ELECTRICAL AND COMPUTER ENGINEERING
www.ece.neu.edu

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The Department of Electrical and Computer Engineering (ECE) offers the following graduate degree programs:

- Master of Science in Electrical and Computer Engineering (MSECE)
- Master of Science in Electrical and Computer Engineering Leadership (MSECEL)
- Doctor of Philosophy in Computer Engineering (PhD)
- Doctor of Philosophy in Electrical Engineering (PhD)

All degrees can be pursued on either a full or part-time basis consistent with residence requirements for the degrees. The curriculum includes areas of concentration in communications, control, and signal processing; computer engineering; electromagnetics, plasma, and optics; microsystems, materials, and devices; and power systems, power electronics, and motion control.

MSECE students pursue their degree by selecting one of the two tracks—MSECE with thesis and course track (MS/T) or MSECE course-only track (MS/C). Students in all master’s degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum GPA of 3.000. Full-time students are responsible for meeting with their faculty academic or research advisor early in their program of study to determine an appropriate sequence of course work. Part-time students should follow the curriculum requirements and confer with their faculty academic advisor as needed.

Doctor of Philosophy Degree Requirements
The ECE department offers doctoral degree programs both in electrical and in computer engineering.

QUALIFYING EXAM AND DEGREE CANDIDACY
The PhD qualifying exam is the examination for admissions to the doctoral programs in electrical engineering and in computer engineering. It is a written exam in the student’s major area, and some areas include an oral exam. The exam has the dual purposes of serving as an indicator of the student’s capability for successful completion of the PhD in Electrical Engineering or in Computer Engineering and of serving as a guide to the student’s advisor in developing a suitable plan of study, tailored to the individual needs of the student. Students are tested on graduate course material as specified by the faculty in the chosen area.

A student who has matriculated in the PhD program is considered a predoctoral student. Upon successful completion of the qualifying exam, the student is designated a PhD candidate. All predoctoral students who hold a master’s degree or its equivalent and who matriculate in a fall semester must take this exam in the spring semester of their first academic year of study. A student who fails the qualifying exam will be permitted to retake the exam only one more time.

RESIDENCE REQUIREMENT
After reaching PhD candidacy, one year of full-time graduate work or two consecutive years of part-time graduate work satisfy the university residence requirement. In the latter case, the student’s advisor must approve a detailed schedule in order to ensure that the student devotes at least half of the time to the requirements of the Graduate School of Engineering.

DISSERTATION
Within six months of passing the PhD qualifying exam, the PhD candidate must form a dissertation committee. A dissertation committee must have at least three members. At least two of the committee members must be tenured or tenure-track ECE faculty and the committee must include the student’s advisor. The chair of the committee must be a faculty member in the ECE department.

The dissertation committee must design an appropriate program of study that prepares the student to be a successful doctoral-level engineer as well as direct the candidate’s dissertation research. The dissertation committee will approve the dissertation in final form.

DISSERTATION AND DISSERTATION CONTINUATION REGISTRATION
Upon successful completion of the PhD qualifying exam and the majority of required course work, the PhD candidate must register in two consecutive semesters for Dissertation. Upon completion of this sequence, the student must register for Dissertation Continuation in every semester until the dissertation is completed. A student may not register for Continuation until he or she fulfills the two-semester sequence of Dissertation.

REGISTRATION REQUIREMENTS FOR PRE-DOCTORAL AND PhD CANDIDATE GRADUATE ASSISTANTS
The ECE department requires that predoctoral students and PhD candidates who hold research or teaching assistantships be registered full-time. Predoctoral PhD students may register for EECE 9986 Research (0 credit, full-time equivalent) if needed to fulfill the registration requirement.

PhD PROPOSAL REVIEW
Within three years of the establishment of degree candidacy, each PhD candidate must demonstrate, by means of the proposal review, subject matter knowledge satisfactory for the award of the degree.
The proposal review is an oral presentation followed by a question-and-answer session administered by the student’s dissertation advisor/committee. The proposal review will be given at the time the student submits his or her dissertation proposal to the dissertation advisor/committee for approval. As part of this exam, the dissertation advisor/committee will review the student’s doctoral program and his or her performance in graduate courses, as well as examine the student on subject matter related to his or her graduate course work and dissertation subject area.

**FINAL DISSERTATION DEFENSE**
The final dissertation defense will include the subject matter of the dissertation and significant developments in the field of the dissertation work. Other related fields may be included if recommended by the examining faculty.

**Electrical and Computer Engineering**

**PhD Course Requirements**
The student and his or her dissertation committee determine the program of study. A typical program comprises 24 semester hours of course work beyond the Master of Science degree. However, as a minimum, the PhD program must include at least 16 semester hours of graduate course work beyond the Master of Science degree. At least 8 semester hours of the PhD course requirements must be graduate-level ECE courses. All students must achieve a minimum cumulative GPA of 3.000.

**PhD in Computer Engineering—Advanced Degree Entrance**
Complete all courses and requirements listed below unless otherwise indicated.

**MILESTONES**
- Qualifying exam and comprehensive exam
- Annual review
- Dissertation proposal
- Dissertation committee
- Dissertation defense

**GENERAL REQUIREMENTS**
Complete 16 semester hours of approved course work. At least 8 semester hours must be graduate-level EECE courses. Consult your faculty advisor for acceptable courses.

**DISSERTATION**
Complete the following (repeatable) course twice:
- EECE 9990 Dissertation 0 SH

**PROGRAM CREDIT/GPA REQUIREMENTS**
16 total semester hours required
Minimum 3.000 GPA required

**PhD in Computer Engineering—Bachelor’s Degree Entrance**
Complete all courses and requirements listed below unless otherwise indicated.

**MILESTONES**
- Qualifying exam and comprehensive exam
- Annual review
- Dissertation proposal
- Dissertation committee
- Dissertation defense

**GENERAL REQUIREMENTS**
Complete 48 semester hours of approved course work. At least 8 semester hours must be graduate-level EECE courses. Consult your faculty advisor for acceptable courses.

**DISSERTATION**
Complete the following (repeatable) course twice:
- EECE 9990 Dissertation 0 SH

**PROGRAM CREDIT/GPA REQUIREMENTS**
48 total semester hours required
Minimum 3.000 GPA required

**PhD in Electrical Engineering—Advanced Degree Entrance**
Complete all courses and requirements listed below unless otherwise indicated.

**MILESTONES: ENGINEERING PhD**
- Qualifying exam and comprehensive exam
- Annual review
- Dissertation proposal
- Dissertation committee
- Dissertation defense

**GENERAL REQUIREMENTS**
Complete 16 semester hours of approved course work. At least 8 semester hours must be graduate-level EECE courses. Consult your faculty advisor for acceptable courses.

**DISSERTATION**
Complete the following (repeatable) course twice:
- EECE 9990 Dissertation 0 SH

**PROGRAM CREDIT/GPA REQUIREMENTS**
16 total semester hours required
Minimum 3.000 GPA required

**PhD in Electrical Engineering—Bachelor’s Degree Entrance**
Complete all courses and requirements listed below unless otherwise indicated.

**MILESTONES**
- Qualifying exam and comprehensive exam
- Annual review
- Dissertation proposal
- Dissertation committee
- Dissertation defense
GENERAL REQUIREMENTS
Complete 48 semester hours of approved course work. At least 8 semester hours must be graduate-level EECE courses. Consult faculty advisor for acceptable courses.

DISSERTATION
Complete the following (repeatable) course twice:
EECE 9990  Dissertation  0 SH

PROGRAM CREDIT/GPA REQUIREMENTS
48 total semester hours required
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