

**GRADUATE PROGRAM ASSESSMENT PLAN 2006-07
WICHITA STATE UNIVERSITY**

Program Name: Master of Science in Electrical Engineering **Date:** September 1, 2006

School/College: Engineering **Campus Box:** 44

A. Mission Statement

To prepare students for careers in Electrical Engineering and related fields, and for further graduate study.

B. Constituents

The graduate students in the Department of 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 three 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 three 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 undergraduate studies.
- Admit only international applicants who meet the minimum TOEFL score of 550 paper-based and 213 computer-based or 79 internet-based.

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.

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

- Appropriate technical personnel must be available for service and maintenance of the department laboratories.
- On the Graduate School Exit Survey, students indicate that access to the laboratories was appropriate for their areas of specialty.

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.

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

- The department must enroll more than 50 degree-bound students per semester.
- The department must grant in excess of 10 Master of Science degrees per academic year.

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.

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.

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.

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.

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.

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

- Students with an industrial emphasis will demonstrate a broad knowledge of electrical engineering within three selected areas. Satisfactory mastery is indicated by students (i) receiving grades of B or

better in each of the six courses in their selected emphasis areas, and (ii) by successfully passing the MS exit exam over the subject matter of three selected areas (contents of six courses of his/her three areas (two courses for each area)).

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.

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.

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:

The Assessment Report contains:

- The Graduate Program Assessment document (this document)
- Results from data collection for the previous academic year
- Dates when the ECE Graduate Committee met to consider the results
- Dates when ECE faculty met to consider results
- Summary of decisions made at the meeting of the faculty
- Dates when issues identified at the faculty meeting will be considered again