The Mines/National Renewable Energy Laboratory Advanced Energy Systems interdisciplinary degree program prepares researchers at the doctoral level and energy professionals at the master’s level to address the full complexity of tomorrow’s infrastructure, economic and environmental challenges. Developing secure, resilient and adaptive energy infrastructure that fosters economic growth while reducing environmental impact is among the most pressing challenges—and greatest opportunities—of our time.

DEGREE OPTIONS

- **Master of Science (Non-Thesis):** 30 credit hours of energy-related coursework, comprised of 12 credit hours of core coursework and 18 credit hours of elective coursework.

- **Doctor of Philosophy:** 72 credit hours, comprised of at least 36 credit hours of coursework and at least 36 credit hours of research. The first year provides researchers with a broad, rigorous background in the energy sector and the second year focuses on elective courses required to develop deep expertise in the selected area of focus. Accepted PhD students are guaranteed funding for the duration of the program.
ADVANCED ENERGY SYSTEMS | PhD, MS

CORE COURSES

• Energy Resources and Electric Power Systems
• Energy for Transportation
• Energy Systems Integration and Efficiency
• Energy Economics and Policy
• PhD track includes two rotations at NREL that provide students with the distinctive professional development experience of working alongside industry thought leaders and innovators in a world-class laboratory setting.

RESEARCH AREAS

With a focus on emerging energy technologies, this program aims to empower researchers at both institutions to tackle a variety of compelling needs, including:

• Integrating a wide range of energy sources into a flexible, secure grid as power derived from renewables approach cost parity.
• Implementing digitized and optimized energy control and management through artificial intelligence that maintains robust security and resilience.
• Addressing economic and policy barriers to development of new clean and high-efficiency technologies for energy conversion and storage.
• Advancing the electrification of transportation.

PROGRAM ADMISSION REQUIREMENTS

• Bachelor’s degree in engineering, computer science, physical sciences, mathematics or economics 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 160 or higher. For students coming from a business or economics background, a Graduate Management Admission Test (GMAT) score of 650 or higher is acceptable.
• Personal statement explaining interest in pursuing a PhD in advanced energy systems and career goals related to energy.
• Three letters of recommendation.

APPLICATION DEADLINE: DECEMBER 15

TO LEARN MORE, VISIT:
gradprograms.mines.edu/aes or contact energysystems@mines.edu