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

School/College: Ira A. Fulton Schools of Engineering  
ESEEEP

<table>
<thead>
<tr>
<th>Term 1 0 - 16 Credit Hours</th>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| MAT 265: Calculus for Engineers I (MA) | 1  | 3 | C | ASU 101-EEE: The ASU Experience  
ASU 101-EEE: The ASU Experience  
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)  
CSE 100: Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming (CS)  
ENGINEERING 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition |

FSE 100: Introduction to Engineering | 1  | 2 |  | Minimum 2.00 GPA ASU Cumulative.  
Term hours subtotal: 16 |

<table>
<thead>
<tr>
<th>Term 2 16 - 32 Credit Hours</th>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>1</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>
PHYSICS 121: University Physics I: Mechanics (SQ)  
PHYSICS 122: University Physics Laboratory I (SQ) |

ECE 120: Digital Design Fundamentals  
ENGINEERING 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition  
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)  
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).  
Minimum 2.00 GPA ASU Cumulative.  
Term hours subtotal: 16 |

<table>
<thead>
<tr>
<th>Term 3 32 - 46 Credit Hours</th>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| ECE 202: Circuits I | 1  | 4 |  | ASU 101 or college-specific equivalent  
ASU 101 or college-specific equivalent  
ASU 101 or college-specific equivalent  
ASU 101 or college-specific equivalent |

MAT 267: Calculus for Engineers III (MA)  
MAT 275: Modern Differential Equations (MA)  
PHYSICS 131: University Physics II: Electricity and Magnetism (SQ)  
PHYSICS 132: University Physics Laboratory II (SQ)  
Minimum 2.00 GPA ASU Cumulative.  
Complete First-Year Composition requirement. |

• ASU 101 or college-specific equivalent  
• If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See advisor.  
• Prep for success using the First-Year Student Guide.  
• Join a Fulton community.  
• Explore engineering and technical professions.  
• Create a Handshake profile.  
• Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.  
• Prep for success using the Sophomore Guide.
Technical Electives

Complete Mathematics (MA) requirement.

<table>
<thead>
<tr>
<th>Term 4 46 - 61 Credit Hours</th>
<th>Critical course signified by 👄</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 203: Signals and Systems I</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EEE 241: Fundamentals of Electromagnetics</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td>C</td>
<td>• Pursue an undergraduate research experience.</td>
<td></td>
</tr>
<tr>
<td>PHY 241: University Physics III</td>
<td>3</td>
<td>C</td>
<td></td>
<td>• Apply for internships.</td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
<td>3</td>
<td></td>
<td>• Attend career fairs and events.</td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 14

<table>
<thead>
<tr>
<th>Term 5 61 - 75 Credit Hours</th>
<th>Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 334: Circuits II</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EEE 350: Random Signal Analysis</td>
<td>3</td>
<td></td>
<td></td>
<td>• Network at student organization competitions or professional societies.</td>
</tr>
<tr>
<td>EEE 360: Energy Systems and Power Electronics</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 14

<table>
<thead>
<tr>
<th>Term 6 75 - 90 Credit Hours</th>
<th>Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 3 courses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Area Pathway Course</td>
<td>12</td>
<td></td>
<td></td>
<td>• Research and prepare for graduate school.</td>
</tr>
<tr>
<td>ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)</td>
<td>3</td>
<td></td>
<td>• Apply for an engineering 4+1 program.</td>
<td></td>
</tr>
<tr>
<td>Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</td>
<td></td>
<td></td>
<td>• Develop a professional profile online.</td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15

<table>
<thead>
<tr>
<th>Term 7 90 - 105 Credit Hours</th>
<th>Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 488: Senior Design Laboratory I (L)</td>
<td>3</td>
<td></td>
<td></td>
<td>• Plan for success using the Senior Guide.</td>
</tr>
<tr>
<td>Upper Division Math or Science or Engineering Elective</td>
<td>3</td>
<td></td>
<td>• Use Handshake to apply for full-time positions.</td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td></td>
<td></td>
<td></td>
<td>• Complete an in person or virtual practice interview.</td>
</tr>
<tr>
<td>Upper Division Power Technical Elective</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15

<table>
<thead>
<tr>
<th>Term 8 105 - 120 Credit Hours</th>
<th>Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 489: Senior Design Laboratory II (L)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Power Technical Elective</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Technical Elective</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15

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

Technical Electives | Power Technical Electives | Math or Science or Engineering Elective
EEE 404: Real-Time DSP Systems
EEE 407: Digital Signal Processing
EEE 419: Python for Rapid Engineering Solutions
EEE 425: Digital Systems and Circuits
EEE 433: Analog Integrated Circuits
EEE 434: Quantum Mechanics for Engineers
EEE 435: Fundamentals of CMOS and MEMS
EEE 436: Fundamentals of Solid-State Devices
EEE 437: Optoelectronics
EEE 439: Semiconductor Facilities and Cleanroom Practices
EEE 443: Antennas for Wireless Communications
EEE 445: Microwaves
EEE 448: Fiber Optics
EEE 455: Communication Systems
EEE 459: Communication Networks
EEE 460: Nuclear Power Engineering
EEE 463: Electrical Power Plants
EEE 465: Photovoltaic Energy Conversion
EEE 470: Electric Power Devices
EEE 471: Power System Analysis
EEE 472: Power Electronics and Power Management
EEE 473: Electrical Machinery
EEE 480: Feedback Systems
EEE 481: Computer-Controlled Systems
EEE 492: Honors Directed Study
EEE 493: Honors Thesis (L)
EEE 498: Machine Learning Basics with Deployment to FPGAs
EEE 498: Manufacturing Science of Solar Cells
EEE 498: Networking for Big Data
EEE 498: Science and Technology of Solar Cell Fabrication
EEE 498: Foundations Machine Learning: From Theory to Pract
EEE 498: Renewable Energy Technology and Systems

EEE 460: Nuclear Power Engineering
EEE 463: Electrical Power Plants
EEE 465: Photovoltaic Energy Conversion
EEE 470: Electric Power Devices
EEE 471: Power System Analysis
EEE 472: Power Electronics and Power Management
EEE 473: Electrical Machinery
EEE 460: Nuclear Power Engineering

AEE Upper Division Elective
BIO Upper Division Elective
BME Upper Division Elective
CEE Upper Division Elective
CHE Upper Division Elective
CHM Upper Division Elective
CPI Upper Division Elective
CSE Upper Division Elective
IEE Upper Division Elective
MAE Upper Division Elective
MAT Upper Division Elective
MSE Upper Division Elective
PHY Upper Division Elective
FSE 301: Entrepreneurship and Value Creation
STP 420: Introductory Applied Statistics (CS)
STP 421: Probability
Upper Division Technical Elective
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.

<table>
<thead>
<tr>
<th>Area Pathway Course</th>
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</thead>
<tbody>
<tr>
<td>EEE 304: Signals and Systems II</td>
</tr>
<tr>
<td>EEE 333: Hardware Design Languages and Programmable Logic</td>
</tr>
<tr>
<td>EEE 335: Analog and Digital Circuits</td>
</tr>
<tr>
<td>EEE 341: Engineering Electromagnetics</td>
</tr>
<tr>
<td>EEE 352: Properties of Electronic Materials</td>
</tr>
</tbody>
</table>

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 next to courses on the major map were valid for the 2022 - 2023 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.