

ELECTRICAL ENGINEERING (MS)

MSEE Degree Overview

With the ever-increasing pace of technological development in society, new and challenging opportunities are becoming available that require engineering graduates with increased levels of specialization. To provide for this, the Electrical and Computer Engineering Department offers electrical engineering and computer engineering graduates a cutting-edge program in graduate studies leading to the Master of Science in Electrical Engineering (MSEE) degree.

The program offers advanced level courses and areas of specialization in computer engineering, digital controls, laser-assisted fabrication, microelectronics, networks, image processing, pattern recognition, wireless communications, optical information processing and power systems. Graduate students have wide opportunities to undertake front-line engineering research alongside faculty for both thesis and project work. In addition, a coursework-only program is also offered by the department for those in industry who intend to further their professional development while pursuing a graduate degree.

Admission to the MSEE Program

- **Regular Admission**
 - a. A B.S. degree in electrical or computer engineering or closely related field is required.
 - b. A grade-point average of 3.0 or greater (A=4.0) on all undergraduate work is required. This can be relaxed depending on the academic background and experience of the applicant.
 - c. A minimum score of 151 in the quantitative section and a minimum score of 141 in the verbal section of the Graduate Record Examination (GRE) is required. These requirements may be relaxed slightly depending upon special individual circumstances evaluated holistically. GRE scores are not required for ECE students who have graduated from the University of South Alabama.
 - d. For International students whose native language is not English, a minimum score of 550 on the written Test of English as a Foreign Language (TOEFL), or a minimum score of 79 on the Internet-based TOEFL exam, or a minimum score of Band 6.5 on the International English Language Testing System (IELTS) test, is required (or other English language test results may be considered).
- **Provisional Admission**
 - a. A B.S. degree in electrical or computer engineering, or in a field acceptable to the departmental Graduate Admissions Committee, is required. Depending on the student's background, additional undergraduate preparatory courses may be required. These courses will not count toward the MS degree.
 - b. A minimum grade-point average of 2.5 (A=4.0) on all undergraduate work, including a minimum grade-point average of 2.5 over the last 64 course hours of undergraduate work is required. Alternatively, a minimum grade-point average of 2.75 over the last 64 course hours of undergraduate work is required.
 - c. A minimum GRE combined score greater than or equal to 283 (Verbal + Quantitative) is required. GRE scores are not required for ECE students who have graduated from the University of South Alabama.

- d. For International students whose native language is not English, a minimum score of 525 on the written Test of English as a Foreign Language (TOEFL), or a minimum score of 71 on the Internet-based TOEFL exam, or a minimum score of Band 6.0 on the International English Language Testing System (IELTS) test, is required (or other English language test results may be considered).

Admission may be granted in special cases where a holistic evaluation of the applicant's credentials is appropriate.

MSEE Degree Requirements

The MSEE Program has three Tracks: Electrical Engineering, Computer Engineering, and Systems Engineering. Each Track has either a Thesis option or a Course option. Award of the MSEE degree in any Track, either option, requires completion of 30 credit hours at graduate level. This includes 9 credit hours from the three required courses specified for the Track selected. The Thesis option requires successful completion of 6 credit hours (two semesters) of EE599 Thesis study; the Course option requires 6 credit hours (two courses) that can be selected from both dual-listed and non-dual-listed (i.e., pure graduate, not listed with a 400-level number) graduate courses. The remaining 15 credit hours are made up from elective courses, of which at least 9 credit hours must be taken from non-dual-listed courses. Graduate level instruction in research integrity and professional ethics (<https://www.southalabama.edu/colleges/engineering/resources/rcrtraininginstructions.pdf>) is also required by MSEE students. The detailed requirements of each MSEE Track and option are indicated on the Electrical and Computer Engineering Department Graduate program website at <https://www.southalabama.edu/colleges/engineering/ece/ecegrad.html#MSEE>.

BSEE and BSCpE Accelerated Bachelor's to Master's (ABM) Degree Option

The Department of Electrical & Computer Engineering allows well-qualified **EE** and **CpE** undergraduates in this Department to follow an "Accelerated Bachelor's to Master's" (ABM) study plan. This plan permits up to **six credit hours of graduate coursework** to count towards **both** the Bachelor's (as Technical Electives) and the Master's degrees, so that the Master's degree is earned faster than usual. (The coursework concerned must individually satisfy the requirements of **both** degrees.)

Example: the MSEE degree requires 30 total credit hours (for thesis option, 24 credit hours of coursework plus six credit hours of thesis work). ABM students may take up to six of the MSEE coursework credit hours as Technical Electives for their BSEE or BSCpE degrees, leaving only 24 credit hours of coursework (for non-thesis option) or 18 credit hours of coursework plus six credit hours of thesis work (for thesis option) needed to earn the MSEE degree.

Eligibility Requirements:

- Must have at least 3.0 **cumulative undergraduate GPA** (at USA), and
- Must have completed at least **90 credit hours** (i.e., senior status; within two semesters of BSEE or BSCpE graduation), and
- Must have completed at least **30 credit hours at USA**.

A student who later withdraws or is dismissed from the ABM program may not count graduate coursework towards both degrees. Graduate courses will only be counted towards the MSEE degree if the undergraduate student earns Grade A or B.

An ABM student **must be a full-time student** and must complete all degree requirements for the Master's degree within three semesters of

the semester in which he or she was admitted to the Graduate School. An exception for a fourth semester may be granted where an additional semester is required for final revisions to and submission of a defended thesis. Thesis option students must form the thesis committee during the second semester of the program at the latest. Exceptions to the Electrical and Computer Engineering ABM program policy are at the discretion of the Department Chair and the Dean of the Graduate School.

Procedure:

If you satisfy these eligibility requirements, and wish to be considered for the ABM program:

1. Discuss ABM with the Department Chair and/or your advisor, for course planning;
2. Complete an undergraduate Advising Form at <https://www.southalabama.edu/colleges/engineering/currentstudents/resources/engineeringadvisingform.pdf> incorporating the ABM courses you have chosen;
3. Complete and print **both** the ABM Declaration form at <https://www.southalabama.edu/departments/eforms/graduateschool/abmdeclarationform.pdf> **and** the form requesting authorization to use graduate courses at https://www.southalabama.edu/departments/eforms/registrar/graduate_level_course_for_undergraduate_degree.pdf incorporating the ABM courses you have chosen;
4. Submit these printed forms to the Department Chair for formal approval and routing; and
5. Enroll in the **graduate section (500-level)** of your chosen ABM Technical Elective(s) (note that this will require course overrides).

These 500-level Technical Electives will count towards the MSEE degree after you apply for graduate school admission (after completing the BS degree) and successfully complete nine additional credit hours of graduate courses.

MSEE Graduation Plan

(30 Total Hours)

The sample Graduation Plan is designed as a guide for students preparing for their course selections. This information provides only a suggested schedule. Actual course selections should be made in consultation with an academic advisor to create a personalized plan as individual student plans may vary.

Course	Title	Hours
First Year		
Fall		
EE 5XX	Pure Graduate Class	3
EE 5XX	Graduate Elective Class ¹	3
EE 5XX	Graduate Elective Class ¹	3
Hours		9
Spring		
EE 5XX	Pure Graduate Class	3
EE 5XX	Graduate Elective Class ¹	3
EE 5XX	Graduate Elective Class ¹	3
Research integrity and professional ethics training (see https://www.southalabama.edu/colleges/engineering/resources/rcrtraininginstructions.pdf)		
Hours		9
Second Year		
Fall		
EE 5XX	Pure Graduate Class	3

Select one of the following:		3
EE 599	Thesis (Thesis option only)	
EE 594	Project in Electrical Engr (Project option only)	
EE 5XX	Graduate Elective Class (Course option only) ¹	
Hours		6
Spring		
EE 5XX	Graduate Elective Class ¹	3
Select one of the following:		3
EE 599	Thesis (Thesis option only)	
EE 5XX	Graduate Elective Class (Project or Course options only) ¹	
Hours		6
Total Hours		30

¹ Graduate elective classes must be approved by the ECE Department Graduate Coordinator.

Note: Some classes from other disciplines are available for graduate students: these must be approved by the ECE Department Graduate Coordinator.