

**GRADUATE PROGRAM ASSESSMENT  
WICHITA STATE UNIVERSITY**

**Program Name:** Master of Science in Electrical Engineering **Date:** January 16, 2009

**School/College:** Engineering **Campus Box:** 83

**A. Mission Statement**

To prepare students for careers in electrical engineering and related fields, as well as for further graduate study.

**B. Constituents**

The MS graduate students in Electrical Engineering are the program constituents.

**C. Program Objectives**

- a. To ensure the admission of qualified students into the program each year.
- b. To provide qualified faculty for the program.
- c. To provide appropriate laboratories for the program.
- d. To provide an appropriate variety of graduate courses for the program.
- e. To enroll a sufficient number of students to support the courses offered.
- f. To achieve an acceptable placement rate within one year of graduation either in jobs or in graduate programs for further study.
- g. To ensure graduates are satisfied with the program (three years after graduation).

**D. Educational Student Outcomes**

Definitions: There are nine areas within the MS in electrical engineering program. They are computer design, communications, computer networking, control, information security, optics, power systems, signal processing, and software engineering. Students in the thesis or directed project options are considered to have a research emphasis. They will have at least one area identified for their emphasis of study. Students in the courses-only option are considered to have an industrial emphasis. They will have at least two areas of emphasis for a broad knowledge of electrical engineering and for preparation for the MS exit exam.

- a. Students with a research emphasis will demonstrate competency in their one selected emphasis area.
- b. Students with a research emphasis will demonstrate report-writing skills.
- c. Students with a research emphasis will demonstrate presentation skills.
- d. Students with an industrial emphasis will demonstrate a broad knowledge of electrical engineering within two selected areas of emphasis.
- e. Students will demonstrate critical and analytical skills necessary for research and industrial engineering.
- f. Students will demonstrate familiarity and skills with modern computer tools necessary for research and industrial engineering.

**E. Assessment of Program Objectives**

**a. Program Objective (a) – Admission of qualified students:**

- Admit fewer than 20% of the qualified applicants into categories other than “full standing”. Admission to full standing requires a Bachelor of Science degree in electrical or computer engineering or related field with a minimum GPA of 3.00 out of 4.00 in the last two years or approximately 60 hours of their undergraduate studies.

<b>This objective was achieved. 94% of the graduate students who were recommended for admission were granted</b>
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**admission in full standing. (The graduate students who were granted admission in tentative standing were excluded in the percentile calculation.)**

- Admit only international applicants who meet the minimum TOEFL score of 550 paper-based and 213 computer-based or 79 internet-based.

**This objective was achieved. 100% of the admitted students met the minimum TOEFL requirement.**

**b. Program Objective (b) – Providing qualified faculty for the program:**

- More than 80% of the line faculty must be full members of the graduate faculty.

**This objective was not achieved. 67% of the EECS faculty members have full membership status. I am not sure how the 24 faculty members in the department were determined.**

**c. Program Objective (c) – Providing appropriate laboratories:**

- Appropriate technical personnel must be available for service and maintenance of the department laboratories.

**This objective was achieved. Two full time technicians are employed by the College of Engineering for the service and maintenance of the college laboratories.**

- On the Graduate School Exit Survey, students indicate that access to the laboratories was appropriate for their areas of specialty.

**This objective was achieved. 92% of the department graduates indicated that access to the laboratories was appropriate.**

**d. Program Objective (d) – Appropriate variety of graduate courses:**

- The department must offer 10 or more graduate level courses in each semester, excluding thesis, directed project, and dissertation hours.

**This objective was not achieved. In the spring 2008 semester, the department offered 8 courses at, or above, the 700 level. In the fall 2007 semester, the department offered 12 courses at, or above, the 700 level.**

**e. Program Objective (e) – Enrolling Sufficient Number of Students:**

- The department must enroll more than 50 degree-bound students per semester.

**This objective was achieved. In the fall 2007 semester, the department had 237 students in the MSEE program.**

- The department must grant in excess of 10 Master of Science degrees per academic year.

**This objective was achieved. In 2007-2008 academic year, the department granted 151 MSEE degrees.**

**f. Program Objective (f) – Placement rate and graduate school admission:**

- More than 85% of the graduates of the program must be placed within six months of graduation either in jobs or in graduate programs for further study.

**Data is not available at this time. A survey will be conducted to determine the achievement of this objective.**

**g. Program Objective (g) – Satisfaction with the program:**

- More than 85% of program graduates, surveyed three years after graduation, will indicate satisfaction with the program.

**Data is not available at this time. A survey will be conducted to determine the achievement of this objective.**

**F. Assessment of Educational Student Outcomes**

**a. Educational Outcome (a) – Competency in selected emphasis area:**

- For those with either a thesis or directed project option (research emphasis), their progress will be monitored to ensure satisfactory mastery in their area of emphasis. Satisfactory mastery is indicated by receiving grades of B or better in each course in their selected emphasis area.

**This outcome was achieved. Advisers were satisfied with the progress of their graduating students.**

**b. Educational Outcome (b) – Report writing:**

- Students with a research emphasis will demonstrate report-writing skills. This will be assessed via the required written thesis for those with the thesis option, and via the required project report for those with the directed project option.

**This outcome was achieved. All theses and project reports were accepted.**

**c. Educational Outcome (c) – Presentation skills:**

- Students with a research emphasis will demonstrate presentation skills. This will be assessed via the required oral defense of the thesis for those with the thesis option, and via the required oral exam and project presentation for those with the directed project option.

**This outcome was achieved. All students in the thesis or project option passed their oral defense or oral project exams.**

**d. Educational Outcome (d) – Broad knowledge of electrical engineering:**

- Students with an industrial emphasis will demonstrate a broad knowledge of electrical engineering within two selected areas. Satisfactory mastery is indicated by students (i) receiving grades of B or better in each of the four courses in their selected emphasis areas, and (ii) by successfully passing the MS exit exam over the subject matter of two selected areas (contents of two courses of his/her two areas (two courses for each area)).

**All graduating students in the coursework option passed the MSEE exit exam.**

**e. Educational Outcome (e) – Critical and analytical skills:**

- Students will demonstrate critical and analytical skills necessary for research and industrial engineering. This will be assessed via the (i) successful completion of courses with critical and analytical components (all graduate level courses within the ECE department), (ii) successful completion of a thesis for those with the thesis option, (iii) successful completion of a project for those with a directed project option, and (iv) successful completion of the MS exit exam for those with the courses-only option.

**This outcome was achieved. All of the four criteria listed above were met.**

**f. Educational Outcome (f) – Modern computer tools:**

- Students will demonstrate familiarity and skills with modern computer tools necessary for research and industrial engineering. This will be assessed in courses that require computer usage, verifying that the students demonstrate skill (course grades of B or better) in at least two modern computer tools.

**All graduating students had at least two courses on their plans of study that required computer usage.**

**G. Feedback into the Program**

**Process:**

The graduate coordinator is responsible for collection of the data pertaining to the assessment report. The department has a Graduate Committee composed of a chair plus three other faculty members within the department. This committee meets annually to review the results of the assessment and to provide feedback into the program. The same committee also reviews the program mission, objectives, outcomes, and the assessment process periodically and in consultation with other faculty members.

**H. Annual Report:**

**This data was submitted to the Associate Graduate Dean on January 16, 2009. It will also be presented to the EECS Graduate Committee for review.**

The Assessment Report contains:

- The Graduate Program Assessment document (this document)