ELECTRICAL ENGINEERING (MS)

The Electrical and Computer Engineering (ECE) department offers Master of Science (M.S.) degrees in Electrical Engineering with two possible areas of concentration: Electronics, Photonics and Biophotonics or Information, Communication, Decision, and Energy Systems. The graduate program is predicated on students having developed a strong technical background in basic Electrical and Computer Engineering through work in undergraduate courses. The objective of the graduate program is to enhance this background by providing more advanced course work, along with insight into state-of-the-art problems and new research areas.

Location

- Storrs Campus

Modality

- In Person

Requirements

The M.S. degree program satisfies several different needs. Many students enter the M.S. degree program to round out their educational objectives, prior to seeking employment in a specialized field of study within Electrical Engineering. In this case, the M.S. degree represents a terminal point in their formal studies. Other students plan to continue their studies at the Ph.D. level. In this case the M.S. degree represents a preparatory period designed to give the student the tools and background needed to carry out the more individualized and self-directed research involved in Ph.D. studies.

Either approach is designed to provide comprehensive knowledge of the theoretical and applied aspects of the student's chosen area of concentration. The graduate program is predicated on students having developed a strong technical background in basic Electrical and Computer Engineering through work in undergraduate courses. The objective of the graduate program is to enhance this background by providing more advanced course work, along with insight into state-of-the-art problems and new research areas.

The Master's degree may be earned under either of two plans as determined by the student and the advisory committee: Plan A, emphasizing research, and Plan B, emphasizing graduate course work.

M.S. Plan A Requirements

Students must take a minimum of 30 credits in the program. Typically, this consists of 9-12 credits each semester.

Students complete at least 21 credits of graduate course work. Some students may need more than seven courses to complete Plan A of study. Final determination is made by the student and the student's advisory committee. Students in the Electronics, Photonics, and Biophotonics area may include no more than six credits of ECE 6099 Independent Study in Electrical Engineering; students in the Information, Communication, Decision, and Energy Systems area may include no more than three credits of ECE 6099 Independent Study in Electrical Engineering; at least nine credits of GRAD 5950 Master's Thesis Research; satisfactory completion of a Master's thesis, with oral presentation; one credit of ECE 6094 Seminar; have one conference proceedings (CP) (full) paper accepted by the time of graduation. A journal paper may be substituted for the CP.

M.S. Plan B Requirements

Students must take a minimum of 30 credits in the program. Typically, this consists of 9-12 credits each semester. Requirements: At least 30 credits of graduate work, with no more than six credits of ECE 6099 Independent Study in Electrical Engineering and one credit of ECE 6094 Seminar for full-time on-campus students. Students must also pass a comprehensive M.S. examination, which is based on the core course work.

M.S. Concentration Requirements

In addition to the general requirements listed above, both Plan A and Plan B students who choose to do an area of concentration must also meet the following requirements:

Electronics, Photonics, and Biophotonics

Required Courses: At least one course from each of the three areas:

- Area 1 - Electromagnetics/Photonics
- Area 2 - Semiconductor/Optoelectronic Devices
- Area 3 - Applications

It is not necessary that the remaining courses taken be in the Electronics, Photonics, and Biophotonics area, although they generally tend to be.

Information, Communication, Decision, and Energy Systems

Course	Title	Credits
Required Courses		
ECE 5101	Introduction to System Theory	3
ECE 6111	Applied Probability and Stochastic Processes	3
ECE 6122	Digital Signal Processing	3
ECE 6151	Communication Theory	3
ECE 6439	Estimation Theory and Comp Algorithms	3

It is not necessary that the remaining courses taken be in the Information, Communication, Decision, and Energy Systems, although generally they tend to be.

Learning Objectives

1. Knowledge: Demonstrate appropriate breadth and depth of disciplinary knowledge and comprehension of the major topics, theories, and issues of the discipline.
2. Applied skills: Uses, disaggregates, reformulates and/or adapts principle ideas, techniques or methods of the field of study ethically, professionally, and based on best practices of the discipline.
3. Communication: Communicate proficiently and effectively to a specialist or non-specialist audience, verbally and in writing, a coherent argument or explanation summarizing aspects of the discipline.