2022 - 2023 Major Map
Electrical Engineering (Electric Power and Energy Systems), BSE

School/College: Ira A. Fulton Schools of Engineering
Location: ASU Local ESEE PBSE

<table>
<thead>
<tr>
<th>Term 1 - A</th>
<th>0 - 6 Credit Hours</th>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tbody>
<tr>
<td>MAT 265: Calculus for Engineers I (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
<td>• ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students • If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See advisor.</td>
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<tr>
<td>ASU 101-EEE: The ASU Experience</td>
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<tr>
<td>FSE 100: Introduction to Engineering</td>
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<tbody>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</td>
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<td></td>
<td>• View ASU Online first-year student registration information here. • Prep for success using the First-Year Student Guide. • Join a Fulton community. • Explore engineering and technical professions.</td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
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<th>Term 2 - A</th>
<th>12 - 20 Credit Hours</th>
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<th>Minimum Grade</th>
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<tbody>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
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<tr>
<td>PHY 122: University Physics Laboratory I (SQ)</td>
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<tr>
<td>CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)</td>
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<th>Term 2 - B</th>
<th>20 - 26 Credit Hours</th>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tbody>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
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<td>• Create a Handshake profile. • Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.</td>
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<tr>
<td>MAT 267: Calculus for Engineers III (MA)</td>
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<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
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<tr>
<td>EEE 120: Digital Design Fundamentals</td>
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<tr>
<td>PHY 131: University Physics II: Electricity and Magnetism (SQ)</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Hours</td>
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<tr>
<td>PHY 132</td>
<td>University Physics Laboratory II (SQ)</td>
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<td><strong>Term 3 - B</strong></td>
<td><strong>33 - 39 Credit Hours</strong> Critical course signified by 🟢</td>
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<tr>
<td>CSE 100</td>
<td>Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming (CS)</td>
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<tr>
<td>MAT 275</td>
<td>Modern Differential Equations (MA)</td>
<td>3</td>
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<tr>
<td>Complete First-Year Composition requirement.</td>
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<tr>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
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<tr>
<td>Complete Mathematics (MA) requirement.</td>
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<thead>
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<tr>
<td>MAT 275</td>
<td>Modern Differential Equations (MA)</td>
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<td>Complete First-Year Composition requirement.</td>
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<tr>
<td>EEE 202</td>
<td>Circuits I</td>
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<td>Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)</td>
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<tbody>
<tr>
<td>EEE 241</td>
<td>Fundamentals of Electromagnetics</td>
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<td>MAT 343</td>
<td>Applied Linear Algebra</td>
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<tbody>
<tr>
<td>PHY 241</td>
<td>University Physics III</td>
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<tbody>
<tr>
<td>EEE 203</td>
<td>Signals and Systems I</td>
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<tr>
<td>EEE 334</td>
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<tbody>
<tr>
<td>EEE 350</td>
<td>Random Signal Analysis</td>
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<tr>
<td>EEE 360</td>
<td>Energy Systems and Power Electronics</td>
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<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tr>
<td>EEE 230</td>
<td>Computer Organization and Assembly Language Programming</td>
<td>3</td>
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<tr>
<td>Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
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<td>Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</td>
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<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tbody>
<tr>
<td>EEE 230</td>
<td>Computer Organization and Assembly Language Programming</td>
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<td><strong>Term hours subtotal: 6</strong></td>
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</table>
Upper Division Area Pathway Course  
- ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)  

**Term hours subtotal:** 7

### Term 7 - B 85 - 92 Credit Hours

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<tr>
<td><strong>Upper Division Area Pathway Course</strong></td>
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<td>• Plan for success using the Senior Guide. • Use Handshake to apply for full-time positions. • Complete an in person or virtual practice interview.</td>
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<td><strong>Upper Division Power Technical Elective</strong></td>
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**Term hours subtotal:** 7

### Term 8 - A 92 - 99 Credit Hours

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<tr>
<td><strong>EEE 488: Senior Design Laboratory I (L)</strong></td>
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<td><strong>Upper Division Area Pathway Course</strong></td>
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**Term hours subtotal:** 7

### Term 8 - B 99 - 105 Credit Hours

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**Term hours subtotal:** 6

### Term 9 - A 105 - 111 Credit Hours

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**Term hours subtotal:** 6

### Term 9 - B 111 - 117 Credit Hours

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<td><strong>Upper Division Technical Elective</strong></td>
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<td><strong>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)</strong></td>
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**Term hours subtotal:** 6

### Term 10 - A 117 - 120 Credit Hours

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**Term hours subtotal:** 3

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**Hide Course List(s)/Track Group(s)**

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<thead>
<tr>
<th>Technical Electives</th>
<th>Math or Science or Engineering Elective</th>
<th>Power Technical Electives</th>
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<tbody>
<tr>
<td>EEE 404: Real-Time DSP Systems</td>
<td>AEE Upper Division Elective</td>
<td>EEE 460: Nuclear Power Engineering</td>
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<tr>
<td>EEE 407: Digital Signal Processing</td>
<td>BIO Upper Division Elective</td>
<td>EEE 463: Electrical Power Plants</td>
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<tr>
<td>EEE 419: Python for Rapid Engineering Solutions</td>
<td>BME Upper Division Elective</td>
<td>EEE 465: Photovoltaic Energy Conversion</td>
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<tr>
<td>EEE 425: Digital Systems and Circuits</td>
<td>CEE Upper Division Elective</td>
<td>EEE 470: Electric Power Devices</td>
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<td>CHE Upper Division Elective</td>
<td>EEE 471: Power System Analysis</td>
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<tr>
<td>EEE 433</td>
<td>Analog Integrated Circuits</td>
<td>CHM Upper Division Elective</td>
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<td>EEE 434</td>
<td>Quantum Mechanics for Engineers</td>
<td>CPI Upper Division Elective</td>
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<td>EEE 435</td>
<td>Fundamentals of CMOS and MEMS</td>
<td>CSE Upper Division Elective</td>
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<td>EEE 436</td>
<td>Fundamentals of Solid-State Devices</td>
<td>IEE Upper Division Elective</td>
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<td>EEE 439</td>
<td>Semiconductor Facilities and Cleanroom Practices</td>
<td>MAE Upper Division Elective</td>
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<td>EEE 443</td>
<td>Antennas for Wireless Communications</td>
<td>MAT Upper Division Elective</td>
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<td>EEE 445</td>
<td>Microwaves</td>
<td>MSE Upper Division Elective</td>
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<td>EEE 448</td>
<td>Fiber Optics</td>
<td>PHY Upper Division Elective</td>
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<td>EEE 449</td>
<td>Communication Systems</td>
<td>Upper Division Technical Elective</td>
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<td>EEE 450</td>
<td>Communication Networks</td>
<td>FSE 301: Entrepreneurship and Value Creation</td>
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<td>EEE 460</td>
<td>Nuclear Power Engineering</td>
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<tr>
<td>EEE 463</td>
<td>Electrical Power Plants</td>
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<td>EEE 465</td>
<td>Photovoltaic Energy Conversion</td>
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<tr>
<td>EEE 470</td>
<td>Electric Power Devices</td>
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<tr>
<td>EEE 471</td>
<td>Power System Analysis</td>
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<tr>
<td>EEE 472</td>
<td>Power Electronics and Power Management</td>
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<td>EEE 473</td>
<td>Electrical Machinery</td>
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<td>EEE 480</td>
<td>Feedback Systems</td>
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<td>EEE 481</td>
<td>Computer-Controlled Systems</td>
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<td>EEE 492</td>
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<tr>
<td>EEE 498</td>
<td>Machine Learning Basics with Deployment to FPGAs</td>
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<tr>
<td>EEE 498</td>
<td>Manufacturing Science of Solar Cells</td>
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<td>EEE 498</td>
<td>Networking for Big Data</td>
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<td>EEE 498</td>
<td>Science and Technology of Solar Cell Fabrication</td>
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<tr>
<td>EEE 498</td>
<td>Foundations Machine Learning: From Theory to Practice</td>
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<td>EEE 498</td>
<td>Renewable Energy Technology and Systems</td>
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<tr>
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<td>Area Pathway Course</td>
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<tr>
<td>EEE 304</td>
<td>Signals and Systems II</td>
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<tr>
<td>EEE 333</td>
<td>Hardware Design Languages and Programmable Logic</td>
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<tr>
<td>EEE 335</td>
<td>Analog and Digital Circuits</td>
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Notes:
  • First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU’s first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: https://cisa.asu.edu/DSP
  • Mathematics Placement Assessment score determines placement in first mathematics course.

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 minimum
Total hrs at ASU: 30 minimum
Hrs Resident Credit for Academic Recognition: 56 minimum
Total Community College Hrs: 64 maximum

General University Requirements Legend
General Studies Core Requirements:
  • Literacy and Critical Inquiry (L)
  • Mathematical Studies (MA)
  • Computer/Statistics/Quantitative Applications (CS)
  • Humanities, Arts and Design (HU)
  • Social-Behavioral Sciences (SB)
  • Natural Science - Quantitative (SQ)
  • Natural Science - General (SG)

General Studies Awareness Requirements:
  • Cultural Diversity in the U.S. (C)
  • Global Awareness (G)
  • Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2022 - 2023 academic year.