

Where Can *Chemical Engineering* Take You?

Chemical Engineering is among the broadest of all majors. Graduates with a degree in chemical engineering can work as engineers, scientists, managers, financiers, doctors, educators, lawyers and government officials. To be effective in these different environments, chemical engineers must have well-developed problem-solving, communication and teamwork skills in addition to their technical skills. While the chemist studies basic chemical reactions, the chemical engineer applies the results of chemical research to transform laboratory processes into efficient, full-scale processes or facilities.



Environment

How will we deal with global warming, smog, pollution of our lakes and rivers, loss of forests, extinction of plants and animals, and other environmental problems that accompany continued growth of our worldwide population? Chemical engineers are leaders in the pursuit of solutions for environmental problems. Chemical engineers develop technology to prevent the formation and release of pollutants during manufacturing, as well as the technology used to treat pollutants released into the environment.



Consumer Products

Ever wonder who develops the special materials that let clothes come out of the dryer without wrinkles, prevents your carpet from staining when someone spills a drink, or make your teeth cleaner and whiter while improving the health of your gums and preventing cavities? Advances in personal care products, home health products, and specialty chemicals for consumer and commercial use have long been driven by chemical engineers. In fact, it is hard to think of any part of your day when you are not using some product or material produced by a chemical engineer!



Energy

Worried about greenhouse gases, global warming, and sustainable energy sources? Chemical engineers are technical specialists, leading the current oil and gas industry, including petroleum, gasoline, and natural gas. We are developing new, sustainable energy sources such as solar, thermoelectrics, hydrogen fuels, and biofuels. We also develop the technologies to use these new sources to their maximum benefit, such as advanced batteries for energy storage, new fuel cell materials, and genetic engineering approaches to make energy-rich biological feedstocks. We develop and implement the processes that will allow these energy sources to become part of the energy menu of the future.



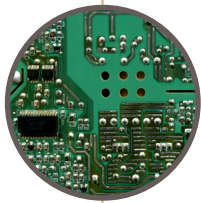
Food

As our population continues to grow and resources become more limited, how will we produce and deliver nutritious food to the worldwide community? Chemical engineers develop and produce the fertilizers, pesticides and herbicides that allow superior crop yields. Chemical engineers also develop the processing techniques that enhance the taste, shelf-life, and nutritional content of packaged foods.



Medicine

In a global community, the ability of society to deliver fast, affordable personalized therapy to treat disease is paramount. Who will lead the charge to develop the medicines of the future? With their work in genetic engineering, pharmaceutical engineering, protein engineering, metabolic engineering, and biomaterials, chemical engineers are leaders in the development of future medicines, as well as in the development of the processes that allow these medicines to be available at reasonable costs. In fact, Purdue Chemical Engineering is one of the leading participants in a more than \$15 million research center focused on pharmaceuticals of the future!



High Performance Materials

How do we manufacture a computer chip having circuits with length scales nearly as small as atoms? Or specialty coatings to protect an HD television surface from contamination without compromising image clarity? Chemical engineers are developing high-performance molecules and the processes to manufacture them for thousands of applications. One of our strengths is the engineering of systems for cost-effective, reproducible fabrication of new chemical species, and in no application is this need more important than the production of high performance materials. We ensure that new products can be produced affordably, in a way that is safe, environmentally-sound, and energy-conscious.



Davidson School of
Chemical Engineering

Davidson School of Chemical Engineering Undergraduate Office

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LEARN MORE: <https://engineering.purdue.edu/ChE>

Bachelor of Science in *Chemical Engineering*

Graduates of the Davidson School of Chemical Engineering at Purdue are prepared to succeed, whether they begin their career in industry or continue in graduate/professional school. All beginning engineering students start in the First Year Engineering (FYE) program, where they complete a common first-year curriculum. During their second year, students may enter Chemical Engineering (ChE) to pursue their Bachelor of Science (BScHE). Including FYE requirements, the BScHE is an eight-semester degree that prepares students in a wide range of technical disciplines important to society. This preparation is accomplished in part by completing coursework in three main areas:

Science
Mathematics
Chemistry
Physics

Engineering
English Composition
Communication
Core Electives

General Education
Chemical Engineering Core
ChE Elective Courses
Engineering Elective Courses

APPLYING WHAT YOU LEARN

Chemical Engineering students may gain relevant experience while earning their degree through participation in the Cooperative Education Program, Internships and Undergraduate Research. Students are encouraged to work with their Academic Advisor to help determine the right path for their educational needs and career path. Students interested in industry upon graduation would be encouraged to explore options through the cooperative education program or internship experiences, while students interested in continuing their education would explore undergraduate research.

Cooperative Education Program (Co-Op)

Students interested in industry, can gain relevant experience by participating in the cooperative education program. The program has several options available to meet each student needs and desired level of exposure to industrial experiences. Each program is designed to alternate between semesters (fall, spring and summer) on campus taking courses and gaining work experience with their cooperative employer. Those interested in the cooperative program are encouraged to attend our annual Co-Op Info Session during the beginning of the spring semester each year.

Several options are available for students to make the most of their experience:

5 Session Co-Op (1 employer)

- Students will begin their work experience the summer or fall following freshman year
- All work sessions will be with the same employer.
- Upon completion of co-op sessions, students will have 2.5 years of professional experience

3 Session Co-Op (1 Employer)

- Students will begin their work experience the summer or fall following sophomore or junior year
- All work sessions will be with the same employer.
- Upon completion of co-op sessions, students will have 1 year of professional experience

FLEX Co-Op (2 Employers)

- Students will begin their work experience the summer or fall following sophomore or junior year
- Two work sessions with one employer, then students may opt to stay with current employer for one to three additional sessions, or work for another employer for two sessions.

Internships

Internship experiences are strongly recommended for students who do not participate in the Co-Op program. These experiences generally take place over the summer, but can also be completed during an academic semester, depending on the preference and academic performance of the student. The Undergraduate Office is often contacted by companies concerning internship positions. These opportunities are made available to students through the undergraduate program website. The College of Engineering hosts a large recruiting event, the Industrial Roundtable, early each fall semester. Many of the participating companies are looking for interns. At the University level, the Purdue Center for Career Opportunities is the primary resource for companies interested in employing Purdue students.

Undergraduate Research Experience

Internship experiences are strongly recommended for students who do not participate in the Co-Op program. These experiences generally take place over the summer, but can also be completed during an academic semester, depending on the preference and academic performance of the student.

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MAY 2020 GRADUATES



39% of ChE students participate in
UNDERGRADUATE RESEARCH



\$74,908 average
STARTING SALARY



16% of ChE students participate in
STUDY ABROAD



83% of ChE students participate in a
CO-OP OR INTERNSHIP