

















## 2011 - 2012 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
 FSE 100: Introduction to Engineering	2		<ul style="list-style-type: none"> <li>• An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses</li> <li>• ASU Math Placement Exam score determines placement in Mathematics course.</li> <li>• ASU 101 or College specific equivalent First Year Seminar required of all freshman student and should be taken the first semester.</li> <li>• CHM 113 is a prerequisite for CHM 116 and does not apply towards degree credit.</li> <li>• If ENG 105 taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.</li> </ul>
 MAT 265: Calculus for Engineers I (MA)	3	C	
ASU 101-EEE: The ASU Experience	1		
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)	4		
CSE 100: Principles of Programming with C++ (CS)	3		
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: English for Foreign Students	3	C	
 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	
 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 ENG 107 or ENG 108: English for Foreign Students	3	C	
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
 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>• CRITICAL REQUIREMENT: Complete 10 critical courses by end of term 3.</li> </ul>
 MAT 267: Calculus for Engineers III (MA)	3	C	
 MAT 274: Elementary Differential Equations (MA) OR 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	
 Complete First-Year Composition requirement.			

⚠ Minimum 2.00 GPA ASU Cumulative.

Term hours subtotal: 14

Term 4 46 - 61 Credit Hours Critical course signified by ⚠	Hours	Minimum Grade	Notes
⚠ EEE 203: Signals and Systems I	3		
⚠ EEE 241: Fundamentals of Electromagnetics	3		
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra	3	C	
PHY 241: University Physics III	3	C	
Term hours subtotal:	15		

Term 5 61 - 75 Credit Hours	Hours	Minimum Grade	Notes
EEE 230: Computer Organization and Assembly Language Programming	3		
EEE 334: Circuits II	4		
EEE 350: Random Signal Analysis	3		
EEE 360: Energy Systems and Power Electronics	4		
Term hours subtotal:	14		

Term 6 75 - 90 Credit Hours	Hours	Minimum Grade	Notes
ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB) OR ECN 201: Economic Issues and Analysis (SB)	3		<ul style="list-style-type: none"> <li>Area Pathway courses are prerequisites for Technical Electives. See Advisor for guidance in selection.</li> </ul>
Complete 3 courses:	12		
Upper Division Area Pathway Course			
Term hours subtotal:	15		

Term 7 90 - 105 Credit Hours	Hours	Minimum Grade	Notes
BIO OR CHM OR PHY OR MAT Upper Division Elective OR Upper Division Technical Elective	3		
EEE 488: Senior Design Laboratory I (L)	3		
Complete 2 courses:			
EEE 460: Nuclear Power Engineering OR EEE 463: Electrical Power Plants OR EEE 470: Electric Power Devices OR EEE 471: Power System Analysis OR EEE 473: Electrical Machinery OR EEE 498: Power Electronics OR EEE 498: Solar Energy	6		
GCU 364: Energy in the Global Arena (SB & G)	3		
Term hours subtotal:	15		

Term 8 105 - 120 Credit Hours	Hours	Minimum Grade	Notes
EEE 489: Senior Design Laboratory II (L)	3		
Complete 2 courses:	6		
Upper Division Elective			
EEE 460: Nuclear Power Engineering OR EEE 463: Electrical Power Plants OR EEE 470: Electric Power Devices OR EEE 471: Power System Analysis OR EEE 473: Electrical Machinery OR EEE 498: Power Electronics OR EEE 498: Solar Energy	3		
Humanities, Arts and Design (HU) OR Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	15		

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

Technical Electives	Area Pathway Course
EEE 460: Nuclear Power Engineering	EEE 304: Signals and Systems II
EEE 463: Electrical Power Plants	EEE 333: Hardware Design Languages and Programmable Logic
EEE 470: Electric Power Devices	EEE 335: Analog and Digital Circuits
EEE 471: Power System Analysis	EEE 341: Engineering Electromagnetics
EEE 472: Power Electronics and Power Management	EEE 352: Properties of Electronic Materials
EEE 473: Electrical Machinery	EEE 360: Energy Systems and Power Electronics
EEE 498: Power Electronics, Power Electronics Lab, Solar Energy	
EEE 404: Real-Time DSP Systems	
EEE 407: Digital Signal Processing	
EEE 455: Communication Systems	
EEE 459: Communication Networks	
EEE 480: Feedback Systems	
EEE 481: Computer-Controlled Systems	
EEE 425: Digital Systems and Circuits	
EEE 433: Analog Integrated Circuits	
EEE 443: Antennas for Wireless Communications	
EEE 445: Microwaves	
EEE 448: Fiber Optics	
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 460: Nuclear Power Engineering	
EEE 463: Electrical Power Plants	
EEE 470: Electric Power Devices	
EEE 471: Power System Analysis	
EEE 472: Power Electronics and Power Management	
EEE 473: Electrical Machinery	
CSE 420: Computer Architecture I	

**Notes:**

Major GPA calculation includes FSE 100, CSE, EEE, Area Pathway, and Technical Elective courses.

**Total Hours:** 120

**Upper Division Hours:** 45 minimum

**Major GPA:** 2.00 minimum

**Cumulative GPA:** 2.50 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 2011 - 2012 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.