












## 2017 - 2018 Major Map

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

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

Term 1 0 - 16 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 MAT 265: Calculus for Engineers I (MA)	3	C	<ul style="list-style-type: none"> <li>• An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses</li> <li>• ASU Mathematics Placement Test score determines placement in mathematics course.</li> <li>• ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students and should be taken the first semester.</li> <li>• If ENG 105 taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.</li> <li>• Prep for success using the <b>Freshman Guide</b>.</li> <li>• Join a <b>Fulton community</b>.</li> <li>• Explore <b>engineering and technical professions</b>.</li> </ul>
ASU 101-EEE: The ASU Experience	1		
CSE 100: Principles of Programming with C++ (CS)	3		
FSE 100: Introduction to Engineering	2		
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)	4		
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 2 16 - 32 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 MAT 266: Calculus for Engineers II (MA)	3	C	<ul style="list-style-type: none"> <li>• Create a <b>Handshake</b> profile.</li> <li>• Get involved with EPICS, the Generator Labs, and the <b>Fulton Start-Up Center</b>.</li> </ul>
 PHY 121: University Physics I: Mechanics (SQ)	3	C	
 PHY 122: University Physics Laboratory I (SQ)	1	C	
EEE 120: Digital Design Fundamentals	3		
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 3 32 - 46 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 EEE 202: Circuits I	4		<ul style="list-style-type: none"> <li>• Prep for success using the <b>Sophomore Guide</b>.</li> <li>• Consult the <b>Resume, Presentation, and Resource Library</b> for tips on how to create</li> </ul>
MAT 267: Calculus for Engineers III (MA)	3	C	
MAT 275: Modern Differential Equations (MA)	3	C	
PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
PHY 132: University Physics Laboratory II (SQ)	1	C	

⚠ Minimum 2.00 GPA ASU Cumulative.

Complete Mathematics (MA) requirement.

Term hours subtotal: 14

a technical resume, job shadow, do informational interviews and mentor with alumni.

Term 4 46 - 61 Credit Hours Critical course signified by ⚠	Hours	Minimum Grade	Notes
⚠ EEE 203: Signals and Systems I	3		<ul style="list-style-type: none"> <li>Pursue an undergraduate research experience.</li> <li>Apply for internships.</li> <li>Attend career fairs and events.</li> </ul>
⚠ EEE 241: Fundamentals of Electromagnetics	3		
PHY 241: University Physics III	3	C	
MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra	3	C	
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
Term hours subtotal:	15		

Term 5 61 - 75 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ EEE 334: Circuits II	4		<ul style="list-style-type: none"> <li>Plan for success using the Junior Guide.</li> <li>Network at student organization competitions or professional societies.</li> </ul>
EEE 230: Computer Organization and Assembly Language Programming	3		
EEE 350: Random Signal Analysis	3		
EEE 360: Energy Systems and Power Electronics	4		
Term hours subtotal:	14		

Term 6 75 - 90 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ Complete 3 courses: Upper Division Area Pathway Course	12		<ul style="list-style-type: none"> <li>Research and prepare for graduate school.</li> <li>Apply for an engineering 4+1 program.</li> <li>Develop a professional profile online.</li> </ul>
ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)	3		
Term hours subtotal:	15		

Term 7 90 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ EEE 488: Senior Design Laboratory I (L)	3		<ul style="list-style-type: none"> <li>Plan for success using the Senior Guide.</li> <li>Apply for full-time positions.</li> <li>Complete an in-person or practice interview.</li> </ul>
Complete 2 courses: Upper Division Power Technical Elective	6		
Upper Division Math or Science or Engineering Elective	3		
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
Term hours subtotal:	15		

Term 8 105 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ EEE 489: Senior Design Laboratory II (L)	3		
Upper Division Power Technical Elective	3		
Complete 2 courses: Upper Division Technical Elective	6		
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
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 460: Nuclear Power Engineering	AEE Upper Division Elective

EEE 407: Digital Signal Processing	EEE 463: Electrical Power Plants	BIO Upper Division Elective
EEE 425: Digital Systems and Circuits	EEE 465: Photovoltaic Energy Conversion	BME Upper Division Elective
EEE 433: Analog Integrated Circuits	EEE 470: Electric Power Devices	CEE Upper Division Elective
EEE 434: Quantum Mechanics for Engineers	EEE 471: Power System Analysis	CHE Upper Division Elective
EEE 435: Fundamentals of CMOS and MEMS	EEE 472: Power Electronics and Power Management	CHM Upper Division Elective
EEE 436: Fundamentals of Solid-State Devices	EEE 473: Electrical Machinery	CPI Upper Division Elective
EEE 437: Optoelectronics		CSE Upper Division Elective
EEE 439: Semiconductor Facilities and Cleanroom Practices		FSE Upper Division Elective
EEE 443: Antennas for Wireless Communications		IEE Upper Division Elective
EEE 445: Microwaves		MAE Upper Division Elective
EEE 448: Fiber Optics		MAT Upper Division Elective
EEE 455: Communication Systems		MSE Upper Division Elective
EEE 459: Communication Networks		PHY Upper Division Elective
EEE 460: Nuclear Power Engineering		Upper Division Technical Elective
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 498: Constructionist Approach to Microprocessor Design		
EEE 498: Manufacturing Science of Solar Cells		
EEE 498: Networking for Big Data		
EEE 498: Science and Technology of Solar Cell Fabrication		
Area Pathway Course		
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 352: Properties of Electronic Materials		

**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 next to courses on the major map were valid for the 2017 - 2018 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.