

ELECTRICAL ENGINEERING, B.S. (CAPITAL)

Seven Penn State campuses are scheduled for closure after Spring 2027: DuBois, Fayette, New Kensington, Mont Alto, Shenango, Wilkes-Barre, and York. New students are not being admitted at these campuses.

Begin Campus: Any Penn State Campus

End Campus: Harrisburg

Program Description

The Bachelor of Science degree in Electrical Engineering provides a comprehensive background in electrical engineering sciences. It also provides an opportunity for students to pursue interests in electrical and electronic circuits, including digital circuits and VLSI and its fabrication, microprocessors and their applications, electromagnetics, communications, control systems, and digital image processing and computer vision. Through participation in a senior capstone design, the curriculum emphasizes written and verbal communication, as well as teamwork among students to attain a common goal.

This program helps its graduates develop capabilities to analyze and design a variety of electrical and electronic systems found in many industrial and government settings as well as provide a foundation for further graduate studies. A strong background in the fundamentals is built through a broad base core in basic sciences (physics and chemistry) and mathematics as well as engineering sciences.

What is Electrical Engineering?

Electrical engineering is a rapidly evolving field that serves as the foundation for modern cyber-physical systems such as autonomous vehicles, robotics, smartphones, AI-powered technology, and healthcare platforms. These systems often mirror and expand upon human capabilities, and are built around four core functions that electrical engineers can specialize in:

- Sensing bridges physical and cyber domains by capturing physical phenomena (temperature, pressure, motion) and converting it into digital and analog signals
- Communication connects cyber-physical and embedded systems to enable interoperability by architecting secure, reliable, and efficient transmission of data and information
- Processing provides cyber-physical systems with the ability to interpret continuous physical events in digital (sampled) and analog formats and dynamically transform input data into meaningful output to adapt to complex environments
- Control bridges cyber and physical domains by executing digital commands as physical actions using open and closed-loop feedback mechanisms that allow systems to achieve and maintain desired behaviors

You Might Like This Program If...

- You enjoy problem-solving and math.
- You prefer to use analysis and the scientific method to understand things.
- You enjoy working on multidisciplinary teams on complex problems.

- You want to pursue a career in electrical engineering or its sub-branches.