College of Engineering & Mines

Engineering

Engineers create solutions to problems and challenges. Their work ranges from the design of the nation's transport infrastructure to the manufacturing of supersonic aircraft to the restoration of water quality in contaminated aquifers. Engineers are involved in research and development, planning, design, production, construction, operation and maintenance, sales and service, teaching, consulting, and management.

About the Degrees

The College of Engineering & Mines at the University of North Dakota prepares you for the responsible practice of professional engineering. The College offers programs in Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, Mechanical Engineering and Petroleum Engineering. All programs are ABET accredited (our new Petroleum Engineering program has not yet completed the accreditation process) and supported by dedicated faculty, small class sizes and well-equipped laboratories.

Chemical Engineering

Chemical engineers work in a broad spectrum of fields including biotechnology, consumer products, electronic materials, energy production, food processing, petroleum refining, pulp and paper, and environmental protection. Graduates may hold positions project engineering, research, teaching, manufacturing, sales, marketing, or technical support. The curriculum emphasizes a strong technical background in fluid flow, heat and mass transfer, thermodynamics, reactor design, and process design. See: **engineering.UND.edu/chemical**

Civil Engineering

Civil engineers are concerned with enhancing and maintaining infrastructure relating to buildings and structures, ground transport systems and water resources. Course work includes study in soil mechanics, structures, hydraulics, hydrology, water/wastewater supply and treatment, surveying and mapping, construction methods, traffic control, and highway design and construction. See: **engineering.UND.edu/civil**

Electrical Engineering

Electrical engineers have opportunities in advanced manufacturing, aviation electronics, embedded systems, medical device design, power generation and distribution, telecommunications, and test engineering. The curriculum focuses on areas such as electrical circuits, analog/digital electronics, computer-aided design, control systems, electrical energy conversion, and embedded systems. In addition to the traditional Electrical Engineering program there are focus areas in Aerospace, Biomedical Engineering, and Computer Science. All four options provide a common base of fundamental electrical engineering knowledge. See: **engineering.UND.edu/electrical**

Geological Engineering

Geological engineers combine elements of geology with civil, environmental, mining, and petroleum engineering principles. Courses in geology and basic engineering build a foundation for the program which prepares graduates to work in areas related to the environment, building and structure foundations, water resources, and mineral/energy exploration. The curriculum provides courses in environmental site planning, natural hazard investigation, rock mechanics, reclamation, hydrogeology and water resources, and exploration and extraction of mineral and energy deposits. See: **engineering.UND.edu/geology-and-geological-engineering**

Mechanical Engineering

Mechanical engineers are employed in areas such as aircraft and automobile manufacturing, energy generation and distribution, heating and cooling systems, and aerospace research and development. The curriculum covers topics such as thermal sciences, mechanical design, materials, and manufacturing processes. In addition, there is an Aerospace Focus offered to prepare graduates for a career in aviation. See: **engineering.UND.edu/mechanical**

Petroleum Engineering

Petroleum engineers hold various positions in the exploration, production, transportation, and refining of oil and gas. Course work focuses on topics like petroleum fluid properties, petrophysics, reservoir and drilling engineering, well logging, and property management. The program is aimed at developing a unique applied education and research program that includes recovery of oil and gas from conventional as well as unconventional petroleum reserves such as the Bakken Formation in North Dakota. See: **engineering.UND.edu/petroleum**

More ➔

Engineering

Internship/Cooperative Education

Internships and cooperative education experiences are strongly encouraged for Engineering students. Internships are typically a semester in duration (often during the summer) and do not carry academic credit. Cooperative education placements are usually three to nine months in lengths and potentially can be used to satisfy one of the required technical electives in their program.

During the internship or co-op, students are working off-campus as entry-level engineers or researchers and gaining practical knowledge to complement their coursework. Because of UND's unique undergraduate distance engineering program, it may be possible to complete one or more courses in the distance format while away from campus, increasing your options for degree completion.

Student Organizations

Student chapters and/or sections of technical, professional, and honors societies are available in every engineering department. These organizations may be discipline specific or school-wide. Typical sponsored activities include seminars, presentations, field trips, social outings, and projects to fully involve students in professional activities.

Tau Beta Pi, the engineering honors society, is well represented. The Society of Women Engineers has been selected four times as the best student chapter in the nation, and has earned numerous regional awards. The Engineers' Council brings together representatives from each of the engineering student societies to provide services and to plan activities for all engineering students. See: **engineering.UND.edu/graduate/student-organizations.cfm.**

Alumni

Prominent alumni of the College of Engineering & Mines include NASA astronaut and Mechanical Engineering graduate Karen Nyberg, who flew in the Space Shuttle. Joe Polo, member of the Bronze-medal winning U.S. curling team at the 2006 Winter Olympics while completing his Mechanical Engineering degree. Harry Nyquist, Electrical Engineering graduate and owner of 138 patents. Nyquist's work laid the foundation for today's information and data transmission technologies.

Faculty

All faculty members are committed to helping you do your best and succeed with a strong focus in hands-on learning. Your interaction with faculty occurs formally in the classroom and through the advising process, but also informally because faculty maintain an open door policy where you can stop by with any questions you have. It all adds up to an environment that fosters mutual respect and maximizes learning.

Admissions

Admission to a specific degree program is conditional upon earning a minimum grade of C in General Chemistry, English Composition, Calculus, University Physics, and any additional courses that may be required by each department. Students must also maintain an overall GPA of 2.0 to progress to the upper-level coursework.

Just prior to the completion of your second year of engineering study, you will apply for admission to the professional engineering program. Applications are normally submitted during the spring semester.

Scholarships/Financial Assistance

The College and the individual degree programs have several scholarships available that are awarded based on academic excellence or financial need. There are also scholarships specifically for freshmen and transfer students. See: **engineering.UND.edu/scholarships.cfm**

For more information:

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Click: "200 fields of study"
Click: Engineering

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