

ABOUT THE NEWARK COLLEGE OF ENGINEERING

NCE is one of the first and largest professional engineering schools in the nation, with more than 3,700 students and 150 faculty members. NCE offers undergraduate, master's, and PhD degrees in engineering. There are sophisticated/specialized teaching studios for biomedical engineering, along with labs in materials, biomaterials, robotics and tissue engineering. NCE's more than 31,000 living alumni work all over the world.

HISTORY

NCE began offering degrees in engineering in 1919. From its earliest days, NCE has established itself as one of the nation's best-value undergraduate colleges. NCE has educated many generations of engineers who have gone on to become leaders, innovators and entrepreneurs in virtually every industry, and in both the public and private sectors.

UNDERGRADUATE DEGREES

- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Science
- Engineering Technology
- Industrial Engineering
- Mechanical Engineering

In addition to the undergraduate degrees, NJIT offers 15 master's and 10 doctoral degree programs.

NJIT AT A GLANCE

- New Jersey's Science and Technology University, founded in 1881.
- More than 8,200 students enrolled, including 5,380 undergraduates.
- NJIT's six schools offer small-college intimacy (13:1 student-faculty ratio) with big-university resources.
- 45-acre campus includes \$83 million in new construction and improvements featuring a new Campus Center.
- A *Princeton Review* "Best Value College" and a "Top 25 Most Connected College."
- Ranked by *U.S. News & World Report* among the nation's top national universities, NJIT is 9th in the nation in diversity.

ADMISSION REQUIREMENTS

We consider your academic record, particularly your grades in math, science and English, and your standardized test scores. Your high school curriculum should include at least four units of English; two units of lab science (chemistry and physics preferred); four units of mathematics, including algebra, geometry and trigonometry; and six units of some combination of social studies, foreign language, math and science. We consider your overall GPA, individual course grades and the level of your academic curriculum, plus involvement and leadership in activities. The middle 50th percentile combined SAT score (critical reading plus math) for regular incoming freshmen in fall 2007 was 1040–1220.

HOW TO APPLY

Choose one of these ways to apply:

- Apply online at www.njit.edu/admissions/applyonline.php.
- Download a PDF of the application at www.njit.edu/admissions/applyonline.php.

DEADLINES FOR APPLYING

- For fall semester: April 1
- For spring semester: November 15

NJIT uses rolling admissions. You should hear from us two to three weeks from the date that your file is complete. You can check your application status online at www.njit.edu/admissions/check-status.php.

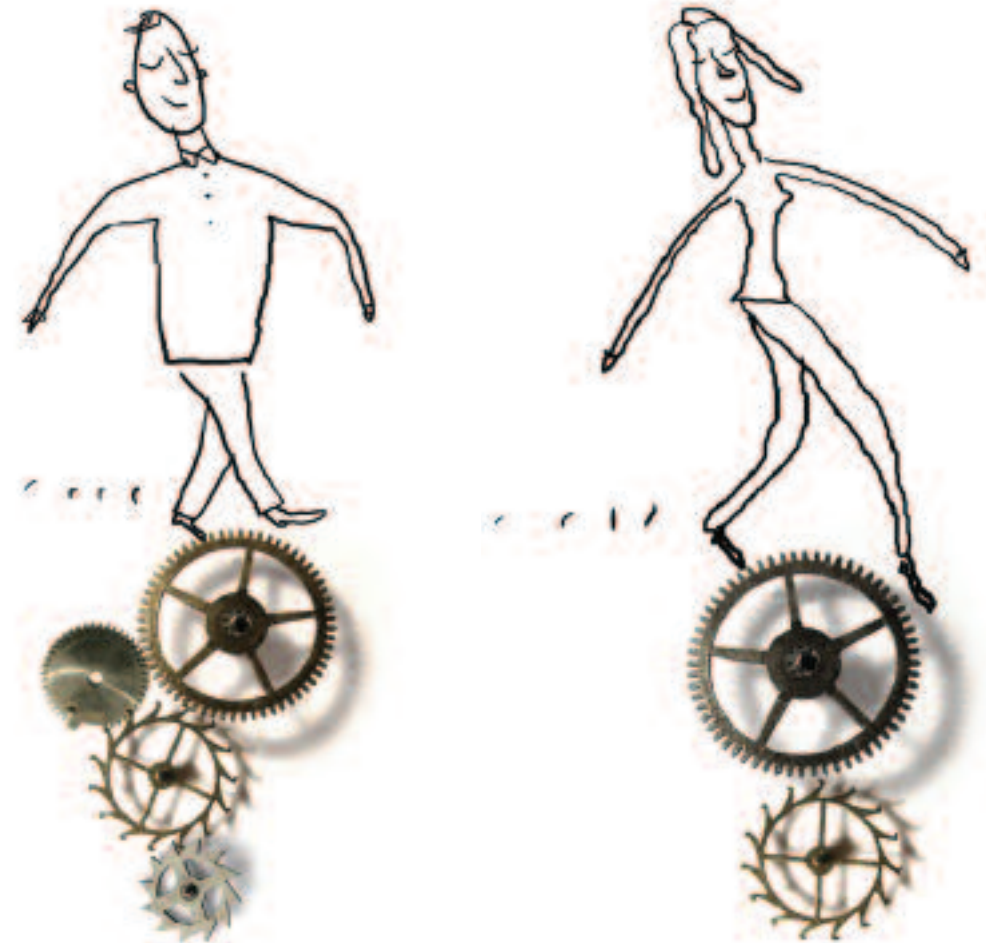
FOR MORE INFORMATION

Newark College of Engineering
New Jersey Institute of Technology
University Heights
Newark, New Jersey 07102-1982
973.596.3222 phone
973.596.2316 fax
nce@njit.edu
engineering.njit.edu

To contact the NJIT Admissions Office, go online at www.njit.edu/admissions or e-mail admissions@njit.edu.

06/08-8K

NEWARK COLLEGE OF ENGINEERING



**NEWARK COLLEGE OF
ENGINEERING (NCE) GIVES
YOU THE EDGE**

SMALL CLASSES:

While Newark College of Engineering (NCE) offers the outstanding faculty and specialized labs and pioneering research of a research university, it still has the feel of a small college—most classes have fewer than 30 students. That means your questions won't get lost in the crowd, and your professor will know your name (and probably your dream for the future).

STRONG ALUMNI NETWORK:

NCE has a long tradition and a strong reputation for preparing leaders in engineering and related fields. More than one quarter of engineers in New Jersey earned their degrees here—and the state has the highest per capita rate of engineers and scientists in the nation.

FLEXIBILITY:

With 11 disciplines in engineering, numerous specializations within most majors and more than 20 minors throughout NJIT, you'll have the flexibility to pursue, expand and combine your interests. Your NCE education makes an excellent foundation for advanced studies in everything from engineering to business, law and medicine.

A CUTTING-EDGE TRADITION:

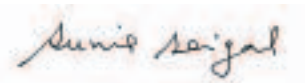
Since NCE began educating engineers in 1919, the college has been known for responding and adapting to—as well as anticipating—changes in the profession. Today, with the latest software, specialized labs and faculty whose research is shaping tomorrow's developments, you'll be sure to stay on the edge.

Invent something. Create a solution no one's ever considered. Push the boundaries of what's possible. Improve what's already out there. As an engineer, you'll do all this and more. Engineers have had a hand in nearly everything around you—the roads you drive on, the iPod you listen to, the chocolate bar you grab for a snack. They develop new ways to harness energy, create medical devices that save lives and make mountain bikes better. Engineering has shaped and improved the world like no other profession. With the power of a Newark College of Engineering education, you'll be able to take on a challenge and meet it head on with a combination of technical aptitude and driving creativity—and see your ideas move from your imagination to making an impact.

GREETINGS FROM THE DEAN

Welcome to the Newark College of Engineering (NCE), a great place to begin your career as an engineer. Our philosophy is to provide a broad-based education in the sciences, mathematical sciences and humanities, which serves as a foundation for more focused studies within your engineering major. We pride ourselves on furnishing a computing-intensive learning environment that combines design experiences with hands-on laboratory practice. Considering that the technical knowledge in the world doubles about every 10 years, we nurture our students to become lifelong learners.

I invite you to visit NJIT for a tour of the campus and our engineering departments and laboratories. Come and meet members of the award-winning NCE faculty, which includes dedicated teachers, renowned researchers and engineering practitioners. Best wishes in your career search and your future endeavors.



Dr. Sunil Saigal
Dean

Engineering majors—in chemical, civil, computer, electrical and mechanical engineering—claim the top spots for highest starting salaries offered to new graduates, according to the National Association of Colleges and Employers. Engineering graduates in 2007 received offers ranging from \$48,000 to \$60,000.

▼ MARELIS BERNAL | '06

MAJOR: INDUSTRIAL ENGINEERING
HOMETOWN: NEWARK, NEW JERSEY
GRADUATE STUDY: ENGINEERING MANAGEMENT, NJIT
EMPLOYMENT: TECHNICAL SUPPORT SPECIALIST, CIT SMALL BUSINESS LENDING



WHY INDUSTRIAL ENGINEERING? I lived in the Dominican Republic for two years and noticed they had a number of manufacturing companies making American products. I told my mother that I wanted to run one of those companies, and she suggested studying industrial engineering. The idea of analyzing and studying systems and making them more effective and efficient is fascinating to me. A company without an industrial engineer can't maximize and use its resources to reach its potential, increase revenue or create more opportunities for its employees.

FAVORITE CLASS? I loved a poetry class I had this past semester. My professor challenged me mentally and made me a better writer and thinker. Taking a class like that helped me look at things from a different perspective.

ON NJIT PROFESSORS: The professors get to know their students very well and provide us with their undivided attention. Overall the classes are quite small, and this definitely makes lectures more effective. The professors expect a lot from you, so you work hard every day. They've helped me grow as a person and made me realize that with determination and dedication, I can accomplish anything.

MOST INTERESTING EXPERIENCE? I worked with four other students and a professor on the design of a national electronic recycling system for the National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet (P3) in Washington, D.C. More than 100 schools took part. We had to present our project to the judges. All the projects were focused on making the Earth a better place to live.

Biomedical Engineering, Chemical Engineering and Engineering Science

BIOMEDICAL ENGINEERING

How you make a difference: As a biomedical engineer, you can be part of the revolution that's transforming the field of medicine. You could design, create, invent and test such devices as artificial hearts and limbs, surgical lasers, insulin pumps, diagnostic imaging devices and nanodevices. Combining the power of biology and medicine with principles of engineering, you'll have a direct impact on people's health and well-being.

Why at NCE: You'll learn in ways you never have before with the program's innovative studio-style education that emphasizes active learning. You'll have access to research facilities, teaching studios and labs that are fully equipped with the latest instrumentation. New Jersey is an excellent place to gain experience in biomedical engineering; more than 500 biomedical firms are located within 50 miles of campus. NJIT's new Rehabilitation Engineering Research Center is developing technologies to help children with brain injuries and disease.

Find out more:
biomedical.njit.edu/about/prospective.php

CHEMICAL ENGINEERING

How you make a difference: You can have a hand in the creation of the things people use every day. You might discover more environmentally friendly energy sources to power cars or find ways to help industry produce life-saving medications more cost efficiently. By understanding the chemicals that create products from orange juice to recycled plastic, and the way products are manufactured, you can put chemical and engineering knowledge to good use in a wide range of areas.

Why at NCE: You'll have the opportunity to conduct research with award-winning faculty mentors in a department that devotes more than \$2.5 million annually toward research.

Find out more: chemicaleng.njit.edu



ENGINEERING SCIENCE

How you make a difference: Many fields need professionals who have the kind of analytical, problem-solving and creative talents that engineering fosters. Instead of specializing in a particular branch of engineering, building a strong and interdisciplinary background in engineering gives you maximum flexibility. Continue with a graduate degree in a specialized area of engineering, or with a professional degree in medicine or law. Or bring your quantitative skills into a business or industry environment. With the ability to understand complex technological issues and develop effective solutions, you'll have an impact no matter what field you pursue.

Why at NCE: While taking at least 30 credits in engineering courses, you can create your own specialization in an area such as materials science, biomedical engineering or an area from one of NJIT's other colleges. Or opt for the accelerated seven-year program in medicine, dentistry, optometry, physical therapy or physician assistant—or the six-year program in law.

Find out more: www.njit.edu/esc

"Transferring to NJIT was the best move I could have made. I received a great education in a field where I could take what I learned in the classroom and apply it to changing things in the real world."

—Paul Sarlo BS '92, MS '95, civil engineering; chief engineer, Sanzari Companies; mayor, Borough of Wood-Ridge, New Jersey; New Jersey state senator



Undergraduates have opportunities to collaborate on research projects with NCE faculty.

ENGINEERING FACULTY LEAD THE WAY

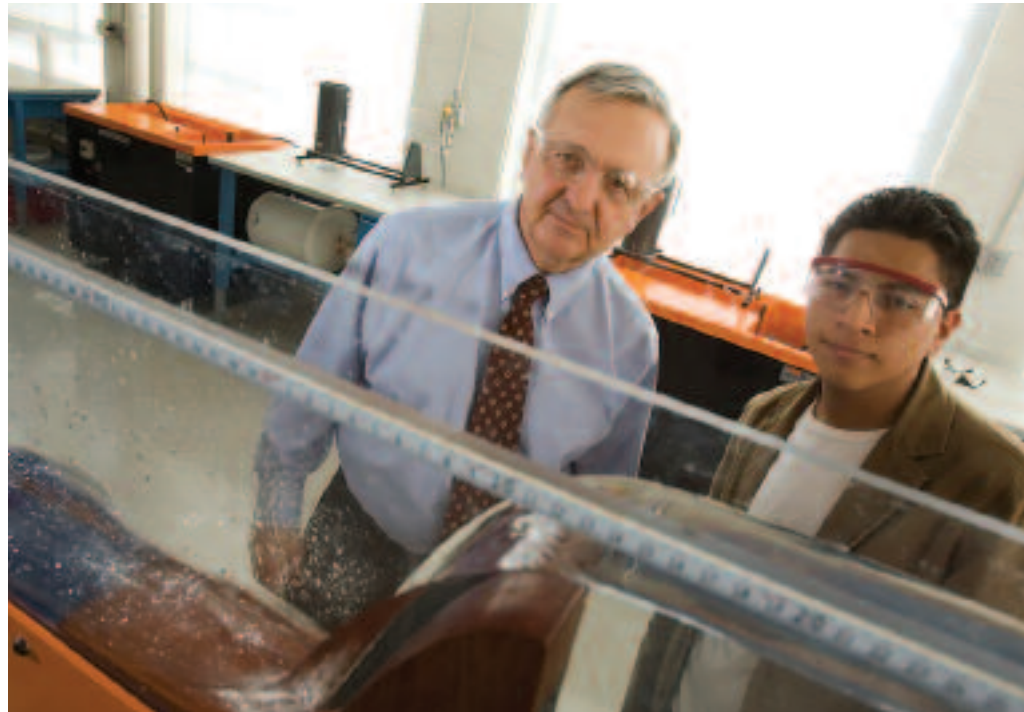
- The groundbreaking research of Treena Livingston Arinzeh, associate professor of biomedical engineering, earned her a Presidential Early Career Award for Scientists and Engineers. She was one of 20 researchers nationwide to be honored. Her research uses adult stem cells to re-grow bone, cartilage and neural tissue.
- For his work in optical imaging of skin lesions and multi-modality medical image analysis, Atam Dhawan, professor of electrical and computer engineering and biomedical engineering, was elected fellow of the Institute of Electrical and Electronics Engineers (IEEE).
- Deran Hanesian, professor of chemical engineering, received the Chester F. Carlson Award for Innovation in Engineering Education from the American Society of Engineering Education (ASEE). He developed a lab that teaches the scientific method for students of all ages and capabilities.
- Ronald H. Rockland, associate professor of electrical engineering technology and associate dean of NCE, received an award from the American Society for Engineering Education (ASEE) for his achievements in engineering technology education.

The Distillation Lab, which demonstrates processes used in oil and chemical refining, is just one of the many specialized labs NJIT engineering undergraduates use for hands-on learning.

"All the research, internships and learning experiences that I had at NJIT helped me grow professionally. They helped me develop the communication, networking, management—and most importantly—the leadership skills necessary to succeed in today's workforce."

—Cynthia Camacho '04, biomedical engineering, Boston Scientific, Inc., Wayne, NJ

In the civil engineering department's Hydraulics Lab, students conduct experiments in fluid dynamics. In other labs, students explore such areas as neural engineering, particle technology, optical networks and robotics.



As an undergraduate, you can get involved in research projects with faculty members who explore new territory in NJIT's many multidisciplinary centers and specialized labs, from the Center for Wireless Communications to the Vision and Neural Engineering Lab.

HANDS-ON LEARNING

As an NCE student, you'll have a broad array of opportunities to add meaningful work experience to your résumé through internships and cooperative education. You'll be working among good company: New Jersey has the highest per capita number of engineers and scientists—plus the highest per capita rate of patents issued. Here are some of the responsibilities NCE students have taken on during their hands-on experiences:

- Rina Shah, of Union City, a senior majoring in biomedical engineering, has developed a technique that could be used for the early detection of metastatic cancer cells while working as a medical research assistant in the department of pathology at Memorial Sloan-Kettering Cancer Center in Manhattan. She worked on develop-

ing a method to analyze proteins found on the cell membranes of cancer cells.

- Uri Perez used his industrial engineering background to perform time studies in the manufacturing department at Boston Scientific to evaluate human resource and machine requirements to run the department more efficiently.
- At Universal Valve Company, Julius Hoyes, a mechanical engineering student, used existing components to facilitate new design projects to improve commercial fuel economy.
- Camila Modenese, a chemical engineering major, helped to define and develop a dashboard to assist with the management of a global supply planning process across three regions of Infineum USA.

- Through an internship at PSEG Nuclear Power Plant, computer engineering major Anna Tomczak helped engineers make sure that upgrades on equipment were properly planned and implemented to meet site and regulatory requirements.

- Diana and Angelica Rodriguez, sophomore and senior civil engineering majors, respectively, worked at T&M Associates on a variety of projects to improve New Jersey's roadways and bridges.

- Mindy Felicity Mohammed, an electrical engineering technology major, did a clinical internship at the Deborah Heart and Lung Medical Center, researching how "mind-racing" at bedtime contributes to insomnia.

CIVIL ENGINEERING

How you make a difference: Think roads, tunnels, bridges, buildings, water supply systems and more—civil engineers affect the everyday lives of people by planning, designing and constructing our infrastructure. You'll not only design large-scale projects, you'll consider costs, how a project affects the environment, how it might withstand an earthquake or other natural disaster and how to ensure millions of people can use it safely.

Why at NCE: NJIT's student team in the Steel Bridge Competition has the strongest record among the metropolitan area's engineering schools. Undergraduate teaching labs include the Geotechnical, Hydraulics, Computer Design, Construction and GIS/Remote Sensing Labs. During the senior capstone project, you'll use your knowledge to tackle a real-world engineering problem.

Find out more: civil.njit.edu/academics/bs_civil.php



Continuing a strong record of success, NJIT's student team took first place in the 2006 Metropolitan Region Steel Bridge Competition.

"A scientist can discover a new star but he cannot make one. He would have to ask an engineer to do it for him."

—Gordon L. Glegg, American engineer, 1969

GREAT CAREERS START AT NCE

"I had an outstanding educational experience in every way. I was really good at math and science but unsure about a college major, and my high school chemistry teacher suggested I consider chemical engineering. It was great choice for me. It was also a time when encouragement for young women to build careers in science and technology was on the rise."

—Diane Sarlo Montalto '82

Senior Director of Corporate Engineering and Facilities Management, Par Pharmaceutical

"I really had no money for college, but my counselor at East Side High in Paterson gave me some very good advice about the opportunities available through the Educational Opportunity Program at NJIT. My years going to school in Newark were among the best in my life. The university gave me much more than financial assistance and outstanding academic preparation. Although I was a recent immigrant, I found a very welcoming and supportive community."

—King Moy BS '74, MS '77

Vice President of Engineering, EcolSciences, Inc.

"NJIT provided me with the technical education, intellectual rigor and dedication that has made it possible for me to enjoy a successful career, first in R&D and then in Marketing and General Management. The engineering education that I received was demanding, stimulating, involving and ultimately rewarding. I can honestly say that while I learned a great deal from the top-notch faculty, I also learned how to work with others on important projects. NJIT played a critical role in providing me with the fundamental skills necessary to succeed in an International organization."

—Kevin Gallagher '80

President, Croda, Inc.

Computer Engineering, Electrical Engineering and Engineering Technology

COMPUTER ENGINEERING

How you make a difference: As a computer engineer, you're not only writing code, you're also looking at the bigger picture of how computer systems interact. Computers vary widely in size and complexity and play a growing role in everything from supercomputers used in research to complex systems in manufacturing to the electric toothbrush. Using knowledge in computer engineering and computer science to design software or integrate hardware and software, you could make daily life easier or help streamline business and industry. As wireless networks and the need for cyber security become more pervasive, computer software engineering is projected to be one of the fastest-growing occupations through 2014, according to the U.S. Department of Labor.

Why at NCE: Choose from three technical tracks: Computer communications, advanced computer systems and bioelectronics. The program emphasizes real-world experience by bringing experts from leading industries to campus to mentor seniors in their design projects.

Find out more: ece.njit.edu

ELECTRICAL ENGINEERING

How you make a difference: The more we rely on electronic devices large and small—from your cell phone and satellite radio to entire power stations to Global Positioning System devices, from computer chips to the circuits and control systems that keep a spacecraft on trajectory—the more electrical engineers play a role. As an electrical engineer, you might design, develop and test the electronic circuits and systems used in cars and airplanes, radar and navigation systems, computers and computer chips or nanodevices and imaging sensors used in medicine.

Why at NCE: Specializations include computer networks, telecommunications, computer systems, control systems, power systems, bioelectronics, solid state, RF/microwave and fiber optics and telecommunications. Senior year includes a design project that incorporates research, design, cost analysis, construction and testing.

Find out more: ece.njit.edu

NCE students take advantage of opportunities to work in highly specialized facilities, such as the NJIT's Class 10 Cleanroom, one of only a handful of such facilities operated by a university.



ENGINEERING TECHNOLOGY

How you make a difference: Without engineering technologists, complex industries might not be able to function. As an engineering technologist, you develop, manage and improve products, or the way that products are manufactured, in a wide range of industries. As you continue to learn, you'll focus less on theory and more on practical design.

Why at NCE: Learning from faculty members with many years of industrial experience, you'll choose among these specialties: concrete industry management technology, construction engineering technology, electrical and computer engineering technology, mechanical engineering technology or surveying engineering technology.

Find out more: engineeringtech.njit.edu

NJIT is ranked 16th nationwide for the number of African-American undergraduates and 11th for Hispanic students graduating with engineering degrees.



Engineering students find that co-ops are a particularly valuable way to gain work experience. For example, during a co-op at Lucent Technologies, electrical engineering major Ana Ossa helped implement automation techniques and train others to use them.

About 25 percent of all engineers in New Jersey graduated from NCE. Around the world, 31,000 alumni are making a difference in all types of engineering and related professions.

DO IT YOURSELF AND LEARN

In engineering, often the best way to really comprehend a concept is to try it yourself hands-on, to move from theory to reality. NCE offers many ways to do just that.

- **Classes:** Many classes incorporate hands-on learning. And NCE majors require senior design projects, in which you'll take on a project that's comparable to what you'll find in the real world, complete with budget constraints, deadlines, construction and testing. Sometimes industry professionals serve as advisors.
- **Student competitions:** Through the many professional society student chapters on campus, you'll have an opportunity to

take part in competitions in which NJIT students face off against top engineering students from around the country and around the world. Through these competitions, NJIT engineering students have built bridges and cars and created devices for the disabled.

- **Research:** You could collaborate on dynamic research projects with NCE faculty members who have been published in prominent journals and hold patents. Their research is supported by major corporations and national agencies.

Industrial Engineering and Mechanical Engineering

INDUSTRIAL ENGINEERING

How you make a difference: If you're always finding a better, more efficient, more sensible way to do things, you're already on the right track to becoming an industrial engineer. The saying goes, "Engineers make things, industrial engineers make them better." As an industrial engineer, you might study an assembly line that makes cars and find time-saving or safety-ensuring alternatives. You'll look at all the factors—people, machines, materials, information and energy—that go into any kind of process, from surgery to a space walk to passengers going through airport security. And you'll find better, more efficient ways to use those factors. Because every business and every industry is always looking to improve and be more productive, you'll have a broad range of career options.

Why at NCE: You learn in a student-centric environment from dedicated instructors who provide personalized attention and guidance. You have many opportunities to gain professional experience through co-ops and to network with employers through student and departmental activities.

Find out more: industrial.njit.edu

MECHANICAL ENGINEERING

How you make a difference: Study mechanical engineering and join a broad engineering discipline that harnesses energy for human use. You will be involved in the analysis, design and manufacture of systems of all sizes from very small to very large. The field is concerned with machines, computers, energy conversion devices and vehicles of all kinds on earth or in space. You might use your knowledge to help develop the next generation of aircraft, power plants, medical devices, energy sources or robots for manufacturing or human use.

Why at NCE: Choose a 12-credit technical specialty emphasizing mechanical design, energy systems, manufacturing processes, materials engineering or biomedical engineering. Teaching labs encompass computer-aided design, instrumentation, materials and processing,

Through labs, senior projects, internships and co-ops, students are exposed to a range of sophisticated instruments, while developing the kind of problem-solving skills that are crucial in the engineering field.



thermo/fluids and engines. You'll learn technologies that combine computer-aided design and computer-aided manufacturing. For the eighth time in 11 years, mechanical engineering students captured first place in the American Society of Mechanical Engineers Student Design Contest.

Find out more: mechanical.njit.edu/academics/undergraduate

More CEOs of S&P 500 companies—among the largest companies in the nation—earned degrees in engineering than any other field.



In the mechanical engineering department's Electrohydrodynamics Lab, faculty and students perform sophisticated research in nanotechnology, which works on a scale of about 1/70,000th of a human hair.

FAMOUS ENGINEERS

Whether you realize it or not, engineers are all around us, including:

- Scott Adams: cartoonist and creator of *Dilbert*
- Herbert Hoover and Jimmy Carter, 31st and 39th presidents
- Lee Iacocca, former chairman and CEO of Chrysler Corp.
- Judith Resnick, *Challenger* astronaut
- Montel Williams, television talk show host
- Ryan Newman, NASCAR driver, mechanical engineer
- William Hewlett and David Packard, co-founders of Hewlett-Packard Company
- Bill Nye, the "Science Guy," from the science program for kids on PBS.

NOTABLE ALUMNI

Around the world, 31,000 alumni are making a difference in all types of engineering and related professions.

- **GOWTON ACHAIBAR BS '86** (electrical engineering), executive vice president and general manager, key accounts, for Ericsson.
- **CHARLES FORMAN '72** (industrial engineering), senior member, Forman Holt & Eliades LLC, New Jersey's largest law firm specializing exclusively in bankruptcy cases.
- **HAILA HUDSON BS '88** (electrical engineering), MS '00 (management), founder and CEO of Milestones Engineering, P.C., which works with technology related to next-generation flat panel displays.
- **FABIAN HURTADO '75** (civil engineering), former NASA engineer and co-founder, AJT & Associates, which has been on *Hispanic Business* magazine's list of the top 500 Hispanic-owned businesses.
- **THOMAS MYRICK BS '84** (mechanical engineering), chief engineer for Honeybee Robotics. He helped send Rock Abrasion Tools used by the twin rovers *Spirit* and *Opportunity* to Mars.
- **PAUL SARLO BS '92, MS '95** (civil engineering), chief engineer at Sanzari Companies, a major construction firm; mayor of the Borough of Wood-Ridge in Bergen County, New Jersey; New Jersey senator.
- **RIAN WREN '78** (electrical engineering), senior vice president and general manager of voice services, Comcast Cable.
- **YING WU MS '88** (electrical engineering), executive vice president and vice chairman of UTStarcom, and founder and CEO of UTStarcom (China) Ltd., one of China's major telecom providers.