2023 - 2024 Major Map

Electrical Engineering, BSE

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

Term 1 - A 0 - 6 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 • If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See advisor.
ASU 101-ONL: The ASU Experience	1		
FSE 100: Introduction to Engineering	2		
Term hours subtotal:	6		

Term 1 - B 6 - 12 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 266: Calculus for Engineers II (MA)	3	C	• View ASU Online first-year student registration information here. • Prep for success using the First-Year Student Guide. • Join a Fulton community. • Explore engineering and technical professions.
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	
Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	6		

Term 2 - A 12 - 20 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
PHY 121: University Physics I: Mechanics (SQ)	3	C	Students who have credit for CHM 113 should take CHM 116.
PHY 122: University Physics Laboratory I (SQ)	1	C	
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)	4		
Term hours subtotal:	8		

Term 2 - B 20 - 26 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
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	• Create a Handshake profile. • Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
MAT 267: Calculus for Engineers III (MA)	3	C	
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	6		

Term 3 - A 26 - 33 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
PHY 132: University Physics Laboratory II (SQ)	1	C	
EEE 120: Digital Design Fundamentals	3	C	
Term hours subtotal:	7		

Term 3 - B 33 - 39 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 275: Modern Differential Equations (MA)	3	C	• Prep for success using the Sophomore Guide.
CSE 100: Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming (CS)	3	C	
Complete First-Year Composition requirement.			
Minimum 2.00 GPA ASU Cumulative.			
Complete Mathematics (MA) requirement.			
Term hours subtotal:	6		

Term 4 - A 39 - 46 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
EEE 202: Circuits I	4		
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Term hours subtotal:	7		

Term 4 - B 46 - 52 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
EEE 241: Fundamentals of Electromagnetics	3		• Pursue an undergraduate research experience. • Apply for internships. • Attend career fairs and events.
MAT 343: Applied Linear Algebra	3	C	
Term hours subtotal:	6		

Term 5 - A 52 - 58 Credit Hours	Hours	Minimum Grade	Notes
PHY 241: University Physics III	3	C	
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
Term hours subtotal:	6		

Term 5 - B 58 - 65 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 203: Signals and Systems I	3		
Term hours subtotal:	7		

Term 6 - A 65 - 72 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
EEE 350: Random Signal Analysis	3		
Upper Division Area Pathway Course	4		
Term hours subtotal:	7		

Term 6 - B 72 - 78 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
EEE 230: Computer Organization and Assembly Language Programming	3		• Research and prepare for graduate school. • Apply for an engineering 4+1 program . • Develop a professional profile online.
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	6		

Term 7 - A 78 - 85 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
Upper Division Area Pathway Course	4		

ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)	3		
Term hours subtotal:	7		

Term 7 - B 85 - 92 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Area Pathway Course	4		• Plan for success using the Senior Guide. • Use Handshake to apply for full-time positions.
Upper Division Technical Elective	3		
Term hours subtotal:	7		

Term 8 - A 92 - 99 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ EEE 488: Senior Design Laboratory I (L)	3		
Upper Division Area Pathway Course	4		
Term hours subtotal:	7		

Term 8 - B 99 - 105 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Math or Science or Engineering Elective	3		
Upper Division Technical Elective	3		
Term hours subtotal:	6		

Term 9 - A 105 - 111 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ EEE 489: Senior Design Laboratory II (L)	3		
Upper Division Technical Elective	3		
Term hours subtotal:	6		

Term 9 - B 111 - 117 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Technical Elective	3		
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	6		

Term 10 - A 117 - 120 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ Upper Division Technical Elective	3		
Term hours subtotal:	3		

- Major maps are built based on full-time enrollment, but can be adjusted as necessary for part-time attendance.

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

Technical Electives	Area Pathway Course	Math or Science or Engineering Elective
EEE 404: Real-Time DSP Systems	EEE 304: Signals and Systems II	AEE Upper Division Elective
EEE 405: Machine Learning Basics with Deployment to FPGAs	EEE 333: Hardware Design Languages and Programmable Logic	BIO Upper Division Elective
EEE 407: Digital Signal Processing	EEE 335: Analog and Digital Circuits	BME Upper Division Elective
EEE 419: Python for Rapid Engineering Solutions	EEE 341: Engineering Electromagnetics	CEE Upper Division Elective
EEE 425: Digital Systems and Circuits	EEE 352: Properties of Electronic Materials	CHE Upper Division Elective
		CHM Upper Division Elective

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 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

EEE 360: Energy Systems and Power Electronics

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

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.