## Suggested Course Plan for a UC Riverside Major in Electrical Engineering

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Units</th>
<th>Winter Quarter</th>
<th>Units</th>
<th>Spring Quarter</th>
<th>Units</th>
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<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
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<tr>
<td>CS 010*</td>
<td>4</td>
<td>CS 013</td>
<td>4</td>
<td>CS 061</td>
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<tr>
<td>C++ Programming I</td>
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<td>Introduction to CS for Engineers</td>
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<td>Machine Org. &amp; Assembly Lang. Prog.</td>
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<tr>
<td>EE 010</td>
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<td>ENGL 001B</td>
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<tr>
<td>Intro to Electrical Engineering</td>
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<td>Intermediate Composition</td>
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<td>Linear Method for Engr. Analysis</td>
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<td>ENGL 001A</td>
<td>4</td>
<td>MATH 009B</td>
<td>4</td>
<td>MATH 009C</td>
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<td>Beginning Composition</td>
<td></td>
<td>First Year Calculus</td>
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<tr>
<td>MATH 009A</td>
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<td>PHYS 040A</td>
<td>5</td>
<td>PHYS 040B</td>
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<td>First Year Calculus</td>
<td></td>
<td>Physics (Mechanics)</td>
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<td>Physics (Heat/Waves/Sound)</td>
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<td><strong>SECOND YEAR</strong></td>
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<tr>
<td>EE 001A &amp; EE 01LA</td>
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<td>EE 001B</td>
<td>4</td>
<td>CS/EE 120B</td>
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<td>Engineering Circuit Analysis I &amp; Lab</td>
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<td>Engineering Circuit Analysis II</td>
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<td>Embedded Systems</td>
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<td>MATH 046</td>
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<td>EE/CS 120A</td>
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<td>EE 116</td>
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<td>Differential Equations</td>
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<td>Logic Design</td>
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<td>Engineering Electromagnetics</td>
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<td>PHYS 040C</td>
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<td>MATH 010A</td>
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<td>MATH 010B</td>
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<td>Physics (Electricity/Magnetism)</td>
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<td>Multivariable Calculus</td>
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<td>CHEM 001A &amp; CHEM 01LA</td>
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<td>Breadth</td>
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<td>General Chemistry and Lab</td>
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<td><strong>THIRD YEAR</strong></td>
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<tr>
<td>EE 100A</td>
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<td>EE 100B</td>
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<td>EE 114</td>
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<td>Electronic Circuits</td>
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<td>Prob., Random Variables &amp; Processes</td>
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<td>EE 110A</td>
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<td>EE 105</td>
<td>4</td>
<td>EE 132</td>
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<td>Signals &amp; Systems</td>
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<td>Model. &amp; Simulation of Dynamic Sys.</td>
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<td>Automatic Control</td>
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<tr>
<td>Breadth</td>
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<td>EE 110B</td>
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<td>Breadth</td>
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<tr>
<td>Humanities/Social Sciences</td>
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<td>Signals &amp; Systems</td>
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<td>Humanities/Social Sciences</td>
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<td>EE 128 Recommended</td>
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<td>BIOL 002, 003 or 005A/05LA</td>
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<td>Humanities/Social Sciences</td>
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<td><strong>FOURTH YEAR</strong></td>
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<td>EE 141</td>
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<td>EE 175B</td>
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<td>ENGR 180W*</td>
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<td>Senior Design Project</td>
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<td>Technical Communications</td>
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<td>EE 175A</td>
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<td>Technical Elective**</td>
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<td>Digital Signal Processing</td>
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<td>Senior Design Project</td>
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<td>Technical Elective**</td>
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<td>Breadth</td>
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<tr>
<td>Humanities/Social Sciences</td>
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* CS 010V may be used to satisfy this requirement

### Total Units: 187  Maximum Units: 224

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**ENGLISH COMPOSITION**

A C or better is required in three quarters of English Composition courses to satisfy the graduation requirement. ENGR 180W fulfills the third quarter of English Composition.

### BREADTH REQUIREMENTS

For an approved list of Breadth courses:

http://student.engr.ucr.edu/policies/requirements/breadth.html.

**Humanities:** (3 courses)

A. World History:

B. Fine Arts, Lit., Phil. or Rlst:

C. Human Persp. on Science:

**Social Sciences:** (3 courses)

A. Econ. or Posc.:

B. Anth., Psyc, or Soc.:

C. General Social Science:

**Ethnicity:** (1 course)

1. ___________

**Upper Division:** (2 courses)

1. ___________

2. ___________

**TECHNICAL ELECTIVES **

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Academic Advisor about potential offerings. See approved technical electives on back.

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Course Plan is subject to change.
You must complete 5 courses (at least 20 units) of Technical Elective coursework chosen from the list below. It is recommended that at least 3 courses are chosen from one Focus Area. Courses marked with * are required course for a focus area. Units are listed in ()..

**Intelligent Systems (IS)**
- *EE 146  Computer Vision (4)
- EE 140  Computer Visualization (4)
- EE 144  Introduction to Robotics (4)
- EE 152  Image Processing (4)
- EE 128  Data Acquis., Instrum., & Process Ctrl (4)
- CS 122A  Intermediate Embedded and Real-time Systems (5)
- CS 130  Computer Graphics (4)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

**Control and Robotics (CR)**
- *EE 151  Introduction to Digital Control (4)
- EE 123  Power Electronics (4)
- EE 128  Data Acquis., Instrum., & Process Ctrl (4)
- EE 144  Introduction to Robotics (4)
- EE/ME 145  Robotic Planning & Kinematics (4)
- EE 146  Computer Vision (4)
- EE 152  Image Processing (4)
- EE 153  Electric Drives (4)
- CS 122A  Intermediate Embedded and Real-time Systems (5)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

**Nanotechnology, Advanced Materials, and Devices (NMDC)**
- *EE 133  Solid-State Electronics (4)
- EE 117  Electromagnetics II (4)
- EE 134  Digital Integrated Circuit Layout and Design (4)
- EE 135  Analog Integrated Circuit Layout and Design (4)
- EE 136  Semiconductor Device Processing (4)
- EE 137  Intro to Semiconductor Optoelectronic Devices (4)
- EE 138  Electronic Properties of Materials (4)
- EE 139  Magnetic Materials (4)
- EE 160  Fiber Optic Communication Systems (4)
- EE 123  Power Electronics (4)
- EE 162  Intro to Nanoelectronics (4)
- EE 165  Design for Reliability of Integrated Circuits and Sys. (4)
- EE/CS 168  Introduction to VLSI Design (5)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

**VLSI Design and Systems (VLSI)**
- *CS/EE 168  Introduction to VLSI Design (5)
- EE 123  Power Electronics (4)
- EE 128  Data Acquis., Instrum., & Process Ctrl (4)
- EE 133  Solid-State Electronics (4)
- EE 134  Digital Integrated Circuit Layout and Design (4)
- EE 135  Analog Integrated Circuit Layout and Design (4)
- EE 136  Semiconductor Device Processing (4)
- EE 137  Intro to Semiconductor Optoelectronic Devices (4)
- EE 165  Design for Reliability of Integrated Circuits and Sys. (4)
- CS 161  Design and Architecture of Computer Systems (4)
- CS 122A  Intermediate Embedded and Real-time Systems (5)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

**Communications, Signal Processing and Networking (CSPN)**
- *EE 150  Digital Communications (4)
- EE 117  Electromagnetics II (4)
- EE 128  Data Acquis., Instrum., & Process Ctrl (4)
- EE 152  Image Processing (4)
- EE 160  Fiber Optic Communication Systems (4)
- CS/EE 168  Introduction to VLSI Design (5)
- CS 122A  Intermediate Embedded and Real-time Systems (5)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

**Power Engineering (PE)**
- *EE 155  Power System Analysis (4)
- EE 117  Electromagnetics II (4)
- EE 123  Power Electronics (4)
- EE 128  Data Acquis., Instrum., & Process Ctrl (4)
- EE 153  Electric Drives (4)
- ENGR 160  Intro to Engineering Optimization Techniques (4)

*Required course for the Focus Area