

# NJIT

New Jersey Institute of Technology  
*A Public Research University*

The Bachelor of Science  
in Chemical Engineering  
Newark College of Engineering

Convert scientific discoveries  
into marketable products as  
a chemical engineer

**C**hemical engineers are regarded as the most versatile of all engineers. Concerned with the transformation of raw materials into valuable products by chemical, biochemical or physical processes, they are involved in the conception, design, construction, and operation of industrial plants. They participate in the manufacture of such products as pulp and paper, petrochemicals, fertilizers, oil and gas, pharmaceuticals, food and beverages, minerals, plastics and cosmetics. Chemical engineers also play key roles in the growing fields of biotechnology, environmental protection and electronic materials processing.

# Questions & Answers



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## WHY STUDY CHEMICAL ENGINEERING?

Chemical engineers, by their rigorous education in chemical and physical fundamentals, in economics, in mathematics and systems analysis, are uniquely qualified to seek solutions to problems which affect the future of our civilization.

Advancement in the field can move along both the technical and managerial paths, and a chemical engineering education is an excellent basis for other careers - law, medicine, information technology, finance, teaching, politics, or other branches of engineering.

## WHY STUDY CHEMICAL ENGINEERING AT NJIT?

The Department of Chemical Engineering has been an integral part of the development of NJIT as a public research university. Its faculty and students have for many years conducted cutting-edge research in areas as diverse as environmental technology, polymer processing, biotechnology, particulates and nanotechnology. This research effort also leads to the teaching of courses involving current topics. Modern chemical engineering involves extensive use of computers for process simulation and design, for product characterization and for process control. The computer resources and expertise available at NJIT make it an excellent environment for the study of modern chemical engineering.

## WHAT WILL I LEARN?

The engineering principles and practical training needed for these types of engineering careers:

- Process Design
- Product Engineering
- Research and Development
- Marketing / Technical Sales
- Environmental Waste Management
- Safety Engineering



## WHAT COURSES WILL I TAKE

The following courses are currently required of chemical engineering majors:

- Mass & Energy Balances
- Physical Property Evaluation
- Phase & Reaction Equilibria
- Fluid Flow
- Heat Transfer
- Mass Transfer
- Kinetics and Reactor Design
- Design of Separation Equipment
- Process Dynamics and Control
- Process and Plant Design
- Large-Scale Laboratories (related to all of the above)

For a detailed look at the chemical engineering curriculum, visit [www.njit.edu/Che/bsche/checurr2000.html](http://www.njit.edu/Che/bsche/checurr2000.html)

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## WHAT OTHER WAYS ARE THERE TO SHAPE AND ENRICH MY ACADEMIC PROGRAM?

NJIT offers a variety of ways to help you design an educational program that suits your career goals and interests:

### ■ Albert Dorman Honors College

Students who demonstrated superior levels of achievement in high school can continue on a challenging leadership track at NJIT's Albert Dorman Honors College. One of the nation's leaders in technologically oriented honors education, the Honors College offers qualified students a truly unique academic experience.  
[honors.njit.edu](http://honors.njit.edu)

### ■ Accelerated and Other Degree Options

Interested students may opt for double majors (majors in two areas of study); dual B.S. degrees (two bachelor's degrees earned simultaneously); or an accelerated B.S./M.S. degree program (graduate credits earned during undergraduate studies).

<http://www.njit.edu/catalog/undergraduate/00Fall/105.html>

### ■ Cooperative Education

The Cooperative Education Program gives the student an opportunity to enhance the chemical engineering degree program as offered by the department. Early in the sophomore year, students who qualify

may apply for this program of supervised, paid employment related to chemical engineering. As the employment is full-time, participation does extend the time required to complete the degree program by up to a year. However, a substantial

salary is earned during the co-op assignments, which can be used to help defray college and living costs. The experience obtained also helps student assess some of the different career paths available for chemical engineers. Further information about either cooperative education and/or internships may be obtained from the Office of Cooperative Education.

[www.njit.edu/CDS/StudentServices/Coop.htm](http://www.njit.edu/CDS/StudentServices/Coop.htm)

### ■ **Student Professional Societies**

The American Institute of Chemical Engineers (AIChE) has a very successful student chapter at NJIT that consistently wins national recognition as an Outstanding Student Chapter from the national organization. Omega Chi Epsilon is the National Chemical Engineering Honor Society, intended to recognize students of merit. Many chemical engineering majors are also active in the American Chemical Society, which also has a student chapter at NJIT.

### ■ **Academic Minors**

Students can tailor their course of study with one of more than two dozen academic minors that broaden their exposure and increase competence in an additional subject area. Some suggested minors include biology, chemistry, management, and information systems.

<http://www.njit.edu/catalog/undergraduate/00Fall/28.html>

### ■ **Collaboration Programs with Rutgers-Newark**

NJIT students may enrich their educational experience by enrolling in courses at nearby Rutgers University-Newark in such disciplines as art, music, languages, biological sciences, and geology.

[rutgers-newark.rutgers.edu/](http://rutgers-newark.rutgers.edu/)

## **IS FINANCIAL AID AVAILABLE?**

The Office of Student Financial Aid Services helps to provide NJIT students with every opportunity to obtain funding to support their educational costs. The university encourages all students to apply for financial aid.

<http://www.njit.edu/Directory/Admin/Admissions/finaid.html/>

## **FOR FURTHER INFORMATION, CONTACT:**

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[www.njit.edu/che](http://www.njit.edu/che)

Office of University Admissions, (973) 596-3300 or (800) 925-NJIT;  
[admissions@njit.edu](mailto:admissions@njit.edu)

[www.njit.edu/Admissions](http://www.njit.edu/Admissions)