College of Engineering

Overview

This is a time of tremendous opportunity for engineers. The demand for professionals with the capability to make a difference to our planet, improve our infrastructure, make health-related advances and innovate technology have never been greater.

Temple's College of Engineering (COE) is a rising institution—consistently improving in the rankings and with rapid expansion of research. The college offers the best of both worlds, a tight knit community and small class sizes with large university amenities. While the college is experiencing rapid changes, one thing has been constant—the commitment to provide a high-quality education to a diverse and vibrant student population.

The college's programs are accredited by the national accreditation board, ABET. Upgrades to the curriculum are always ongoing so that students receive the best cutting-edge and relevant knowledge. This is evident in the excellent job placement rates—among the highest at the University—with our graduates hired by companies like Amtrak, Comcast, GE, Johnson & Johnson, Verizon, Boeing, Lockheed Martin, Pennoni Construction, NASA, PennDot, PGW, Turner Construction, Metrologic and many more.

Mission

The College of Engineering's mission is to provide students with a high-quality and globally-competitive learning experience in engineering, engineering technology and the applied sciences. We aim to equip our engineering graduates to be confident professionals with the technical, problem-solving and communication skills required to succeed in industry and contribute to the betterment of our society.

The college fosters the creation of knowledge through engineering and cross-disciplinary applied research. Great value is placed on scholarship, integrity, practice and service aimed at improving the quality of life and the economic viability of our society. This value system is reflected in how we assess faculty for promotion and tenure and how we grade student work.

We strive to pursue these objectives in a learning environment that celebrates ethnic and gender diversity, respects experience and encourages problem-solving through teamwork.

The college offers undergraduate curricula in engineering and engineering technology. Our engineering programs, leading to the Bachelor of Science in Engineering degree, prepare students for positions in engineering that require a broad preparation in mathematics and the engineering sciences at the entry level. They are recommended for those who expect to become registered professional engineers, pursue an advanced degree, or become involved in conceptual design, planning, research and development in industry. The programs in engineering technology, which lead to the Bachelor of Science in Engineering Technology degree, educate students for careers as applied engineering professionals, translating concepts into functioning systems and supervising subsequent implementation by technicians and craftsmen.

Academic Departments

The College of Engineering consists of the following departments:

- Bioengineering
- Civil and Environmental Engineering
- · Electrical and Computer Engineering
- · Engineering, Technology and Management
- · Mechanical Engineering

Accreditation

The Bioengineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Bioengineering and Biomedical and Similarly Named Engineering Programs.

The Civil Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Civil and Similarly Named Engineering Programs.

The Electrical and Computer Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The Environmental Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Environmental Engineering and Similarly Named Engineering Programs.

The Industrial and Systems Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Industrial Engineering and Systems Engineering and Similarly Named Engineering Programs.

The Mechanical Engineering (BS) program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

The Construction Engineering Technology (BS) program is accredited by the Engineering Technology Accreditation Commission of ABET, https://www.abet.org, under the commission's General Criteria and Program Criteria for Construction Engineering Technology and Similarly Named Programs.

The Engineering Technology (BS) program is accredited by the Engineering Technology Accreditation Commission of ABET, https://www.abet.org, under the commission's General Criteria with no applicable program criteria.

ABET is a non-profit and non-governmental accrediting agency for academic programs in the disciplines of applied science, computing, engineering, and engineering technology.

Study Abroad at Temple Rome

Temple engineering students have an exciting opportunity to take a semester abroad in Rome, Italy. Engineering majors may study at the Temple Rome campus, with access to cultural activities and organized outings, located at Via di San Sebastianello 16, adjacent to Piazza di Spagna—one of the most notable landmarks in the heart of the Eternal City and a UNESCO World Heritage Site. The new campus is walking distance from the iconic Trevi Fountain as well as famous monuments such as the Pantheon, Villa Borghese, Villa Medici and Mausoleum of Augustus. This unique study abroad program allows you to take the same classes in Rome as you would on main campus—three engineering classes—plus Italian I. Temple's College of Engineering is one of the few able to offer engineering coursework so that you won't miss a beat in the demanding engineering curriculum.

Cooperative Education and Internship

Students in the cooperative education (co-op) program work a minimum of 35 hours a week in positions related to their degree, while considered full-time students, gaining at least one semester of professional relevant work experience. These students have the same course requirements so it may take additional time to complete the degree. College of Engineering students may register and receive technical elective credits for their work experience with the co-op courses (ENGR 2181, ENGR 3181).

Relevant work experience may also be gained through internships. The positions are typically available during the summer terms, allowing students to stay on the traditional four-year academic plan while obtaining professional engineering experience.

A dedicated career development team in the College of Engineering Dean's Office helps guide students through the co-op program and advises on career resources. For more information contact Michael Madera by phone at 215-204-2537 or by e-mail at michael.madera@temple.edu.

+1 Bachelor to Master's Accelerated Degree Program

High-achieving undergraduates can earn both a bachelor's degree and a master's degree within five years. Students apply for this program in sophomore year, and four graduate-level courses are taken in place of undergraduate requirements during junior and senior years. After the bachelor's degree is earned, one graduate-level course is taken in the summer followed by full-time study in the subsequent Fall and Spring semesters to complete the master's degree study.

The +1 program is offered in the following areas:

- · Bachelor of Science in Bioengineering and Master of Science in Bioengineering
- · Bachelor of Science in Civil Engineering and Master of Science in Civil Engineering
- Bachelor of Science in Civil Engineering and Master of Science in Environmental Engineering
- Bachelor of Science in Electrical and Computer Engineering (Electrical Engineering concentration) and Master of Science in Electrical Engineering
- Bachelor of Science in Electrical and Computer Engineering (Computer Engineering concentration) and Master of Science in Electrical Engineering
- · Bachelor of Science in Environmental Engineering and Master of Science in Environmental Engineering
- · Bachelor of Science in Mechanical Engineering and Master of Science in Mechanical Engineering

Learn more about the admissions requirements and how to apply.

Student Organizations

The following are a few of the professional societies and organizations located within the College of Engineering:

- American Society of Heating, Refrigeration, and Air Conditioning
- American Society of Civil Engineers
- · American Society of Highway Engineers
- · American Society of Mechanical Engineers
- Biomedical Engineering Society
- Construction Management Association of America
- Engineers Without Borders

- Eta Kappa Nu Honor Society (IEEE-HKN)
- Institute of Electrical and Electronics Engineers
- · Institute of Industrial and Systems Engineers
- · Materials Research Society of Temple University
- · National Society of Black Engineers
- · Society of Asian Scientists and Engineers
- Society of Automotive Engineers (Temple Formula Racing)
- · Society of Environmental Engineers and Scientists
- · Society of Hispanic Professional Engineers
- · Society of Women Engineers
- TUARC K3TU: The Temple University Amateur Radio Club
- Temple Prosthetics and Orthotics
- Temple Robotics
- Theta Tau Colony

Special Facilities

The college is continuously investing in resources in order to provide the best education and advancements through research. Our more than 20 labs, institutes and centers and more than a dozen teaching labs are home to state-of-the-art equipment and tools. Temple Engineering recently debuted the **Innovation, Design, Engineering and Applied Science (IDEAS) Hub**, a 7,000 square-foot renovation that is part of a collaborative ecosystem in the college. The IDEAS Hub will empower students to use engineering for good. From 3D printing, motion capture and drone stations to robotics, soldering an circuitry, our students and faculty have the tools to do more than learn engineering, they can now make their ideas for changing the world a reality. Learn more about our research and lab facilities.

Additionally, students have access to the Ambler Arboretum at Temple University, the Temple University Field Station at Ambler, and the Temple University Ambler Campus Greenhouse Education and Research Complex where faculty and students can use these resources in coursework and research.

Dean's Office

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Contact Information

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Center for Academic Advising and Professional Development Engineering Building, Room 349 engradv@temple.edu (engradvr@temple.edu)

Undergraduate Programs

- Bioengineering BSBIOE with Cellular Engineering Concentration
- Bioengineering BSBIOE with Engineering Devices Concentration
- Bioengineering BSBIOE with Pre-Health Concentration

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- · Civil Engineering BSCE
- Civil Engineering BSCE with Cooperative Education Program Concentration
- Civil Engineering BSCE with Environmental Engineering & Cooperative Education Program Concentrations
- Civil Engineering BSCE with Environmental Engineering Concentration
- Construction Engineering Technology BSCET
- · Construction Engineering Technology BSCET with Cooperative Education Program Concentration
- · Electrical and Computer Engineering BSECE with Bioelectrical Engineering Concentration
- Electrical and Computer Engineering BSECE with Computer Engineering Concentration
- Electrical and Computer Engineering BSECE with Electrical Engineering Concentration
- Engineering (Undeclared)
- · Engineering BSE
- Engineering BSE with Electromechanical Engineering Concentration
- Engineering BSE with Energy and Power Engineering Concentration
- · Engineering Technology BSET
- Engineering Technology BSET with Cooperative Education Program Concentration
- Environmental Engineering BSEnvE
- · Environmental Engineering Minor
- · Industrial and Systems Engineering BSISE
- · Mechanical Engineering BSME
- Mechanical Engineering BSME with Cooperative Education Program Concentration
- Mechanical Engineering Technology BSMET

Academic Policies and Regulations

Please see the full listing of university-wide Academic Policies. The university policies and regulations generally apply to all undergraduate students and provide a framework within which schools and colleges may specify further conditions or variations appropriate to students in their courses or programs. Students are responsible for complying with all university-wide academic policies that apply to their individual academic status.

Changing Majors

Current students within the College of Engineering can schedule an academic advising appointment to discuss changing their major. Advisors will review how major changes might impact the student's overall graduation plan.

Students outside of the College of Engineering must complete the Change of Program (COP) form found on the Temple University COP Canvas. Students in their first semester at Temple University who wish to transfer into the College of Engineering will be automatically approved. Continuing students wishing to transfer into the College of Engineering should be in Academic Good Standing with a cumulative GPA of 2.0 or higher and have demonstrated proficiency by achieving a grade of C or better in a MATH course.

Co-requisites and Prerequisites

Students may be de-enrolled from courses for which they do not meet prerequisites and co-requisites. (Please see the Prerequisites and Co-requisites policy for more information.) Students are responsible for reviewing and abiding by all course prerequisites and co-requisites in the Course Catalog. The requirements are designed to assure that students are appropriately prepared to be successful in their courses. Prerequisites provide an efficient manner for students to register for the next course in a sequence for which they are prepared. Students who appropriately satisfy prerequisites are permitted to register for a first and second attempt. Completion of a prerequisite does not permit a student to enroll in the third attempt of a repeated course. Students may attempt a course for the third time only if they have received permission from the college, which is not guaranteed and may require additional coursework (See the Repeating a Course Policy below).

Courses Inapplicable to Graduation

Lower-level military science (ROTC) and RCC-enhanced courses are not credited toward the minimum semester hours required for graduation.

Students will not be awarded duplicate credit for courses that are repeated in transfer or at Temple.

Credit for Life Experience

Degree seeking students may be granted academic credits for work experience if it is judged to be an adequate substitute for all or part of particular courses required of the student. Experience must be related to a specific course in the curriculum offered by the college. Work experience must be acquired before entering Temple University. Credit will only be granted after completion of 30 semester hours of coursework. Application forms are available in the Center for Academic Advising and Professional Development (Engineering Building, Room 349).

Dean's List

Each fall and spring semester, those undergraduates who have met the credit hour and academic criteria for their school or college are placed on the Dean's List. See the Dean's List policy for specific GPA and credit-hour requirements.

Fly in 4

Fly in 4 is a partnership between incoming freshmen and the University. It limits the number of hours per week that students have to work for pay and guarantees that students can graduate in four years, potentially saving them thousands of dollars in debt. For more information on this program, see Undergraduate Admissions.

Graduation Procedures

All College of Engineering students should complete a graduation review with an advisor in the Center for Academic Advising and Professional Development prior to or at the start of their senior year. Students should schedule a review once they have completed 85 semester hours. The graduation review involves a detailing of the courses and credits completed and those that remain to be completed for graduation. Students are expected to be active participants in the review and have equal responsibility for assuring the accuracy and completeness of the review.

Early in the semester in which students will complete their degree requirements, they must apply online via Self-Service Banner (SSB). For application deadlines, see the university's Undergraduate Graduation Procedures.

Non-Traditional Credits

A maximum of 12 semester hours of credit will be allowed by the COE in cooperative education, relevant work experience, approved ROTC courses, and Advanced Placement or CLEP examinations. No other non-traditional credit will be granted.

Overload Requests

Students within the College of Engineering may seek approval to overload by petitioning through the Center for Academic Advising and Professional Development. An overload petition is required when requesting to take more than 18 credits in either the fall or spring semesters or more than 8 credits in either summer session. Credits over 18 carry additional tuition charges. The following items are considered when reviewing an overload petition:

- · Current Academic Standing
- The number of credits successfully completed in previous semesters
- Rigor of the course load requested

Permission to Take Courses at Another Institution

Students in the College of Engineering who wish to take courses at another institution must petition the Center for Academic Advising and Student Affairs for approval prior to enrolling in such a course. Petition forms are available in the Center for Academic Advising and Professional Development, Engineering Building, Room 349. The student is responsible for obtaining a course description from the other institution and attaching it to the petition form. The student takes the petition to the corresponding Temple department for faculty review and then submits the petition to the Center for Academic Advising and Professional Development for final approval.

Courses taken without prior approval will not be transferable toward the Temple degree. In addition, students must have completed the prerequisites and have completed or be completing any listed co-requisites of both the Temple equivalent course and course at the host institution.

Please see the University policy on Permission to Complete a Course at Another Institution after Matriculation for more information.

Plagiarism and Academic Dishonesty

Plagiarism and academic dishonesty are prohibited by the College of Engineering. The development of independent thought and a respect for the thoughts of others is essential to intellectual growth. The prohibition of plagiarism and cheating is intended to foster this independence and respect. See the policy on Plagiarism in this *Bulletin*.

The penalty for plagiarism or cheating as a first offense is normally an F in the course in which the offense is committed. In such cases, the instructor can submit the Settlement of a Charge of Academic Dishonesty form to the Office of Student Conduct and Community Standards. The Office of Student Conduct and Community Standards generally adjudicates all cases and student appeals.

Repeating a Course

Students may attempt a course two times without restriction. Students in the College of Engineering are encouraged to meet with an advisor prior to attempting a course for the second time. A third attempt of any course is not guaranteed and requires permission of the student's home college. Petitions for a third attempt may require additional coursework, remediation and/or academic/personal planning. Please refer to the University policy on Repeating a Course for further information.

Grievance Procedure

All undergraduate or graduate students enrolled in a College of Engineering course have a right to appeal grades which they deem unfair and unreasonable. The responsibility to keep the appeal process moving forward is primarily the student's responsibility. Only a final course grade may be appealed and the appeal of a final grade must be of a substantive nature. The student must complete the Student Grievance Form and provide evidence indicating a mistake, fraud, or bad faith on the part of an instructor. Please refer to the College of Engineering Grievance Policy for further information.

College Graduation Requirements

Anticipation of Graduation

All College of Engineering (COE) students who intend to graduate in May, August or January must complete a graduation review. Students must also submit a graduation application at the beginning of their final semester.

College Requirements for all Majors

Engineering Program

- 30 minimum credits in Math and Science
- · 25 minimum credits in University General Education
- 50-65 credits in major (varies with major), minimum 2.0 GPA in the major
- 128 minimum credits total

Engineering Technology (CET, ET, & MET) programs

- · 24 minimum credits in Math and Science
- 25 minimum credits in University General Education
- 50-60 credits in major (varies with major), minimum 2.0 GPA in the major
- · 124 minimum credits total

Notes:

- 1. The total number of credit hours at graduation may be greater for some students based on initial placement exams, transfer evaluations, individual curricular choices and academic progress.
- 2. Students must fulfill the necessary prerequisites for any given course or course sequence. See the Prerequisite and Co-requisite Policy in the university-wide Academic Policies section in this *Bulletin*.
- 3. The engineering programs are structured to prepare students for the professional practice of engineering and/or graduate study. The curricula emphasize a rigorous treatment of the mathematical and scientific approaches to the solution of engineering problems.
- 4. The final two years of study stress the synthesis of unique solutions rooted in the fundamental principles mastered during the first two years. These final years culminate in a design project.

Program Performance

A minimum cumulative GPA of 2.0 is required for graduation. Students majoring in engineering must attain a minimum GPA of 2.0 in their major courses in order to graduate. Students majoring in engineering technology and construction management technology must have a minimum GPA of 2.0 in their major courses.

Independent Research

Independent student work on a laboratory investigation or design project must be approved by the chairperson of the respective department and the assigned faculty supervisor. Work is graded on research methodology, research results and a report. Typically juniors or seniors with a minimum GPA of 3.0 may apply for independent research. Approved projects must be completed in one academic year.

Independent Study

A student is permitted to take no more than two independent study courses. Permission is granted only if a student needs the course to complete his/her studies. They can be taken typically in the junior and senior years. The content of the independent study work must cover the material in one of the courses listed in the curriculum. Students must complete an independent study form in their department prior to registration for the independent study.

Transfer Credit

Transfer credit to the COE can be granted only from an accredited institution of higher learning. Co-op education and credit for life experience are not transferable from other institutions. Advanced placement credits must follow Temple's advanced placement credit policy and equivalencies. Transfer credits are not granted after a student has matriculated into a degree program. Students may take courses at other institutions and have transfer credits awarded provided they are meeting Temple's Permission to Complete Courses at Another Institution After Matriculation guidelines. The dean must approve permission for such arrangements in advance. Senior Design Projects or Capstone courses are not transferable to the college.

Academic Advising

All students in the College of Engineering (COE) have the flexibility to meet with any of the academic advisors in the Center for Academic Advising and Professional Development once they have officially matriculated in the College of Engineering. The student's academic advisor will confirm that the courses selected yield credits toward a degree and that the requirements of Temple University, COE, and the academic department are being met. Reference should be made to this *Bulletin* and to DARS in planning programs.

Academic advisors attempt to avoid errors when advising students about their program requirements, but schools and colleges cannot assume liability for errors in advising. Therefore, students must assume primary responsibility for knowing the requirements for their degrees and for acquiring current information about their academic status.

Administration

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Civil and Environmental Engineering Department Engineering Building, Room 513 215-204-7814 ceed@temple.edu

Electrical and Computer Engineering Department Engineering Building, Room 711 215-204-7597 eegrad@temple.edu

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