

# Degrees and Programs

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To satisfy the course requirements for an engineering degree, a student must earn credit for all of the courses listed in the curriculum for that degree.

With the exception of the newly introduced Bachelor of Science in Electrical and Computer Engineering degree, all University curricula leading to bachelor's degrees in engineering are accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org/>. ABET accreditation for the new degree is planned and is expected to be requested during this catalog cycle. ABET sets minimum standards for engineering education, defined in terms of curriculum content, the quality of the faculty, and the adequacy of facilities. Graduation from an accredited program is an advantage when applying for membership in a professional society or for registration as a professional engineer.

## Dual Degree Programs

### Engineering/Plan II Honors Program

A limited number of students whose high school class standing and admission test scores indicate strong academic potential and motivation may pursue a curriculum leading to both a bachelor's degree in engineering and the Bachelor of Arts, Plan II. This dual degree option, offered jointly by the Cockrell School and the Plan II Honors Program of the College of Liberal Arts, provides the student with challenging liberal arts courses while he or she also pursues a professional degree in engineering. Admission to this program requires at least two separate applications: one to the University and one to the Plan II Honors Program. Students should contact both the Cockrell School Engineering Student Services Office, located in the Engineering Education and Research Center (EER), and the Plan II office, located in Patton Hall (RLP), for more information on applications and early deadlines.

### Architectural Engineering/Architecture

A program that leads to both the Bachelor of Science in Architectural Engineering degree and the Bachelor of Architecture degree is available to qualified students. The program combines the course requirements of both degrees and requires six years for completion. Students who wish to pursue both degrees must apply for admission to the School of Architecture according to the procedures and deadlines established by the school. The program is described in [Bachelor of Architecture/ Bachelor of Science in Architectural Engineering Dual Degree Program](#); additional information is available from the undergraduate advisor for architectural engineering.

### Honors Electrical and Computer Engineering and Business (ECB-Program)

Honors Electrical and Computer Engineering and Business (ECB) is a dual degree program between the Canfield Business Honors Program (Canfield BHP) and the Department of Electrical and Computer Engineering (ECE). The dual degree program's four-year undergraduate curriculum is aimed at preparing students for engineering and business careers. Students must successfully complete all requirements for both programs to receive a Bachelors of Science in Electrical and Computer Engineering with the ECE Honors transcript distinction and a Bachelor of Business Administration. The program is described in [Bachelor of Science in Electrical and Computer Engineering](#); additional information is available from the undergraduate advisor for electrical and computer engineering.

## Simultaneous Majors

An engineering student may pursue two majors simultaneously. The student must follow all procedures and meet all requirements associated with both majors. An engineering student may not pursue two engineering majors simultaneously.

The simultaneous major option is available only to undergraduates who have been admitted to both degree programs.

## Technical Area Options

Several engineering degree programs require a student to select a "technical area option" and to complete a specified number of courses in that area. Other degree programs do not require a student to specify a particular option but allow the student to choose courses either within an area of specialty or more broadly across technical areas. Although most options are designed to help the student develop greater competence in a particular aspect of the major, others permit the student to develop background knowledge in areas outside the major. In many cases, students who elect the latter options intend to continue their education in professional or graduate school; these options are particularly appropriate for students who plan to work in those interdisciplinary areas where the creation of new technology through research and development is very important.

## Preparation for Professional School

Technical area options also allow the student to fulfill the special course requirements for admission to professional schools. For more information, students should consult an advisor who is familiar with the admission requirements of the professional program in which the student is interested.

## Medical School

A properly constructed program in engineering provides excellent preparation for entering medical school. The engineer's strong background in mathematics and natural science—combined with a knowledge of such subjects as applied mechanics, fluid dynamics, heat transfer, thermodynamics, chemical kinetics, diffusion, and electricity and magnetism—enhance the mastery of many aspects of medical science. An engineering background is also useful to those who develop and use new instruments for detecting and monitoring medical abnormalities. The engineering/premedical programs described in this catalog usually afford opportunities to pursue alternative vocations for those who do not enter medical school. Students who intend to apply for admission to a medical school should contact the University's Health Professions Office for information about admission requirements and application and test deadlines.

## Dental School

Much of the information above about medical school applies also to dental school. All applicants must take the Dental Admission Test. Certain courses not taken by all engineers are also required, but these vary markedly from school to school. Students who are interested in dentistry can obtain specific information from the University's Health Professions Office.

## Law School

Each year a few graduates, representing all engineering disciplines, elect to enter law school, where they find their training in careful and objective analysis is a distinct asset. Many of these students are preparing for careers in patent or corporate law that will enable them to draw on their combined knowledge of engineering and law. Others may not plan to use their engineering knowledge directly, but they still find that the discipline in logical reasoning acquired in an engineering education

provides excellent preparation for the study of law. Students interested in admission to the law school of the University should consult the [Law School Catalog](#). Students interested in pursuing law school outside of the University may utilize pre-law services of the Liberal Arts Career Service Center. In addition, the Engineering Career Assistance Center (ECAC) provides pre-law advising.

## Graduate Study in Business

Since many engineering graduates advance rapidly into positions of administrative responsibility, it is not surprising that they often elect to do graduate work in the area of business administration. In addition to an understanding of the technical aspects of manufacturing, the engineer has the facility with mathematics to master the quantitative methods of modern business administration.

Requirements for admission to the University's graduate business programs are outlined in the [Graduate Catalog](#). Many engineering degree programs offer technical area options that include business and management courses. These can be used with advantage by students who plan to do graduate-level work in business. Students interested in pursuing a graduate business program outside of the University may utilize the Engineering Career Assistance Center (ECAC) for career advising.

## ABET Criteria

The Engineering Accreditation Commission of ABET curriculum requirements specify subject areas appropriate to engineering but do not prescribe specific courses. The program curriculum must provide adequate content for each area, consistent with the student outcomes and program educational objectives, to ensure that students are prepared to enter the practice of engineering. The curriculum must include:

- a. a minimum of 30 semester credit hours (or equivalent) of a combination of college-level mathematics and basic sciences with experimental experience appropriate to the program
- b. a minimum of 45 semester credit hours (or equivalent) of engineering topics appropriate to the program, consisting of engineering and computer sciences and engineering design, and utilizing modern engineering tools
- c. a broad education component that complements the technical content of the curriculum and is consistent with the program educational objectives
- d. a culminating major engineering design experience that 1) incorporates appropriate engineering standards and multiple constraints, and 2) is based on the knowledge and skills acquired in earlier course work

## Liberal Education of Engineers

Each student must complete the University's [Core Curriculum](#). The core curriculum includes the first-year signature course and courses in English composition, American and Texas government, American history, mathematics, science and technology, visual and performing arts, humanities, and social and behavioral sciences. It must be an integral part of all engineering degree programs, so that engineering graduates will be aware of their social responsibilities and the effects of technology on society. The University of Texas at Austin believes every undergraduate should be exposed to a set of skills and experiences in preparation for a complex world. To this end, all undergraduates at The University of Texas at Austin are required to earn flags: courses that include a substantial focus on cultural diversity in the U.S., ethics, global cultures, independent inquiry, quantitative reasoning, and writing.

With the appropriate selection of courses, the University's Core Curriculum, flags, and ABET general education requirements can be satisfied simultaneously.

## Social and Behavioral Sciences Requirement

As part of the University's Core Curriculum, each student must complete three semester hours of coursework in social and behavioral sciences. Additionally, the Core Curriculum social and behavioral science course may be satisfied simultaneously for flag requirement(s) as well as coursework in a potential minor and certificate program.

## Visual and Performing Arts Requirement

As part of the University's Core Curriculum, each student must complete three semester hours of coursework in visual and performing arts. Architectural engineering majors must take an approved architectural history course as part of the Bachelor of Science in Architectural Engineering requirement. This course (or its prerequisite) will fulfill the visual and performing arts requirement of the Core Curriculum. Additionally, the Core Curriculum visual and performing arts course may be satisfied simultaneously for flag requirement(s) as well as coursework in a potential minor and certificate program.

## Foreign Language Requirement

In accordance with the University's basic education requirements, all students must demonstrate proficiency in a foreign language equivalent to that shown by completion of two semesters of college coursework. Credit earned at the college level to achieve the proficiency may not be counted toward a degree. For a student admitted to the University as a freshman, this requirement is fulfilled by completion of the two high school units in a single foreign language that are required for admission; students admitted with a deficiency in foreign language must remove that deficiency as specified in the [General Information Catalog](#).

## Applicability of Certain Courses

### Physical Activity Courses

Physical activity (PED) courses are offered by the Department of Kinesiology and Health Education. They may not be counted toward a degree in the Cockrell School. However, they are counted as courses for which the student is enrolled, and the grades are included in the University grade point average.

### ROTC Courses

The dean, upon recommendation of the department advisor, has the authority to substitute an equivalent air force science, military science, or naval science course or courses for a course or courses prescribed by the Cockrell School of Engineering, up to a maximum of 12 semester credit hours. Core Curriculum courses cannot be substituted.

## Correspondence and Extension Courses

Credit that a University student in residence earns simultaneously by The University of Texas at Austin correspondence/extension or elsewhere or through distance education at another school will not be counted toward a degree in the Cockrell School unless specifically approved in advance by the dean. Application for this approval should be made online or at the Engineering Student Services Office, located in the Engineering Education and Research Center (EER). No more than 20 semester hours required for any degree offered in the Cockrell School may be taken by correspondence and extension.

## Concurrent Enrollment

Concurrent enrollment refers to taking courses through The University of Texas at Austin Extension (UEx) program, or taking courses at another

university or a community college. An engineering student must have the approval of the dean for concurrent enrollment. Application for this approval should be made online at <https://students.engr.utexas.edu/policies-forms/concurrent-enrollment>. A student may not enroll concurrently in any course counted toward the degree in the semester he or she will be graduating. More information about the approval process is available in the Engineering Student Services located in the Engineering Education Research Center (EER) 2.848, by email at [studentservices@engr.utexas.edu](mailto:studentservices@engr.utexas.edu) ([student-affairs@engr.utexas.edu](mailto:student-affairs@engr.utexas.edu)); or by phone at (512) 471-4321.

## Requirements Included in All Engineering Degree Plans

Each student must complete the University's [Core Curriculum](#). In the process of fulfilling engineering degree requirements, students must also complete: one independent inquiry flag, one quantitative reasoning flag, one ethics flag, one global cultures flag, one cultural diversity in the United States flag, and two writing flags. The independent inquiry flag, the quantitative reasoning flag, the ethics flag and at least one writing flag are carried by courses specifically required for each engineering degree plan. As applicable, students are advised to fulfill the second writing flag and global culture and cultural diversity requirements with a course that meets another requirement of the core curriculum, such as the first-year signature course. Students are encouraged to complete flag requirements within the first and second year of their degree program. Additionally, students are encouraged to discuss options with his or her departmental academic advisor. Courses that may be used to fulfill [flag requirements](#) are identified in the [Course Schedule](#).

In addition, students in all engineering degree plans must complete the following requirements. In some cases, a course that fulfills one of the following requirements may also be counted toward core curriculum or flag requirements; these courses are identified below.

Requirements	Hours	
Engineering Communication (This course may also count towards the writing flag requirement and the ethics flag requirement.)	3	
ECE 333T	Engineering Communication	
E S 333T	Engineering Communication	
M E 333T	Engineering Communication	
PGE 333T	Engineering Communication	
<b>Mathematics</b>		
M 408C	Differential and Integral Calculus (This course may also be used to fulfill the mathematics requirement of the core curriculum and the quantitative reasoning flag requirement.)	4
M 408D	Sequences, Series, and Multivariable Calculus	4
M 427J	Differential Equations with Linear Algebra (May also be used to fulfill the quantitative reasoning flag requirement.)	4
<b>Physics</b>		
PHY 303K	Engineering Physics I (This course may also be counted toward the science and technology, Part I, requirement of the core curriculum and the quantitative reasoning flag requirement.)	3

PHY 105M	Laboratory For Physics 302K, 303K, and 317K	1
PHY 303L	Engineering Physics II (This course may also be counted toward the science and technology, Part I, requirement of the core curriculum and the quantitative reasoning flag requirement.)	3
PHY 105N	Laboratory For Physics 302L, 303L, and 317L	1
		1

## Length of Degree Program

An eight-semester arrangement of courses leading to the bachelor's degree is given for each of the engineering degree plans. The exact order in which the courses are taken is not critical, as long as the prerequisite for each course is fulfilled. A student who registers for fewer than the indicated number of hours each semester will need more than eight semesters to complete the degree. The student is responsible for including in each semester's work any courses that are prerequisite to those he or she will take the following semester.