



University of New Haven

BACHELOR OF SCIENCE

CHEMICAL ENGINEERING



The Accreditation That Adds Value to Your Degree

Our B.S. in Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

ABET accreditation is the trusted standard for employers around the world. With a degree from an ABET-accredited program, you and potential employers can be confident that your educational foundation is solid and that you can be a leader in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public.

Sample Courses

- Chemical Engineering Technology
- Chemical Engineering Workshop
- Advanced Materials
- Methods of Engineering Analysis
- Introduction to Modeling of Engineering Systems
- Project Management and Engineering Economics
- Sustainability, Ethics, and Professional Issues
- Transport Operations I/II
- Reaction Kinetics and Reactor Design
- Chemical Engineering Laboratory I & II
- Mass Transfer
- Process Dynamics and Control
- Chemical Process Safety
- Sustainable Energy: Fuel Cells and Batteries

Program Description

What does it take for a laboratory novelty to become an essential part of everyday life? Often, it takes the expertise of chemical engineers. The discovery of penicillin by Sir Arthur Fleming in 1929 was a milestone in biochemistry, but the ability to produce it on a large scale was the work of chemical engineers. Other feats of chemical engineering include alternative energy sources, plastics, pharmaceuticals, food production, environmental cleanup, and the production of computer chips (or potato chips).



As the only chemical engineering program in New England at a primarily undergraduate focused institution, our B.S. in Chemical Engineering program prepares you for the modern chemical engineering workplace with a unique, multidisciplinary curriculum that includes coursework in math, advanced science, multidisciplinary engineering, and chemical engineering. But the program does more than help you master the technical content, because to be a successful practicing chemical engineer, you need the ability to apply your knowledge to real-world problems within real-world organizations. That is why you will begin doing project-based engineering work in your first semester and continue the hands-on learning throughout the program, with one or more internships, a capstone design project, service learning, or the opportunity for faculty-mentored research – uncommon among undergraduate engineering programs.

But no matter how talented a chemical engineer you are, you will also need a set of professional skills to help make great ideas come to fruition. That is why the program also emphasizes the development of professional skills in communication, project management, and leadership, with a healthy dose of entrepreneurial thinking, so that you can understand the market and what the market needs.

Active, Hands-On Learning

Because experience-based learning is a hallmark of the University of New Haven, the opportunities for students to discover an interest in a field and gain experience in it are endless here. Engineering students at the University are especially fortunate to have many opportunities that sow the seeds for successful careers. These are some of the best:

Faculty-Mentored Research

Undergraduate students in most engineering colleges have to wait until graduate school for the golden opportunity to collaborate with an instructor on research. Our undergraduate students routinely work with instructors on projects, both during the semester and through our Summer Undergraduate Research Fellowship (SURF) program. Students often make professional-grade presentations on their work at conferences throughout the country.

3 Day Startups

These intensive weekends start on Friday and end on Sunday night. Teams of students brainstorm ideas for a product to market, research its potential, put together a presentation, and then pitch their idea to a panel of angel investors who may offer financial backing. After blunt feedback from the panel, students regroup, work out any kinks in the concept, and make their final presentation Sunday night. The experience can be life-changing. Students go into it excited but a bit nervous and come out of it with a new level of maturity and professional polish.

Study Abroad

Traditionally, engineering students have not been able to study abroad because of their demanding curriculum, which doesn't easily lend itself to interruption. We believe, however, that engineering students should have the opportunity to study in a foreign country, which is especially important in a global market. So, we found a way: first year, when all engineering students take the same basic courses. Our students spend a glorious semester at our Prato, Italy campus, situated in the birthplace of the Italian Renaissance, where engineers were the first artists. (Think the Duomo in Florence, a feat only an engineer could achieve.)

Capstone Design Expo

This is an opportunity for students to showcase the results from their senior design course. Students work in teams to create a specific design solution for a customer, in collaboration with the companies that sponsor the projects. Project ideas are frequently suggested by the companies, which pose problems that are of relevance to them and are in need of a solution. Sponsoring companies have included: Sikorsky Aircraft, VITEC Videocom, Timex Corporation, Whelen Engineering, RBC Bearing Company, Hamilton Sundstrand, Covidien, Henkel, and Otis, among many others.

Faculty Spotlight

KRISTINE HORVAT

Assistant Professor

Ph.D. in Materials Science & Engineering,
Stony Brook University

M.S. in Materials Science & Engineering,
Stony Brook University



"I came to the University of New Haven with a chemical and materials engineering background and research experience at Brookhaven National Laboratory. Materials science is an increasingly popular aspect of chemical engineering; therefore, it is important that students develop a strong materials background. I am very passionate about finding creative ways to explain engineering to up-and-coming engineers. I perform in-class demonstrations, and I connect the material being discussed to case studies and real-life situations that the students can relate to. From history, we discuss why the Titanic failed so catastrophically and how materials choice contributed to Napoleon's downfall during his invasion of Russia.

"From the present time, I take real examples that I have come across in the laboratory. For example, when a valve I used failed due to repeated use, I brought it in for the class to investigate. I encourage students to bring in similar material failures for class discussions."

DAVID HARDING

Professor

Ph.D. in Chemical Engineering,
Northwestern University

M.S. in Engineering,
Purdue University

M.S. in Education,
University of New Haven



"I moved into academia after several years in industry because of a passion for learning and for passing on knowledge to a new generation of chemical engineers. Chemical engineers have made and continue to make groundbreaking contributions to our society. At the University of New Haven, we focus on providing a solid foundation in engineering principles coupled with preparation for the workplace or for advanced study. The chemical engineering faculty are able to bring examples from areas such as equipment design to process engineering into the classroom from their own real-world experiences. The program has a strong cultural focus of placing students first and guiding their development into the best they can be."

Alumni Spotlight



JEFFREY PARSONS

B.S. in Chemical Engineering,
B.S. in Chemistry '12

Operations Leadership
Development Program
Lockheed Martin, Rotary
and Mission Systems

"As a high school student, you don't truly know what the right path forward is, but you can make decisions that will steer you toward success. The University of New Haven gave me the tools I needed to succeed. Earning dual degrees in chemical engineering and chemistry was one of the most difficult, exciting, and rewarding experiences I've ever had. Thanks to my professors' focus on students and the small class sizes, I succeeded, despite the challenging material. Through project-based classes and other experiences, such as my time as president of the American Institute of Chemical Engineers student chapter and various on-campus jobs, I honed my communication and leadership skills as well. I took everything I learned to Sikorsky Aircraft, where I completed a coop experience and later became a full-time employee. The University focuses strongly on success after graduation, and students should use all the resources available — career fairs, the Career Development Center, and, most important, the help of professors."



AMANDA SCALZA

B.S. in Chemical Engineering,
B.S. in Chemistry,
minor in Mathematics '12

Processing Production Manager
SC Johnson & Son

"Attending the University of New Haven set me up for a successful career in the industry. The program engages you in problem-solving and working in multidisciplinary teams from day one. These skills are critical in any engineering field. The emphasis placed on them, along with the small class sizes, fosters an atmosphere that allows for a strong understanding of concepts beyond passing exams. The University of New Haven creates an environment similar to that of industry, and focuses on the tools industry uses, such as MS Excel. Having advanced use of this tool has been an asset to my career and sets me apart from many other colleagues. The professional organizations on the campus, such as the American Institute of Chemical Engineers, helped me create a network that I continue to enjoy and contribute to today."

Internships

Time on the job gives students the opportunity to take what they have learned in the classroom and laboratory and apply it in a real-world setting. The University of New Haven has a long history of integrating learning into the workplace. As part of the program's requirement for an active, hands-on learning experience, most students choose to engage in one or more internships. In many cases, an offer of full-time employment is often the result.

There are several factors that go into achieving a successful internship: clearly defining the student's objectives; agreement between the faculty advisor, the Career Development Center, and the company; assessment; and self-reflection. Students usually emerge from the internship experience with a renewed sense of purpose for their remaining studies and more clarity about their future career path.

These are just some of the high-profile companies at which University of New Haven chemical engineering students have interned:

- Cytex Solvay Group, Stamford Laboratories
Stamford, Conn.
- Yale School of Medicine
New Haven, Conn.
- Dymax Corporation
Torrington, Conn.
- Lanxess Solutions, U.S.
Perth Amboy, N.J.
- Novel Ingredients
East Hanover, N.J.
- MacDermid Incorporated
Waterbury, Conn.
- United Technologies
Hartford, Conn.
- Allnex
Wallingford, Conn.
- Albermarle Corporation
Magnolia, Ark.
- Watson Inc.
West Haven, Conn.
- Fuel Cell Energy
Danbury, Conn.
- Coca-Cola Company
East Hartford, Conn.
- Sikorsky Aircraft
Stratford, Conn.
- Medtronics
North Haven, Conn.
- Dominion Energy
Nuclear Power Station
Waterford, Conn.
- BASF Corporation
Texas

Did You Know?

The starting salary for chemical engineering graduates is consistently in the top ten for starting salaries of college graduates. With the hands-on experience and professional skills acquired in our program, you will have a definite edge in landing the job that pays it.

76% of employers indicate their primary purpose for sponsoring interns is to recruit entry-level talent.

83% of employers report higher retention rates for new hires with internship experience versus those with no experience.



6 Reasons to Choose the University of New Haven for Chemical Engineering

- 1 The chemical engineering and chemistry programs are in the same department**, which provides numerous opportunities for students to work closely with faculty in both programs. Students regularly participate in faculty research projects in areas such as alternative fuels, renewable energy, specialty materials, and biomedical applications.
- 2 Undergraduate students have exclusive use of our modern and safe chemical engineering laboratories** for classes, projects, or satisfying curiosity. Our process equipment is completely up-to-date.
- 3 Our curriculum provides flexibility in selecting chemistry courses and technical electives** so that you can focus on an application area of your choice. Tailor the program to your career interests. Qualified students can take graduate courses in the senior year to complete an M.S. in one additional year. We have linked M.S. programs (4+1) with Chemistry, Biomedical Engineering and Environmental Engineering.
- 4 Our unique Multidisciplinary Engineering Foundation Spiral Curriculum is designed to develop professional skills in communication, teamwork, and project planning**, to foster an entrepreneurial mindset, and to provide an understanding of a broad range of engineering topics. It is superb preparation for working in the mixed teams you will join in professional practice.
- 5 You will have the opportunity to further develop key leadership skills by participating in student professional societies**, such as the American Institute of Chemical Engineers Student Chapter, the American Chemical Society, Society of Women Engineers, as well as activities and competitions sponsored by the KERN Entrepreneurial Engineering Network.
- 6 You can be part of our Engineering Enhanced Learning Community in your first year**, living with other engineering students, taking similar courses, meeting with faculty mentors throughout the year, and participating in special group activities.

About Us

The University of New Haven, founded on the Yale campus in 1920, is a private, coeducational university situated on the coast of southern New England. It's a diverse and vibrant community of more than 7,000 students with campuses across the country and around the world.

Within our colleges and schools, students immerse themselves in a transformative, career-focused education across the liberal arts and sciences, fine arts, business, healthcare and health sciences, engineering, public safety, and public service. More than 100 academic programs are offered, all grounded in a long-standing commitment to collaborative, interdisciplinary, project-based learning.

At the University of New Haven, the experience of learning is both personal and pragmatic, guided by a distinguished faculty who care deeply about individual student success. As leaders in their fields, faculty provide the inspiration and recognition needed for students to fulfill their potential and succeed at whatever they choose to do.



Your Success Starts Here

For more information or to arrange a visit, contact

Office of Undergraduate Admissions

☎ 203.932.7319

✉ admissions@newhaven.edu

🖱 newhaven.edu