









2022 - 2023 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	3	C	
ENG 107 or ENG 108: First-Year Composition			
 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	
 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			<ul style="list-style-type: none"> Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
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	<ul style="list-style-type: none"> • 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		<ul style="list-style-type: none"> • 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		<ul style="list-style-type: none"> • 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		<ul style="list-style-type: none"> • 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		
Upper Division Technical Elective	3		
Term hours subtotal:	7		<ul style="list-style-type: none"> Plan for success using the Senior Guide. Use Handshake to apply for full-time positions. Complete an in person or virtual practice interview.

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 407: Digital Signal Processing	EEE 333: Hardware Design Languages and Programmable Logic	BIO Upper Division Elective
EEE 419: Python for Rapid Engineering Solutions	EEE 335: Analog and Digital Circuits	BME Upper Division Elective
EEE 425: Digital Systems and Circuits	EEE 341: Engineering Electromagnetics	CEE Upper Division Elective
		CHE Upper Division Elective

EEE 433: Analog Integrated Circuits	EEE 352: Properties of Electronic Materials	CHM Upper Division Elective
EEE 434: Quantum Mechanics for Engineers	EEE 360: Energy Systems and Power Electronics	CPI Upper Division Elective
EEE 435: Fundamentals of CMOS and MEMS		CSE Upper Division Elective
EEE 436: Fundamentals of Solid-State Devices		IEE Upper Division Elective
EEE 439: Semiconductor Facilities and Cleanroom Practices		MAE Upper Division Elective
EEE 443: Antennas for Wireless Communications		MAT Upper Division Elective
EEE 445: Microwaves		MSE Upper Division Elective
EEE 448: Fiber Optics		PHY Upper Division Elective
EEE 459: Communication Networks		Upper Division Technical Elective
EEE 460: Nuclear Power Engineering		FSE 301: Entrepreneurship and Value Creation
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: Machine Learning Basics with Deployment to FPGAs		
EEE 498: Manufacturing Science of Solar Cells		
EEE 498: Networking for Big Data		
EEE 498: Science and Technology of Solar Cell Fabrication		
EEE 498: Foundations Machine Learning: From Theory to Pract		
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.

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 2022 - 2023 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.