

NC STATE
Engineering

ENGINEERING YOUR
FUTURE
AT NC STATE

think and DO





Top-notch teaching.

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

At NC State University, 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 serves as a model for university campuses everywhere.

STEP 1

FIRST YEAR



You are in
**Robin
World**

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

You will apply directly to the Engineering First Year on the NC State application. You can find all the information on what we're looking for on applications, deadlines, scholarships, and financial aid information at admissions.ncsu.edu.

START YOUR COLLEGE CAREER

Our students enter as part of the Engineering First Year (EFY) program. You will take a common first-year that includes the courses below. You may start in more advanced courses depending on the college credit you earn in high school.

Engineering First Year Series

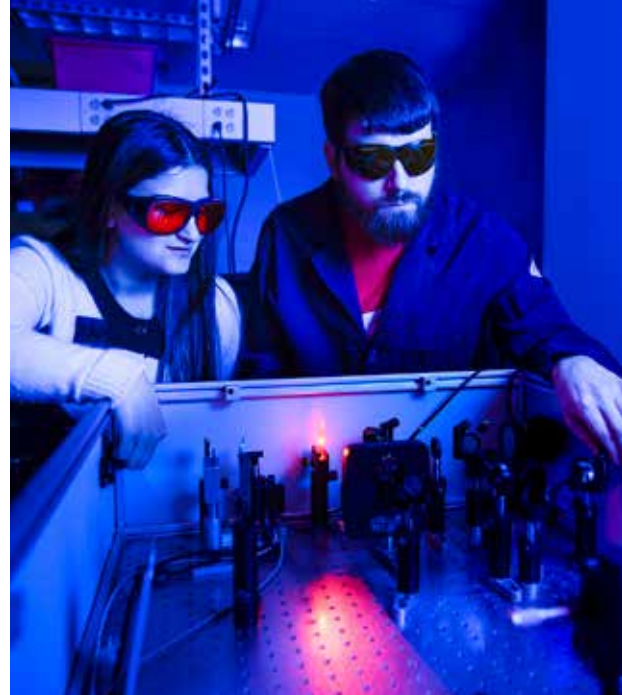
General Chemistry I

Academic Writing and Research

Calculus I

Calculus II

Physics for Engineers and Scientists



FIND YOUR COMMUNITY

NC State College of Engineering is a “large” College of Engineering. This is terrific, because it means you have incredible opportunities and resources available to you! But the College of Engineering also works very hard to feel like a small College of Engineering, and establish an intimate, family-like atmosphere that brings connection, friendship, and all the advantages that come with knowing your professors and staff and their knowing you. One of the ways this happens is through the many communities we establish. One of those communities is found with the Women and Minority Engineering Program (WMEP).

THE WMEP COMMUNITY

WMEP will be a place for you to explore, connect and engage with the WMEP staff, your peers, alumni and our corporate partners. This happens in many different ways! You can come see us and hang out in our student lounge. You can attend one of our many events, like Taste of Engineering or the Tools Workshop; you can take one of our classes, like E144: Academic and Professional Preparation for Engineering I; participate in one of the engineering student organizations like AISES (American Indian Science and Engineering Society), NSBE (National Society of Black Engineers), SHPE (Society of Hispanic Professional Engineers) and SWE (Society of Women Engineers); or just come visit our offices. The point is that we want you to be a part of the engineering community at NC State, and we are here to help make that happen! We are here to help you develop academically and professionally while ensuring you are aware of all the resources available to aid in your success. WMEP activities and events are open to ALL students regardless of ethnicity or gender.

EXPLORE 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. If you are interested in exploring the grand challenges, check out the Grand Challenges Scholar program offered to our undergraduate students. For more information, visit go.ncsu.edu/engr-grandchallenge.

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 (BAE)

Biological engineers at NC State are leaders in providing a safe and abundant food supply; clean water and air; renewable sources of energy; technologies to sequester nutrients and carbon; and life-enhancing and life-saving products. Our graduates work in fields such as water quality protection, biofuels, data analytics, ecological restoration, precision agriculture, robotics, postharvest engineering, sustainable engineering and air quality protection.

bae.ncsu.edu



2

BIOMEDICAL ENGINEERING (BME)

Artificial heart valves, hand prostheses, insulin pumps and targeted tumor drugs owe their existences to biomedical engineers, who develop devices used to diagnose and treat diseases. Biomedical engineering bridges the gap between medicine and traditional engineering fields to address critical needs in human health. Once admitted, BME students are also enrolled at the University of North Carolina at Chapel Hill to access additional classes and resources.

bme.ncsu.edu



3

CHEMICAL AND BIOMOLECULAR ENGINEERING (CBE)

Chemical engineers work to solve global and societal problems by creating sustainable processes to make useful products. At NC State, chemical engineers are harnessing DNA for next-generation information-storage systems, making textiles that can capture and deactivate toxic compounds and developing processes for CO₂ capture and pollution control.

cbe.ncsu.edu



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CIVIL, CONSTRUCTION, AND ENVIRONMENTAL ENGINEERING (CCEE)

How do we build the society of tomorrow? Civil, construction, and environmental engineers design and build infrastructure that allows our world to function — cleaner water, resilient energy grids, safer transportation networks, automated construction, smart materials and structures, adaptations for effects of climate change and more. Our students and faculty members are united by the desire to advance sustainability, human health and the environment.

ccee.ncsu.edu

5

COMPUTER SCIENCE (CSC)

Computer science is at the forefront of our software-enabled landscape. Computer scientists address problems once thought unsolvable, while pursuing collaborative innovation that pushes the boundaries of computing to improve the human condition and the world around us. Our department produces research and talent capable of solving problems that don't exist today with technologies that are beyond our current imagination. We do all this in a joyful environment that reflects our values of innovation, diversity, collaboration and lifelong learning.

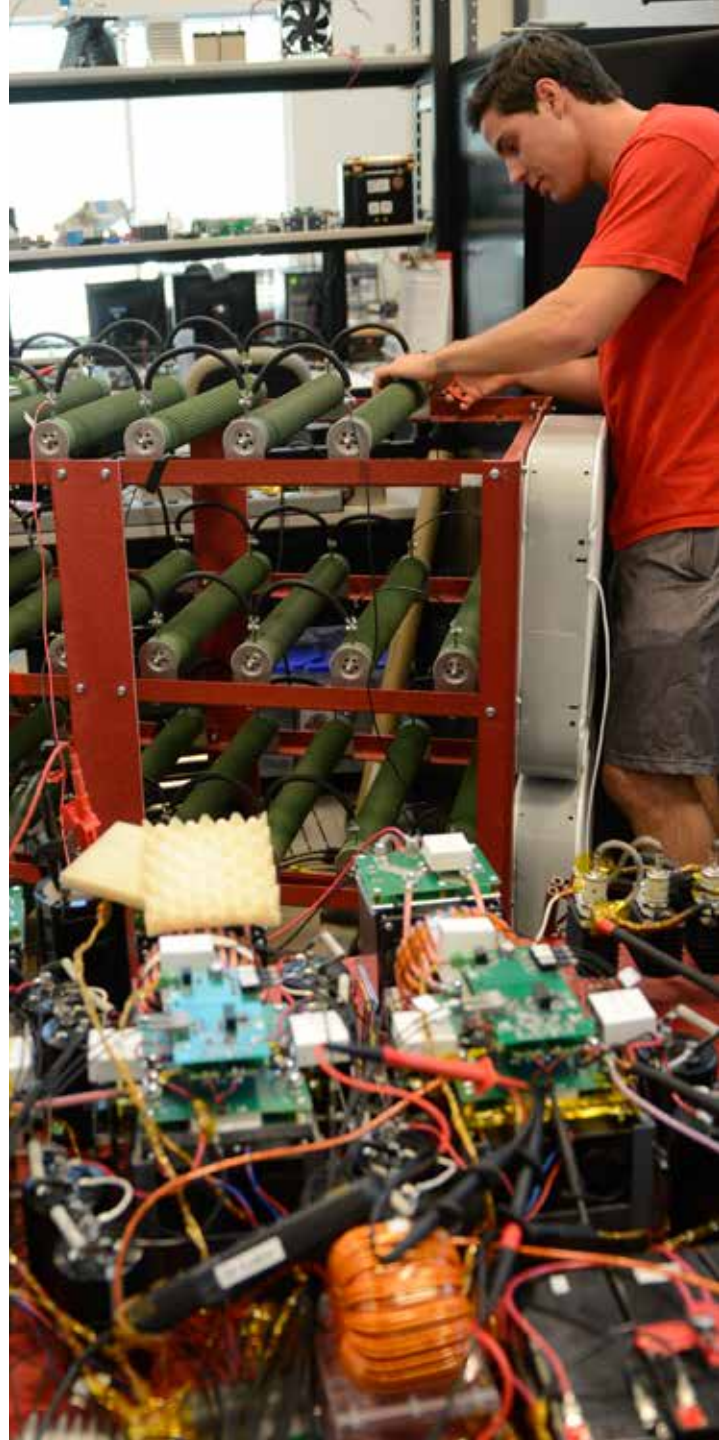
csc.ncsu.edu

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ELECTRICAL AND COMPUTER ENGINEERING (ECE)

Electrical engineers create the systems that power the world and develop communication systems that connect us all. Computer engineers design advanced computing systems, from futuristic quantum computers to nano-scale devices that surround you. They both are problem solvers with diverse and varied careers in all areas of engineering, business, science and entrepreneurship. Electrical and computer engineering is filled with daring visionaries and bright minds who engage, imagine and invent.

ece.ncsu.edu

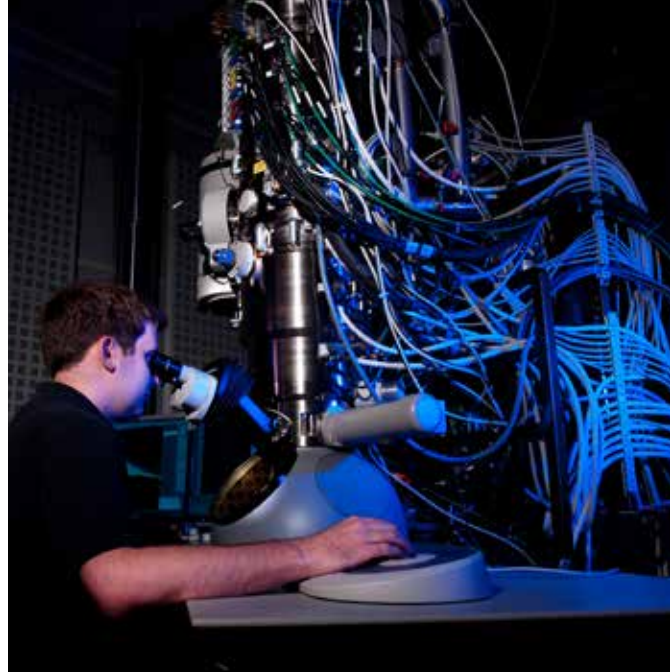


INDUSTRIAL AND SYSTEMS ENGINEERING (ISE)

Industrial engineering is about figuring out how to do things better. It combines the physical and social sciences together with engineering principles to improve processes and systems. As a result, industrial engineering is the “people person’s” engineering. Industrial engineers improve quality and productivity while at the same time cutting unnecessary spending of time, materials, money and energy.

This is why many industrial engineers often get promoted to management positions. For the same reason, industrial engineering is an excellent choice for anyone wanting to run their own business.

ise.ncsu.edu



MATERIALS SCIENCE AND ENGINEERING (MSE)

Materials scientists elevate the foundation of engineering. Brighter lights, cost-effective batteries, N95 surgical masks and 3D-bioprinted organ transplants were all imagined by creative materials scientists. Students discover that materials science serves as the gateway discipline anchored between STEM subjects and practical applications of engineering. Investigation of metals, polymers, ceramics and composites is critical to improving our world. Graduates from our program currently work at well-known companies, universities and national laboratories. Our graduates are highly employable in important jobs that work to enhance solar energy, nanotechnology, manufacturing and energy production. We are makers and innovators. Create, enhance and discover the materials that improve our world.

mse.ncsu.edu





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MECHANICAL AND AEROSPACE ENGINEERING (MAE)

Mechanical and aerospace engineers at NC State analyze and produce new novel engineering tools. They also develop, innovate and design everything from robots to autonomous cars, to aircraft and satellites, to prosthetic arms and manufacturing methods. The students are trained to think independently and to work in teams, setting them up for success in their future careers as engineers in the real world. Our students and research impact a diverse range of areas, including health care advancements; improving energy and the environment; land, ocean, air and space exploration; enhancing the safety and security of our communities; and innovating the future of manufacturing and design.

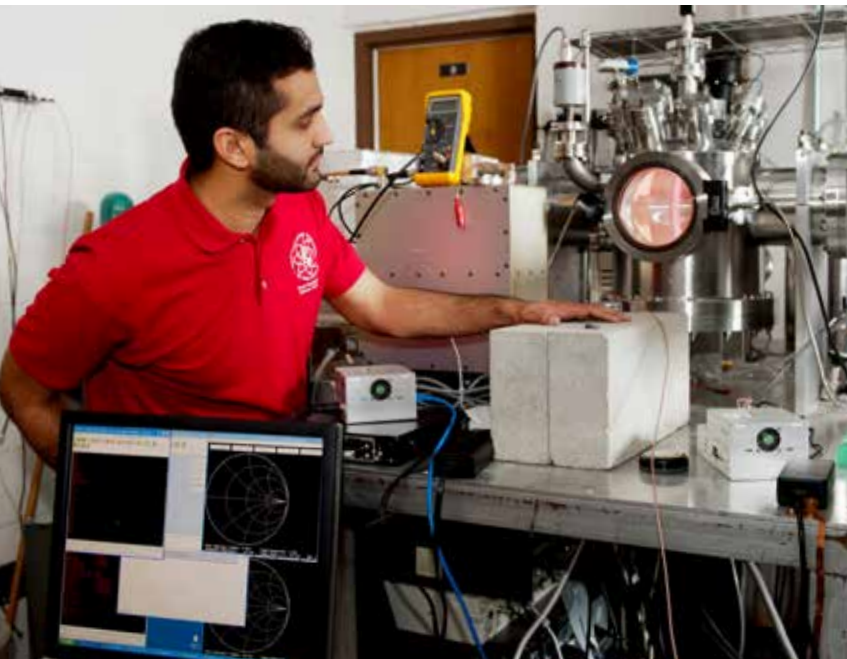
mae.ncsu.edu

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NUCLEAR ENGINEERING (NE)

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

ne.ncsu.edu





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PAPER SCIENCE AND ENGINEERING (PSE)

PSE is one of the most unique and exciting applied engineering programs on the NC State campus. Biomass has the capacity to save the planet, and no degree prepares students better for biomass conversion than a degree in PSE. Paper is the original biomaterial — renewable, recyclable, sustainable and biodegradable. In teaching students how to convert biomass into paper, the PSE curriculum also points the way to replacing plastics and other non-renewable materials — and PSE graduates land jobs in both the traditional paper industry and in emerging markets in sustainable materials and packaging. With job placement rates at almost 100 percent, incredible internship and co-op opportunities, and a vigorous undergraduate research program, PSE is a great place for students seeking to meet the challenges of a sustainable future.

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

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TEXTILE ENGINEERING (TE)

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.

textiles.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.



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 which allows students to pursue humanities and social science majors in parallel with an engineering degree.

ids.chass.ncsu.edu/dual/franklin.php

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, commonly referred to as a co-op. The experiences often lead to full-time jobs.

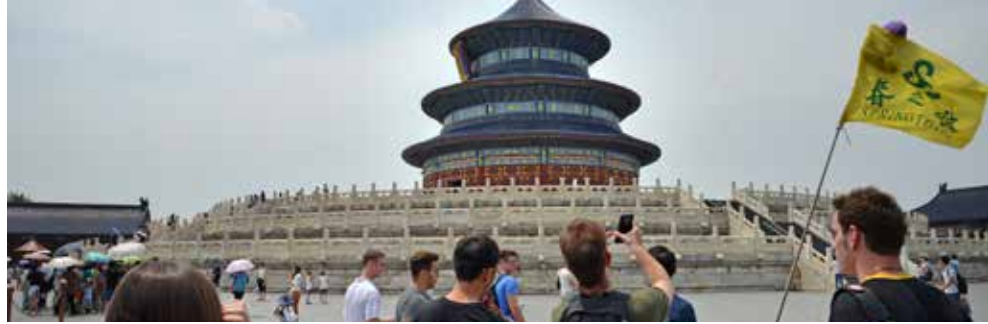
careers.dasa.ncsu.edu/overview

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.

getinvolved.ncsu.edu/organizations





ENGINEER YOUR EXPERIENCE

The Engineer Your Experience (EYE) Program provides funding to support engineering students' participation in a wide range of high-impact experiences to enhance their education in the College of Engineering. Examples of these experiences include: study abroad, alternative service break trips, conferences, webinars and technical certifications.

go.ncsu.edu/eye

MOVE INTO A VILLAGE

If you like to hang out with people who share your interests, you may want to live in one of our villages. There are several to choose from, including the Engineering Village, the EcoVillage and the Women in Science and Engineering Village.

housing.dasa.ncsu.edu/residential-communities/living-learning-villages

GO INTERNATIONAL

Think engineering students don't go abroad? You'd be wrong. NC State and its partners offer hundreds of programs in every corner of the world, and studying isn't the only option. Our students travel abroad to research in world-renowned labs, work at global companies and serve in a wide range of communities.

studyabroad.ncsu.edu





UNDERGRADUATE RESEARCH

Students are making an impact through their research. They have helped build a hypersonic wind tunnel that will support the development of the next generation of high-speed aircraft and have worked with faculty members to try to improve filtration techniques to remove per- and polyfluoroalkyl substances from drinking water.

ncsu.edu/undergrad-research

NOT SO MINOR

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

advising.dasa.ncsu.edu/exploring-majors-and-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

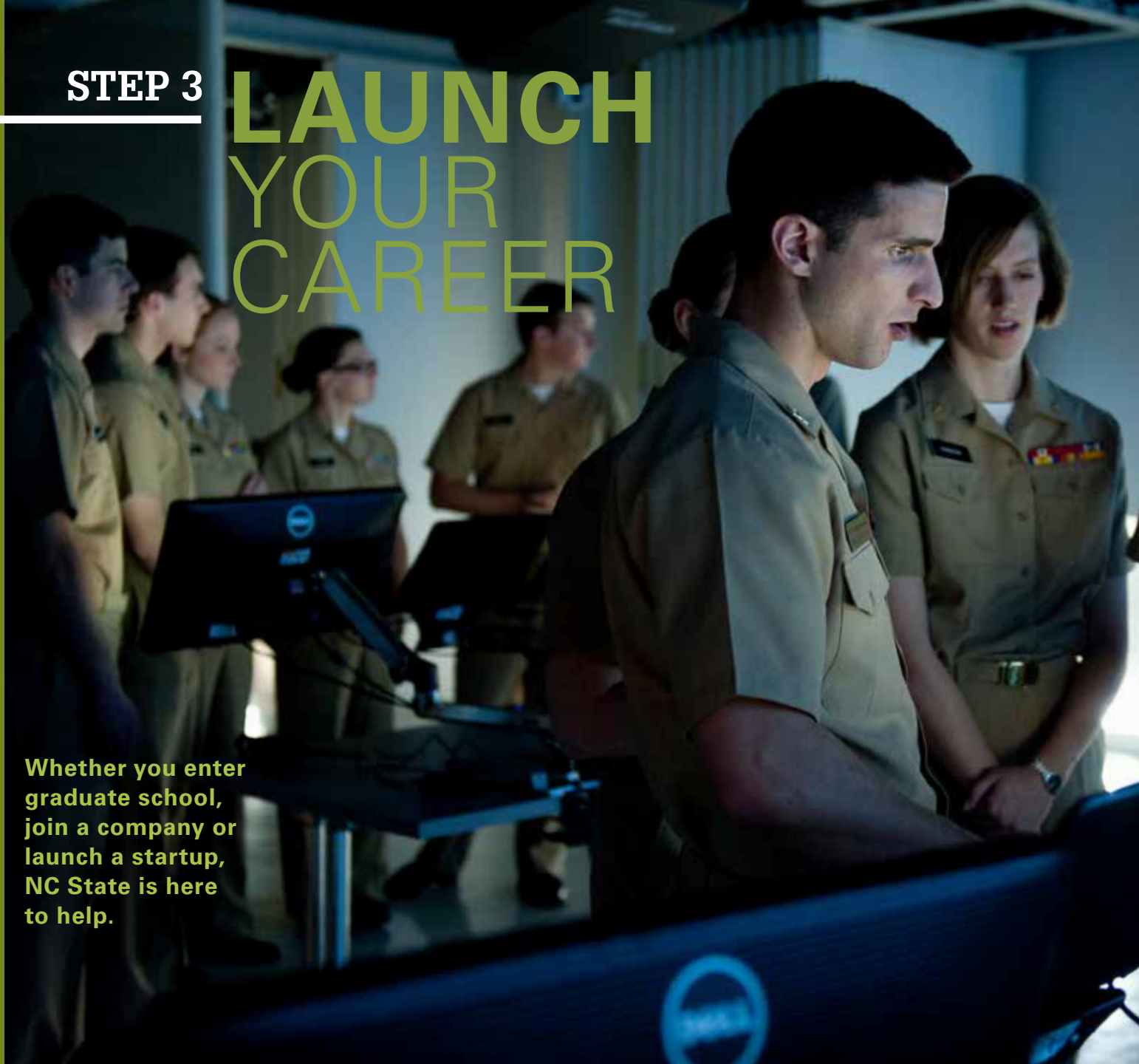
NC State's Engineering Career Fair is one of the largest university career fairs in the country. Start making connections as a first-year student. Many employers return to the fair year after year.

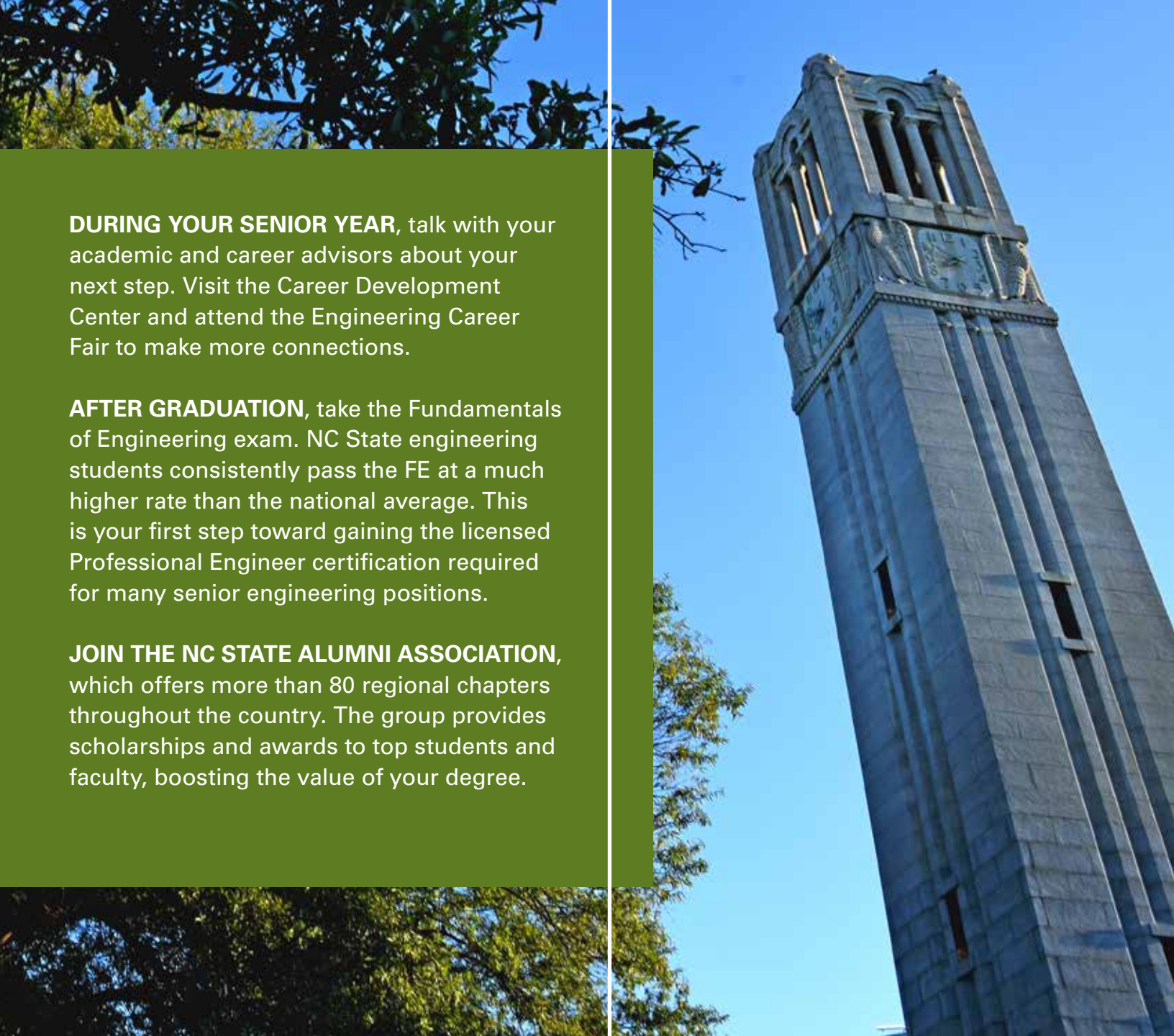
enr.ncsu.edu/careerfair

STEP 3

LAUNCH YOUR CAREER

Whether you enter
graduate school,
join a company or
launch a startup,
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. NC State engineering students consistently pass the FE at a much higher rate than the national average. This is 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?

Application review is holistic in nature. NC State Admissions is interested in how you Think and Do. A student's high school academic record, including grade point average (weighted and unweighted), test scores, class rank and academic organizations are often great indicators of scholarship and receive significant emphasis. Meanwhile, what a student does beyond the classroom in the areas of community involvement, athletics, leadership roles, employment and service provides critical insight that can be tied to future success at NC State. For more detailed information, visit go.ncsu.edu/engr-freshman-admissions.

WHAT IF I'M A TRANSFER APPLICANT?

NC State loves transfer students. About 25% of our engineering students began their college career at another institution. In addition to the holistic review described above, competitive transfer applicants will meet course and transfer GPA minimums. For more information, visit go.ncsu.edu/engr-transfer-admission.

ARE ENGINEERING SCHOLARSHIPS AVAILABLE?

Yes. About 100 engineering merit scholarships exist for incoming students in the average range of \$2,500 to \$7,000 annually. Offers are made through Pack ASSIST, NC State's one-stop shop for university scholarships, which admitted students complete post-acceptance. Some engineering scholarships are based on academic merit only, while others are based on academic merit and documented financial need. Scholarships are much more abundant in our engineering departments, which students typically join after the first year. For more information regarding engineering scholarships visit go.ncsu.edu/engr_scholarships.

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

No. In fact, you're encouraged to explore through the Engineering First Year Program wherein students 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.

Have more questions? Visit engr.ncsu.edu/future-students.



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 11,000 students, with nearly 8,000 undergraduates and more than 3,000 graduate students. The College also offers 19 online engineering master's degrees.

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1,000 copies of this public document were printed at a cost of \$1,969.00.

enr.ncsu.edu