Department of Electrical and Computer Engineering

Department Information

- www.ndsu.edu/ece

Undergraduate Programs of Study

- Computer Engineering (major)
- Electrical Engineering (major)
- Biomedical Engineering (minor)
- Robotics (minor)
- Electrical Engineering and Physic (double major)

Graduate Programs Offered

- Biomedical Engineering
- Electrical and Computer Engineering

Degrees Offered

- Bachelor of Science in Computer Engineering (B.S.Cpr.E.)
- Bachelor of Science in Electrical Engineering (B.S.E.E.)
- Master of Engineering (M.Engr.)
- Masters of Science (M.S.)
- Doctor of Philosophy (Ph.D.)

Department Description

The mission of the Department of Electrical and Computer Engineering is to provide quality educational opportunities for undergraduate and graduate students through teaching, research, and professional service, and to provide specialized support to the greater community.

Departmental Objectives

1. Prepare our students to become competent electrical and computer engineers.
2. Promote life-long learning practice through continuous curriculum review, research, design, and other scholarly activities.
3. Stimulate student and faculty professional development through publications, participation in professional meetings and societies, and research involvement.
4. Maintain and enhance a positive departmental environment conducive to teamwork, discovery, and professional development.
5. Promote public awareness, interest, and respect for science, engineering, and technology.
6. Provide specialized services to the region, industrial partners, and the professional community.

The intended student outcomes of this major are to provide students with:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multidisciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Electrical and computer engineers create products and services for society out of materials that exist in nature by using principles of science and creativity. The profession is broad, encompassing products valued by society in many technical specialties from electric power and energy utilization to those for current and future information transmission. Career employment opportunities within the profession range over design, development, manufacturing, sales, management, teaching, and research for industry and government.

Selective Admission

Transfer students from international institutions must have a 3.00 GPA.

Further, the department policy is that transfer credits with grades less than 'C' in biology, chemistry, computer science, any field of engineering class, mathematics and physics are not accepted for the Electrical and Computer Engineering curricula.

An institutional GPA of 2.00 or above is required prior to registration in junior- and senior-level courses. Majors must have a grade of 'C' or better in the following courses:

Code	Title	Credits
All required mathematics courses through MATH 266		
ECE 173	Introduction to Computing	4
EE 206	Circuit Analysis I	4
ECE 275	Digital Design	4

The Programs

Major components of the undergraduate programs are basic science and mathematics, humanities and social sciences, communication, engineering science, engineering design and ethics, and both breadth and depth in electrical and computer engineering. Graduate studies leading to Master of Science and Doctor of Philosophy degrees are offered in the department. For more complete details, see the Graduate Bulletin (http://bulletin.ndsu.edu/past-bulletin-archive/2020-21/graduate) online.

Highly qualified students may be eligible to participate in an accelerated program which culminates in earning both a baccalaureate degree in either Electrical Engineering or Computer Engineering and a master's degree in Electrical and Computer Engineering. Interested students should contact the department for further details.