2023 - 2024 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 Critical course signified by	Hours	Minimum Grade	Notes
MAT 265: Calculus for Engineers I (MA)	3	C	• ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students and should be taken the first semester. • If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See advisor. • Students who have credit for CHM 113 should take CHM 116. • Prep for success using the First-Year Student Guide. • Join a Fulton community. • Explore engineering and technical professions.
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) OR CSE 110: Principles of Programming (CS)	3	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
FSE 100: Introduction to Engineering	2		
Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 2 16 - 32 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 266: Calculus for Engineers II (MA)	3	C	• Create a Handshake profile. • Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
PHY 121: University Physics I: Mechanics (SQ)	3	C	
PHY 122: University Physics Laboratory I (SQ)	1	C	
EEE 120: Digital Design Fundamentals	3	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
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 Critical course signified by	Hours	Minimum Grade	Notes
EEE 202: Circuits I	4		• Prep for success using the Sophomore Guide.

	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 First-Year Composition requirement.		
	Complete Mathematics (MA) requirement.		
	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		• Pursue an undergraduate research experience. • Apply for internships. • Attend career fairs and events.
! EEE 241: Fundamentals of Electromagnetics	3		
MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra	3	C	
PHY 241: University Physics III	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		• Plan for success using the Junior Guide. • Network at student organization competitions or professional societies.
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		• Research and prepare for graduate school. • Apply for an engineering 4+1 program. • Develop a professional profile online.
ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)	3		
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
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		• Plan for success using the Senior Guide. • Use Handshake to apply for full-time positions. • Complete an in person or virtual practice interview.
Upper Division Math or Science or Engineering Elective	3		
Complete 2 courses: Upper Division Power Technical Elective	6		
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
EEE 404: Real-Time DSP Systems
EEE 405: Machine Learning Basics with Deployment to FPGAs
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

Math or Science or Engineering Elective
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 301: Entrepreneurship and Value Creation
IEE Upper Division Elective
MAE Upper Division Elective
MAT Upper Division Elective
MSE Upper Division Elective
PHY Upper Division Elective
STP 420: Introductory Applied Statistics (CS)

Power Technical Electives
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 498: Manufacturing Science of Solar Cells
EEE 498: Science and Technology of Solar Cell Fabrication

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: Emerging Technology in Automotive & Transportation

EEE 498: Lithium-Ion Battery Technlgy Automtve Electrifictn

EEE 498: Manufacturing Science of Solar Cells

EEE 498: Nuclear Prolif Secur & Safegrd

EEE 498: Quantum Optics and Quantum Information

EEE 498: Renewable Energy Technology and Systems

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

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.

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 2023 - 2024 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.