ENGINEERING (B.S.E.)

Students wishing to study General Engineering will declare their major as simply "Engineering." This major offers an accredited engineering degree with career flexibility. General Engineering students are required to take the same core courses common to other engineering majors at Baylor, plus additional upper-level classes in both Electrical and Computer Engineering and Mechanical Engineering. This program is intended for students who desire a broader, less specialized exposure to the engineering disciplines, who are seeking a career outside of the typical career paths of Electrical and Computer Engineering or Mechanical Engineering, or who wish to supplement their engineering degrees with an additional area of study. Graduates of this program, depending on their choice of concentration or minor(s), will be well-qualified to enter diverse fields such as patent law, medicine, petroleum and energy, biomedical engineering, public policy, or humanitarian engineering.

The Humanitarian Engineering concentration is designed to prepare students to be engineers in the non-profit sector. Students graduating with the Humanitarian Engineering (HE) concentration might work on projects such as refugee shelter design, water well access in developing countries, or renewable energy systems for remote clinics, for example. Whether working in support of governments, private companies, non-profit organizations, or Christian mission groups, HE students will be exposed to the ethics and cultural humility, technologies, social enterprise, and environmental issues they are likely to encounter working in this sector.

General Engineering Mission Statement

The mission of the General Engineering program is to educate students within a caring Christian environment, in the disciplines of engineering. We want our graduates to be motivated by Christian ideals and view their career as a lifelong commitment to others. We strive to provide our students with a technical foundation that is both broad and strong, with an emphasis on professional, moral, ethical and leadership development.

BSE Program Educational Objectives

Within a few years after graduation, Baylor BSE graduates will:

- Establish themselves as competent, successful, and responsible members within their chosen career vocation.
- Make career and professional judgements, including moral and ethical considerations, informed by Christian ideals.
- Pursue opportunities for new knowledge and advancing skills through venues such as post-baccalaureate studies, continuing education, or mission field training.

BSE Expected Graduate Outcomes

In support of the program objectives, graduates of the program must demonstrate that they have:

1. an ability to identify, formulate, and solve complex engineering problems by a applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

B.S.E. Degree Requirements

Code	Title	Hours
Required Courses		
Minimum 124 hours including the following:		
Literature and Writing		
ENG 1310	Writing and Academic Inquiry Seminars	3
GTX 2301	Intellectual Traditions of the Ancient World : Literature and Thought	3
or GTX 2302	Medieval Intellectual Traditions: Literature and Thought in Context	
PWR 3300	Technical Writing	3
Religion		
REL 1310	The Christian Scriptures	3
REL 1350	The Christian Heritage	3
Foreign Language and Culture		
Select 3 hours from the Foreign Language and Culture Distribution List for ECS Majors. Second-level proficiency must be reached if a foreign language is chosen.		3
Other Requirements		
PSC 1387	The U.S. Constitution, Its Interpretation, and the American Political Experience	3
or ENG 2301	British Literature	
EGR 2108	Engineering Economics	1
EGR 3305	Social and Ethical Issues in Engineering	3
EGR 1101	Engineering New Student Experience	1
Lifetime Fitness: Any two LF 11XX courses		2
Chapel: Two Semesters		0
Mathematics and Basic Sciences		
CHE 1301	Basic Principles of Modern Chemistry I	3
MTH 1321	Calculus I	3
MTH 1322	Calculus II	3
MTH 2311	Linear Algebra	3
MTH 2321	Calculus III	3
MTH 3325	Ordinary Differential Equations	3
STA 3381	Probability and Statistics	3
One additional "3000" or "4000" level approved math or science class		3
PHY 1420	General Physics I	4
PHY 1430	General Physics II	4
Engineering Major		
EGR 1301	Introduction to Engineering	3

EGR 1302	Introduction to Engineering Analysis	3
EGR 3380	Engineering Design I	3
EGR 4390	Engineering Design II	3
ME 2345	Thermodynamics	3
ELC 2330 & ELC 2130	Electrical Circuit Theory and Electrical Circuit Laboratory	4
ELC 3335	Signals and Systems	3
ME 2320	Statics	3
ME 2321	Dynamics	3
ME 3420	Instrumentation and Measurements	4
Select one of the following:		4
ELC 2337 & ELC 2137	Digital Logic Design and Digital Logic Design Laboratory	
CSI 1401	Introduction to Programming I	
CSI 1430	Introduction to Computer Science I with Laboratory	
Approved Engineering electives		9
A grade of “C” or better in all of the Engineering hours counted towards the major.		
Concentration Requirements		
Select a minimum of 18 hours from the following:		18-19
Any minor offered by the university other than Engineering or Mathematics. Note that an additional minor in Mathematics can be completed by the proper choice of 'One additional “3000” or “4000” level approved math or science class' , but it will not satisfy this requirement.		
An established targeted concentration in Biomedical, Environmental Engineering, or Humanitarian Engineering. The Biomedical concentration requires specific biomedical engineering courses in biomaterials, biomechanics, and bioinstrumentation. The Environmental concentration builds upon environmental science coursework in air and water quality analysis. The Humanitarian Engineering concentration is aimed toward engineers who wish to pursue missions-related careers in bettering the lives of populations in developing countries.		
Total Hours		**123-124**