Doctor of Philosophy in Computer Science

Electrical Engineering and Computer Science

The technological advances that have made our society what it is today are considerably credited 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, including:

- To have classes populated by outstanding students;
- To be world class in an increasing number of selected areas of research; and
- 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; and
- 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

Admission is open to college and university graduates whose previous records indicate an ability to succeed with graduate work in the chosen discipline. Applicants with strong academic credentials may be admitted directly into the Ph.D. Computer Science program without an M.S. in the requisite field.

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 (GRE), 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 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** (Fall semester admission) and **October 1** (Spring semester admission). See 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 must 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)

All application materials should be submitted 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. 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 late 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 Program Coordinator at eecs_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

Ph.D. Degree Requirements

Requirements for EECS doctoral degree program in Computer Science.

- First semester select a major advisor and a doctoral committee
- Submit plan of study to be approved by committee
- Qualifying examination
- Annual Ph.D. Activity Report (PHAR)
- Comprehensive examination
- Dissertation
- Final oral examination

During the first semester of the program, Doctoral students must take at least one semester of EECS 802 (https://catalog.ku.edu/search/?P=EECS%20802) Electrical Engineering and Computer Science Colloquium and Seminar on Professional Issues, they must have an approved Plan of Study (https://engrgradplan.ku.edu/) on file.

In the first semester, the student must select a major advisor and a committee. The student's committee consists of a minimum of 5 graduate faculty members and is chaired by the major advisor. The advisor and at least 2 other members of the committee must be tenured or tenure-track members of the graduate faculty in EECS, and 1 committee member must be the Graduate Studies Representative, a regular KU graduate faculty member outside of the EECS department (for more information, see the policy here (https://policy.ku.edu/graduate-studies/graduate-studies-representative-on-doctoral-exam-committees/)). The role of this member as the Graduate Studies representative is designed to assure the appropriate standard of fairness, professionalism, judgment, and skill are applied throughout the examination process for the benefit of the institution and in the best interest of the student. As an independent participant observer, this member should have no personal or professional duality/conflict of interest with other members of the committee or the student that would prevent him or her from the unbiased fulfillment of these responsibilities. This committee guides the student's selection of courses, participates in the comprehensive and final examinations, and helps the student select a topic for research leading to the dissertation.

Should the student's interests change, the committee membership may be changed accordingly, with the approval of the department's graduate studies committee.

Course Requirements:

Students admitted to the program with their M.S. degree must complete:

- EECS Colloquium (EECS 802), recommend taking it your first semester
- Minimum of 18 credit hours of approved course work
- Minimum of 15 credit hours of course work must be EECS 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).
- Minimum of 18 semester credit hours of doctoral dissertation (EECS 999)
- EECS 999 hours can only be counted toward degree after passing the Comprehensive Examination

Students admitted to the program without their M.S. degree must complete:

- EECS Colloquium (EECS 802), recommend taking it your first semester
- Minimum of 42 credit hours of approved course work
- Minimum of 30 credit hours of course work must be EECS 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).
- EECS 999 hours can only be counted toward degree after passing the Comprehensive Examination

Each doctoral student must pass a doctoral qualifying examination, which also meets the research skills requirement. This is an assessment of the student's ability to conduct PhD-level scholarship based on classroom performance, written research and an oral examination to be given by a committee of tenured/tenure track graduate faculty members.

Each doctoral student must take the doctoral comprehensive examination after passing the qualifying examination, completing the research skills and responsible scholarship requirements, and completing at least ¾ of the coursework requirement beyond the M.S. The student must complete the comprehensive examination before detailed work on the Ph.D. dissertation begins. Before the examination, the student must submit in writing to the committee a detailed proposal for a possible Ph.D. dissertation. In the comprehensive examination, the student is examined upon the proposal and on knowledge and insight in the specialization, and a dissertation committee is formed.

Following completion of the Ph.D. dissertation, the candidate must defend the dissertation in an oral final examination. The examining committee is once again constituted as in the comprehensive oral examination.

For more information on the degree, you can refer to our website: https://eecs.ku.edu/phd-programs (https://eecs.ku.edu/phd-programs/).

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.