

# Chemical Engineering

Website (<http://www.northeastern.edu/che/>)

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The chemical engineering program offers students a broad education built on fundamentals in science, mathematics, and engineering, which are then applied to a variety of contemporary problems using modern tools, such as computational software and computer-aided design. Chemical engineers have traditionally been employed in chemical, petrochemical, agricultural chemical, pulp and paper, plastics, cosmetics, and textiles industries and in consulting and design firms. Today, chemical engineers play an integral role in providing innovative solutions related to environmental and energy systems, advanced and flexible manufacturing, personalized medicine, and novel materials for everyday living. For example, chemical engineers are creating new materials needed for space exploration, alternative energy sources, and faster, self-powered computer chips. In biotechnology and bioengineering, chemical engineers are working to recapitulate and regenerate tissue, develop new therapies and drug delivery systems, and utilize the microbiome to advance medicine and sustainability. Chemical engineers design new materials to revolutionize sensors, support decarbonization, detect security breaches, and diagnose and treat health conditions. In addition to creating important products, chemical engineers are also involved in protecting our environment by exploring ways to reduce acid rain and smog; to recycle and reduce wastes; to develop new sources of environmentally clean energy; and to design inherently safe, efficient, and “green” processes. Through the design of new materials, products, and processes while reducing costs, increasing production, and improving the quality, sustainability, and safety of new products, chemical engineers impact our daily lives.

## Mission of the Department

The mission of the Department of Chemical Engineering at Northeastern University is to educate and train students in chemical engineering practice through integrating an inclusive classroom environment with hands-on and co-op experiences while solving research problems that impact our world.

## Other Programmatic Features

By participating in our cooperative education program, our graduates will have an opportunity to explore career objectives that fit their own skills and interests. The goal of this component of our program is to offer students valuable professional experience and contacts to help get them started in their professional career, as well as to develop career management skills. The co-op program parallels the academic program in level of responsibility and sophistication.

The department also offers research opportunities throughout all aspects of chemical engineering, including participating in research centers based in our department and college, as well as new interdisciplinary graduate and professional master's programs. The chemical engineering curriculum is continuously evaluated and improved to ensure that graduates of the program are given every opportunity for future success as professional chemical engineers and are prepared for lifelong learning.

## Programs

### Bachelor of Science in Chemical Engineering (BSChE)

- Chemical Engineering (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-bsche/>)
- Chemical Engineering and Biochemistry (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-biochemistry-bs/>)
- Chemical Engineering and Bioengineering (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-bioengineering-bsche/>)
- Chemical Engineering and Computer Science (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-computer-science-bsche/>)
- Chemical Engineering and Environmental Engineering (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-environmental-engineering-bsche/>)
- Chemical Engineering and Physics (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/chemical-engineering-physics-bsche/>)

## Minor

- Biochemical Engineering (<http://catalog.northeastern.edu/undergraduate/engineering/chemical/biochemical-engineering-minor/>)

## Accelerated Programs

See Accelerated Bachelor/Graduate Degree Programs (<http://catalog.northeastern.edu/undergraduate/engineering/accelerated-bachelor-graduate-degree-programs/#programstext>)