over population, depletion of natural resources, energy and water supplied, nuclear waste, environmental pollution, trade, human rights, etc.).
9. develop an appreciation of the relevance and the significance of “standards” for engineering design.
10. understand the effects of multiple realistic constraints that are applicable (such as time, budget, environmental context and concerns, standards, ethics, morality, culture, professional responsibilities, resources etc.) on the engineering system or software being designed and the process of design.

Topics

1. Engineering Design Process
2. Project Selection and Needs Identification
3. The Requirements Specification
4. Concept Generation and Evaluation
5. Technical Communications
6. Engineering Design Teams
7. Project management
8. Engineering and Business Standards
9. Professional and Engineering Ethics and Intellectual Property
10. Safety and Environment, and Business Plan and Entrepreneurship