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.

Students studying within the Biomedical Engineering concentration apply engineering principles and problem-solving strategies to design and create technologies, including medical devices, imaging systems, and instrumentation, for improving human health. It is highly interdisciplinary, combining chemical, electrical, and mechanical engineering principles with biological and physiological understanding. Graduates may apply to continue their education in graduate or medical school or seek employment within a research and development or clinical environment.

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.

B.S.E. Degree Requirements for a Major in Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 1321</td>
<td>Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 1322</td>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>EGR 1301</td>
<td>Introduction to Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EGR 2108</td>
<td>Engineering Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

Other Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>PSC 1387</td>
<td>The U.S. Constitution, Its Interpretation, and the American Political Experience</td>
</tr>
<tr>
<td>or ENG 2301</td>
<td>British Literature</td>
</tr>
<tr>
<td>EGR 2108</td>
<td>Engineering Economics</td>
</tr>
</tbody>
</table>

1. an ability to identify, formulate, and solve complex engineering problems by 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

Complete EGR 1301 (https://catalog.baylor.edu/search/?P=EGR%201301) Introduction to Engineering and EGR 1302 (https://catalog.baylor.edu/search/?P=EGR%201302) 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 (https://catalog.baylor.edu/search/?P=MTH%201321) Calculus I, MTH 1322 (https://catalog.baylor.edu/search/?P=MTH%201322) Calculus II, MTH 2311 (https://catalog.baylor.edu/search/?P=MTH%202311) Linear Algebra, or MTH 2321 (https://catalog.baylor.edu/search/?P=MTH%202321) Calculus III with a grade of "C" or better.
EGR 3305  Social and Ethical Issues in Engineering  3
EGR 1101  Engineering New Student Experience  1

Lifetime Fitness: Any two LF 11XX courses. ECS 2101 and select leadership courses may fulfill one of the Lifetime Fitness requirements.

Chapel: Two Semesters  0
General Elective Credit  1

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 2320  Statics  3
ME 2321  Dynamics  3
ME 2345  Thermodynamics  3
ME 3420  Instrumentation and Measurements  4
ELC 2330 & ELC 2130  Electrical Circuit Theory and Electrical Circuit Laboratory  4
ELC 3335  Signals and Systems  3

Select one of the following:  3
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

Engineering Electives
Select nine credit hours of BME/ME/ELC/EGR courses. Three credit hours may be at the "3000" level, while the other six elective credits must be at the "4000" level.

Concentration
Select a minimum of 18 hours from the following:  18

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 one of the following:

- Biomedical Concentration (https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/engineering-bse/biomedical/)
- Humanitarian Concentration (https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/engineering-bse/humanitarian/)

A grade of "C" or better in all of the Engineering hours counted towards the major.

Total Hours  124

1 The Biomedical concentration requires specific biomedical engineering courses in biomaterials, biomechanics, and bioinstrumentation. This concentration has 19 hours.
2 The Humanitarian concentration is aimed toward engineers who wish to pursue missions-related careers in bettering the lives of populations in developing countries.
3 The Energy and Environmental concentration will prepare students to professionally contribute to industry or government policy regarding energy production, transmission, and storage with additional insight into the effects of these technologies on our environment.