NC STATE
Engineering

ENGINEERING your future at NC STATE

Come on. Invent something with us.

Top-notch teaching. Groundbreaking research. A welcoming, state-of-the-art learning environment. Engineering at NC State University is a seamless integration of education and discovery.

At NC State, you will work with students who design revolutionary disease-detecting devices and learn from professors developing the energy smart grid of the future. And it happens in a cutting-edge setting, our Centennial Campus, that's become a model for university campuses everywhere.

WWW.ENGR.NCSU.EDU

STEP 1 ▪ FIRST YEAR

NC State engineering and computer science students are among the best in the nation — join us and find out how you can engineer a better tomorrow.

GETTING IN

We want you to become an NC State engineer. But first you have to apply. You can find all the information you will need on admissions requirements, application deadlines, scholarships and financial aid at **admissions.ncsu.edu**.

START YOUR COLLEGE CAREER

Once you've completed the application process and received your acceptance letter, you will come to campus for new student orientation, where you'll register for courses common to all engineering disciplines. Depending on the college credit you earned in high school, your fall semester could look like this: *Introduction to Engineering and Problem Solving, Introduction to Computing Environments, General Chemistry I, Academic Writing and Research, Calculus I, Introduction to Economics* and *Physical Education and Wellness*.

EXPLORE THE GRAND CHALLENGES

During your first year, you will be exposed to the 14 Grand Challenges of Engineering that span across the disciplines, the globe, and humankind related to sustainability, energy, security, and the joy of living. At NC State, tomorrow's engineers and computer scientists are prepared to collaborate within diverse, interdisciplinary teams that advance sustainable, achievable approaches to the Grand Challenges and to promote solutions that help people and the planet.

PICK YOUR MAJOR

After you've successfully completed your first year, you'll need to select your major and join an academic department. You've got plenty of choices; NC State offers 18 bachelor's degree programs in 12 engineering and computer science departments.

OUR DEPARTMENTS

1

BIOLOGICAL AND AGRICULTURAL ENGINEERING

Biological and agricultural engineers at NC State run a world-class stormwater management program and create energy from duckweed. In this field, you'll apply engineering principles to biologically-based systems that involve the production of food and conservation of our natural resources. Concentrations are available in agricultural engineering, bioprocess engineering and environmental engineering.

www.bae.ncsu.edu

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BIOMEDICAL ENGINEERING

The X-ray, the pacemaker and the artificial kidney owe their existence to biomedical engineers, who develop devices used in the diagnosis and treatment of diseases. Biomedical engineering grew out of specialties that bridge the gap between medicine and traditional engineering fields like mechanical, chemical and electrical engineering. The joint department with UNC Chapel-Hill offers students access to resources at both universities.

www.bme.ncsu.edu

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CHEMICAL AND BIOMOLECULAR ENGINEERING

Chemical engineers work on the small scale to create big changes by using natural and industrial processes to transform matter or energy into useful products. At NC State, chemical engineers have developed a filter that removes the human form of Mad Cow Disease from blood and invented a coating for boat hulls that reduces barnacle buildup.

www.cbe.ncsu.edu

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CIVIL, CONSTRUCTION, AND ENVIRONMENTAL ENGINEERING

Civil, construction, and environmental engineers are responsible for the look and feel of much of the world around us. You'll deal with the planning, design, construction, operation and maintenance of buildings, dams, bridges, power facilities, pollution control facilities, water supplies and transportation systems. NC State has a giant on-campus laboratory that conducts full-scale testing of bridge and building structures.

www.ccee.ncsu.edu

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COMPUTER SCIENCE

Artificial intelligence, computer graphics, Internet and software security, electronic commerce — all are the domain of the NC State computer scientist. The department works closely with the NC State Virtual Computing Laboratory, a pioneering cloud computing effort that allows users to access advanced software remotely. An undergraduate game-development concentration is available for students interested in jobs in the growing gaming sector.

www.csc.ncsu.edu

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ELECTRICAL AND COMPUTER ENGINEERING

Electrical engineers develop advanced communications systems, use lasers and robots to solve problems, and run our nation's electricity distribution. Computer engineers design complex digital systems such as microprocessors, computing devices, computer networks, cellular phones and satellite communications. Students in this department gained national media attention for their work developing an inexpensive tuberculosis detection device.

www.ece.ncsu.edu

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MATERIALS SCIENCE AND ENGINEERING

Structure determines the properties of matter: how materials act, react and function in different environments. Through an understanding of these structure-property relationships, materials scientists and engineers at NC State develop new materials that are used in computers, mobile phones, solar cells, lightweight auto bodies, space vehicles, food packaging, biomaterials and many other products.

www.mse.ncsu.edu

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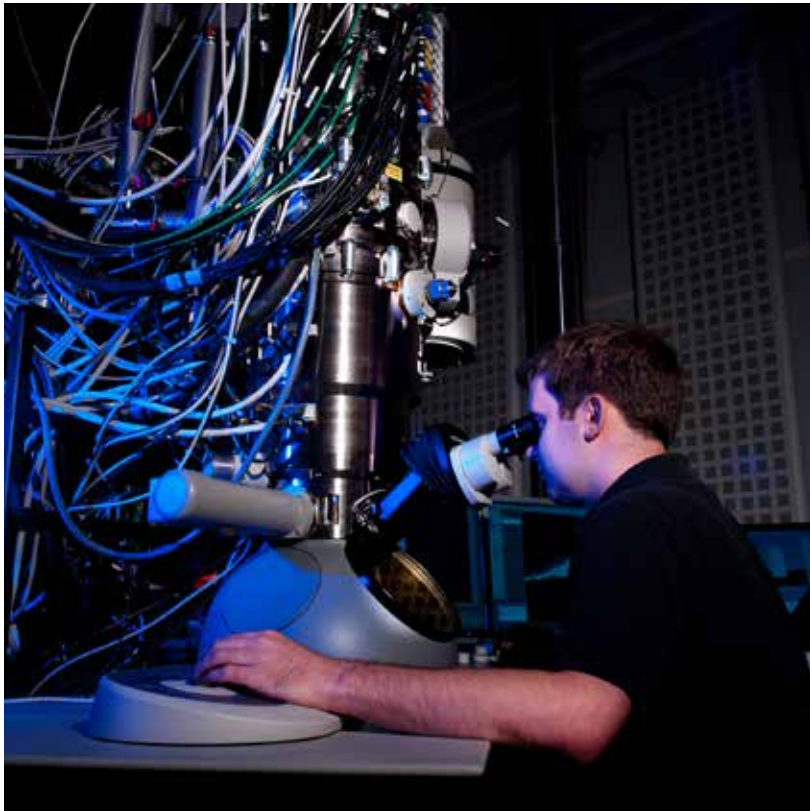
INDUSTRIAL AND SYSTEMS ENGINEERING

Saving time and money — that's the role of industrial and systems engineers, who provide the bridge between management goals and operational performance. You'll analyze how people, machines and facilities work together to create efficient systems that produce goods and services. NC State's new thrust area in health systems engineering teaches students how to improve the cost-effectiveness and delivery of health care.

www.ise.ncsu.edu



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MECHANICAL AND AEROSPACE ENGINEERING

Stay grounded or go airborne. Mechanical engineers at NC State design everything from automobiles and appliances, to air conditioners and power plants, to controls systems and medical devices. Aerospace engineers apply aerodynamic principles to the design of airplanes, spacecraft and satellites, all while keeping fuel efficiency, safety and performance in mind. Seniors in aerospace engineering design, build and fly a miniature jet.

www.mae.ncsu.edu

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NUCLEAR ENGINEERING

A nuclear engineering degree from NC State prepares you for a wide variety of industries. You could help produce non-carbon-emitting electricity, use radiation for medical therapy and imaging purposes and industrial diagnostics, or treat semiconductor surfaces with plasmas. NC State was the home of the first university-based nuclear reactor for teaching and research.

www.ne.ncsu.edu

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PAPER SCIENCE AND ENGINEERING

Producing paper and pulp is one of the oldest disciplines in the world, and today there are more than 12,000 products made from paper and its byproducts. Paper scientists and engineers at NC State develop new recycling methods, find ways to increase productivity while meeting modern environmental standards, and develop new ways to use biomaterials in medicine and as fuel sources.

majorsandminors.dasa.ncsu.edu/paper-science-engineering

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TEXTILE ENGINEERING

What do artificial blood vessels, high-tech sports apparel, lightweight boats, and computer information systems have in common? Textile engineering. Textile engineers helped create Nomex, the fabric that keeps firefighters safe, and Kevlar, the fibers in bullet-proof vests. An NC State textile engineering degree prepares you to develop a brand new fiber-based product or streamline an industrial process or supply chain.

www.tx.ncsu.edu/tecs

STEP 2 ▪ STUDENT LIFE

Life as an NC State engineering student is full of opportunities. You'll have plenty of choices, both in the classroom and around campus.

The James B. Hunt Jr. Library on NC State's Centennial Campus provides engineering students with some of the world's most sophisticated education and research technology.

DOUBLE UP

Adding another major can expand the breadth and depth of your education — and boost your job prospects. One example is our Benjamin Franklin Scholars Program.

ids.chass.ncsu.edu/bfs

CONSIDER A CO-OP

Check out NC State's Cooperative Education Program, in which students alternate an academic semester with a semester working in a well-paying industry position. The experiences often lead to full-time jobs.

ncsu.edu/co-op_ed

FIND A MENTOR OR BE ONE

The Minority Engineering Programs and the Women in Engineering program offer peer or professional mentors who can help you explore your career opportunities and expand your experiences at NC State. Check them out and be inspired.

www.engr.ncsu.edu/mep

www.engr.ncsu.edu/womeninengineering

JOIN THE CLUB

There are nearly 70 engineering student organizations on campus, including service organizations and professional societies. Engineers Without Borders and the American Institute of Chemical Engineers are among your options.

students.engr.ncsu.edu/orgs

MOVE INTO A VILLAGE

If you like to hang out with like-minded people, you may want to live in one of our villages. There are several to choose from, including the Engineering Village, the Entrepreneurs Village, and the Women in Science and Engineering Village.

ncsu.edu/housing/villages

STUDY ABROAD

Your junior year is a great time for a study abroad experience. NC State and its partners offer hundreds of programs in every corner of the world.

studyabroad.ncsu.edu

UNDERGRADUATE RESEARCH

Get out of the classroom and into the lab. Recent students have helped develop a tool for treating liver cancer patients and analyzed incorporating new materials into power semiconductors.

ncsu.edu/undergrad-research

NOT SO MINOR

Minors allow students to gain experience in another field that complements their major.

advising.dasa.ncsu.edu/explore-majors-minors

START SOMETHING BIG

Budding entrepreneurs should sign up for the Engineering Entrepreneurs Program, which immerses students in a real-world product-development experience. Many NC State graduates have founded technology companies after leaving the program.

eep.ncsu.edu

ATTEND THE ENGINEERING CAREER FAIR

NC State's Engineering Career Fair is one of the largest university career fairs in the country. Start making connections as a first-year student; many employers return to the fair year after year.

students.engr.ncsu.edu/careerfair

STEP 3 ▪ AFTER NC STATE

Whether you enter graduate school, join a large company or launch a start-up, NC State is here to help.

DURING YOUR SENIOR YEAR, talk with your academic and career advisors about your next step. Visit the Career Development Center and attend the Engineering Career Fair to make more connections.

AFTER GRADUATION, take the Fundamentals of Engineering exam, your first step toward gaining the licensed Professional Engineer certification required for many senior engineering positions.

JOIN THE NC STATE ALUMNI ASSOCIATION, which offers more than 80 regional chapters throughout the country. The group provides scholarships and awards to top students and faculty, boosting the value of your degree.

FREQUENTLY ASKED QUESTIONS

WHAT DO I NEED TO BE ADMITTED?

Admission to the College of Engineering at NC State is competitive. The typical acceptance rate for the incoming freshman class is approximately 50%. The average first-year student has an unweighted high school grade point average of 3.87, SAT scores in the 1255-1395 range (on the original two-part SAT, critical reading and math) and ACT scores in the 27-31 range.

WHAT FACTORS DO YOU CONSIDER FOR FRESHMEN ADMISSION?

A student's high school record, including grade point average, and class rank and test scores — either SAT or ACT, receive the most emphasis. Students who have taken advanced courses, particularly in math, chemistry and physics, are more competitive in the admissions process. But we also look at other activities. If you play great guitar, volunteer at a homeless shelter, or star on the volleyball team, we want to know about it. As one of our academic advisors says, "What differentiates you?"

WHAT FACTORS DO YOU CONSIDER FOR TRANSFERS?

NC State loves transfer students. About 25% of our engineering students began their college career at another institution. Consider transferring to NC State. For more information, visit **go.ncsu.edu/engr-transfer-admission**.

ARE ENGINEERING SCHOLARSHIPS AVAILABLE?

Yes. About 100 engineering merit scholarships are offered to incoming students in the average range of $2,500 to $7,000 annually. Some are based on academic merit only, while others are based on academic merit and documented financial need. Most scholarships are offered in the various engineering departments, which students typically join after the first year.

DO I HAVE TO PICK AN ENGINEERING MAJOR AS SOON AS I ARRIVE AT NC STATE?

No. All freshmen engineering students have what's known as a "common first year," in which they take several introductory courses that prepare them for all engineering fields. Most students typically pick a major and join an academic department as a degree-seeking student after the first year.

More questions?
Visit **www.engr.ncsu.edu/future-students**

Located in Raleigh, North Carolina, NC State University's College of Engineering is a leading research, teaching and outreach engineering and computer science college offering 18 bachelor's, 21 master's and 13 doctoral degree programs. Annual enrollment exceeds 10,000 students, with more than 6,000 undergraduates and more than 3,000 graduate students. The College also offers 16 online engineering master's degrees.

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