

# Electrical Engineering B. S.

## *Expanded Statement of Institutional Purpose*

### **Institutional Mission Reference**

The BS degree program in Electrical Engineering offers a high quality degree program that meets national standards of excellence. It is a significant component of the University's commitment to science, engineering, and technology, particularly in fields of major importance to the region. The program provides the skills and knowledge unique to Electrical Engineering that support the engineering profession in meeting the growing needs of the region and the nation. Simultaneously, the program comprises the general education components that yield a well-rounded graduate who is aware of societal needs and issues. The program faculty are committed to the highest quality of teaching and discovery of new knowledge.

### **Institutional Goal(s) Supported**

The BS degree program in Electrical Engineering supports the University goals of (a) quality undergraduate programs, (b) quality teaching, (c) application of engineering principles to serve the local community through applied research and development, and (d) life-long learning. The major strategic initiatives supported by the department are Strategic Initiative 1 (High-Quality, Distinctive Undergraduate Programs), Strategic Initiative 8 (Enhanced Quality of University Life), Strategic Initiative 9 (Inclusive and Supportive University Environment), and Strategic Initiative 10 (Strengthen and extend the existing relationships with community colleges, the U. S. Navy, and industry.)

*Please provide Intended Educational (Student) Outcomes, Methods for Assessment, Criteria for Success, Assessment Results, and Use of Results*

### **Intended Outcome 1**

Graduates of the Electrical Engineering program will demonstrate that they have achieved a satisfactory mastery of the knowledge, techniques, skills, and modern tools of their discipline.

**Method for Assessing Outcome 1 and Criterion for Success:** 100% of graduates will earn at least satisfactory levels of performance on the technical portions of their senior project course(s) and 50% will earn good to excellent evaluations. Evaluations will be performed by a faculty team with industry representatives when appropriate.

**Summary of Assessment Data Collected for Outcome 1:** In Spring of 2001, out of 16 students, 10 (62.5%) students received good to excellent grades, 4 (25%) students received average grades, and 2 students were asked to repeat the course.

**Alternate Method for Assessing Outcome 1 and Criterion for Success:** 4 On the basis of senior exit surveys/interviews, at least 75% of participating students will rate the overall program satisfactory to excellent.

**Summary of Assessment Data Collected, Alternate Method for Outcome 1:** In Spring of 2001, 9 of 11 (82%) of students rated the overall program as satisfactory to excellent. All 11 students indicated they would tell their friends to attend this program

**Use of Assessment Results from Intended Outcome 1 to Improve Academic Program:** The students have met the intended outcome, so there are no specific changes planned here.

**Intended Outcome 2**

Students will communicate effectively in writing.

**Method for Assessing Outcome 2 and Criterion for Success:** 100% of graduates will earn at least satisfactory levels of performance on the written portions of their senior project course(s) and 50% will earn good to excellent evaluations. Evaluations will be performed by a faculty team with industry representatives when appropriate. 100% of graduates will pass the Exit Writing Examination.

**Summary of Assessment Data Collected for Outcome 2:** Of 16 students in senior projects in spring of 2001, 14 (87.5%) received grades of good to excellent. The two students who did not receive good grades were asked to retake the course. All students must pass the writing exit exam to graduate.

**Alternate Method for Assessing Outcome 2 and Criterion for Success:** By means of reports filled out by employers of students participating in co-operative education programs, writing skills of 80% of the students will be rated at least satisfactory and at least 50% of students will be rated good to excellent.

**Summary of Assessment Data Collected, Alternate Method for Outcome 2:** Data was collected from 41 co-op students between 1999 and 2001. Of these students, 40 (97.6%) were rated at least satisfactory and 29 (70.7%) were rated as good to excellent.

**Use of Assessment Results from Intended Outcome 2 to Improve Academic Program:** Although success criteria was met, the department is continuing to emphasize writing skills for students, and more feedback is being given to students throughout the program.

**Intended Outcome 3**

All students will give clear and effective oral presentations.

**Method for Assessing Outcome 3 and Criterion for Success:** 100% of graduates will earn at least satisfactory levels of performance on the oral presentations in their senior project course(s) and 50% will earn good to excellent evaluations. Evaluations will be performed by a faculty team with industry representatives when appropriate.

**Alternate Method for Assessing Outcome 3 and Criterion for Success:** By means of reports filled out by employers of students participating in co-operative education programs, the speaking skills of 80% of the students will be rated at least satisfactory and those of at least 50% of students will be rated good to excellent.

**Summary of Assessment Data Collected, Alternate Method for Outcome 3:** Of 16 senior project presentations in Spring of 2001, 10 students (62.5%) were rated as excellent, and 4 students (25%) were rated as good. The two students who were rated poor were asked to retake the course.

**Use of Assessment Results from Intended Outcome 3 to Improve Academic Program:** Intended outcomes were met, but department is continuing to emphasize presentation skills, including asking students to participate in engineering paper presentation contests. Over the past 10 years, students from our program have placed in top 3 positions in 5 years out of 10, at southeastern region contests. Several additional classes now have oral presentation components.

**Intended Outcome 4**

Graduates will demonstrate sound educational preparation and competence in their profession through successful career progress.

**Method for Assessing Outcome 4 and Criterion for Success:** By means of triennial surveys, 75% of graduates who respond will evaluate their career progress as at least comparable to and 25% will evaluate their career progress as higher or much higher than that of graduates of similar programs at other institutions.

**Summary of Assessment Data Collected for Outcome 4:** The last such survey was conducted in 1997. 115 graduates responded. On a 5 point scale, the graduates rated themselves at 4.16 (average) as to how well they have progressed relative to graduates of other programs. A new survey has just been mailed to graduates, and new data will be analyzed soon.

**Use of Assessment Results from Intended Outcome 4 to Improve Academic**

**Program:** Our graduates appear to meet this outcome very well, and no specific program changes are planned relative to this outcome.

**Intended Outcome 5**

Employers will demonstrate that the educational preparation of graduates is substantial.

**Method for Assessing Outcome 5 and Criterion for Success:** By means of triennial surveys, 75% of supervisors who respond will evaluate the educational preparation of our graduates to be at least comparable to and 25% will evaluate the educational preparation to be somewhat or much higher than that of graduates of similar programs at other institutions.

**Summary of Assessment Data Collected for Outcome 5:** This particular survey has not yet been done, but is planned for future.

**Alternate Method for Assessing Outcome 5 and Criterion for Success:** By means of surveys filled out by students and by employers of all students participating in the co-operative education program, at least 75% of employers will rank the student knowledge of subject matter related to the co-op satisfactory or better and 50% or more will give ratings of good to excellent.

**Summary of Assessment Data Collected, Alternate Method for Outcome 5:** Of 41 students who were in co-op program between 1999 and 2000, 29 students were rated as having good to excellent knowledge of subject matter related to co-op (63%) and 38 students were rated as having satisfactory or better knowledge (92.7%).

**Use of Assessment Results from Intended Outcome 5 to Improve Academic Program:** Students met these criteria very well. We continually try to improve relevance of subject matter in courses to make students better prepared for careers.