

# ENGINEERING

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## About the College

**Anthony Atchley, Acting Dean of Engineering**

For more than a century, our college has been a leader in engineering education and research, preparing young people to become leaders within their professions and communities. Our faculty and students produce game-changing research that advances our society and solves global problems, creating jobs that grow our economy, and informing policy to shape our world. Today we look forward, seeing endless possibilities ahead, especially as we prioritize the pursuit of equity across our community of students, faculty, and staff. We are driven to build an inclusive and diverse community where everyone thrives. We are driven to perform research that impacts the lives of people around the world. We are committed to impacting society and embracing the challenges ahead with a passion for a bright future for humankind. We invite you to join us and be part of this exciting future.

MORE INFORMATION ABOUT THE COLLEGE (<https://www.engr.psu.edu/>)

## Mission and Goals

To nurture and train world-class socially aware, globally connected, diverse engineers, educators, and researchers with rigorous core knowledge and problem-solving skills, who understand complex, interacting engineering and societal systems. To develop innovative solutions to the world's most pressing challenges through transformational interdisciplinary research.

MORE INFORMATION ABOUT THE MISSION AND GOALS OF THE COLLEGE OF ENGINEERING (<https://www.engr.psu.edu/strategic-plan/>)

## Accreditation

All College of Engineering baccalaureate majors at University Park, with the exception of Computer Science, are accredited by the Engineering Accreditation Commission of ABET, Inc (<http://www.abet.org/>).

## Departments and Schools

### Department of Aerospace Engineering

Aerospace engineering is the primary field of engineering concerned with the design, development, testing, and production of aircraft, spacecraft, and related systems and equipment. The field has traditionally focused on problems related to atmospheric and space flight, with two major and overlapping branches: aeronautical engineering and astronautical engineering.

MORE INFORMATION ABOUT THE DEPARTMENT OF AEROSPACE ENGINEERING (<http://www.aero.psu.edu/>)

### Department of Agricultural and Biological Engineering

Department of Agricultural and Biological Engineering is the integration of engineering fundamentals with biological, agricultural, and environmental sciences. Students take a holistic approach to study agricultural production, processing of food and other bio-based materials, and natural resource protection. They apply this understanding to engineering challenges, such as providing safe food and clean water.

MORE INFORMATION ABOUT THE DEPARTMENT OF AGRICULTURAL AND BIOLOGICAL ENGINEERING (<http://abe.psu.edu/>)

### Department of Architectural Engineering

Architectural Engineering focuses on the scientific and engineering aspects of planning, designing, constructing, and analyzing buildings. Students learn to become architectural engineers who focus on building structure, stability, and systems, including: Planning, designing, and analyzing acoustics; building sustainability and safety aspects; construction management; heating, ventilating, and air conditioning systems; and lighting and electrical systems.

MORE INFORMATION ABOUT THE DEPARTMENT OF ARCHITECTURAL ENGINEERING (<http://www.ae.psu.edu/>)

### Department of Biomedical Engineering

The Department of Biomedical Engineering is built upon the apex of engineering, medicine, healthcare policy and biological discovery. Biomedical Engineering prepares students to become future leaders in the areas of medical device design, instrumentation, medical imaging, healthcare management, biomedical research and academia.

MORE INFORMATION ABOUT THE DEPARTMENT OF BIOMEDICAL ENGINEERING (<http://www.bme.psu.edu/>)

### Department of Chemical Engineering

Chemical Engineering combines the principles of chemistry, biology, mathematics and physics to solve some of today's most pressing societal issues in human health, environmental sustainability, and energy.

MORE INFORMATION ABOUT THE DEPARTMENT OF CHEMICAL ENGINEERING (<http://www.che.psu.edu/>)

### Department of Civil and Environmental Engineering

Civil Engineering educates future engineers through solid science and engineering principles by identifying engineering challenges, creating pioneering solutions, and leading the industry with research discoveries and design innovations. We tackle some of the major problems facing society today in order to advance the fields of civil and environmental engineering.

MORE INFORMATION ABOUT THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (<http://www.cee.psu.edu/>)

### School of Electrical Engineering and Computer Science

The majors in the School of Electrical Engineering and Computer Science (EECS) provide engineering education in fields that are at the forefront of 21st century technology: computation, cyber security, communications, materials, machine learning, power/energy systems, and information processing.

MORE INFORMATION ABOUT THE SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (<http://www.eecs.psu.edu/>)

### Department of Engineering Science and Mechanics

Engineering science is a broad discipline that encompasses the many different scientific principles and associated mathematics that underlie engineering. It integrates engineering, biological, chemical, mathematical, and physical sciences with the arts, humanities, social sciences, and the professions to tackle the most demanding challenges and advance the well-being of global society. Engineering scientists research, develop, and design new materials, devices, sensors, and processes for a diverse range of applications.

MORE INFORMATION ABOUT THE DEPARTMENT OF ENGINEERING SCIENCE AND MECHANICS (<http://www.esm.psu.edu/>)

## Department of Industrial and Manufacturing Engineering

Industrial Engineers (IEs) design systems and processes to eliminate wastefulness and improve efficiencies. IEs are trained to be problem solvers that have an eye toward innovation and sustainability. They work in a variety of fields to develop solutions for challenges in management, manufacturing, logistics, health systems, retail, service, and ergonomics.

MORE INFORMATION ABOUT THE DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING (<http://www.ime.psu.edu/>)

## Department of Mechanical Engineering

Mechanical engineering uses a combination of physics, chemistry, mathematics, and materials science to study mechanical, fluid, and thermal systems. Mechanical engineers create things that help improve the health, happiness and safety of our everyday lives such as biomedical devices, aircraft propulsion, and ways to store renewable energies.

MORE INFORMATION ABOUT THE DEPARTMENT OF MECHANICAL ENGINEERING (<https://www.me.psu.edu/>)

## Department of Nuclear Engineering

Nuclear engineering is a multidisciplinary field that includes providing nuclear power for electrical production, and includes understanding and improving nuclear science, nuclear safety, and nuclear security. Graduates may apply their skills to treat diseases, operate nuclear energy systems, develop regulations to ensure safety, or facilitate space exploration.

MORE INFORMATION ABOUT THE DEPARTMENT OF NUCLEAR ENGINEERING (<https://www.nuce.psu.edu/>)

## School of Engineering Design, Technology, and Professional Programs

The School of Engineering Design, Technology, and Professional Programs (SEDAPP) delivers effective engineering education through active, collaborative, project-based, and professionally oriented classroom experiences. SEDAPP offers a variety of programs that partner faculty, students, and industry in the study of real-life engineering problems and solve them with innovative, humanitarian solutions.

MORE INFORMATION ABOUT THE SCHOOL OF ENGINEERING DESIGN, TECHNOLOGY, AND PROFESSIONAL PROGRAMS (<http://sedtapp.psu.edu/>)

## Baccalaureate Degrees

- Aerospace Engineering, B.S.
- Architectural Engineering, B.A.E.
- Biological Engineering, B.S.
- Biomedical Engineering, B.S.
- Chemical Engineering, B.S.
- Civil Engineering, B.S. (Engineering)
- Computer Engineering, B.S. (Engineering)
- Computer Science, B.S. (Engineering)
- Data Sciences, B.S. (Engineering)
- Electrical Engineering Technology, B.S. (Engineering)
- Electrical Engineering, B.S. (Engineering)
- Electro-Mechanical Engineering Technology, B.S. (Engineering)

- Engineering Science, B.S.
- Engineering, B.S.
- Industrial Engineering, B.S. (Engineering)
- Liberal Arts and Earth and Mineral Sciences Concurrent Degree; Liberal Arts and Engineering Concurrent Degree (Engineering)
- Mechanical Engineering, B.S. (Engineering)
- Nuclear Engineering, B.S.
- Surveying Engineering, B.S.

## Associate Degrees

- Biomedical Engineering Technology, A.ENG.T.
- Electrical Engineering Technology, A.ENG.T. (Engineering)
- Mechanical Engineering Technology, A.ENG.T. (Engineering)
- Surveying Engineering Technology, A.ENG.T.

## Minors

- Biological Engineering, Minor
- Biomedical Engineering, Minor
- Computer Engineering, Minor (Engineering)
- Cybersecurity Computational Foundations, Minor
- Engineering Leadership Development, Minor
- Engineering Mechanics, Minor
- Environmental Engineering, Minor
- Information Sciences and Technology for Aerospace Engineering, Minor
- Information Sciences and Technology for Industrial Engineering, Minor
- International Engineering, Minor
- Nanotechnology, Minor
- Residential Construction, Minor
- Service Enterprise Engineering, Minor
- Six Sigma, Minor

## Certificates

- Engineering and Community Engagement, Certificate
- Engineering Design with Digital Tools, Certificate
- Engineering Design, Certificate
- Housing, Certificate
- International Engineering, Certificate
- Nanotechnology, Certificate
- Space Systems Engineering, Certificate

## College Procedures

### Administrative Enrollment Controls

Students should work with an appropriate academic adviser to determine their Entrance to Major (ETM) requirements for their intended College of Engineering major.

MORE INFORMATION ABOUT ADMINISTRATIVE ENROLLMENT CONTROLS FOR PROGRAMS IN THE COLLEGE OF ENGINEERING (<https://advising.engr.psu.edu/advising/entrance-to-major/>)

## Change of Campus

Students generally declare their academic major at the end of their second year of enrollment during the entrance to major process. If the student applies for a major that is not offered at the student's current location, the student will be required to select an approved location during the entrance to major process.

MORE INFORMATION ABOUT CHANGE OF CAMPUS (<https://advising.engr.psu.edu/student-resources/change-of-campus.aspx>)

## Concurrent Major

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester.

MORE INFORMATION ABOUT CONCURRENT MAJORS (<https://advising.engr.psu.edu/student-resources/multiple-majors.aspx>)

READ SENATE POLICY 60-00: COMPLETING MORE THAN ONE UNDERGRADUATE MAJOR PROGRAM (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/60-00-completing-more-than-one-undergraduate-program/#60-00>)

## Academic Warning

A student who fails to earn a 2.00 cumulative grade-point average will be placed on academic warning. A student placed on academic warning will have a hold placed on registration and will be required to meet with an academic adviser in order for this registration hold to be removed. To remove academic warning, the cumulative grade-point average must be 2.00 or higher.

Students on academic warning should work closely with their assigned academic adviser or the College of Engineering Advising Center to identify and address issues impacting their academic success.

MORE INFORMATION ABOUT ACADEMIC WARNING (<https://advising.engr.psu.edu/academic-support/policies-and-procedures.aspx>)

READ SENATE POLICY 54-20: ACADEMIC WARNING (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-20>)

## Academic Suspension

A student in academic warning who fails to maintain a semester grade-point average of 2.00 or higher will be academically suspended. A student who has been academically suspended may not schedule courses at the University for two consecutive semesters. (Note: Summer session is equal to one semester.)

A student seeking to return to the College of Engineering after academic suspension is required to meet with an academic adviser and follow the procedures outlined by the Engineering Advising Center (<https://advising.engr.psu.edu/assets/docs/return-from-suspension-fa21.pdf>).

MORE INFORMATION ABOUT ACADEMIC SUSPENSION (<https://advising.engr.psu.edu/student-resources/returning-to-the-university.aspx>)

READ SENATE POLICY 54-40: ACADEMIC SUSPENSION (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/54-00-academic-progress/#54-40>)

## Resources

### Engineering Advising Center

The Engineering Advising Center is the source for information about undergraduate engineering major options, scheduling, degree requirements, entrance-to-major, and more. With a team of dedicated academic advisers, students are provided resources and support as they explore choices regarding their academic interests and co-curricular opportunities.

MORE INFORMATION ABOUT THE ENGINEERING ADVISING CENTER (<https://advising.engr.psu.edu/>)

### Center for Engineering Outreach and Inclusion

The Center for Engineering Outreach and Inclusion (CEOI) assists all students in the pursuit of their undergraduate and graduate degrees. Founded to serve students from groups underrepresented in engineering, the center has grown to assist all students, faculty, and staff in the College with their engagement in equity and inclusion through evidence-based best practices and programs.

MORE INFORMATION ABOUT THE CENTER FOR ENGINEERING OUTREACH AND INCLUSION (<https://inclusion.engr.psu.edu/>)

### Career Resources & Employer Relations

Career Resources & Employer Relations (CR&ER) provides career advising and resources to all engineering students and alumni from all Penn State campuses. CR&ER staff review résumés and cover letters, provide guidance about the job search process, encourage student engagement with Engineering Career Envoys for peer mentorship, and help students find internship, co-op, and entry-level full-time jobs through Nittany Lion Careers and other online platforms. We also connect students with employers across a range of industries at a wide variety of career events each academic year, including information sessions, career fairs, and seminars.

MORE INFORMATION ABOUT THE CAREER RESOURCES & EMPLOYER RELATIONS (<https://career.engr.psu.edu/>)

### Global Engineering Engagement

Engineering students can choose from a variety of study abroad programs spanning six continents, from short-term or semester-long programs to global experiences embedded in the curriculum. Global Engineering Fellows are engineering students who can offer peer-to-peer information, advice, and insight on study abroad.

MORE INFORMATION ABOUT GLOBAL ENGINEERING ENGAGEMENT (<https://global.engr.psu.edu/>)

## Honors Programs

### Schreyer Honors College

The Schreyer Honors College, regarded as one of the nation's top programs of its kind, promotes achieving academic excellence with integrity, building a global perspective, and creating opportunities for leadership and civic engagement. Schreyer Scholars, including those admitted after their first or second year of enrollment, are a diverse and motivated group of approximately 2,000 students at University Park and 20 Commonwealth campuses. The College strives to educate students who will have an important and ethical influence in the world, to improve educational practice, and to continue to be recognized as a leading force in honors education nationwide.

MORE INFORMATION ABOUT THE SCHREYER HONORS COLLEGE (<http://www.shc.psu.edu>)

### **Honors in the College of Engineering**

The Engineering Science major - also the College of Engineering's honors program - is a multidisciplinary honors program for engineering students who demonstrate superior academic potential or achievement. Students obtain depth of knowledge through technical electives and a capstone research and design project (senior honors thesis).

MORE INFORMATION ABOUT HONORS IN THE COLLEGE OF ENGINEERING (<http://www.esm.psu.edu/academics/undergraduate/engineering-science-major.aspx>)

### **Contact**

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