

Computer Engineering, BSE

Computer Engineering combines the best of electrical engineering and computer science to design and build the systems that power our digital world. From smartphones and smart homes to self-driving cars and artificial intelligence, computer engineers create the hardware and software that make modern technology possible.

Students in the Computer Engineering program learn how computers work from the ground up, i.e., from circuits and microprocessors to high performance computer architecture, software systems, and machine learning. They gain hands-on experience designing electronic systems, programming embedded devices, and developing intelligent systems that sense, think, and respond to their environment.

Our curriculum bridges hardware and software, giving students the skills to design everything from low-level computer chips to high-level computing applications. Coursework includes digital design, computer architecture, programming, software design, data structures, algorithms, embedded systems, internet of things, cloud computing, cybersecurity, and artificial intelligence.

Graduates of the program are well prepared for careers in industries such as computing, software design, hardware design, communications, robotics, developing smart devices, healthcare technology, artificial intelligence, and more. They also have a strong foundation for graduate study in fields like computer engineering, electrical engineering, software engineering, or computer science.

In short, computer engineering is where innovation meets implementation. Computer Engineers turn ideas into the smart technologies that shape our future.

The major provides technical depth and breadth as well as flexibility and the opportunity for students to customize their programs according to their own goals. Students choose one of several focus areas according to the type of job or research they plan to pursue. More than 20 focus areas are available; see Focus Areas on the Department of Electrical and Computer Engineering website. Students also have the opportunity to work with their academic advisor to build a focus area plan that adheres to their goals and objectives. Focus areas allow students to personalize their curriculum and prepare them for the jobs or research they intend to pursue.

In their senior year, students complete a two-semester capstone design sequence culminating in a significant, original project.

Programs designed to lead to professional licensure are subject to federal regulations regarding informational disclosures. Please see Professional Licensure Disclosures by Program for further information.

Educational Objectives

Graduates of the computer engineering program will:

- demonstrate initiative and perseverance to successfully apply the knowledge and skills gained in the CE program in their chosen technical, business, or academic careers;
- exhibit ethical leadership and vision in contributing to the technical and policy decisions of industry, government, and research enterprises;

- thrive in diverse, global, and multidisciplinary environments;
- excel at constructive communication and collaborative engagement with other engineers and professionals; and
- actively engage in lifelong-learning and mentoring activities that enhance their professional and personal development.