ELECTRICAL ENGINEERING UNDERGRADUATE MAJOR

COVID-19-Related Degree Requirement Changes
For information on how Electrical Engineering degree requirements have been affected by the pandemic, see the "COVID-19 Policies tab (http://exploredegrees.stanford.edu/schoolofengineering/electricalengineering/#covid19policystext)" in the "Electrical Engineering" of this bulletin. For University-wide policy changes related to the pandemic, see the "COVID-19 and Academic Continuity (http://exploredegrees.stanford.edu/covid-19-policy-changes/)" section of this bulletin.

See the "Department of Electrical Engineering (http://exploredegrees.stanford.edu/schoolofengineering/electricalengineering/)") section of this bulletin for additional information on the department, and its programs and faculty.

The department offers a B.S. as well as a minor in Electrical Engineering.

Electrical Engineering (EE)
Completion of the undergraduate program in Electrical Engineering leads to the conferral of the Bachelor of Science in Electrical Engineering.

Mission of the Undergraduate Program in Electrical Engineering
The mission of the undergraduate program of the Department of Electrical Engineering is to augment the liberal education expected of all Stanford undergraduates, to impart basic understanding of electrical engineering and to develop skills in the design and building of systems that directly impact societal needs.

The program includes a balanced foundation in the physical sciences, mathematics and computing; core courses in electronics, information systems and digital systems; and develops specific skills in the analysis and design of systems. Students in the major have broad flexibility to select from disciplinary areas beyond the core, including hardware and software, information systems and science, and physical technology and science, as well as electives in multidisciplinary areas, including bio-electronics and bio-imaging, energy and environment and music.

The program prepares students for a broad range of careers—both industrial and government—as well as for professional and academic graduate education.

Requirements

**MATHEMATICS AND SCIENCE**

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 40 units Math and Science combined.</td>
<td></td>
</tr>
<tr>
<td>Mathematics ¹</td>
<td></td>
</tr>
<tr>
<td>Select one sequence: May also be satisfied with AP Calculus. 10</td>
<td></td>
</tr>
<tr>
<td>MATH 19 &amp; MATH 20 and Calculus</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 21 and Calculus</td>
<td></td>
</tr>
<tr>
<td>Select one 2-course sequence: 10</td>
<td></td>
</tr>
<tr>
<td>CME 100 Vector Calculus for Engineers and Ordinary Differential Equations for Engineers (Same as ENGR 154 and ENGR 155A)</td>
<td></td>
</tr>
</tbody>
</table>

**EE Math. One additional 100-level course. Select one:** 3

**CS 103 Mathematical Foundations of Computing** 3

**ENGR 108 Introduction to Matrix Methods (Preferred)**

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113 Linear Algebra and Matrix Theory 3-4</td>
<td></td>
</tr>
<tr>
<td>EE 178 Probabilistic Systems Analysis ³</td>
<td></td>
</tr>
</tbody>
</table>

**Science**

Minimum 12 units

Select one sequence: 12

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHYSICS 41 &amp; EE 65 Mechanics and Modern Physics for Engineers ⁴</td>
<td></td>
</tr>
<tr>
<td>PHYSICS 61 &amp; EE 65 Mechanics and Special Relativity and Modern Physics for Engineers ⁴</td>
<td></td>
</tr>
</tbody>
</table>

Science elective. One additional 4-5 unit course from approved list in Undergraduate Handbook, Figure 4-2. 4-5

**TECHNOLOGY IN SOCIETY**

One course, see Basic Requirement 4 in the School of Engineering section. The course taken must be on the School of Engineering Approved Courses list, Fig 4-3, the year it is taken. 3-5

**ENGINEERING TOPICS**

Minimum 60 units comprised of: Engineering Fundamentals (minimum 10 units), Core Electrical Engineering Courses (minimum 16 units) Disciplinary Area (minimum 17 units), Electives (maximum 17 units, restrictions apply). 10

**Engineering Fundamentals**

2 courses required; minimum 10 units.

Select one:

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 106B or CS 106X Programming Abstractions 5</td>
<td></td>
</tr>
</tbody>
</table>

Choose one Fundamental from the Approved List; 5

Recommended: ENGR 40A and ENGR 40B or ENGR 40M (recommended before taking EE 101A); taking CS 106A or a second ENGR 40-series course not allowed for the Fundamentals elective. Choose from table in Undergraduate Handbook, Approved List.

**Core Electrical Engineering Courses** 16

Minimum 16 units.

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 42 Introduction to Electromagnetics and Its Applications ⁵</td>
<td></td>
</tr>
<tr>
<td>EE 100 The Electrical Engineering Profession ⁶</td>
<td></td>
</tr>
<tr>
<td>EE 101A Circuits I</td>
<td></td>
</tr>
<tr>
<td>EE 102A Signal Processing and Linear Systems I</td>
<td></td>
</tr>
<tr>
<td>EE 108 Digital System Design</td>
<td></td>
</tr>
</tbody>
</table>

**Disciplinary Area** ¹⁷

Minimum 17 units, 5 courses: 1-2 Required, 1 WIM/Design and 2-3 disciplinary area electives.

**Writing in the Major (WIM)** ³-⁵

Select one. A single course can concurrently meet the WIM and Design Requirements.

<table>
<thead>
<tr>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 109 Digital Systems Design Lab (WIM/Design)</td>
<td></td>
</tr>
<tr>
<td>EE 133 Analog Communications Design Laboratory (WIM/Design)</td>
<td></td>
</tr>
<tr>
<td>EE 134 Introduction to Photonics (WIM/Design)</td>
<td></td>
</tr>
<tr>
<td>EE 153 Power Electronics (WIM/Design)</td>
<td></td>
</tr>
<tr>
<td>EE 155 Green Electronics (WIM/Design)</td>
<td></td>
</tr>
</tbody>
</table>
Electrical Engineering Undergraduate Major

Minimum 17 units. The elective units should be sufficient to meet the 60 unit total for the major, over and above the 40 units of Math and Science. Depending on units completed in the Disciplinary Area, elective units will be in the range of 17 units or less. Students may select electives from the disciplinary areas; from the multidisciplinary elective areas; or any combination of disciplinary and multidisciplinary areas. May include up to two courses (minus any previously noted restrictions). Freshman and Sophomore seminars, EE 191 and CS 106A do not count toward the 60 units. Students may select electives from the disciplinary areas; disciplinary and multidisciplinary areas. May include up to two additional Engineering Fundamentals and any letter graded EE courses (minus any previously noted restrictions). Freshman and Sophomore seminars, EE 191 and CS 106A do not count toward the 60 units. Students may have fewer elective units if they have more units in their disciplinary area.

1 MATH 41 and MATH 42 are no longer offered and have been replaced by MATH 19, MATH 20, and MATH 21.
2 MATH 51 may be replaced by MATH 52. MATH 53 may be replaced by CME 102.
3 If used for math, ENGR 108 may not be used as an EE disciplinary elective. Students may petition to use CS 109 in place of EE 178.
4 Students may petition to have either PHYSICS 65 or the combination of PHYSICS 45 and PHYSICS 70 count as an alternative to EE 65.
5 Students may petition to use PHYSICS 43 or PHYSICS 63 in place of EE 42. The EE introductory class ENGR 40A and ENGR 40B or ENGR 40M may be taken concurrently with either EE 42 or PHYSICS 43. There are no prerequisites for ENGR 40A and ENGR 40B or ENGR 40M.
6 For upper division students, a 200-level seminar in their disciplinary area will be accepted, on petition.
7 EE 191W may satisfy WIM only if it is a follow-up to an REU, independent study project or as part of an honors thesis project where a faculty agrees to provide supervision of writing a technical paper and with suitable support from the Writing Center.

To satisfy Design, must take EE 264 or EE 267 for 4 units and complete the laboratory project.

A course may only be counted towards one requirement; it may not be double-counted. All courses taken for the major must be taken for a letter grade if that option is offered by the instructor. Minimum Combined GPA for all courses in Engineering Fundamentals and Depth is 2.0.

Disciplinary Areas

<table>
<thead>
<tr>
<th>Disciplinary Areas</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware and Software</td>
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</tr>
<tr>
<td>EE 180</td>
<td>Digital Systems Architecture (Required)</td>
</tr>
<tr>
<td>EE 104</td>
<td>Introduction to Machine Learning</td>
</tr>
<tr>
<td>EE 107</td>
<td>Embedded Networked Systems</td>
</tr>
<tr>
<td>EE 109</td>
<td>Digital Systems Design Lab (WIM/Design)</td>
</tr>
<tr>
<td>EE 118</td>
<td>Introduction to Mechatronics</td>
</tr>
<tr>
<td>EE 155</td>
<td>Green Electronics (Design)</td>
</tr>
<tr>
<td>EE 185C</td>
<td>Engineering a Smart Object - Adding connectivity and Putting it ALL together (Design)</td>
</tr>
<tr>
<td>EE 264</td>
<td>Digital Signal Processing (Design)</td>
</tr>
<tr>
<td>EE 264W</td>
<td>Digital Signal Processing (WIM/Design)</td>
</tr>
<tr>
<td>EE 267</td>
<td>Virtual Reality (Design)</td>
</tr>
<tr>
<td>EE 267W</td>
<td>Virtual Reality (WIM/Design)</td>
</tr>
<tr>
<td>EE 271</td>
<td>Introduction to VLSI Systems</td>
</tr>
<tr>
<td>EE 272A</td>
<td>Design Projects in VLSI Systems I</td>
</tr>
<tr>
<td>EE 272B</td>
<td>Design Projects in VLSI Systems II</td>
</tr>
<tr>
<td>EE 273</td>
<td>Digital Systems Engineering</td>
</tr>
<tr>
<td>EE 282</td>
<td>Computer Systems Architecture</td>
</tr>
<tr>
<td>EE 285</td>
<td>Embedded Systems Workshop</td>
</tr>
<tr>
<td>CS 107</td>
<td>Computer Organization and Systems (Required prerequisite for EE 180; CS 107E preferred)</td>
</tr>
<tr>
<td>CS 108</td>
<td>Object-Oriented Systems Design</td>
</tr>
<tr>
<td>CS 110</td>
<td>Principles of Computer Systems</td>
</tr>
<tr>
<td>CS 131</td>
<td>Computer Vision: Foundations and Applications</td>
</tr>
<tr>
<td>CS 140</td>
<td>Operating Systems and Systems Programming</td>
</tr>
<tr>
<td>CS 143</td>
<td>Compilers</td>
</tr>
<tr>
<td>CS 144</td>
<td>Introduction to Computer Networking</td>
</tr>
<tr>
<td>CS 145</td>
<td>Data Management and Data Systems</td>
</tr>
<tr>
<td>CS 148</td>
<td>Introduction to Computer Graphics and Imaging</td>
</tr>
<tr>
<td>CS 149</td>
<td>Parallel Computing</td>
</tr>
<tr>
<td>CS 155</td>
<td>Computer and Network Security</td>
</tr>
<tr>
<td>CS 194W</td>
<td>Software Project (WIM/Design)</td>
</tr>
<tr>
<td>CS 221</td>
<td>Artificial Intelligence: Principles and Techniques</td>
</tr>
<tr>
<td>CS 223A</td>
<td>Introduction to Robotics</td>
</tr>
<tr>
<td>CS 224N</td>
<td>Natural Language Processing with Deep Learning</td>
</tr>
<tr>
<td>CS 225A</td>
<td>Experimental Robotics</td>
</tr>
<tr>
<td>CS 229</td>
<td>Machine Learning</td>
</tr>
<tr>
<td>CS 231A</td>
<td>Computer Vision: From 3D Reconstruction to Recognition</td>
</tr>
<tr>
<td>CS 231N</td>
<td>Convolutional Neural Networks for Visual Recognition</td>
</tr>
<tr>
<td>CS 241</td>
<td>Embedded Systems Workshop</td>
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### Electrical Engineering Undergraduate Major

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>EE 102B</td>
<td>Signal Processing and Linear Systems (Required)</td>
<td>4</td>
</tr>
<tr>
<td>EE 104</td>
<td>Introduction to Machine Learning</td>
<td>3-5</td>
</tr>
<tr>
<td>EE 107</td>
<td>Embedded Networked Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 118</td>
<td>Introduction to Mechatronics</td>
<td>4</td>
</tr>
<tr>
<td>EE 124</td>
<td>Introduction to Neuroelectrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE 133</td>
<td>Analog Communications Design Laboratory (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 155</td>
<td>Green Electronics (WIM/Design)</td>
<td>4</td>
</tr>
<tr>
<td>EE 168</td>
<td>Introduction to Digital Image Processing (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 169</td>
<td>Introduction to Bioimaging</td>
<td>3</td>
</tr>
<tr>
<td>EE 179</td>
<td>Analog and Digital Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 260A</td>
<td>Principles of Robot Autonomy I</td>
<td>3-5</td>
</tr>
<tr>
<td>EE 260B</td>
<td>Principles of Robot Autonomy II</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 261</td>
<td>The Fourier Transform and Its Applications</td>
<td></td>
</tr>
<tr>
<td>EE 262</td>
<td>Three-Dimensional Imaging (Design)</td>
<td>3</td>
</tr>
<tr>
<td>EE 263</td>
<td>Introduction to Linear Dynamical Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 264</td>
<td>Digital Signal Processing (Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 264W</td>
<td>Digital Signal Processing (WIM/Design)</td>
<td>5</td>
</tr>
<tr>
<td>EE 266</td>
<td>Introduction to Stochastic Control with Applications</td>
<td>3</td>
</tr>
<tr>
<td>EE 267</td>
<td>Virtual Reality (Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 267W</td>
<td>Virtual Reality (WIM/Design)</td>
<td>5</td>
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<tr>
<td>EE 269</td>
<td>Signal Processing for Machine Learning</td>
<td>3</td>
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<tr>
<td>EE 276</td>
<td>Information Theory</td>
<td>3</td>
</tr>
<tr>
<td>EE 278</td>
<td>Introduction to Statistical Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>EE 279</td>
<td>Introduction to Digital Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 105</td>
<td>Feedback Control Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 205</td>
<td>Introduction to Control Design Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CS 107</td>
<td>Computer Organization and Systems</td>
<td>3-5</td>
</tr>
<tr>
<td>CS 229</td>
<td>Machine Learning</td>
<td>3-4</td>
</tr>
<tr>
<td>CS 244</td>
<td>Advanced Topics in Networking</td>
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<tr>
<td>EE 223</td>
<td>Applied Quantum Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>EE 236A</td>
<td>Modern Optics</td>
<td>3</td>
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<tr>
<td>EE 236B</td>
<td>Guided Waves</td>
<td>3</td>
</tr>
<tr>
<td>EE 242</td>
<td>Electromagnetic Waves</td>
<td>3</td>
</tr>
<tr>
<td>EE 247</td>
<td>Introduction to Optical Fiber Communications</td>
<td>3</td>
</tr>
<tr>
<td>EE 264</td>
<td>Digital Signal Processing (Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 264W</td>
<td>Digital Signal Processing (WIM/Design)</td>
<td>5</td>
</tr>
<tr>
<td>EE 267</td>
<td>Virtual Reality (Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 267W</td>
<td>Virtual Reality (WIM/Design)</td>
<td>5</td>
</tr>
<tr>
<td>EE 271</td>
<td>Introduction to VLSI Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 272A</td>
<td>Design Projects in VLSI Systems</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 272B</td>
<td>Design Projects in VLSI Systems</td>
<td>3-4</td>
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<tr>
<td>EE 273</td>
<td>Digital Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE 282</td>
<td>Computer Systems Architecture</td>
<td>3</td>
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<tr>
<td>ENGR 105</td>
<td>Feedback Control Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 205</td>
<td>Introduction to Control Design Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CS 107</td>
<td>Computer Organization and Systems</td>
<td>3-5</td>
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</table>

#### Multidisciplinary Area Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>EE 101B</td>
<td>Circuits II</td>
<td>4</td>
</tr>
<tr>
<td>EE 102B</td>
<td>Signal Processing and Linear Systems</td>
<td>4</td>
</tr>
<tr>
<td>EE 107</td>
<td>Embedded Networked Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 124</td>
<td>Introduction to Neuroelectrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE 134</td>
<td>Introduction to Photonics (WIM/Design)</td>
<td>4</td>
</tr>
<tr>
<td>EE 153</td>
<td>Power Electronics (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 155</td>
<td>Green Electronics (WIM/Design)</td>
<td>4</td>
</tr>
<tr>
<td>EE 157</td>
<td>Electric Motors for Renewable Energy, Robotics, and Electric Vehicles</td>
<td>3</td>
</tr>
<tr>
<td>EE 168</td>
<td>Introduction to Digital Image Processing (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 180</td>
<td>Digital Systems Architecture</td>
<td>3</td>
</tr>
<tr>
<td>EE 263</td>
<td>Introduction to Linear Dynamical Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 293</td>
<td>Energy storage and conversion: Solar Cells, Fuel Cells, Batteries and Supercapacitors</td>
<td>3</td>
</tr>
<tr>
<td>EE 293B</td>
<td>Fundamentals of Energy Processes</td>
<td>3</td>
</tr>
<tr>
<td>CEE 107A</td>
<td>Understanding Energy (Formerly CEE 173A)</td>
<td>3-5</td>
</tr>
<tr>
<td>CEE 155</td>
<td>Introduction to Sensing Networks for CEE</td>
<td>3-4</td>
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<tr>
<td>CEE 176A</td>
<td>Energy Efficient Buildings</td>
<td>3</td>
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<tr>
<td>CEE 176B</td>
<td>100% Clean, Renewable Energy and Storage for Everything</td>
<td>3-4</td>
</tr>
<tr>
<td>ENGR 105</td>
<td>Feedback Control Design</td>
<td>3</td>
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<td>ENGR 205</td>
<td>Introduction to Control Design Techniques</td>
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#### Information Systems and Science

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CS 107</td>
<td>Computer Organization and Systems</td>
<td>3-5</td>
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</table>

#### Physical Technology and Science

<table>
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<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 101B</td>
<td>Circuits II (Required)</td>
<td>4</td>
</tr>
<tr>
<td>EE 107</td>
<td>Embedded Networked Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 114</td>
<td>Fundamentals of Analog Integrated Circuit Design</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 116</td>
<td>Semiconductor Devices for Energy and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE 118</td>
<td>Introduction to Mechatronics</td>
<td>4</td>
</tr>
<tr>
<td>EE 124</td>
<td>Introduction to Neuroelectrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EE 133</td>
<td>Analog Communications Design Laboratory (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 134</td>
<td>Introduction to Photonics (WIM/Design)</td>
<td>4</td>
</tr>
<tr>
<td>EE 142</td>
<td>Engineering Electromagnetics</td>
<td>3</td>
</tr>
<tr>
<td>EE 153</td>
<td>Power Electronics (WIM/Design)</td>
<td>3-4</td>
</tr>
<tr>
<td>EE 155</td>
<td>Green Electronics (WIM/Design)</td>
<td>4</td>
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<tr>
<td>EE 157</td>
<td>Electric Motors for Renewable Energy, Robotics, and Electric Vehicles</td>
<td>3</td>
</tr>
<tr>
<td>EE 212</td>
<td>Integrated Circuit Fabrication Processes</td>
<td>3</td>
</tr>
<tr>
<td>EE 214B</td>
<td>Advanced Integrated Circuit Design</td>
<td>3</td>
</tr>
<tr>
<td>EE 216</td>
<td>Principles and Models of Semiconductor Devices</td>
<td>3</td>
</tr>
<tr>
<td>EE 222</td>
<td>Applied Quantum Mechanics I</td>
<td>3</td>
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</table>
Honors Program in Electrical Engineering

The Department of Electrical Engineering offers a program leading to a Bachelor of Science in Electrical Engineering with Honors. This program offers a unique opportunity for qualified undergraduate majors to conduct independent study and research at an advanced level with a faculty mentor, graduate students, and fellow undergraduates.

Admission to the honors program is by application. Declared EE majors with a grade point average (GPA) of at least 3.5 in Electrical Engineering are eligible to submit an application. Applications must be submitted by Autumn Quarter of the senior year, be signed by the thesis advisor and second reader (one must be a member of the EE Faculty), and include an honors proposal. Students need to declare honors on Axess.

In order to receive departmental honors, students admitted to the honors program must:

1. Submit an application, including the thesis proposal, by Autumn Quarter of senior year signed by the thesis advisor and second reader (one must be a member of the Electrical Engineering faculty).
2. Declare the EE Honors major in Axess before the end of Autumn Quarter of senior year.
3. Maintain a grade point average of at least 3.5 in Electrical Engineering courses.
4. Complete at least 10 units of EE 191 or EE 191W with thesis adviser for a letter grade. EE 191 units do not count toward the required 60 units, with the exception of EE 191W if approved to satisfy WIM.
5. Submit one final copy of the honors thesis approved by the advisor and second reader to the EE Degree Progress Officer by May 15.
6. Attend poster and oral presentation held at the end of Spring Quarter or present in another suitable forum approved by the faculty advisor.

Electrical Engineering (EE) Minor

The options for completing a minor in EE are outlined below. Students must complete a minimum of 23-25 units, as follows:

#### Select one:

<table>
<thead>
<tr>
<th>Units</th>
<th>Music</th>
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<tbody>
<tr>
<td>5</td>
<td>EE 42 Introduction to Electromagnetics and Its Applications</td>
</tr>
<tr>
<td></td>
<td>EE 65 Modern Physics for Engineers</td>
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<td></td>
<td>ENGR 40A Introductory Electronics</td>
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<td>ENGR 40B Introductory Electronics Part II</td>
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<tr>
<td></td>
<td>ENGR 40M An Intro to Making: What is EE</td>
</tr>
</tbody>
</table>

#### Option I:

| EE 101A Circuits I |
| EE 101B Circuits II |

#### Option II:

| EE 102A Signal Processing and Linear Systems I |
| EE 102B Signal Processing and Linear Systems II |

#### Option III:

| EE 102A Signal Processing and Linear Systems I |
| ENGR 108 Introduction to Matrix Methods |

#### Option IV:

| EE 108 Digital System Design |
| EE 180 Digital Systems Architecture |

In addition, four letter-graded EE courses at the 100-level or higher must be taken (12 units minimum). CS 107 is required as a prerequisite for EE 180, but can count as one of the four classes.

For additional information and sample programs see the Handbook for Undergraduate Engineering Programs (UGHB) (http://ughb.stanford.edu).