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# REQUIREMENTS FOR THE MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

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

- a. Academic records, letters of recommendation, GRE scores, and the statement of purpose are all taken into consideration.
- b. All applicants are required to take the Graduate Record Examination (GRE).
  - i. Special Note: For the 2020-2021 Admissions Cycle, the Graduate Program for Electrical Engineering is not requiring GRE scores for consideration. (Applicants applying for and admitted to the Spring 2021 and Fall 2021)
- c. 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 a 6.5. 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.
- d. Applicants are expected to have 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, an advisor will be assigned by the DGS. This advisor will serve the student until a research advisor is selected by the student.
- b. By the beginning of the second semester of graduate study, the student must have discussed research interests with relevant faculty members. The burden is upon the student to initiate discussions of interest. Once the student has reached an acceptable agreement with a faculty member about a research topic and sponsorship, that faculty member will become the student's advisor with the notification of the DGS.

## 3. Course Requirements: A *minimum* of 30 hours of formal coursework past the Bachelor's degree is required. With the following breakdown in coursework:

- a. Eighteen (18) hours of electrical engineering past the bachelor's degree are required for the master's degree. Of these 18 hours, at least 12 hours must be taken in courses at the 6000 level. The courses taken must also include one of the gateway courses in two of the following areas: electronics, computers, and signals and systems. Gateway courses are graduate-level courses with senior-level prerequisites, the list of which is maintained by the EECS DGS. A more advanced course may be substituted for a gateway course if that course covers similar,

more advanced topics, with approval from the most closely relevant Gateway course instructor and DGS. The remaining 6 hours of electrical and computer engineering may be taken in formal EECE courses numbered between 5250 and 5999. A maximum of 3 hours of independent study may be applied to the 18 hours required in the major area. Students may not take an undergraduate course for graduate credit when they have taken an equivalent course as part of their undergraduate degree program.

- b. The student is also required to take six (6) hours in a minor area. Normally, the minor will consist of a coordinated course sequence taken from outside the Electrical Engineering program.
- c. The remaining six (6) hours can be fulfilled by taking either course work or research hours.
- d. Students must successfully complete any remedial course requirement prior to taking a more advanced course for which the remedial course is a prerequisite
- e. 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/or 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.
- f. 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. The student is expected to maintain a 3.0/4.0 average in both the overall curriculum and major field
- b. One "F" in a course is cause for termination from the program. Graduate Grades are A, B, C, and F. Final decisions in such cases will be made by vote of the program's 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. Each student will be informed of the results of the evaluation.
- 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: Students can opt either for a Master of Science with thesis or Master of Science without thesis.**

- a. Requirements for the thesis option
  - i. The research advisor shall recommend the Thesis Committee and notify the DGS. The DGS shall submit notification to the Graduate School for approval.
  - ii. The Thesis Committee consists of at least two faculty members. One of these faculty members must be the research advisor.
  - iii. If any changes in the Committee are made during the student's program, the DGS should be notified in writing.
  - iv. 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 sub-mission 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).
  - v. The student is required to present the findings at a seminar upon the completion of the research
- b. Requirements for the non-thesis option
  - i. Students opting for the non-thesis option are required to take 6 hours of independent study in addition to the required 24 hours of formal coursework. These six hours must consist of one single cohesive unit or research work.
  - ii. The student and his/her research advisor shall identify a topic for his/her 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 seminar upon completion of the research

**9. Time Limit**

- a. 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.