

MINING ENGINEERING, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Mining contributes to nearly 15 percent of the U.S. and 25 percent of the global economy. Mined products are significant and critical inputs to food production, manufacturing, construction, and electricity supply, and each year every person in the U.S. requires an average of 38,500 pounds of new minerals to equip and power their day-to-day activities. Over 14,000 mines distributed throughout the U.S. supply the majority of these mined products.

The Penn State Mining Engineering program prepares students for a career in the industrial minerals, metals, and energy industries that sustain the domestic and global economies. Importantly, the program provides an emphasis on sustainable mining through integration of environmental health and safety, and societal responsibility principles in the design and operation of mineral enterprises.

Graduates of the program will be prepared to work domestically or internationally to develop and operate mines; or to work in supporting activities including engineering consulting, banking, equipment development and supply, regulatory enforcement, and research. This is accomplished primarily through the curriculum, but is enhanced by an internship program, which allows qualified students to obtain practical experience through structured employment opportunities in the private and public sectors.

The curriculum is built on the foundation of mathematics, science, and general education common to engineering majors at Penn State. The courses specific to this major are designed and sequenced to provide an appropriate blend of theory, application, and design. The required courses help to provide the enabling skills for graduates to work in any facet of the vast minerals industry, and technical electives allow for in-depth study of more specialized topics. The general education opportunities are sufficiently broad and diverse in nature and scope to enable the student to tailor the educational experience to particular interests, backgrounds, and expected roles in society.

Student-Trainee Program

An internship program and a five-year work-study plan are available to incoming students in Mining Engineering. Numerous mining and manufacturing companies, as well as government agencies, cooperate with the University to offer structured employment opportunities during the student's academic career. In addition to earning significant funds to help finance their education, these opportunities provide valuable practical and professional experience prior to graduation. The internships normally take place in the summer, and the B.S. degree can be earned in four years. The work-study plan consists of alternating six-month periods of employment and schooling, and requires five years to earn the B.S. degree. Additional information can be obtained from the department.

What is Mining Engineering?

Mining engineers extract materials required for the survival of society while being stewards of the environment. They solve unique engineering challenges. Their workplace can often be in an out-of-the-office setting such as a surface or underground mine—or an office setting using cutting-edge technology and software simulations to plan solutions to

problems. Worldwide, mining companies extract more than 100 different commodities that are used in nearly every industrial sector. There's a saying: if it can't be grown, it has to be mined! The United Nations has recognized 17 goals as a part of their "2030 Agenda for Sustainable Development." Minerals, including 50 identified as 'critical' by the US government, will be instrumental in achieving several of these goals. These minerals are required for several applications, including clean energy transition, aerospace, defense, etc. A mining engineer thus stays at the forefront of the economy, environment, and society.

You Might Like This Program If...

- You want to be instrumental in the energy transition and sustainable development goals.
- You want to work in an out-of-the-office setting.
- You are a "hands-on" problem solver.
- You want to apply different engineering disciplines to your problem solving, and prefer not to be focused on just one.
- You want to join a high-tech industry that provides the basic building blocks, minerals, and other materials used in nearly every industry today.