Bachelor of Science Degree in Electrical Engineering

The Bachelor of Science degree in Electrical Engineering has concentrations in Communication; Computer Engineering; Digital Signal Processing (DSP); Electronic Materials, MEMS and Microelectronics; and Systems and Control Engineering. The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The Bachelor of Science degree in Electrical Engineering offers students the opportunity to prepare for careers in areas associated with electronics, digital systems, communications, controls and robotics, computer-aided design (CAD), instrumentation, bioengineering, and other traditional and emerging areas of high technology. Through the proper selection of elective courses (at least three technical elective courses must be selected from a single technical area) to augment required courses, successful students will develop a specialization pertinent to many of these areas that may lead to productive employment in the public or private sector with electronics companies, high-technology industries, and government agencies. The program will also provide the opportunity for students to develop an understanding of fundamentals and current issues important for future years of learning through such activities as graduate school, distance education, professional training, and membership in professional societies.

The minimum number of semester credit hours required for this degree is 126, at least 39 of which must be at the upper-division level. All candidates for this degree must fulfill the Core Curriculum requirements, the General Engineering requirements, and the Electrical Engineering requirements, which are listed below.

Core Curriculum requirements: Students seeking the Bachelor of Science degree in Electrical Engineering must fulfill University Core Curriculum requirements in the same manner as other students. The courses listed in the table below satisfy both major requirements and Core Curriculum requirements; however, if these courses are taken to satisfy both requirements, then students may need to take additional courses in order to meet the minimum number of semester credit hours required for this degree. For a complete listing of courses that satisfy the Core Curriculum requirements, see pages 5–9 of this catalog.

<table>
<thead>
<tr>
<th>Core Curriculum Component Area</th>
<th>Courses that Satisfy Core Curriculum and Degree Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td><strong>English Rhetoric/Composition</strong> (6 semester credit hours)</td>
</tr>
<tr>
<td></td>
<td>All students must take the following six hours to meet this core requirement:</td>
</tr>
<tr>
<td></td>
<td>WRC 1013 Freshman Composition I</td>
</tr>
<tr>
<td></td>
<td>WRC 1023 Freshman Composition II</td>
</tr>
<tr>
<td>Mathematics</td>
<td><strong>Mathematics</strong> (3 semester credit hours)</td>
</tr>
<tr>
<td></td>
<td>Any three hours listed under this section in the list of core courses will satisfy this core requirement.</td>
</tr>
<tr>
<td></td>
<td>Note: MAT 1214 Calculus I may be used to satisfy the Core Curriculum requirement for mathematics, as well as for one of the General Engineering requirements.</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td><strong>Science</strong> (6 semester credit hours)</td>
</tr>
<tr>
<td></td>
<td>Three hours from Level One and three hours from Level Two will satisfy this core requirement.</td>
</tr>
<tr>
<td></td>
<td>Note: CHE 1103 General Chemistry I and PHY 1903 Engineering Physics I may be used to satisfy the Core Curriculum requirements for science, as well as two of the General Engineering requirements.</td>
</tr>
<tr>
<td>Humanities &amp; Visual and Performing Arts</td>
<td><strong>Literature</strong> (3 semester credit hours)</td>
</tr>
<tr>
<td></td>
<td>Any three hours listed under this section in the list of core courses will satisfy this core requirement.</td>
</tr>
<tr>
<td></td>
<td><strong>The Arts</strong> (3 semester credit hours)</td>
</tr>
<tr>
<td></td>
<td>Any three hours listed under this section in the list of core courses will satisfy this core requirement.</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td><strong>United States History and Diversity</strong> (6 semester credit hours)</td>
</tr>
</tbody>
</table>

UTSA 2010-12 Undergraduate Catalog
http://www.utsa.edu/ucat/COE/BSEe.html
Core Curriculum Component Area | Courses that Satisfy Core Curriculum and Degree Requirements

--- | ---

Any six hours listed under this section in the list of core courses will satisfy this core requirement.

**Political Science** (6 semester credit hours)

- POL 1013 Introduction to American Politics, plus three additional hours listed under this section in the list of core courses will satisfy this core requirement.

**Social and Behavioral Science** (3 semester credit hours)

- COR 1203 Freshman Seminar
- Economics (3 semester credit hours)
  - ECO 2023 Introductory Microeconomics

**World Society and Issues** (3 semester credit hours)

- Any three hours listed under this section in the list of core courses will satisfy this core requirement.

**General Engineering Requirements**

All degree-seeking candidates in engineering must complete the following 22 semester credit hours, as well as the Core Curriculum requirements and major requirements:

- CHE 1103 General Chemistry I
- EGR 2323 Applied Engineering Analysis I
- MAT 1214 Calculus I
- MAT 1224 Calculus II
- PHY 1903, 1911 Engineering Physics I and Laboratory
- PHY 1923, 1931 Engineering Physics II and Laboratory

**Electrical Engineering Degree Requirements**

All degree-seeking candidates in Electrical Engineering must complete the following semester credit hours, as well as the Core Curriculum requirements and General Engineering requirements:

A. 56 semester credit hours of required courses:

1. 50 semester credit hours of electrical engineering courses:

   - EE 1323 Introduction to Electrical Engineering Profession
   - EE 2423 Network Theory
   - EE 2511 Logic Design Laboratory
   - EE 2513 Logic Design
   - EE 3113 Electrical Engineering Laboratory I
   - EE 3213 Electromagnetic Engineering
   - EE 3313 Electronic Circuits I
   - EE 3323 Electronic Devices
   - EE 3413 Analysis and Design of Control Systems
   - EE 3423 Signals and Systems I
   - EE 3463 Microcomputer Systems I
   - EE 3523 Signals and Systems II
   - EE 4113 Electrical Engineering Laboratory II
   - EE 4313 Electronic Circuits II
   - EE 4811 Electrical Engineering Design I
   - EE 4813 Electrical Engineering Design II
EGR 2213  Statics and Dynamics
EGR 3323  Applied Engineering Analysis II

2.  6 semester credit hours of supporting courses:

   CS   2073  Computer Programming with Engineering Applications
   EE   3533  Random Signals and Noise
                      or
   STA  3533  Probability and Random Processes

B.  15 semester credit hours of electrical engineering elective courses. At least three courses (9 hours) from one of the following concentrations must be selected:

Communication Concentration
EE   4613  Communication Systems
EE   4653  Digital Communications
EE   4673  Data Communication and Networks
EE   4683  Wireless Communications
EE   4693  Fiber Optic Communications

Computer Engineering Concentration
EE   3223  C++ and Data Structures
             or
   CS   3733  Operating Systems
   EE   3563  Digital Systems Design
   EE   4243  Computer Organization and Architecture
   EE   4513  Introduction to VLSI Design
   EE   4553  VLSI Testing
   EE   4573  Engineering Workstations
   EE   4583  Microcomputer Systems II

DSP Concentration
EE   4453  Selected Topics in Digital Signal Processing
EE   4623  Digital Filtering
EE   4643  Digital Signal Processing
EE   4663  Digital Image Processing

Electronic Materials, MEMS and Microelectronics Concentration
EE   4323  Dielectric and Optoelectronic Engineering Laboratory
EE   4513  Introduction to VLSI Design
EE   4523  Introduction to Micro and Nanotechnology
EE   4533  Principles of Microfabrication
EE   4543  Advanced Topics in Micro and Nanotechnology

Systems and Control Concentration
EE   3513  Electromechanical Systems
EE   4443  Discrete-Time and Computer-Controlled Systems
EE   4723  Intelligent Robotics
EE   4733  Intelligent Control
EE   4743  Embedded Control Systems
EE   4753  Computer Analysis of Power Systems