

2023 - 2024 Major Map

Electrical Engineering (Electric Power and Energy Systems), BSE

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

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-EEE: 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	Hours	Minimum Grade	Notes
EEE 120: Digital Design Fundamentals	3	C	
PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
PHY 132: University Physics Laboratory II (SQ)	1	C	
Term hours subtotal:	7		

Term 3 - B 33 - 39 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
CSE 100: Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming (CS)	3	C	Prep for success using the Sophomore Guide.
MAT 275: Modern Differential Equations (MA)	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	
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
Term hours subtotal:	6		

Term 5 - B 58 - 65 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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★	EEE 203: Signals and Systems I	3
★	EEE 334: Circuits II	4
Term hours subtotal:		7

- Plan for success using the [Junior Guide](#).
- Network at [student organization](#) competitions or professional societies.

Term 6 - A 65 - 72 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★	EEE 350: Random Signal Analysis	3
	EEE 360: Energy Systems and Power Electronics	4
Term hours subtotal:		7

Term 6 - B 72 - 78 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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	EEE 230: Computer Organization and Assembly Language Programming	3
	Humanities, Arts and Design (HU) AND Historical Awareness (H)	3
★	Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).	
Term hours subtotal:		6

- Research and prepare for [graduate school](#).
- Develop a [professional profile](#) online.

Term 7 - A 78 - 85 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★	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 Necessary course signified by ★	Hours	Minimum Grade	Notes
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★	Upper Division Area Pathway Course	4
	Upper Division Power Technical Elective	3
Term hours subtotal:		7

- Plan for success using the [Senior Guide](#).
- Use [Handshake](#) to apply for full-time positions.

Term 8 - A 92 - 99 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★	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
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Upper Division Math or Science or Engineering Elective	3		
Upper Division Power Technical Elective	3		
Term hours subtotal:	6		

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

Term 9 - B 111 - 117 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
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⭐ 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
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⭐ Upper Division Technical Elective	3		
Term hours subtotal:	3		

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	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	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 436: Fundamentals of Solid-State Devices	MAE Upper Division Elective	EEE 498: Science and Technology of Solar Cell Fabrication
EEE 439: Semiconductor Facilities and Cleanroom Practices	MAT Upper Division Elective	
EEE 443: Antennas for Wireless Communications	MSE Upper Division Elective	
EEE 445: Microwaves	PHY Upper Division Elective	
EEE 448: Fiber Optics	Upper Division Technical Elective	
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 Electrifactn		
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		

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.