Chemical Engineering B.S.Ch.E.

Major
Bachelor of Science
Chemical Engineering
Swenson College of Science and Engineering

The Department of Chemical Engineering strives for nationally recognized excellence in engineering education and research by using modern, hands-on, and active learning experiences to prepare undergraduate students for professional success, and to hold paramount the safety, health, and welfare of the public and protect the environment in performance of their professional duties.

This four-year baccalaureate (B.S.Ch.E.) degree program emphasizes the development of the student's ability to analyze and design chemical processing systems. By the end of the program, the student must demonstrate the ability to solve engineering problems, have a sensitivity to the social and environmental impacts of the engineering profession, and the ability to maintain a high level of competency.

The chemical engineering curriculum is based on fundamental sciences including physics, chemistry, and mathematics; traditional chemical engineering sciences such as material and energy balance, transport phenomena, and thermodynamics; and chemical engineering design courses such as reaction engineering, separations, and unit operations, with a capstone design course during the senior year. Students have an opportunity to become involved in research, through either the Undergraduate Research Opportunities Program or the department honors program.

Career Possibilities

Chemical engineering graduates are qualified for employment in diverse industries, ranging from those that manufacture inorganic chemicals, petrochemicals, plastics, synthetic fibers, paper and pulp, and pharmaceuticals to those that process minerals, materials, and hazardous wastes. There are so many options for chemical engineers, it’s hard to define this succinctly. Some of our recent graduates have done the following:

- Work for a large chemical, pulp and paper, plastics or textile manufacturing firm
- Get a job with a government agency or design and consulting firm specializing in environmental regulations and pollution control
- Enter graduate school to get a more advanced education in areas like thermodynamics, fluid dynamics, mass and heat transfer
- Enter graduate school to get a degree in medicine, law or business to build on their chemical engineering problem solving skills
- Join the Peace Corps to help communities develop sanitary waste disposal systems and teach science in rural areas
- Work in a material science laboratory doing research or developing new products
- Help manage construction and startups of manufacturing plants or analyze production floors to look for ways to improve operations

Why UMD

- Active learning environment
- Access to state-of-the-art instrumentation
- Focus on undergraduate teaching and research

Scholarships
In addition to the SCSE scholarships we offer, our department does also offer scholarships including, the Sam and Ardis Beard Scholarship, the UMD AICHE Scholarship, the Baria Memorial Scholarship, and the Chemical Engineering and Alumni Scholarships.

**Student Clubs**

American Institute of Chemical Engineers [1] (AICHE)

The goal of AICHE is to foster professional and personal development as a chemical engineer.

It also serves as the conduit for receiving important information from the department, such as job information and openings, internship announcements, and departmental policies that affect chemical engineering students. The student chapter hosts speakers from the industry and ventures out for plant and industrial facility tours throughout the year. The club has intramural sports teams, such as broomball and softball, and plans other social gatherings.

Omega Chi Epsilon [2] (OXE)

This is the national chemical engineering honor society.

The society promotes scholarship, encourages original investigation in chemical engineering, and recognizes the valuable traits of character, integrity, and leadership. Membership is by invitation and limited to chemical engineering juniors and seniors who have displayed academic excellence and leadership. Each fall, the qualified engineering seniors and juniors are invited to join the society. The chapter encourages new students, offering tutoring and providing tours of the department’s facilities and members elects the group’s officers.

We also have other general engineering groups on campus such as the Society of Women Engineers (SWE), the Order of the Engineer, and the Tau Beta Pi honor society.

**Graduate Report**

Recent UMD Graduates Job Placement Data & Employers

Here's a sampling of positions Chemical Engineering grads have attained six months to one year after graduation.

- Fire Protection Engineer - 3M, St. Paul, MN
- Chemical Engineer - Barr Engineering, Duluth, MN
- Project & Process Engineer - Cargill, Monticello, MN
- Process Engineer - Cliffs Natural Resources, Eveleth, MN
- Project Engineer - Ecolab, Martinsburg, WV
- Patent Engineer - IBM, Rochester, MN
- Entry Level Process Engineer - Verso, Duluth, MN

For more data see the Chemical Engineering Graduate Follow-Up Report [3].

For ideas about Chemical Engineering and other majors visit Career & Internship Services [4].

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**Links**

[1] https://bulldoglink.d.umn.edu/organization/AICHE