MINING ENGINEERING & MANAGEMENT

Mining engineers apply engineering and scientific principles to discover, appraise, and extract minerals from the earth and sea. They may work in underground or surface mines overseeing the recovery of mineral resources. Typical career profiles are widely varied—and include coal, gold, copper, aggregates, and specialty minerals. The job profile ranges from being in production engineering to business and marketing, working with managing production, product development, international business, and computer software. The School of Mines’ program prepares graduates to start in engineering, progress quickly onto supervision, and then to management.

A 2014 study by the Society of Mining, Metallurgy, and Exploration (SME) estimated that the global demand for graduates in the mineral industry fields exceeds the supply by 300 percent. Currently, there are fewer than fifteen universities offering degrees in mining engineering in the United States, so demand for high-quality graduates will remain steady for the foreseeable future.

Features & Strengths
The United States grows increasingly more dependent on mineral reserves for energy, security, and other needs. A vibrant system of mining education is fundamental to the health of the industry. The School of Mines’ program helps prepare students for jobs in South Dakota, across the nation, and the world. A small student-to-faculty ratio guarantees personal attention for students, something not available at many larger universities. The program’s coursework includes mining engineering principles, management practices, financial analysis, human resources, and contract negotiations.

Research
Students have the opportunity to be involved in research with professors on projects such as equipment simulation, slope stabilization, mine ventilation, rock blasting excavation, coal dust control, underground mined cavern storage, and mineral economics. Faculty are actively engaged in the ongoing research through the Shale Research Initiative at Mines, along with projects at the Sanford Underground Research Laboratory in Lead, SD.

Labs & Facilities
Mining engineering laboratory and research facilities exist for the study of rock mechanics, mine surveying, ventilation, health and safety, planning, and design. Laboratory equipment available for student use includes equipment for rock specimen preparation, rock strength testing machines, a rapid triaxial testing apparatus with pore pressure and ultrasonic measurement capabilities, direct shear machine, computerized data acquisition systems, ventilation network models, surveying equipment, 3D scanner, and computerized mine modeling and design equipment. Modern geoscience modeling and mine planning software is used by students for surface and underground mine design.

Student Organizations
Students have a variety of opportunities for extra-curricular activities with more than seventy-five clubs and professional student organizations. Mining engineering students are encouraged to participate in the SME student chapter, the International Society of Explosive Engineers, the Mining team, and the Mine Rescue Team.
Outcomes
- Graduates received average salary offers of $68,039.
- 100 percent of 2013-2014 graduates were placed in their field or entered a graduate program within one month of graduation.
- 75 percent of graduates gain internships and/or cooperative working experiences.
- Companies hiring mining engineering graduates include Newmont Inc., Barrick Goldstrike, Peabody Energy, Kiewit Mining, Freeport McMoRan, Maptek, BHP Billiton, Cliffs Natural Resources, Alpha Natural Resources, Rio Tinto Energy, LaFarge, and more.

Accreditation
The School of Mines is accredited by the Higher Learning Commission of the North Central Association of Colleges and Secondary Schools, the recognized accrediting agency for the north central states. The mining engineering and management program is accredited by the Accreditation Board for Engineering and Technology, Inc. (ABET). The program is scheduled for accreditation review in Fall 2015.

Credit needed for graduation 130