

ECE 419
Senior Design I
Fall 2008

Overview

Course Catalog Description:

Senior Design I (3 credits) □ Design methodology and development of professional project-oriented skills including communication, team management, and economics. Working in teams, a proposal for a large design is prepared in response to an industrial or in-house sponsor.

Prerequisites: Senior standing in electrical or computer engineering and completion of all required 300-level ECE courses except 340.

Textbook: None assigned, class notes prepared by instructor

Class Goals: Apply technical skills learned in undergraduate courses (mathematics, physics, economics, computers, electronics, etc.) to design, develop, and solve practical problems in some area of electrical and computer engineering

Course Coordinator: Prof. Christos Christodoulou

Description:

This is a course designed for senior-level students in the Electrical and Computer Engineering Department. The objective is to apply technical skills learned in undergraduate courses (mathematics, physics, economics, computer engineering, electronics, etc) to design, develop and solve a practical problem in some area of electrical, electronic or computer engineering.

The students learn and apply a structured approach to design. The concepts learned in the Senior Design Projects courses will assist in the transition from solving typical textbook problems to defining and executing projects that are encountered in real-life entry-level engineering positions.

The format for the first semester (ECE 419) consists of classroom lectures on design of projects, including writing proposals, assessing customer needs, defining and writing requirements, developing a system specification, and preparing a project plan. Each student is assigned to a project team of 2-4 members. Projects are planned and executed as a team, and grades are given for teamwork as well as for technical accomplishments. A project plan is prepared that defines tasks, resources, schedules, milestones, and deliverables.

The second semester (ECE 420) is used for developing and executing the project. Regular status reports (typically, monthly) compare technical progress against the project plan. The project is completed and documented by a final report, a poster, and an oral presentation to peers, faculty and sponsoring company.

Prerequisites:

Senior standing in EECE, plan to finish undergraduate requirements by Spring or Summer of the ECE420 completion

Textbook: not required, class notes prepared by the instructor

Table I: Objectives, Implementation, and Assessment

Objectives		Implementation	A	B	C	D	E	F	G	H	I	J	K
O ₁	Discussion of engineering as a profession and the role of a design engineer	2 hrs. lecture in 1 st week						X		X	X	X	X
O ₂	Guest lectures and potential customers present possible projects. Students choose (or are assigned to) a project	3 hrs. lecture in 2 nd and 3 rd weeks		X	X	D	X	X		X		J	X
O ₃	Learn to assess project requirements, customer needs, and define metrics of the project completion. Write a requirement specification	4 lectures	X	X	X		X						X
O ₄	Learn the system design process, block diagrams, and design documentation.	2 lectures	X		X		X						X
O ₅	Learn the basics of project planning and management, including scheduling, resource allocation (Ghannt charts), budgeting, and reporting	4 lectures	X	X	X	X	X		X				X
O ₆	Learn the basics of project management, and principles of verification	2 lectures		X	X	X	X		X				X
O ₇	Design and start execution of assigned project. Detailed Design Review	Project meetings	X						X				X