

ELECTRICAL & COMPUTER ENGINEERING, PHD

for the degree of Doctor of Philosophy in Electrical & Computer Engineering

The Department of Electrical & Computer Engineering offers both a traditional doctoral program (for students with a previous master's degree) and a direct doctoral program (for students with only a bachelor's degree). Applicants with master's degrees are admitted only if a faculty member is willing to serve as the PhD thesis advisor. Accordingly, such applicants should write, call, or e-mail prospective PhD advisors and discuss their research interests and potential PhD thesis topics well in advance of application deadlines.

Opportunity exists for specializing in computational science and engineering via the Computational Science & Engineering (<http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/>) optional graduate concentration.

Department Research

Research interests of the Electrical and Computer Engineering faculty include the broad areas of study described in the graduate programs section and more. Many faculty members hold affiliate status with other departments, and a number of faculty members from other departments hold affiliate status with the department. In addition, some faculty hold appointments in the Beckman Institute for Advanced Science and Technology, the Coordinated Science Laboratory, the Materials Research Laboratory, and the Holonyak Micro and Nanotechnology Laboratory. All these affiliations provide opportunities for graduate student appointments to conduct research. For a detailed list of current research interests of the faculty, visit the department's research website (<https://ece.illinois.edu/research/>).

There are numerous interdisciplinary programs, laboratories, and centers for research within the department. These are described at the department's research centers website (<https://ece.illinois.edu/research/centers-and-groups/>).

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For additional details and requirements refer to the department's Graduate Study Manual (<https://ece.illinois.edu/academics/grad/msphd-manual/>) and the Graduate College Handbook (<http://grad.illinois.edu/gradhandbook/>).

Entering with an approved Master's Degree:

Code	Title	Hours
ECE 599	Thesis Research (min-max applied toward degree)	32-40
ECE 500	ECE Colloquium (registration for 0 hours every term while in residence)	0
3 permanent 500-level courses in 3 different Ph.D. Breadth Requirement areas (http://www.ece.illinois.edu/students/grad/overview/#breadth)		12

Elective courses (subject to Other Requirements and Conditions below)	12-20
Total Hours	64

Other Requirements and Conditions (may overlap)

Requirement	Description
Up to 4 credit hours of ECE 590 (Seminar) can be applied towards Elective courses.	
Up to 12 credit hours of ECE 597 (Independent Study) can be applied towards Elective courses.	
Credit in ECE 415, ECE 445, ECE 596, PHYS 404, PHYS 435, PHYS 436, STAT 400 does not count toward the degree.	
At least one ECE 500-level course must be taken other than ECE 590, ECE 597, and ECE 599.	
No course used to fulfill any degree requirement may be taken using the "Credit/No Credit" option.	
A Masters degree is required for admission to this Ph.D. program.	
Ph.D. exam and dissertation requirements:	
Qualifying exam	
Preliminary exam	
Final exam or dissertation defense	
Dissertation deposit	
Minimum GPA:	3.0

Entering with an approved Baccalaureate Degree:

Code	Title	Hours
ECE 599	Thesis Research (min-max applied toward degree)	40-48
ECE 500	ECE Colloquium (registration for 0 hours every term while in residence)	0
3 permanent 500-level courses in 3 different Ph.D. Breadth Requirement areas (http://www.ece.illinois.edu/students/grad/overview/#breadth)		12
Elective courses (subject to Other Requirements and Conditions below)		36-44
Total Hours		96

Other Requirements and Conditions (may overlap)

Requirement	Description
Up to 4 credit hours of ECE 590 (Seminar) can be applied towards Elective courses.	
Up to 16 credit hours of ECE 597 (Independent Study) can be applied towards Elective courses.	
Credit in ECE 415, ECE 445, ECE 596, PHYS 404, PHYS 435, PHYS 436, STAT 400 does not count toward the degree.	

16-credit hours must be ECE 500-level course must be taken other than ECE 590, ECE 597, and ECE 599.

No course used to fulfill any degree requirement may be taken using the "Credit/No Credit" option.

Ph.D. exam and dissertation requirements:

Qualifying exam

Preliminary exam

Final exam or dissertation defense

Dissertation deposit

Minimum GPA: 3.0

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We expect each graduate student to achieve at least five of the following outcomes:

1. To be able to identify technical challenges, and formulate problems in Electrical and Computer Engineering.
2. To be able to apply theoretical and/or experimental methods to solve problems in Electrical and Computer Engineering.
3. To have in-depth knowledge of at least one sub-area within Electrical and Computer Engineering.
4. To be able to effectively communicate findings to peers in written and oral form.
5. To be able to teach topics in Electrical and Computer Engineering at the university level.
6. To have broad understanding of the scope of research in Electrical and Computer Engineering.
7. To be able to function as an engineer.

Admission Requirements

Admission for the spring semester is possible, in addition to the usual fall semester admissions.

Applicants must have completed an electrical engineering curriculum or a computer engineering curriculum substantially equivalent to those of the University of Illinois at Urbana-Champaign. Graduates of curricula in the physical sciences, mathematics, and computer science may be admitted if they are judged to have the necessary background to profit from graduate work in electrical and computer engineering. A minimum grade point average of 3.00 (A = 4.00) for the last two years of undergraduate study is required. However, because of space limitations, applicants with GPAs below 3.50 are rarely admitted. The Graduate Record Examination (GRE) (<http://www.ets.org/>) is optional.

All applicants whose native language is not English are required to submit TOEFL (<http://www.toefl.org/>) or International English Language Testing System (IELTS) (<http://www.ielts.org/>) scores as evidence of English proficiency. Minimum admission requirements (<https://grad.illinois.edu/admissions/instructions/04c/>) are set by the Graduate College.

Financial Aid

Fellowships, research assistantships, and teaching assistantships (all of which include tuition and partial fee waivers) are available for the majority

of students who are admitted to the MS and PhD programs. Starting in Fall 2020, Grainger Engineering PhD students in their first five years of enrollment who meet the minimum eligibility requirements (<https://grainger.illinois.edu/academics/graduate/phd-funding-guarantee/>) are guaranteed a funded appointment for fall and spring that includes a full tuition waiver, a partial fee waiver, and a stipend. International applicants generally are not awarded teaching assistantships, but are eligible for the other forms of financial aid.

All applicants, regardless of US citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency (<http://grad.illinois.edu/admissions/taengprof.htm>) by achieving a minimum score of 24 on the speaking subsection of the TOEFL iBT or 8 on the speaking subsection of the IELTS. For students who are unable to take the iBT or IELTS, a minimum score of 5 is required on the OEAI Test, offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching (<https://citl.illinois.edu/citl-101/teaching-learning/grad-academy-for-college-teaching/>) conducted prior to the start of the semester and register for ECE 590TL.

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Department of Electrical and Computer Engineering

Department Head: Bruce Hajek (b-hajek@illinois.edu)

Director of Graduate Studies: Sayan Mitra (mitras@illinois.edu)

Electrical and Computer Engineering website (<http://ece.illinois.edu/>)

ECE Program website (<https://ece.illinois.edu/admissions/graduate/>)

Electrical and Computer Engineering faculty (<https://ece.illinois.edu/about/directory/faculty/>)

2120 Electrical and Computer Engineering Bldg, 306 N Wright St, Urbana, IL 61801

(217) 300-2414

Grainger College of Engineering

Grainger College of Engineering website (<https://grainger.illinois.edu/>)

Admissions

Contact: Jennifer Merry (merry@illinois.edu)

Applicant email (ece-grad-apps@illinois.edu)

Electrical and Computer Engineering Admissions & Requirements

(<https://ece.illinois.edu/admissions/graduate/admissions-requirements-and-process/>)

Graduate College Admissions & Requirements (<https://grad.illinois.edu/admissions/apply/>)