

# ELECTRICAL AND COMPUTER ENGINEERING (M.ENG.)

<https://ceps.unh.edu/electrical-computer-engineering/program/meng/electrical-computer-engineering>

## Description

Our graduate programs are quite flexible allowing the student a wide choice of courses as well as research topics. Many students work in the [UNH Interoperability Laboratory](#) and study computer telecommunications. Others work in such diverse fields as ergonomics in the workplace, automation of medical equipment, designing and improving the reliability of advanced integrated circuits, wireless communication systems, image processing, alternative energy systems, improvement of manufacturing equipment and modeling antenna patterns at airports.

## Requirements

The graduation requirement for the ECE M.Eng. degree is based on course credits and concluding experiences. Specifically, students must complete at least **30 credit hours** of coursework, with at least 24 credits being earned in the ECE department or related technical disciplines (those disciplines will be determined by the student in conjunction with his/her adviser); of those 24 credit hours in the ECE department, at least 12 must be at the 900 level. Courses outside of the ECE department can be related to management and/or law (courses in financial management, organizational behavior, economics, accounting, intellectual property, etc.). The concluding experiences will be in the form of a technical paper suitable for conference publication and two technical presentations.

Students enrolled in the ECE M.Eng. program are not eligible to serve as teaching assistants (TAs) or research assistants (RAs) except by special permission from the ECE Graduate Committee. All transfers into the ECE M.Eng. program from any of the other two ECE graduate programs will require approval by the ECE Graduate Committee through the existing petition process. If a student holding a TA or RA position in the ECE Department transfers into the ECE M.Eng. program, they are required to relinquish that position.

## Technical Presentation and Paper Requirement for the Master of Engineering (M.Eng.) Option

Students in the M.Eng. program are required to submit a technical paper and to deliver two technical presentations as part of their program. Many of the courses in the ECE graduate program require technical reports and presentations, and some of these may be appropriate for satisfying the technical requirement for students in the M.Eng. option. However, there are other approaches for satisfying this requirement as indicated below.

The objective in requiring a technical paper is to ensure that the student has some facility in documenting technical information. The evaluation of that paper is to be performed by the ECE Graduate Committee, and the evaluation will result in either acceptance or rejection of the work submitted. The criterion for technical papers to be considered acceptable is that they describe a contemporary technical concept or development

with a high degree of depth and clarity. The student must be the sole author on the technical paper, and it is to be submitted to the chair of the ECE Graduate Committee electronically before the last day of classes. As noted above, technical papers associated with regular ECE graduate courses or independent studies may be used to satisfy the requirement, as are papers prepared for technical conferences or publications. Papers accepted for presentation at refereed conferences or for publication in refereed journals will automatically satisfy the technical paper requirement. For these papers, students can petition to have the sole authorship requirement waived.

The objective in requiring the two technical presentations is primarily to ensure that students have the opportunity to present in front of a group. For the technical presentations requirement, presentations need to that fulfill one of the criteria below:

1. Presentation of a technical lecture (20 minutes or longer) as part of the requirements for a course in which the student is enrolled.
2. Presentation of a technical lecture in a course as a "stand in" for the faculty member in charge.
3. Presentation of a technical seminar at UNH (for example, presenting a seminar for ECE 900A Research and Development from Concept to Communication 1/ECE 900B Research and Development from Concept to Communication 2) or to a public group or industry.
4. Presentation of a technical paper as part of a professional job function.
5. Presentation of a paper at a professional technical conference.

It is the responsibility of the student to satisfy this requirement before graduation. Students must get approval from their adviser for any activity that is intended to be used as a technical presentation experience. The two presentations required must be different; giving the same seminar twice does not count as two presentations. If the activity does not fall into one of the five categories listed, prior approval of the ECE Graduate Committee must also be obtained.

The student should submit documentation for the two experiences using the forms found on the ECE website in electronic form to the chair of the ECE Graduate Committee. This should be completed by the last day of classes during the semester of graduation.

## Student Learning Outcomes

- Students will have a basic understanding of the advanced electrical and computer engineering topics related with biomedical engineering, human-computer interaction, wireless communication, integrated circuit design, cybersecurity, control system and robotics, sensor design, wearable electronics, image processing, Internet-of-Things, computer architecture, and medical instrumentation.
- Students will be trained to solve practical problems and produce a technical report.
- Students will be well prepared for a professional career in industry.