GRADUATE PROGRAM RESEARCH FOCUS AREAS

ENERGY SCIENCE & ENGINEERING
- fuel science, advanced conversion methods, carbon capture, solar ecology, materials for energy, electrochemistry conversion, fuel cells and batteries, solar systems engineering, biofuels, catalysis

ENERGY SYSTEMS ENGINEERING & ENERGY ECONOMICS
- electricity and natural gas markets, grid optimization and simulation

PETROLEUM/GAS & SUBSURFACE ENGINEERING
- unconventional production, stimulation, reservoir characterization and simulation, digital rock physics, multiphase flow & transport phenomena in porous media, subsurface coupled processes

MINING, INDUSTRIAL SAFETY & HEALTH, AND GEOENVIRONMENTAL ENGINEERING
- ground control, ventilation, dynamic optimization of production systems, mine electrical systems, occupational safety & health systems, exposure assessment, risk characterization & mitigation, regulatory & minerals policy analysis, coal preparation, mineral processing, rare earth extraction from secondary sources, environmental management, pollution control, waste management and environmental sustainability

WHY EME @ PENN STATE?
The graduate program in EME reflects the diversity of our research by providing a flexible program for M.S. and Ph.D. degrees that facilitates the specialization in one area to become a leading-edge researcher while at the same time developing the complementary breadth across scientific disciplines and engineering technologies necessary to become a next generation leader in academia or industry.

Graduate research and education utilizes our many state-of-the-art research labs, and characterization and computational facilities. Research programs and projects are generally supported by centers and institutes at Penn State, including the EMS Energy Institute, the Earth and Environmental Systems Institute, the Institutes for Energy and the Environment, and Institute for Natural Gas Research. Many faculty are affiliated with and collaborate closely with other departments across Penn State, such as Chemical Engineering, Industrial and Manufacturing Engineering, Geosciences, Statistics, and Agricultural and Environmental Resource Economics.

If you are looking for a graduate education grounded in rigorous science, engineering, and economics, not limited by historical boundaries around disciplines, and want to emerge as a leader equipped with tools and skills to tackle big energy and resource challenges in the 21st Century, the EME graduate program may be the place for you.

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