DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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The Department of Electrical and Computer Engineering offers degree
programs in the closely related fields of electrical engineering and
computer engineering. The electrical engineering program spans the
subdisciplines of analog electronics, electric power, electromagnetics,
computers, and communication and control systems. The computer
engineering program focuses on the architecture, programming,
and application of digital computers. Bachelor of Science, Master of
Science, and Master of Engineering degrees are offered in both electrical
engineering and computer engineering. The Doctor of Philosophy degree
is offered in electrical engineering and encompasses research in both
electrical and computer engineering.

Mission and Vision

The mission of the department is to educate students for the professional
practice of electrical and computer engineering by offering undergraduate
and graduate programs that encourage lifelong learning, foster teamwork
and leadership, and promote creative discovery. The department is
committed to maintaining the highest possible standards in teaching,
 scholarship, advising, and service. The vision of the department is
to continue to expand its role in the state and region as a provider
of outstanding undergraduate and graduate education programs in
electrical and computer engineering.

Continuous Improvement

The department uses a continuous improvement process to attain
the program educational objectives set forth below. Each of the broad
objectives is associated with a number of specific student outcomes that
are measured by a variety of assessment tools. Programs are assessed
annually to identify problems and initiate changes to ensure that program
objectives are being met. Additional information about the assessment
and continuous improvement process is available under the department
web page.

The department is proud of its over 100-year history and its more than
2,500 alumni. Our graduates have become productive engineers and
industrial and community leaders all over the nation and the world, and
they are actively recruited by major employers of electrical and computer
engineers. Both the Electrical and Computer Engineering programs are
accredited by the Engineering Accreditation Commission of ABET at
111 Market Place, Suite 1050, Baltimore, MD 21202-4012, who can be
contacted at 410-347-7700. Graduates of our program consistently score
higher than the national average on the Fundamentals of Engineering
examination administered by the National Council of Examiners for
Engineering and Surveying.

The department offices and laboratories are located in the Buchanan
Engineering Laboratory and the Gauss-Johnson Laboratory on the
Moscow campus. Courses are also offered through branch campuses
located in Boise, Idaho Falls, and Coeur d’Alene, and through the
Engineering Outreach program.

Electrical Engineering Undergraduate Program

Electrical engineering involves the application of electrical phenomena
for the benefit of society. Electrical engineers design and use circuits
and systems for computers, instruments, communications devices, and
power conversion equipment.

Program Educational Objectives

The program educational objectives of the electrical engineering program
are to produce graduates who:

1. Learn and Integrate: Graduates of the program will demonstrate
proficiency in identifying, formulating, and solving engineering
problems by applying their knowledge and understanding of
mathematics, science, and engineering.
2. Think and Create: Graduates of the program will demonstrate
proficiency in designing analog and digital circuits and systems,
power systems, control systems, or computing systems. They will
demonstrate the capabilities of analyzing, designing, implementing,
and verifying circuits, devices, and systems to meet specified
requirements while considering real-world constraints.
3. Communicate: Graduates of the program will demonstrate an ability
to communicate effectively through oral and written media to
interdisciplinary groups, including team members, constituents, and
the public.
4. Clarify Purpose and Perspective: Graduates of the program will
engage in lifelong learning activities to further develop their technical
and professional capabilities and skills.
5. Practice Citizenship: Graduates of the program will demonstrate
knowledge of professional and ethical responsibility. They will
consider the societal impact of their work, and/or add value to the
profession and to society through active engagement in professional
societies, community services, and outreach to future generations of
engineers.

Students in the electrical engineering program are assigned an advisor
upon entry into the program. The advisor helps the student prepare
appropriate class schedules each semester and provides guidance on
other academic and professional issues. Students can take an electrical
engineering course in their freshman year that introduces them to the
field and helps prepare them for further study. Required courses in the
freshman year help develop a solid foundation in physics, chemistry,
mathematics, and writing. Foundation courses in science, mathematics,
and engineering are continued in the sophomore year, including the
first two courses in electrical circuits. The junior year exposes the
student to a wide variety of electrical engineering courses to develop
breadth in electrical engineering knowledge and skills. In the senior year,
students specialize in specific areas of electrical engineering through
the choice of technical electives. Students also take a two-semester
sequence of design courses where students learn to design, test, and
build an electrical engineering circuit or system. Additional courses in
the humanities, social sciences, and English help prepare the graduate to
become a well-rounded and productive member of society.

Computer Engineering Undergraduate Program

Computer engineering involves the application of the principles
of electrical engineering and computer science for the benefit of
society. Computer engineers design and use digital computers for
instrumentation, control, communication, and power conversion systems.
Program Educational Objectives
The program educational objectives of the computer engineering program are to produce graduates who:

1. Learn and Integrate: Graduates of the program will demonstrate proficiency in identifying, formulating, and solving engineering problems by applying their knowledge and understanding of mathematics, science, and engineering.

2. Think and Create: Graduates of the program will demonstrate proficiency in analysis and design of hardware and software-based systems using modern methods and tools to meet specified requirements while considering real-world constraints.

3. Communicate: Graduates of the program will demonstrate an ability to communicate effectively through oral and written media to interdisciplinary groups, including team members, constituents, and the public.

4. Clarify Purpose and Perspective: Graduates of the program will engage in lifelong learning activities to further develop their technical and professional capabilities and skills.

5. Practice Citizenship: Graduates of the program will demonstrate knowledge of professional and ethical responsibility. They will consider the societal impact of their work, and/or add value to the profession and to society through active engagement in professional societies, community services, and outreach to future generations of engineers.

Students in the computer engineering program are assigned an advisor upon entry into the program. The advisor helps the student prepare appropriate class schedules each semester and provides guidance on other academic and professional issues. In the freshman year, students take introductory courses in physics, mathematics, and computer science to help develop a solid foundation based on these fundamental areas. The sophomore year continues with more physics and mathematics, but also introduces the students to more advanced courses in computer science, computer engineering, and electrical circuits. The junior year provides breadth in several areas of electrical and computer engineering and computer science including electronics, signals and systems, microcontrollers, programming languages, and operating systems. The senior year allows the student to develop some depth of knowledge in selected areas through a variety of technical elective courses. In addition, the student takes a two-semester sequence of design courses where students learn to design, test, and build a computer engineering system. Additional courses in the humanities, social sciences, English, and public speaking help prepare the graduate to become a well-rounded and productive member of society.

Note: In addition to college requirements for admission to classes (see “Admission to Classes” under the College of Engineering section), students majoring in electrical engineering or computer engineering must earn a grade of C or better in certain lower division courses and a passing grade in ECE 292 as prerequisite to any upper-division course in electrical engineering or computer engineering. Advisor’s approval is required for admission to all ECE courses.

Electrical and Computer Engineering Graduate Program
Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Electrical and Computer Engineering. See the College of Graduate Studies (section) for the general requirements applicable to each degree.

Majors
- Computer Engineering (B.S.Comp.E.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/computer-engineering-bscompe/)
- Electrical Engineering (B.S.E.E.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/electrical-engineering-bsee/)
- Computer Engineering (M.Engr.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/computer-engineering-mengr/)
- Computer Engineering (M.S.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/computer-engineering-ms/)
- Electrical Engineering (M.Engr.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/electrical-engineering-mengr/)
- Electrical Engineering (M.S.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/electrical-engineering-ms/)
- Electrical Engineering (Ph.D.) (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/electrical-engineering-phd/)
- Power System Protection and Relaying Graduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/power-system-protection-relaying-graduate-academic-certificate/)