Department of Electrical and Computer Engineering

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 include the following:

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 the benefit of society. Computer engineers design and use digital computers for the benefit of society.
Program Educational Objectives
The program educational objectives of the computer engineering program include the following:

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 (https://catalog.uidaho.edu/colleges-related-units/engineering/college-of-electrical-and-computer-engineering/)” under the College of Engineering (https://catalog.uidaho.edu/colleges-related-units/engineering/colleges-related-units/college-of-electrical-and-computer-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.

Majors
• Computer Engineering (B.S.Com.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/)

Certificates
• Microelectronics Fabrication Undergraduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/microelectronics-fabrication-undergraduate-certificate/)
• Semiconductor Design Undergraduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/semiconductor-design-undergraduate-certificate/)

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 (https://catalog.uidaho.edu/colleges-related-units/graduate-studies/) section for the general requirements applicable to each degree.

• 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/)

Certificates
• Advanced Microelectronics Fabrication Graduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/advanced-microelectronics-fabrication-graduate-certificate/)
• Advanced Semiconductor Design Graduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/advanced-semiconductor-design-graduate-certificate/)
• High-Speed Circuits and Systems Graduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/high-speed-circuits-and-systems-graduate-certificate/)
• 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/)
• Smart Grid Cybersecurity Graduate Academic Certificate (https://catalog.uidaho.edu/colleges-related-units/engineering/electrical-computer-engineering/smart-grid-cybersecurity-graduate-certificate/)