Master of Science in Computer 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.

Graduate Admission to the School of Engineering

Procedure

Admission requirements for the School of Engineering follow the general KU requirements plus those of each engineering graduate program. All applicants must apply online (http://www.graduate.ku.edu/apply). Detailed information about supplemental application materials for each program is listed here (http://www.engr.ku.edu/prospective/graduate/apply). Important information for prospective international students is available from International Student & Scholar Services (http://www2.ku.edu/~issfacts). Download a PDF (http://www.engr.ku.edu/prospective/graduate/apply/grad_app_process.pdf) for more information about the review process for graduate applications.

Some departments and programs require the Graduate Record Examination. Applications must be accompanied by a nonrefundable fee. See Admission (http://catalog.ku.edu/graduate-studies/#admissiontext) in the Graduate Studies section of the online catalog.

Baccalaureate Preparation

To qualify for graduate work in any field of engineering, a student generally must hold an accredited baccalaureate degree in that field and have at least a 3.0 grade-point average. A student with good preparation in such fields as mathematics, chemistry, or physics, or in a related engineering field, may be admitted on the basis of performance in specific undergraduate courses, determined by the department of interest to the prospective student. Undergraduate hours do not count as part of a student’s Plan of Study, but they must be completed with grades of B or higher.

Exceptionally qualified undergraduates may be admitted directly to a Fast-Track Ph.D. program, which does not require the master’s as an intermediate degree. Students who wish to earn a Ph.D. and believe that they meet this criterion are encouraged to contact the graduate advisor in their field of interest.

English Proficiency Requirement

All graduate students in the School of Engineering who are required to take courses at the Applied English Center (http://www.aec.ku.edu) must pass the AEC’s English Proficiency Examination within 3 semesters of their initial enrollment. Failure to complete the English proficiency requirement within this time limit may result in dismissal from the graduate engineering program.

Graduate Admission

Applicants for the Master of Science degree in Computer Engineering (M.S.Co.E.) normally possess a degree in computer engineering or electrical engineering. However, a student with good preparation in some other field of engineering, mathematics, business, or science 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 M.S. in Computer Engineering degree is available in the graduate office or on the department’s website. http://www.eecs.ku.edu/prospective_students/graduate/deficiency_courses

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.

Application Deadlines

Fall Priority Deadline: December 15

Spring Priority Deadline: September 30

Applications will be accepted after the priority deadlines listed above, but those applicants may not be considered for fellowships and assistantships. All application materials must be submitted by March 1 for fall and October 1 for spring to be considered for admission. See the Graduate Studies website (http://www.graduate.ku.edu) for the application procedure and fees.

Application Materials

- Application
- GRE scores (school code 6871)
- Statement of objectives and resume
- Official transcript
- Letters of recommendation
- TOFEL 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 Open House in early November and some highly qualified students may be invited to participate in Visit Days in late February or early March (prior to the fall semester of your intended matriculation). These organized visitation opportunities will allow you time 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 Program Assistant 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 66045-7605

M.S. Degree Requirements

The master’s program in computer engineering offers a thesis and nonthesis option. The thesis option requires a minimum of 8 approved graduate courses, 6 hours of Master’s Thesis, EECS 802 and an oral defense of the thesis in the final semester. A master’s thesis should address an open problem in EECS. 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 2 semesters and produces results that could be published as a paper in conference proceedings or a professional journal. The nonthesis option requires a minimum of 9 approved graduate courses, 3 hours of Graduate Problems, EECS 802, and an oral defense of the project report in the final semester.

Computer engineering students are encouraged to choose a focus area for their project or thesis topic early in their graduate career, and identify a faculty advisor who is interested in supervising their work.

Associated Focus Areas

• Computer Systems Design
• Computing in the Biosciences
• Network Engineering
• Network Systems
• Security and Assurance

Central to the master’s program in computer engineering is the development of each student’s Plan of Study. The plan must be approved by a committee of 3 EECS Graduate Faculty members. The Chair of the committee and at least 1 member of the committee must be tenured or tenure track members of the department graduate faculty. The plan must be developed and approved by the graduate office during the first semester, and must be consistent with the identified degree and goals. The Plan of Study outlines all course work and designates the thesis or nonthesis option. All plans must include at least 1 semester of EECS 802 Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues.

The student may select a set of courses from one of the predefined areas, or work in conjunction with an adviser to customize the course selection. A current list of the areas and their requirements is available on the EECS website (http://www.eecs.ku.edu/current_students/graduate/focus_areas). The 3 graduate faculty members who approve the plan verify that courses selected meet the guidelines and are appropriate for the M.S. degree program. Modifications to the plan must be approved by the student’s committee and resubmitted to the graduate office for approval.

If an M.S. Plan of Study does not follow a predefined course listing, students will be required to have the EECS graduate committee assess the submitted Plan of Study, goals and justification for approval. The plan must include a minimum of 5 EECS courses numbered 700 or higher, excluding EECS 801 Directed Graduate Readings, EECS 891 Graduate Problems, and EECS 899 Master’s Thesis or Report. A maximum of 3 courses outside the department and a maximum of 2 courses numbered below 700 may be counted toward the requirements for the degree. Courses numbered below 500 do not count toward the degree. All plans of study must include at least one semester of EECS 802 Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues.

Subject to the general restrictions on M.S. course work, the thesis option requires a minimum of 8 courses approved in a Plan of Study, 6 hours of EECS 899 Master’s Thesis or Report, EECS 802 Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues, and a general oral examination. For students completing the thesis option, EECS 891 Graduate Problems does not count toward the 8 courses required for the degree. Before thesis work begins, the student selects a thesis advisor who is a graduate faculty member of the department. A thesis proposal of research into a specific research question is to be submitted to and accepted by the student’s graduate committee at least one semester before completion of the program.

Subject to the general restrictions on M.S. course work, the nonthesis option requires a minimum of 9 courses approved in a Plan of Study, 3 hours of EECS 891 Graduate Problems, EECS 802 Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues, and a general oral examination. The nonthesis option requires the execution and completion of a substantial project whose topic and scope is agreed to between the student and adviser. A project is a creative endeavor such as designing and implementing hardware/software systems or the integration of existing knowledge.

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 adviser. 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.