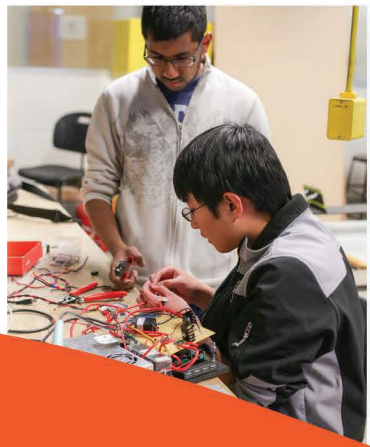

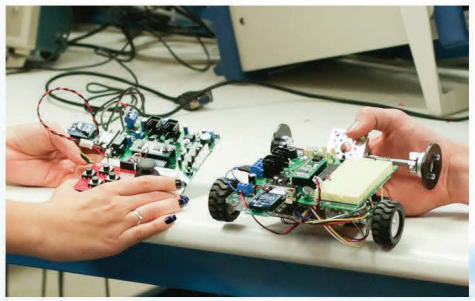

ELECTRICAL ENGINEERING

COLORADO SCHOOL OF MINES

WHY PURSUE A GRADUATE DEGREE IN EE?

- Be at the forefront of technology development and trends in Electrical Engineering
- Expand your skills and knowledge to advance into leadership roles in industry and government agencies

ADMISSIONS

Admission to the graduate degree program is competitive and based on an evaluation of academic performance, test scores, personal statement and references. Applications to a thesis-based degree are considered for funding by the department and faculty at the time of application. Funded students generally earn a monthly stipend with full tuition, fees and health insurance paid.

ACADEMICS

The Graduate Program in Electrical Engineering brings together faculty and graduate students with common interests in applying electrical engineering knowledge to develop technologically advanced designs for applications in the field of electrical engineering. The division offers a Master of Science degree, with thesis and non-thesis options, and a Doctor of Philosophy degree to prepare candidates for a wide-array of careers in industry, government and academia.

RESEARCH AREAS

Research within the division spans a broad scope of energy applications, power systems and microwave devices. Our four main research areas are:

ANTENNAS & WIRELESS COMMUNICATIONS

ENERGY SYSTEMS & POWER ELECTRONICS

INFORMATION & SYSTEMS SCIENCES

EDUCATION

Students address real-world electrical engineering problems in research labs and centers, which creates a community for multidisciplinary learning, research and experimentation.

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Lori Sisneros, sisneros@mines.edu
Graduate Program Manager

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Electrical Engineering
Brown Hall Building
1610 Illinois Street
Golden, CO 80401

ELECTRICAL ENGINEERING DIVISION
COLORADO SCHOOL OF MINES

RESEARCH AREAS

Our faculty and graduate students are engaged in multi-disciplinary research that often overlaps these areas as well as fields beyond the traditional borders of electrical engineering.

ANTENNAS & WIRELESS COMMUNICATIONS

Research areas in this field include electromagnetics, antennas, microwave and wireless communications. Applications address current academic, industry and societal needs. Examples include the design of antennas, antenna arrays and microwave RF devices for communications and sensing applications.

INFORMATION & SYSTEMS SCIENCES

An interdisciplinary research area that encompasses the fields of control systems, signal and image processing, compressive sensing, and optimization. Fundamental research is directed toward the development, characterization, and implementation of algorithms for processing and acting upon data sources, as well as research directed toward applications in energy systems, image analysis, communication systems, and robotics.

EDUCATION

This area encompasses research on broadening STEM diversity, innovative engineering course design and incorporating the social implications of engineering into courses. Current projects focus on industrial design practices, teamwork, and the development of engineering students' perspectives on ethical actions and social responsibility.

ENERGY SYSTEMS & POWER ELECTRONICS

Focus on fundamental and pplied research in the interrelated fields of conventional electric power systems and electric machinery, renewable energy and distributed generation, energy economics and policy issues, power quality, and power electronics and drives. The overall scope of research encompasses a broad spectrum of electrical energy applications including investor-owned utilities, rural electric associations, manufacturing facilities, regulatory agencies, and consulting engineering firms.

FACULTY SPOTLIGHT: KATHRYN JOHNSON

Associate Professor Kathryn Johnson, who also holds a joint appointment as a scientist at the National Renewable Energy Laboratory (NREL), was one of six researchers who received a $3.56-million grant from the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) to develop a low-cost-of-energy 50-MW turbine. The small-scale design will produce more than six times the power output of the largest current turbines, be longer than two football fields and have blades that resemble a palm tree. "Palm trees bend in the wind easier than a harder, stiffer tree," said Johnson. "That means they are less likely to snap in high winds, so these blades will be able to bend out of the wind and therefore will put less stress on all the other turbine components. You will be able to put these turbines in places that have higher wind conditions." In the next two years, Johnson will be working with graduate student Dana Martin to create computer simulations that will test the prototype turbine in various wind conditions. They will examine and manipulate how the turbine operates in response to each of these conditions and how much electricity it produces. Then they will help the team to design and build a prototype for field-testing.