

mining engineering

Department of Mining and Geological
Engineering

azengineering

THE UNIVERSITY OF ARIZONA

faq: what is mining engineering?

The development of a mineral deposit or a large civil construction project is one of the most challenging activities an engineer will ever face. While attempting to maximize economic return, mining engineers have the ethical and social responsibility to find solutions to mitigate any adverse impacts to the environment and neighboring communities that may be associated with these activities.

**We gave nearly \$100,000 in scholarships this year
Every student who wants a summer job gets one
Multiple job offers long before graduation**

Mining Engineering – “I had no idea...”

When people see how much sophisticated technology is involved in a modern mining operation, they nearly always say “I had no idea...”. The extraction of mineral resources bears no resemblance to the historical photos you see in museums. A typical open pit copper mine costs well over \$1 billion dollars to develop and incorporates elements from almost every engineering discipline and basic scientific field—**AND YOU’RE IN CHARGE!**

Mining engineers use

Business and management skills for:

- Mine finance, economic forecasting, mine operations

Electrical & computer engineering skills for:

- GPS, RFID, VR, advanced sensors and intelligent systems

Optical engineering skills for:

- Fiber optic sensors, laser slope stability systems

Chemical & environmental engineering skills for:

- Reclamation, mineral processing, environmental management

Civil engineering skills for:

- Rock stability, concrete, tunneling, slope design

Mechanical engineering skills for:

- World’s largest mechanical systems, robotics, autonomous vehicle navigation

Systems and industrial engineering skills for:

- Optimization of the mining process, reliability

Hydrology skills for:

- Environmental protection and water supply

Materials science skills for

- Material selection and manufacturing

Biosystems engineering skills for:

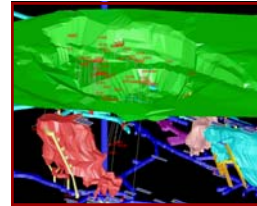
- Bioreactors for mineral extraction and remediation

Social science, communication, and leadership skills for:

- Sustainable development and community relations

Medical skills for:

- Occupational medicine, industrial hygiene, health and safety



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faq: what is it like to be a student in mining engineering?

The department is small and has a family atmosphere. You will be treated like a real person and not a number. You will know all of the faculty and students and staff and they will know you. In addition you will get to know many of the alumni from the department. The faculty provide excellent mentoring and the relationship does not end at graduation. Faculty and alumni contacts are instrumental in helping you get the best summer internships and full time jobs after you graduate.

Student Life – “Your education should be fun”

Mining engineering students are serious about their studies but they also know how to have fun. The student chapter of the Society for Mining, Metallurgy, and Exploration (SME) is very active. Students in SME hold an annual golf tournament for mining industry professionals to raise money to attend the national SME conference, go on field trips, and attend the International Mining Competition. Students network at the local SME chapter dinners every month and bring in speakers for their meetings. In addition, students volunteer to work at the student-run San Xavier Mine on weekends. Mining engineering students have a lounge/study room with desks and computers and video games to relax.



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