

# Frequently Asked Questions

## 1. Programs:

a. **What graduate programs are offered by the ECE Department?**

The department offers three graduate programs: Master of Science in Electrical and Computer Engineering (MSECE), PhD in Electrical Engineering (PhDEE), and PhD in Computer Engineering (PhDCE). MSECE degree is offered in two tracks: The course-thesis track (MST) and the course-only track (MSC).

b. **Which programs can be pursued on a part-time basis?**

All graduate programs can be pursued either full-time or part-time. International students on F-1 visa can register in the full-time programs only.

c. **Is holding an MS degree a requirement for applying to PhDEE or PhDCE programs?**

No. Students holding BS in Electrical Engineering or a closely related area can also apply to the PhD programs. Students who enter the PhD program with a BS are called “PhD, BS entry” students and those who enter the program with an MS degree are called “PhD, advanced entry” students. These two classes of students have different requirements to complete their PhD degrees.

d. **For International Student, what is the minimum number of credits required to maintain full time status?**

International students must maintain full-time status during the program. This is usually equivalent of being registered in a minimum of eight semester-hours (SH) of course work. However, there are some courses that are 0 SH but maintain full-time status.

e. **How long does it typically take to complete each program?**

MSECE can be completed in 1.5 years, though many students take 2 years to finish this program. PhDEE and PhDCE programs typically take 4 to 5 years.

f. **What are the areas of study (concentrations) for each program?**

The department offers seven areas of concentration **at the MS level**:

1. Communication, Control, and Signal Processing (CCSP)
2. Computer Networks and Security (CNWS)
3. Computer Systems and Software (CSYS)
4. Computer Vision, Machine Learning, and Algorithms (CVLA)
5. Electromagnetics, Plasma, and Optics (ELPO)
6. Microsystems, Materials, and Devices (MSMD)
7. Power Systems, Power Electronics, and Motion Control (POWR)

All PhDCE students are considered “Computer Engineering” students, which includes concentrations 2, 3, and 4. PhDEE students can be in any of the remaining four concentrations depending on their research topic. MSECE students select one of the seven concentrations at the time they apply.

g. **How large is each program?**

There are currently about 220 PhD and 350 MS students in the graduate program.

h. **How diverse are the graduate courses offered by the ECE Department?**

The department offers a variety of courses ranging from those providing fundamental knowledge to courses focusing on recent research results. Courses are typically offered as depth courses for one or more of the seven concentrations within the ECE Department. Each semester the department offers a few “Special Topics” courses which focus on recent research frontiers in one focused area. Alongside fundamental courses providing core knowledge and preparing the students to get involved in research, many courses are offered on topics of current interest to electrical and computer engineers. These courses range from handling big data in pattern recognition and machine learning to computer vision and data visualization, network security, software defined and cognitive radio, and high performance computing to biomedical optics, and nanophotonics. In addition to the courses offered by the department, MS and PhD students can take certain number of courses from closely related departments. Many of ECE students use this opportunity to take course in mathematics, computer science, biology, and other engineering departments.

i. **What career paths are taken by MS and PhD graduates of the ECE Department?**

Sample positions from the last 4 years:

**Faculty and post-doctoral positions:**

University of Puerto Rico at Mayaguez ECE (Asst prof)

Middle East Technical University, Ankara, Turkey (Asst prof)

Technological University of Panama (Asst prof)

University of Vermont, ECE (post-doc)

Oak Ridge National Lab (post-doc)

MIT (post-doc)

**Research lab positions:**

MITRE (Senior signal processing engineer)

MIT Lincoln Laboratory (Member of technical staff)

**Electronics:**

Intel (SW engineer, senior process engineer)

AMD (Senior Design Engineer, Graphics Hardware Engineer, Senior SW developer)

TeraDiode (Laser systems test engineer)

Litepoint (RF Systems Application Engineer)

Boston Micromachines (Senior Development Engineer)

Applied Materials (process engineer)

Marvell (senior design engineer)

Samsung (senior design engineer)

LG Electronics (senior research engineer)

**IT:**

EMC (Senior Machine Learning Software Engineer, SW engineer)

Mathworks

Looppay (SW engineer)

ADP (Data Scientist)

Bin1 ATE (Director of Software Development/Chief Software Architect)

**Telecommunications:**

Qualcomm (software engineer, hardware engineer)

Broadcom (senior staff engineer)

**Power and energy sector, green technology:**

Nexant Corp

Ecotronics (R&D principal engineer)

Halliburton Energy Services (senior scientist)

EcoMotors (Technical expert: control and electromagnetic engineering)

Geophysical Survey Systems, Inc. (senior RF computational engineer)

**Test and measurement:**

Doble Engineering (Diagnostic Analysis Research Engineer)

## 2. Admission:

a. **What are the admission requirements for each program?**

Admission to all graduate programs is highly competitive. A completed application will include the applicant's transcripts and degree copies, letters of recommendation, and a statement of purpose, along with GRE and TOEFL scores (test scores are required in most cases; see questions "b" and "c" below). Applicants must hold at least a BS degree in Electrical Engineering, Computer Engineering, or a closely related area. Applicants who apply for PhDEE or PhDCE part-time programs must have an advisor arranged at the time of the application; they must communicate with an ECE faculty before applying and submit with their application a letter of recommendation from him/her clearly stating that he/she will serve as the applicant's research advisor.

b. **Is the TOEFL required?**

The TOEFL score is required for all students, except those who have received their BS and/or MS degree from a university in an English speaking country. Although TOEFL is the preferred test of English proficiency, we also accept IELTS scores as a substitute for TOEFL. TOEFL/IELTS tests must be taken during the five-year period before applying to the program.

c. **Is the GRE required?**

The quantitative part of GRE (GRE/Q) is required for all students. This requirement is waived for Northeastern graduates who have received their degree at most five years before applying to the graduate program. The GRE test must be taken during the five-year period before applying to the program.

- d. **I have taken the GRE/TOEFL tests more than once. Which scores will you use in considering my application?**

We consider your best score for admission purposes as long as it is not more than five years old.

- e. **Which version (old or new) of the GRE do you accept?**

We accept both versions, as long as they are not more than five years old.

- f. **Are there cutoffs or minimum scores for the TOEFL and GRE?**

We consider each application as a whole (statement of purpose, letters of reference, student background and experience including their previous institutions and performances, and test scores). In recent years, the median score of admitted students in TOEFL and GRE (quantitative part) has been 99 and 164, respectively.

- g. **Do you accept professional letters of recommendation?**

We prefer academic letters of recommendation; however, professional letters of recommendation are also considered.

- h. **My transcript is not in English. What should I do?**

You need to submit an official English translation of your transcripts.

- i. **Do I have to have an MS degree to apply to PhDEE and PhDCE?**

No, you can apply to the PhD program with a BS degree.

- j. **What are the major factors contributing to admission?**

Quality of the BS or MS program (quality of the university and the program), GPA and grades in relevant courses, research activity and publications, GRE and TOEFL scores, and letters of recommendation are the major contributing factors to an admission decision.

- k. **Can I apply for admission for the spring semester? Are the chances to be admitted in spring semester less than fall?**

Yes, you can apply for admission for the spring semester and chances of admission are similar to the fall semester.

- l. **Can I change my application request from MS to PhD or from PhD to MS (before or after admittance)?**

Yes, you can change your application before admission. You can submit your inquiry to <https://husky.desk.com/>. After an admission decision is made, change of application is not possible.

- m. **Whom should I contact for I-20 and Visa related questions?**

You can contact Graduate School of Engineering (GSE) by visiting <https://husky.desk.com/> to submit your inquiry and find answer to your questions.

- n. **I am interested in enrolling in ECE courses without being enrolled in a program. Do I have to apply for a graduate program?**

In rare cases, and if the adequate background preparation of the applicant is verified, we admit the applicant as a "Special Student" who can enroll in ECE courses without applying to a graduate program. To be considered as a special student you need to apply like a regular applicant and select "special student" as your program choice.

- o. **Can I arrange a visit to NEU and talk with professors in the ECE department and observe their classes?**

Please contact the ECE student services coordinator at [ece-studentservices@ece.neu.edu](mailto:ece-studentservices@ece.neu.edu) to arrange for a visit.

- p. **What are the deadlines for applying to the graduate program?**

Please refer to the following two links: <https://husky.desk.com/>  
<http://www.coe.neu.edu/degrees/graduate-admissions>.

### 3. Degree Requirements:

- a. **What are the degree requirements for ECE graduate degrees?**

The requirements depend on degree and track (PhDEE, PhDCE, MS/C, and MS/T). For a comprehensive list of requirements for all degrees see the [Graduate Programs Guide](#)

- b. **Is there a residency requirement for graduate degrees?**

Yes, to receive a graduate degree from Northeastern, one year of full-time enrollment, or two years of part-time enrollment is required.

- c. **What is the structure of and the time frame for taking the Qualifying Exam at the ECE Department?**

For details please refer to the section on Qualifying Exam in the [Graduate Programs Guide](#)

- d. **Can I transfer courses from another university to Northeastern?**

Yes, up to 9 semester-hours of graduate course work can be transferred if the course content is approved by the Graduate Affairs Committee (GAC) to be equivalent to Northeastern courses. The grade achieved must be B or better (or equivalent) in a course taken elsewhere for it to be eligible for transfer. Courses that have been previously used to obtain a degree cannot be transferred. For details please see the [Graduate Programs Guide](#) .

### 4. Financial Aid:

- a. **What type of financial support or financial aid is available to graduate students?**

Northeastern ECE has multiple mechanisms for the support of full-time PhD students. These include fellowships (Dean's Distinguished Fellowship (DDF), Dean's Fellowship (DF), assistantships (research assistantship, teaching assistantship), and (hourly) course assistant/grader appointments. In rare cases MSECE students can receive research assistantships or (hourly) course assistant/grader appointments. Teaching assistantships are typically not available to new graduate students.

- b. **What are the procedures, and the deadlines, for applying for support?**

Although all students applying to the PhD programs are reviewed by the faculty for possible financial aid, we recommend that you contact faculty members in the areas that match your background and interests at the time of your application. RA's are

occasionally offered to MSECE (MST) students; to apply for them the student should contact faculty members with research interests close to the student.

c. **What percentage of PhD students in the ECE Department receives financial aid?**

More than two thirds of PhD students receive financial support.

d. **I received my BS from Northeastern and want to apply for an MS degree, what kind of financial aid am I eligible for?**

You are eligible to receive the Double Husky Scholarship. This award waives up to 25% of the tuition for full-time MSECE program.

e. **Which financial aid categories include tuition waiver?**

All financial aid categories, except course assistant/grader and Double Husky, include a full tuition waiver.

f. **How many hours of work per week are required for TA/RA/Graders?**

TA's and RA's are required to do 20 hours of work per week. course assistant/grader appointment is usually 5-10 hours/week.

g. **What are typical amounts of financial aid?**

This depends on the type of financial aid; RA, TA, DF, and CF currently receive about \$10,000 per semester plus full tuition waiver. DDF's receive slightly higher. Graders are paid on an hourly basis (the current rate is \$15/hour and appointments are typically 5-10 hours/week)

## 5. Coop and Internship

a. **What is the difference between coop and internship?**

Both co-op and internship allow students to integrate an experiential learning experience into their graduate degree. Internship is an option for PhD students only to provide them with work experience that is directly related to their research topic. Internship provides the opportunity to further student's training and knowledge in an area central to advancement of the research. Coop is available to all graduate students and its goal is to provide a student with actual work experience in their field of study and need not be as research oriented (though it often is).

b. **Who is eligible for coop? Who is eligible for internship?**

For details please see the [Graduate Programs Guide](#) .

c. **What is the typical duration of an internship?**

The starting and ending dates of an internship can be at any time during the student's degree program, except during their last semester at Northeastern.

d. **What is the typical duration of a coop?**

A co-op work experience must match the Northeastern academic calendar, and as such will be over the summer or during a semester, or a combination thereof.

e. **What are some typical internship or co-op positions?**

Please see <http://www.ece.neu.edu/ece/graduate-studies/graduate-internships-co-op>

## 6. Student Life:

a. **Where is Northeastern located? What type of living environment should I expect?**

Boston is a bustling, thriving city and one of the most sought-after places to live in the country. Getting around is easy in this compact city and Northeastern students take advantage of that campus's centralized location. Northeastern is flanked by two different T stops (Boston's subway) and served by numerous bus lines. Students take advantage of the robust public transportation options in Boston for getting around--or even commuting to a co-op job just across the Charles River in Cambridge.

**Facts about Boston:**

- Boston is the tenth-largest metropolitan area in the United States and one of the most densely populated
- Boston has one of the highest concentration of engineers in the country
- In 1897 Boston became the first city in the United States to build a subway system
- Boston is nicknamed "The Hub" with good reason: it's an international capital of higher education, medicine, and tech innovation.
- Greater Boston has the 12<sup>th</sup>-largest economy in the world
- Boston has more than 350,000 college students from around the world
- Diverse and rich arts and music scene; Northeastern is located steps from the world-class Museum of Fine Arts and Boston Symphony

b. **How diverse is the Northeastern community?**

The department has a dynamic and diverse graduate student population coming from over 25 counties and five continents. Northeastern hosts student from 122 countries.

c. **What are the major student activities and organizations at the ECE department?**

The PhD Liaison Committee serves the PhD community within ECE. This group's mission is to foster a supportive community among doctoral students in the Department of Electrical and Computer Engineering by creating opportunities for academic enrichment, professional development, and socializing.

The ECE Professional Development Workshop series for PhD students is designed to provide students with all necessary skills for a successful career, beyond the skills that they are learning through their coursework and research. Example topics include "How to write an abstract;" panel discussions on career directions such as law, research, and academia; and resume-writing and interview skills.

GEB is the Graduate Engineering Bridges student group. Every graduate engineering student is automatically a member and it's free! The GEB hosts weekly coffee breaks, and offers a variety of seminars and activities such as hiking and camping trips, visits to museums, and a variety of tournaments (darts, pool, etc.). Please visit GEB's facebook page at <https://www.facebook.com/media/set/?set=o.2224277107&ref=mf> .

Graduate Women in Science and Engineering (GWISE) is another organization at Northeastern focusing on promotion of women's role in science and engineering. Please GWISE web page at <http://nuweb5.neu.edu/gwise/> .

## 7. Contact:

- a. **Whom should I contact if I need more information about the graduate program?**

You can contact the ECE Department student services coordinator at [ece-studentservices@ece.neu.edu](mailto:ece-studentservices@ece.neu.edu).