

# ENGINEERING

## Semester Hour Requirements

The engineering degrees require a minimum of 127 semester hours. A semester hour is generally one fifty-minute classroom or one three-hour laboratory session per week. Some engineering courses have additional sessions scheduled to facilitate non-lecture group project activities or testing sessions.

## Program Overview

Engineering graduates design and implement products and systems that touch virtually every aspect of our lives. They are involved with telecommunications, computer systems, automobiles, aircraft and spacecraft, power plants, robotics, machinery of all types, medical equipment and prosthetics, home appliances, and manufacturing systems, to name a few. Many graduates continue their professional education by attending graduate school programs in engineering, law, medicine, or business.

Each of the three engineering programs builds on a common core of basic sciences and mathematics, humanities and social sciences, and engineering sciences developed primarily in the first two years of study. Mathematics and basic sciences provide the technical foundation for the engineering curriculum. The engineering sciences introduce basic areas of engineering and represent the bridge between the basic sciences and mathematics, on which they build, and the more advanced engineering applications and engineering design to which they lead. The humanities and social sciences component of the curriculum helps to prepare the student for the human and social influences on engineering applications and design and for increased appreciation and fulfillment in the broader aspects of life and culture. Other requirements include courses that contribute to communication and computer skills, ethics, engineering economics, and additional electives.

The Baylor engineering programs integrate design throughout the curriculum, with special emphasis in specific courses usually taken in the first freshmen semester, the first junior semester, and final senior semester, as well as in other courses in the program. Juniors take an engineering design course that teaches design methodology and the creative aspects of engineering. In addition, all students complete other courses with design content in their chosen major as well as a senior design course which emphasizes design of open-ended projects by multidisciplinary teams. These broadly-based engineering programs prepare students for the complex and multidisciplinary problems that face our contemporary society. These programs are designed to be completed in four years.

### Requirements for Incoming Engineering Students

Most engineering courses require the use of a programmable calculator or software-based engineering tools typical of those used in the engineering profession. The most up-to-date equipment requirements can be found at [www.ecs.baylor.edu/equipment](http://www.ecs.baylor.edu/equipment) (<https://www.ecs.baylor.edu/?id=962189>). The laptop's software must include the currently adopted MS-Windows operating system and a number of other software packages. From time to time, each student will be required to purchase additional software as required for specific classes. Each student is required to maintain his or her laptop and its software in good working order until they graduate from the engineering program. Each

student is solely responsible for software upgrades and the resolution of any compatibility problems related to the laptop's hardware.

## Pre-Engineering Status

The School of Engineering and Computer Science offers three engineering majors: Mechanical Engineering, Electrical and Computer Engineering, and Engineering. Students who wish to pursue engineering at Baylor will be required to begin in the non-degree-granting Pre-Engineering major. Incoming Pre-Engineering majors must be eligible to register for MTH 1321 Calculus I by meeting the prerequisite established by the Department of Mathematics. Credit or concurrent enrollment in is required to enroll in MTH 1321 Calculus I is required to enroll in EGR 1301 Introduction to Engineering. Students who are unable to qualify for MTH 1321 Calculus I must declare a major other than Pre-Engineering until they are eligible to register for this course.

To register for MTH 1321 Calculus I, you must meet any ONE of the following criteria:

1. A qualifying SAT/ACT score: RSAT math of at least 650 or SAT math of at least 630 or ACT math of at least 27;
2. A grade of B- or better in MTH 1320 (Pre-Calculus);
3. A score of 80 or better on the ALEKS math placement test.

To move into one of the degree-granting majors (Mechanical Engineering, Electrical and Computer Engineering, or Engineering), Pre-Engineering students must successfully complete the progression requirements below:

- Complete EGR 1301 Introduction to Engineering and EGR 1302 Introduction to Engineering Analysis with a grade of "B" or better
- Complete first-year mathematics courses (including at least one of the following courses: MTH 1321 Calculus I, MTH 1322 Calculus II, MTH 2311 Linear Algebra, or MTH 2321 Calculus III) with a grade of "C" or better

Students who fail to meet these progression requirements will not be allowed to continue as a Pre-Engineering major. They will be transitioned to the "BA Undecided" major and encouraged to explore other major options at the University that may better fit their God-given strengths.

## Internal Transfer Policy into Pre-Engineering

Students who wish to enter Pre-Engineering after matriculating to Baylor must earn 12 credit hours in residence and a minimum 3.0 cumulative GPA in order to apply. Overall proficiency in math and science courses will be evaluated, and students must either have earned credit for or be eligible to enroll in MTH 1321 (Calculus I). Internal transfer students are subject to all Pre-Engineering policies and procedures. Students can submit a Change of Major Request Form through Bearweb to be reviewed for eligibility for Pre-Engineering. The Director of Advising will review requests in accordance with the established policy.

## External Transfer Policy into Pre-Engineering

All external transfer students must begin in Pre-Engineering and may only enter with a minimum 3.0 transfer GPA. Students must either have earned credit or be eligible to enroll in MTH 1321 Calculus I. External transfer students are subject to all Pre-Engineering policies and procedures. Upon entering Pre-Engineering, external transfer students who are transferring

any engineering courses will be reviewed for eligibility to declare a degree-granting major.

- Electrical and Computer Engineering (B.S.E.C.E.) (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/electrical-computer-engineering-bsece/>)
- Engineering (B.S.E.) (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/engineering-bse/>)
- Mechanical Engineering (B.S.M.E.) (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/mechanical-engineering-bsme/>)