# 2018 - 2019 Major Map

**Electrical Engineering (Electric Power and Energy Systems), BSE**

**School/College:** Ira A. Fulton Schools of Engineering  
**Location:** Online  
ESEEEPBSE

<table>
<thead>
<tr>
<th>Term 1 - A</th>
<th>0 - 6 Credit Hours</th>
<th>Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MAT 265: Calculus for Engineers I (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ASU 101-EEE: The ASU Experience</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>FSE 100: Introduction to Engineering</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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<td></td>
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</tbody>
</table>

- An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses
- Mathematics Placement Assessment score determines placement in mathematics course
- ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students
- If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See Advisor.

<table>
<thead>
<tr>
<th>Term 1 - B</th>
<th>6 - 12 Credit Hours</th>
<th>Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENG 107 or ENG 108: First-Year Composition</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td><strong>Minimum 2.00 GPA ASU Cumulative.</strong></td>
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<td></td>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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</tbody>
</table>

- View ASU Online first-time freshmen registration information [here](#).
- Prep for success using the Freshman Guide [here](#).
- Join a Fulton community.
- Explore engineering and technical professions.

<table>
<thead>
<tr>
<th>Term 2 - A</th>
<th>12 - 20 Credit Hours</th>
<th>Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3</td>
<td>C</td>
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<tr>
<td></td>
<td>PHY 122: University Physics Laboratory I (SQ)</td>
<td>1</td>
<td>C</td>
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<tr>
<td></td>
<td>CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
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<td></td>
<td><strong>Term hours subtotal:</strong></td>
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<table>
<thead>
<tr>
<th>Term 2 - B</th>
<th>20 - 26 Credit Hours</th>
<th>Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENG 107 or ENG 108: First-Year Composition OR</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>MAT 267: Calculus for Engineers III (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
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<tr>
<td></td>
<td><strong>Minimum 2.00 GPA ASU Cumulative.</strong></td>
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<td></td>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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</tbody>
</table>

- Create a Handshake profile.
- Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.

<table>
<thead>
<tr>
<th>Term 3 - A</th>
<th>26 - 33 Credit Hours</th>
<th>Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>EEE 120: Digital Design Fundamentals</td>
<td>3</td>
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<tr>
<td>Course</td>
<td>Hours</td>
<td>Minimum Grade</td>
<td>Notes</td>
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<tr>
<td>----------------------------------------------------------------------</td>
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<td>----------------------------------------------------------------------</td>
<td></td>
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<tr>
<td>PHY 131: University Physics II: Electricity and Magnetism (SQ)</td>
<td>3</td>
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</tr>
<tr>
<td>PHY 132: University Physics Laboratory II (SQ)</td>
<td>1</td>
<td>C</td>
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</table>

**Term hours subtotal:** 7

<table>
<thead>
<tr>
<th>Term 3 - B 33 - 39 Credit Hours Critical course signified by [ ]</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSE 100: Principles of Programming with C++ (CS)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 275: Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td>Complete First-Year Composition requirement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Complete Mathematics (MA) requirement.</td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 6

<table>
<thead>
<tr>
<th>Term 4 - A 39 - 46 Credit Hours Critical course signified by [ ]</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 202: Circuits I</td>
<td>4</td>
<td></td>
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</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)</td>
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**Term hours subtotal:** 7

<table>
<thead>
<tr>
<th>Term 4 - B 46 - 52 Credit Hours Critical course signified by [ ]</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEE 241: Fundamentals of Electromagnetics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td>C</td>
<td>Pursue an undergraduate research experience.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Apply for internships.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Attend career fairs and events.</td>
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</table>

**Term hours subtotal:** 6

<table>
<thead>
<tr>
<th>Term 5 - A 52 - 58 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>PHY 241: University Physics III</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
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</tbody>
</table>

**Term hours subtotal:** 6

<table>
<thead>
<tr>
<th>Term 5 - B 58 - 65 Credit Hours 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>Network at student organization competitions or professional societies.</td>
</tr>
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</table>

**Term hours subtotal:** 7

<table>
<thead>
<tr>
<th>Term 6 - A 65 - 72 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>⭐ EEE 350: Random Signal Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⭐ EEE 360: Energy Systems and Power Electronics</td>
<td>4</td>
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</table>

**Term hours subtotal:** 7

<table>
<thead>
<tr>
<th>Term 6 - B 72 - 78 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>⭐ EEE 230: Computer Organization and Assembly Language Programming</td>
<td>3</td>
<td></td>
<td>Research and prepare for graduate school.</td>
</tr>
<tr>
<td>⭐ Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
<td>3</td>
<td></td>
<td>Develop a professional profile online.</td>
</tr>
<tr>
<td>⭐ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</td>
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Term 7 - A 78 - 85 Credit Hours

<table>
<thead>
<tr>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Upper Division Area Pathway Course</td>
<td>4</td>
<td></td>
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<tr>
<td>ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)</td>
<td>3</td>
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Term hours subtotal: 6

Term 7 - B 85 - 92 Credit Hours

<table>
<thead>
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<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Division Area Pathway Course</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Power Technical Elective</td>
<td>3</td>
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Term hours subtotal: 7

Term 8 - A 92 - 99 Credit Hours

<table>
<thead>
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<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>EEE 488: Senior Design Laboratory I (L)</td>
<td>3</td>
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<tr>
<td>Upper Division Area Pathway Course</td>
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Term hours subtotal: 7

Term 8 - B 99 - 105 Credit Hours

<table>
<thead>
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<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Upper Division Math or Science or Engineering Elective</td>
<td>3</td>
<td></td>
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<tr>
<td>Upper Division Power Technical Elective</td>
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Term hours subtotal: 6

Term 9 - A 105 - 111 Credit Hours

<table>
<thead>
<tr>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>EEE 489: Senior Design Laboratory II (L)</td>
<td>3</td>
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</tr>
<tr>
<td>Upper Division Power Technical Elective</td>
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Term hours subtotal: 6

Term 9 - B 111 - 117 Credit Hours

<table>
<thead>
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<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Upper Division Technical Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)</td>
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Term hours subtotal: 6

Term 10 - A 117 - 120 Credit Hours

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<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Upper Division Technical Elective</td>
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Term hours subtotal: 3

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

<table>
<thead>
<tr>
<th>Technical Electives</th>
<th>Power Technical Electives</th>
<th>Math or Science or Engineering Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
EEE 404: Real-Time DSP Systems
EEE 407: Digital Signal Processing
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 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 304: Signals and Systems II
EEE 333: Hardware Design Languages and Programmable Logic
EEE 335: Analog and Digital Circuits
EEE 341: Engineering Electromagnetics
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
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
FSE Upper Division Elective
IEE Upper Division Elective
MAE Upper Division Elective
MAT Upper Division Elective
MSE Upper Division Elective
PHY Upper Division Elective
Upper Division Technical Elective
General Studies designations listed on the major map are current for the 2018 - 2019 academic year.

**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)

**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 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 2018 - 2019 academic year.