2021 - 2022 Major Map
Electrical Engineering, BSE

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

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. • 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
◆	Complete First-Year Composition requirement.		
◆	Minimum 2.00 GPA ASU Cumulative.		
	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		
Upper Division Area Pathway Course	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 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		
Complete 3 courses: Upper Division Technical Elective	9		
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 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 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

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
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)
STP 421: Probability
Upper Division Technical Elective

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
EEE 360: Energy Systems and Power Electronics

- 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: Python for Rapid Engineering Solutions
- EEE 498: Science and Technology of Solar Cell Fabrication
- EEE 498: Foundations Machine Learning: From Theory to Pract
- EEE 498: Machine Learning Basics with Application to FPGAs
- EEE 498: Renewable Energy Technology and Systems
- EEE 492: Honors Directed Study
- EEE 493: Honors Thesis (L)

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.

Accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org/.

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 2021 - 2022 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.