ELECTRICAL ENGINEERING: RESEARCH, M.S.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS
MODE OF INSTRUCTION

Face to Face	Evening/Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirements	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	At least 50% of credits applied toward the graduate degree credit requirement must be completed in graduate-level coursework.
Overall Graduate GPA Requirement	3.00 GPA required.

Other Grade Requirements	The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.
Assessments and Examinations	Students must complete either a thesis or project. Details about these two paths can be found below.
Language Requirements	See "English Competency for Non-Native English Speakers", below.

REQUIRED COURSES

Degree Credit Requirement:

UW-Madison Graduate School policy states that the M.S. degree requires at least 30 credits of courses (300 level or above, no audits or pass-fail) completed as a graduate student at UW-Madison: https://grad.wisc.edu/documents/minimum-graduate-degree-credit-requirement/.

The E C E department requires 30 credits for an M.S. degree and does not count E C E 300-level courses toward M.S. or Ph.D. requirements.

Research Option MS Degree Plans

There are two distinct plans of study, from which students must choose in order to fulfill the requirements for the research option E C E M.S. degree: Thesis and Project.

Thesis Plan

To fulfill the requirements of the Thesis Plan, the student must earn 30 graduate credits, attained with acceptable grades as defined on the Policies tab. Of these 30 credits, at least 15 must be in E C E Courses 400-level or higher, and at least 15 must be in courses numbered 700 or higher. Only graduate courses, namely those courses listed or approved for listing in the Graduate School Bulletin are applicable for graduate credit, with the exceptions that 300-level E C E courses and E C E 702 Graduate Cooperative Education Program are not acceptable. E C E 890 Pre-Dissertator's Research and E C E 990 Dissertator's Research are not applicable to the M.S. degree.

Of the 30 credits, a minimum of 3 and a maximum of 9 credits must be in E C E 790 Master's Research. These E C E 790 credits are applicable toward both the 15 E C E credit requirement and the 700-level requirement. The combined number of credits in E C E 790, E C E 699 Advanced Independent Study, and E C E 999 Advanced Independent Study applied toward the degree may not exceed 9.

At the conclusion of the research program, a thesis must be prepared. If the thesis is formally defended, then a thesis committee must consist of at least 3 members, 2 of whom must be graduate faculty or former graduate faculty up to one year after resignation or retirement. If there is no formal defense, the thesis only needs to be approved by the student's graduate faculty advisor.

If depositing through Memorial Library, the thesis must: 1) conform to Graduate School and library formats; and 2) be filed with the Memorial Library where it is cataloged and stacked for future reference (if required by the master's thesis committee). If submitting to Minds@UW, an electronic copy must be sent to the E C E Graduate Student Services Coordinator, who will deposit it into Minds@UW, Department of Electrical and Computer Engineering Thesis Collection. The Minds@UW system will provide a permanent URL, safe long-term archiving and is indexed

by Google, Google Scholar and other specialty academic search engines. The Minds@UW submission form can be found here (https://www.engr.wisc.edu/department/electrical-computer-engineering/academics/ece-graduate-student-handbooks/).

At the conclusion of the thesis, all grades of P (Progress) and I (Incomplete) in E C E 790 Master's Research are changed to either S (Satisfactory) or U (Unsatisfactory) by the advisor. In the final semester the student is required to check in at the E C E Graduate Student Services Office to apply for a degree warrant by the announced deadline.

Project Plan

The Project Plan consists of the same credit and course requirements as the Thesis Plan. Under this plan, the student must perform a research project in consultation with a faculty advisor. At the conclusion of the project, a report is prepared. The research project is generally more limited in scope than a thesis and typically is not awarded as many credits. The report need not conform to Graduate School and library formats, but it must be typewritten. The student's advisor must approve the report. No library or Minds@UW copy is required, but may be requested by the faculty. In the final semester, the student is required to check in at the E C E Graduate Student Services Office to apply for a degree warrant by the announced deadline.

E C E 610 Seminar Requirement

All on-campus E C E graduate students must register for E C E 610 Seminar in Electrical and Computer Engineering during their first Fall semester of graduate studies. MS-degree seeking students must take 1 credit of E C E 610 in the Fall semester of which they are entering the program. Students with a course conflict with E C E 610 can defer taking the seminar by one year provided their faculty advisor agrees.

The purpose of E C E 610 is to prepare students for success in graduate school and expose them to areas within E C E as well as related fields outside of E C E, such as biotechnology, physics, computer science, mathematics, or business. Electrical and Computer Engineering is very interdisciplinary in nature, and so it is important that students be aware of advanced research and development in areas other than their own.

English Competency for Non-Native English Speakers

Effective written and oral communication is vital for a successful academic career. International students whose native language is not English will be required to take the English as a Second Language Assessment Test (ESLAT), offered by the English as a Second Language (ESL) Program.

The ESLAT must be taken as soon as the student arrives at the university. The test is offered in the Fall and Spring during the week before the beginning of instruction. For more information, see the ESL home page at https://esl.wisc.edu/international-students/placement/.

Based on ESLAT performance, specific ESL courses may be recommended. These courses must be taken and passed within 12 months of the ESLAT. Otherwise, the student will not be permitted to register during the third semester after entering the graduate program. Any ESL courses numbered 300 or above can be counted towards graduate degree requirements but not toward E C E course requirements. Completion of ESLAT and recommended courses is also a requirement for graduation of an international student whose native language is not English.

Students are exempt from taking the ESLAT if:

- English is the exclusive language of instruction at the undergraduate institution; or
- they have earned a degree from a regionally accredited U.S. college or university not more than 5 years prior to the anticipated semester of enrollment; or
- they have completed at least two full-time semesters of graded course work, exclusive of ESL courses, in a U.S. college or university, or at an institution outside the U.S. where English is the exclusive language of instruction, not more than 5 years prior to the anticipated semester of enrollment.