Bachelor of Science in Electrical Engineering and Computer Science

**General Institute Requirements (GIRs)**

<table>
<thead>
<tr>
<th>Summary of Subject Requirements</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>6</td>
</tr>
<tr>
<td>Humanities, Arts, and Social Sciences (HASS) Requirement</td>
<td>8</td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST) Requirement [satisfied by the mathematics requirement in the Department Program]</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory Requirement [satisfied by 6.01 and 6.02 together in the Departmental Program]</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total GIR Subjects Required for SB Degree</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

**Communication Requirement**

- 2 subjects designated as communication-intensive in Humanities, Arts, and Social Sciences (CI-H; see HASS Requirement, above)
- 2 subjects designated as communication-intensive in the Major (CI-M; see departmental program, below)

**Physical Education Requirement**

Swimming requirement, plus four physical education courses for eight points (See Physical Education Requirement for details.)

**Departmental Program**

<table>
<thead>
<tr>
<th>Required Subjects</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>6.01</td>
<td>12</td>
</tr>
<tr>
<td>6.02</td>
<td>12</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>6</td>
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<tr>
<td>6.UAT &amp; 6.UAP Oral Communication and Undergraduate Advanced Project (CI-M)</td>
<td></td>
</tr>
<tr>
<td>6.UAR Seminar in Undergraduate Advanced Research (CI-M)</td>
<td></td>
</tr>
</tbody>
</table>

**Restricted Electives**

- Two mathematics subjects (also satisfies REST requirement):
  - 6.041 Probabilistic Systems Analysis \(^3\) 12
  - or 6.042[J] Mathematics for Computer Science

18.03 Differential Equations \(^3\) 12
or 18.06 Linear Algebra

One departmental laboratory:

Select one of the following undergraduate laboratory subjects: 12-18

- 6.035 Computer Language Engineering
- 6.022[J] Quantitative Systems Physiology \(^6\)
- 6.101 Introductory Analog Electronics Laboratory (CI-M)
- 6.111 Introductory Digital Systems Laboratory (CI-M)
- 6.115 Microcomputer Project Laboratory (CI-M)
- 6.123[J] Bioinstrumentation Project Lab
- 6.129[J] Biological Circuit Engineering Laboratory (CI-M)
- 6.131 Power Electronics Laboratory (CI-M)
- 6.141[J] Robotics: Science and Systems I (CI-M)
- 6.142[J] Robotics: Science and Systems II
- 6.152[J] Micro/Nano Processing Technology (CI-M)
- 6.161 Modern Optics Project Laboratory (CI-M)
- 6.163 Strobe Project Laboratory (CI-M)
- 6.170 Software Studio
- 6.172 Performance Engineering of Software Systems
- 6.182 Psychoacoustics Project Laboratory (CI-M)
- 6.813 User Interface Design and Implementation

Four EECS foundation subjects:

Select four from the following EECS foundation list with two chosen from the EE foundation list and two from the CS foundation list: 48

**EE foundation list:**

- 6.002 Circuits and Electronics
- 6.003 Signals and Systems
- 6.004 Computation Structures (may be counted under either EE or CS)
- 6.007 Electromagnetic Energy: From Motors to Solar Cells

**CS foundation list:**

- 6.004 Computation Structures (may be counted under either EE or CS)
- 6.005 Elements of Software Construction
- 6.006 Introduction to Algorithms
Three EECS header subjects:

Select three header subjects from the following EECS header list, with at least one chosen from the EE header list and at least one from the CS header list:

EE header list:
- 6.011 Signals, Systems, and Inference
- 6.012 Microelectronic Devices and Circuits
- 6.013 Electromagnetics and Applications
- 6.021[J] Cellular Biophysics and Neurophysiology (CI-M)

CS header list:
- 6.033 Computer System Engineering (CI-M)
- 6.034 Artificial Intelligence
- 6.046[J] Design and Analysis of Algorithms

Advanced undergraduate subjects:
Select two subjects from a departmental list of advanced undergraduate subjects

Unrestricted Electives
Select 48 units

Total Units 222-228
Departmental Program Units That Also Satisfy the GIRs (36)
Total Units Beyond the GIRs Required for SB Degree 186-192

No subject can be counted both as part of the 17-subject GIRs and as part of the 180–198 units required beyond the GIRs. Every subject in the student’s departmental program will count toward one or the other, but not both.

See the list of communication-intensive subjects below for alternatives to the 6.UAR/6.UAT and the 6.UAT/6.UAR sequence.

18.600 Probability and Random Variables is also an acceptable option.

18.700 Linear Algebra is also an acceptable option.

Students who take both 6.021[J] and 6.022[J] may use 6.022[J] to satisfy the department laboratory requirement.

Communication-Intensive Subjects in the Major

To complete the required communication-intensive subjects in the major, students must take one of the following CI-M subjects as a restricted elective in the department laboratory, header, or advanced undergraduate subjects categories by the end of the third year:

Departmental Laboratory CI-Ms
- 6.101 Introductory Analog Electronics Laboratory
- 6.111 Introductory Digital Systems Laboratory
- 6.115 Microcomputer Project Laboratory
- 6.129[J] Biological Circuit Engineering Laboratory
- 6.131 Power Electronics Laboratory
- 6.152[J] Micro/Nano Processing Technology
- 6.161 Modern Optics Project Laboratory
- 6.163 Strobe Project Laboratory
- 6.182 Psychoacoustics Project Laboratory

Header and Advanced Undergraduate CI-Ms
- 6.021[J] Cellular Biophysics and Neurophysiology
- 6.025[J] Medical Device Design
- 6.033 Computer System Engineering
- 6.805[J] Foundations of Information Policy

To satisfy the second CI-M, students must take one of the following options:

Option 1
- 6.UAR Seminar in Undergraduate Advanced Research

Option 2
- 6.UAT Oral Communication

Option 3
- 6.UAP Undergraduate Advanced Project

Plus a second departmental laboratory subject from the above list

* 6.UAR, or 6.UAT plus 6.UAP, typically constitutes the second CI-M.