



University Bulletin

Undergraduate Degree Programs

Electrical Engineering (E E)

E E 403W Senior Project Design (3) Project designs of electrical engineering systems, encompassing various subdisciplines within Electrical Engineering, with an emphasis on technical communications skills.

E E 403W Senior Project Design (3)

E E 403W is intended to give senior-year electrical engineering students a "real-world simulation" of a total design experience. This is accomplished through both lectures and a laboratory component. One period each week is devoted to general lectures concerning professional engineering topics. The subjects of these lectures vary but generally are concerned with "life as an engineer" topics that are not purely technical in nature. Topics typically include laboratory safety, quality control, reliability, entrepreneurship, job interviewing, deciding to go to graduate school, ethics, etc.

The focus of the weekly three-period lab varies according to the particular section number. In some sections, the first seven weeks of the semester are devoted to three predefined laboratory assignments. These assignments are often focused on interfacing techniques, such as interfacing between multistage analog systems or between analog and digital systems. In the second half of the course, the student teams work on a major design project chosen by each team, with approval of the instructor.

In other sections of the course, the student teams begin work on a major design project at the beginning of the semester. The projects for these "industrial strength" sections are sponsored by industrial companies through Penn State's Learning Factory.

Multidisciplinary teams are formed by students from E E, M E, I E, and/or Aerospace Engineering.

All sections of E E 403W have a small, section-by-section weekly lecture that is concerned with "life on a project" issues. Some of these lectures may be devoted to design issues directly related to the student projects, but many are still general in nature. Small lecture topics can include the following: what's going on with teaming, engineering economics, TQM/CQI, preparing effective presentations, project management, mechanical packaging, preparations for requests for quotes, preliminary and critical design reviews.

About one third of the course is devoted to technical communication issues. The students must develop good laboratory documentation techniques. They must also prepare a detailed project proposal. Engineering reports are required either upon the completion of each assigned task or, in the "industrial strength" sections periodically to the corporate sponsor. Oral presentations are required for the preliminary and critical design reviews. The students must also submit a final written report. A final oral presentation is made by each team for the student-chosen projects, while the industrial projects are presented in poster format at an end-of-semester product showcase.

General Education: None

Diversity: None

Bachelor of Arts: None

Effective: Spring 2008

Prerequisite: **E E**

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Concurrent: **ENGL**

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Note : Class size, frequency of offering, and evaluation methods will vary by location and instructor. For these details check the specific course syllabus.

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