

Outcomes and Assessments for Electrical Engineering (Undergraduate):

Learning Outcomes:

Electrical Engineering graduates will have demonstrated

- an knowledge of fundamental mathematics and engineering science consistent with the problem solving abilities of a degreed professional in this field
- the ability to apply software to problems through the creation of new applications and the use of modern simulation tools
- the ability to participate in the multi-disciplinary process of design and qualification of a prototype
- the ability to plan and conduct laboratory experiments and to properly interpret and report the results
- the ability to identify and address engineering problems by extending the concepts of simple building blocks to system level design
- knowledge of the profession that supports informed and timely career decisions
- communication skills through a series of peer and faculty reviews, to include oral and written reports
- knowledge of contemporary global and societal issues and their relationship to professional ethics and engineering solutions
- early knowledge of key computer and study skills that are supportive of lifelong learning

Assessments:

- Specific learning outcomes are addressed by embedded course evaluations that include:
 - Approximately 18 assignments (exams and homework) evaluated for specific outcomes
 - Senior design oral presentations and project written reports
 - Laboratory or project activity
- Senior exit interviews
- Senior and mid-program surveys
- Student participation in technical societies
- Cooperative education employer evaluations

Use of Assessment Findings:

- Based on feedback from career day employer/student focus session we found that the EE program needed increased content in object-oriented programming. Students were not able to take CS electives and were lacking in the organizational and programming skills afforded by object-oriented programming. We have initiated steps to make a curriculum change to require a two-course sequence to enhance our curriculum in this important area.
- Student and faculty assessment feedback indicated some dissatisfaction with using existing courses in statistics to fulfill probability and statistics objectives. Members of the ECE faculty began working with Department of Mathematics and Statistics with the objective of developing a course that would more effectively address the specific needs of the ECE programs. As a result, a probability and random processes course was put in place and made a part of the curriculum.
- Assessment results indicated improve could be made in our students understanding of possible career decisions and their early use and knowledge and use of engineering software. The Introduction to ECE course was modified to provide exposure to various element of the ECE profession and to integrate the use of their laptops in assignments. Additionally, MATLAB assignments were made to provide a consistent, early exposure to this tool.