The Mines electrical engineering graduate program places students at the center of technology development with the capacity to expand their skills and knowledge of the broad scope of energy applications, power systems and microwave devices. With three main focus areas—antennas and wireless communications; energy systems and power electronics; and information and systems sciences—this program offers numerous opportunities with the support of a multidisciplinary community. Students can benefit from the expertise of Mines faculty, industry partners and government agencies to address some of our society’s most critical challenges.

**DEGREE OPTIONS**

- **Doctor of Philosophy**: 72 credit hours, comprised of coursework and research credits. PhD students must pass the qualifying exam and complete and successfully defend a satisfactory thesis.

- **Master of Science (thesis and non-thesis)**: 30 credit hours. The thesis-based MS requires 24 hours of coursework and 6 credit hours of thesis research. The non-thesis MS requires 30 credit hours of coursework.

- **Certificate**: 12 credit hours of coursework. Students may pursue a certificate in data science for signals and systems or smart-grid, power electronics and electrical power systems.
GRADUATE SPECIALIZATION TRACKS

**Antenna and Wireless Communications (AWC)**
AWC focuses on computational electromagnetics, antennas and microwave circuits designs, RFID systems and integrated sensors, electromagnetic measurements, visualization and wireless communication.

**Information and Systems Sciences**
ISS is an interdisciplinary research area encompassing the fields of control systems, communications, data science, optimization, signal and image processing, compressive sensing, robotics and mechatronics.

**Energy Systems and Power Electronics**
ESPE focuses on the design, operation and control of energy systems, from the electric power grid to small-scale systems.

ADDITIONAL DEGREE OPTIONS

- **Smart-grid, power electronics and electrical power systems (MS, Certificate)**
  This degree provides students with a focused set of courses that teaches a combined power system and power electronics approach, in which enabled renewable energy systems interact with the utility grid, establishing smart-grids with intelligent data communication, energy management and control.

- **Data science for signals and systems (Certificate)**
  This program trains recent graduates and mid-career professionals in aspects of data science relevant to electrical engineers, specifically related to handling the signals and data that are processed and created by modern physical and virtual electrical systems.

ADMISSION REQUIREMENTS

- A bachelor’s degree in computer science, a physical science or mathematics with a grade-point average of 3.0 or better on a 4.0 scale.

- Graduate Record Examination (GRE) with quantitative reasoning section score of 151 or higher. Applicants who have graduated from Mines within the past five years are not required to submit GRE scores.

- For international applicants or applicants whose native language is not English, a TOEFL score of 79 or higher (or 550 for the paper-based test, 213 for the computer-based test) is required. In lieu of a TOEFL score, an IELTS score of 6.5 or higher will be accepted.

ACCEPTING APPLICATIONS

TO LEARN MORE, VISIT
gradprograms.mines.edu/ee or contact eegrad@mines.edu