

## Requirements for the Master of Science in Electrical and Computer Engineering

### 1. Acceptance into the Master's Degree Program

- a. Academic records, letters of recommendation, GRE scores (optional), and the statement of purpose are all taken into consideration.
- b. All applicants for whom English is not the native language must take either the Test of English as a Foreign Language (TOEFL) with a minimum score of 88, or the International English Language Testing System (IELTS) with a minimum score of at least 7.0. Applicants are exempt from this requirement if they have earned a degree from an institution in a country where English is the primary (official) language.
- c. Applicants are expected to have a bachelor's degree from an accredited institution or an equivalent degree.

### 2. Advisor Assignment

- a. At the beginning of the first semester of graduate study, a general MS advisor will be assigned. This advisor will serve the student until a research advisor is selected by the student.
- b. By the end of the first semester of graduate study, the student must select a major area of interest: either Materials, Devices, and Microelectronics; Signals and Analysis; or Systems, Control and Computing. The student must find a research advisor from among faculty members in that area. The burden is upon the student to initiate discussions of interest with faculty members. Once the student has reached an acceptable agreement with a faculty member about a research topic, that faculty member will become the student's advisor with the notification of the DGS.

### 3. Course Requirements:

- a. The Master of Science degree program requires 30 credit hours, including 18 hours in the major area (with an ECE focus), 6 hours in a minor area (can be ECE or another area such as Physics, Math, or another area of Engineering), and 6 research hours OR independent study hours.
- b. At least 12 hours in the major area must be taken at or above the 6000 level. A maximum of 3 hours of independent study may be applied to the 18 hours required in the major area but cannot double count. Students may not take an undergraduate course for graduate credit when they have taken an equivalent course as part of their undergraduate degree program.
- c. Major area courses must include one gateway course in each of two of the following areas: Materials, Devices, and Microelectronics; Signals and Analysis; and Systems, Control and Computing.
- d. The student is also required to take 6 hours in a minor area. Normally, the minor will consist of a coordinated course sequence taken from outside the Electrical and Computer Engineering program, but can be ECE if desired.

- e. The remaining 6 hours are research hours or independent study hours.
- f. Students must successfully complete any remedial course requirement prior to taking a more advanced course for which the remedial course is a prerequisite.
- g. Students whose bachelor's degree is not in Electrical or Computer Engineering may be required to take remedial undergraduate coursework (that may or may not carry graduate credit) to satisfy the prerequisite structure established by the instructor of each graduate level course and the Director of Graduate Studies (DGS). Additionally, applicants may be required to secure an adequate background in areas of Electrical and Computer Engineering germane to their proposed program of studies. Specifically, remedial, non-credit, undergraduate coursework may be required in these areas, as needed, unless acceptable evidence is presented to the DGS that equivalent coursework has been taken elsewhere. The DGS will present any proposed program for remedial work to the Department Chairman for final approval prior to the student initiating the program. As an alternative to remedial coursework, if applicable, applicants may elect to take only the final examination in each required course and, based on the grade received, the DGS may waive the requirement.
- h. Students with a bachelor's degree received in electrical and/or computer engineering more than ten years prior to the expected date of admission may also be required to take remedial undergraduate coursework to satisfy the prerequisite requirement of the 6000- level courses, and to reestablish competence on their program of studies.

#### **4. Course Load**

- a. A normal full-time load for Graduate study is 9-13 hours per semester (6-9 hours in the summer session). In exceptional cases, a student may register for more than 13 hours (9 hours in summer), with the approval of the advisor, the DGS, and the Graduate School.

#### **5. Grades Required**

- a. Graduate Grades are A, B, C, and F, with corresponding grade points 4, 3, 2, and 0.
- b. The student is expected to maintain a 3.0 - 4.0 average in both the overall curriculum and major field.
- c. One "F" in a course is cause for termination from the program. Final decisions in such cases will be made by vote of the program graduate faculty.

#### **6. Plan of Study**

- a. The student should discuss a projected plan of study with the student's advisor and the DGS by the end of the first semester of the Master's Program.
- b. Courses for the minor should be selected in consultation with the advisor.
- c. Selection of courses from different areas is acceptable as a minor if clear relevance to the student's needs is demonstrated. Such a minor program may be referred to as a "split minor."

**7. Progress Requirements and Evaluation**

- a. The student will discuss his or her progress with the advisor at the beginning of each semester.
- b. Each year at the end of the Spring Semester, each graduate student will submit to the DGS a written report on progress for the preceding year and plans for the next year.
- c. Each year, normally no later than June 1, the progress of each student in the program will be evaluated by his or her research advisor and/or the program's graduate faculty.
- d. Students not making satisfactory progress toward the degree may be dropped from the program as a result of this evaluation.
- e. Any final decision to drop a student from the program will be made by vote of the program's graduate faculty.

**8. Thesis/Independent Research Project**

- a. Students can opt either for a Master of Science with thesis or Master of Science without thesis.
- b. Requirements for the thesis option:
  - i. For students opting for the thesis option, the 6 required research hours must be master's thesis research hours.
  - ii. The research advisor shall recommend a Thesis Committee, and the student shall notify the DGS.
  - iii. The Thesis Committee consists of at least two faculty members. One of these faculty members must be the student's research advisor.
  - iv. If any changes in the Committee are made during the student's program, the DGS should be notified in writing.
  - v. Research conducted by the student shall be presented in a written thesis that must be approved by the Thesis Committee. The core of the thesis can be one or several manuscripts submitted or ready for submission to a peer-reviewed journal in the student's area of interest. If this option is taken, the final document should include the manuscript(s) plus a general introduction, a summary, recommendations for future work, and possibly appendices presenting material not included in the manuscript(s).
  - vi. The student is required to present the findings at a public seminar upon the completion of the research.
- c. Requirements for the non-thesis option:
  - i. For students opting for the non-thesis option, the 6 required research hours may either be master's research hours or independent study hours.
  - ii. The student and their research advisor shall identify a topic for their independent study work that will be conducted under the supervision of the research advisor. The research advisor will be responsible for evaluating the work.

- iii. Research conducted by the student shall be presented in a report written in a format compatible with publication in a peer-reviewed journal in the student's field of study.
- iv. The student is required to present the findings at a public seminar upon completion of the research.

#### **9. Time Limit**

Full time students are normally expected to have completed all work credited for the Master's degree within a two-year period from the date of admittance. In all cases, work credited for the Master's degree must be completed within a six-year period.