

Master of Science in Electrical Engineering

Electrical Engineering and Computer Science

The technological advances that have made our society what it is today are due largely to the efforts of electrical engineers, computer engineers, and computer scientists. Among these advances are radio, television, telephones, wireless and mobile communications, personal computers, workstations, mainframe computers, aircraft avionics, satellite electronics, automobile electronics, office machinery, medical electronic equipment, video games, electric power generation and distribution systems, telecommunications, computer networks (including the Internet), personal entertainment products, radar, defense electronics, artificial intelligence, and a variety of computer software.

Vision and Mission

The vision of the EECS department is to provide a stimulating and challenging intellectual environment.

- To have classes populated by outstanding students.
- To be world class in an increasing number of selected areas of research.
- To have faculty members with high visibility among their peers.

The mission of the EECS department is

- To educate the next generation of electrical engineers, computer engineers, and computer scientists.
- To discover, apply, and disseminate knowledge.
- To be an asset to the community and to society.

Standard Admission Requirements for all Graduate Programs

- All applicants must meet the requirements outlined in the Admission to Graduate Study (<https://policy.ku.edu/graduate-studies/admission-to-graduate-study/>) policy.
- Bachelor's degree: A copy of official transcripts showing proof of a bachelor's degree (and any post-bachelor's coursework or degrees) from a regionally accredited institution, or a foreign university with equivalent bachelor's degree requirements is required.
- English proficiency: Proof of English proficiency (<https://gradapply.ku.edu/english-requirements/>) for non-native or non-native-like English speakers is required. There are two bands of English proficiency, including Admission and Full proficiency. For applicants to online programs, Full proficiency is required.

Graduate Program Admission to the Department of Electrical Engineering and Computer Science

Applicants for the Master of Science degree in Electrical Engineering (MS EE) typically possess a degree in Electrical Engineering or Computer Engineering. However, a student with good preparation in a related field may qualify by taking appropriate additional undergraduate courses. Such courses normally do not count toward the graduate degree. A list of

specific prerequisite courses for the MS in Electrical Engineering degree is available in the graduate office or on the department's website.

Applicants must demonstrate evidence of aptitude for graduate work, as shown by suitable performance in undergraduate and any graduate course work, by aptitude test scores on the Graduate Record Examination, and by academic letters of reference.

Unless the applicant's native language is English or the applicant has received a baccalaureate degree or higher from an accredited U.S. institution of higher education, he or she must meet the department's standard for the Test of English as a Foreign Language (TOEFL), which is higher than the general KU requirement. Applicants for graduate teaching assistantships must earn satisfactory scores on the Test of Spoken English.

Application Information & Deadlines

Fall Priority Deadline: December 15

Spring Priority Deadline: September 30

Applications accepted after the priority deadlines listed above will no longer be considered for fellowships and assistantships. All application materials must be submitted by **March 1** (Fall semester admission) and **October 1** (Spring semester admission). Visit the Graduate Studies website (<http://www.graduate.ku.edu/>) for the application procedure and fees.

International students and students who indicated English as a second language, are required to show proof of English proficiency for admission purposes and may need to check-in at the Applied English Center (<https://aec.ku.edu/>) (AEC) upon arrival on campus for orientation. This process serves to confirm each student's level of English proficiency and determine whether English courses will be included as a requirement of the student's academic program. Note: Students who demonstrate English proficiency **at the waiver level** or who have earned a degree from one of the specified English-speaking countries listed in the policy (<http://policy.ku.edu/graduate-studies/english-proficiency-international-students/>) are not required to check in at the AEC (see eligibility requirements on the Graduate Studies website (<https://graduate.ku.edu/english-proficiency-requirements/>)).

Application Materials

- Online Application (<https://graduate.ku.edu/ku-graduate-application/>)
- GRE scores (school code 6871)
- Statement of objectives and resume
- Official transcript
- Letters of recommendation
- TOEFL scores (international students)
- Financial statement (international students only)

Submit all supporting documents and your graduate application online (<http://www.graduate.ku.edu/>).

Visiting Us

The graduate program staff is happy to work with all prospective students in determining the fit between the student and the program. In order to determine this, we feel that visiting our campus in Lawrence is a very important step. In order to facilitate your visit to KU, there are two main options:

The first, and most preferred, option entails simply applying for admission to the program. All prospective students are welcome to attend our Graduate Open House in mid-October or mid-March. Eligible admitted students may be invited to participate in Campus Visit Days in February (prior to the fall semester of your intended matriculation). These organized campus visit opportunities will allow you to gather a great deal of first-hand information which we hope will help you in making a final decision about whether to attend KU.

The second option is making arrangements to visit us on your own, outside of organized events. With early notification, we will do our best to work with you to provide information and schedule appointments with faculty when possible. Please contact us if you feel that this is the best option for you.

Contact Information

Please contact the EECS Graduate Program Coordinator at eeecs_graduate@ku.edu or (785) 864-4487, to schedule a visit or with questions about the application process.

The University of Kansas
Department of Electrical Engineering and Computer Science
Graduate Office
Eaton Hall
1520 W. 15th Street, Suite 2001E
Lawrence, KS 66045

M.S. Degree Requirements

The Master of Science (MS) program in Electrical Engineering (EE) offers three options: thesis, project, and coursework only. All three options generally require 31 credit hours to complete the degree, which includes 1 credit hour of EECS 802 (<https://catalog.ku.edu/search/?P=EECS%20802>) Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues, to be completed during the first semester of the program.

- A master's thesis should address an open problem in EE. In addition to EECS 802 (<https://catalog.ku.edu/search/?P=EECS%20802>), the thesis option requires: a minimum of 8 approved graduate courses, 6 hours of Master's Thesis (EECS 899 (<https://catalog.ku.edu/search/?P=EECS%20899>)), and an oral defense of the thesis in the final semester. After evaluating current literature related to the problem of interest, students must design, build, and evaluate hardware or software systems or system models to prove or disprove their research hypothesis. Completing a thesis typically takes two semesters and produces results that could be published as a paper in conference proceedings or a professional journal.
- The project option requires the execution and completion of a substantial project. In addition to EECS 802 (<https://catalog.ku.edu/search/?P=EECS%20802>), the project option requires: a minimum of 9 approved graduate courses, 3 hours of Graduate Problems (EECS 891 (<https://catalog.ku.edu/search/?P=EECS%20891>)), and an oral defense of the project report in the final semester. A project is a creative endeavor such as designing and implementing hardware/software systems or the integration of existing knowledge.
- The coursework only option requires: EECS 802 (<https://catalog.ku.edu/search/?P=EECS%20802>) and a minimum of 10 approved graduate courses.

EE students are encouraged to choose a project or thesis topic early in their Graduate career, and identify a faculty advisor who is interested in supervising their work. The student should select a set of courses from the specified list of Electrical Engineering courses. A current list of the courses and their requirements is available on the EECS website (<https://eeecs.ku.edu/electrical-engineering-course-list/>).

Students will be required to complete a Plan of Study (<https://enrgradplan.ku.edu/>) during their first semester that outlines a comprehensive plan to complete their degree. The Plan of Study lists all coursework, and designates the thesis, project, or coursework only option, and must be consistent with the identified degree and goals. All plans must include:

- EECS 802
- Minimum of 5 (thesis track), 6 (project track) or 7 (coursework-only track) EECS courses numbered 700 or higher, excluding Directed Graduate Reading (EECS 801), Graduate Problems (EECS 891), Master's Thesis (EECS 899) and Post-Master's Research (EECS 998).
- Maximum of 2 courses numbered between 500-699 may be counted toward the hours required for the degree.
- Maximum of one course may be taken outside the EECS department (any elective course outside of other Engineering departments at KU, Physics or Math, will need to be petitioned to count towards the degree).

Courses numbered below 500 will not count toward the degree.

For the MS thesis and MS project options, the general oral examination must be taken in the last semester. It is conducted by an examining committee consisting of the student's advisor and at least 2 other Graduate Faculty members of the department selected by the student and advisor. The committee determines if the written thesis or project report, oral presentation of research, and general knowledge of the discipline meet the department's standards.

At the completion of this program, students will be able to:

- Demonstrate broad knowledge in their discipline.
- Demonstrate in-depth knowledge in (at least) one area of expertise in their discipline.
- Conduct independent, publishable and impactful research.
- Document and communicate a compelling, focused, and logical technical argument in writing and orally at a professional level.