

Students in this unique interdisciplinary curriculum study the critical *environmental, safety, and health issues associated* with the energy and mineral industries. They also study the *safe and healthful design of industrial systems* so that workers and the environment are protected from potential high risks.

Career Opportunities

Graduates are prepared to enter both the private and public sectors as environmental systems engineers or health and safety engineers or to pursue further education at the graduate level. From government agencies to consulting companies, they are employed to enforce environmental regulations, develop and implement environmental legislation, and design environmental conservation and restoration plans.



"I have always been interested in global warming and climate change. Environmental Systems Engineering has given me the opportunity to study about ways to reduce, control, and regulate air emissions that lead to climate change. The department has also provided many great experiences from prestigious guest speakers and lecturers to internship opportunities with major corporations."
— Ryan Repoff

The Academic Program

There are two options available to students in the major: Environmental Systems Engineering (ENVSE), which focuses on the impact of industrial activities on the environment, instead of Environmental Health and Safety Engineering (ENVHS), which is concerned with worker safety. Both options follow a similar course schedule over the first two years of study. The courses are sequenced so that students acquire an appropriate blend of theory, applications, and design and are equipped with the fundamentals necessary to maintain lifelong professional growth.

Program requirements include courses in the following areas:

- Chemistry (*introductory, experimental, organic*)
- Physics (*mechanics, electricity and magnetism*)
- Energy and mineral engineering (*thermodynamics, fluid mechanics*)
- Technical electives
- Senior process design course

A minimum of 131 credits is required for the B.S. in Environmental Systems Engineering.

Penn State's Environmental Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET. www.abet.org

An internship with an energy-related company or government agency is strongly recommended. Many of these companies also recruit full-time employees from among our students.



Research

Research areas include environmental pollution control; by-product recovery from waste streams; particle processing in remediation and recycling applications; mineral processing and coal preparation separations; development of sensors and instrumentation for measurement of organic vapors; exposure assessment methods and strategies; personal protective equipment - evaluation of personal protective equipment such as respirator performance; and the interactions among workers, machines, and environment.

“While studying Environmental Systems Engineering, I have had many opportunities to expand my knowledge and gain real life work experience. For the past three semesters, I have participated in research involving coal slurry. During this past summer, I had a completely different experience when I interned for Chevron Corporation in California, where I worked on developing a Sustainability Scorecard.”

- Julianne Ganter



Scholarships

The Environmental Systems Engineering program has limited scholarship funds, which are awarded on the basis of academic achievement and merit. Students are also eligible for numerous scholarships through the University and the College of Earth and Mineral Sciences.



For More Information:

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