























2024 - 2025 Major Map

Engineering Management, **BSE**

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

Some accelerated combinations are not available to ASU Online students. Interested students should contact their academic advisor for more information.

Term 1 0 - 15 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
ASU 101-CAI: The ASU Experience	1		<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 credit hour elective must also be taken prior to graduation. Prep for success using the First-Year Student Guide. Join a Fulton community. Explore engineering and technical professions.
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
FSE 100: Introduction to Engineering	2	C	
MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	
Complete 2 courses: Humanities, Arts and Design (HUAD)	6		
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	15		
Term 2 15 - 31 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 110: Principles of Programming (QTRS OR CS)	3	C	<ul style="list-style-type: none"> Students who have credit for CHM 113 should take CHM116. Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
CHM 114: General Chemistry for Engineers (SCIT OR SQ) OR CHM 113: General Chemistry I (SCIT OR SQ)	4		
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	
American Institutions (AMIT)	3		
 Complete ENG 101 OR ENG 105 OR ENG 107.			
 Complete Mathematics (MA) requirement.			
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		
Term 3 31 - 47 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CSE 205: Object-Oriented Programming and Data Structures (QTRS OR CS)	3	C	<ul style="list-style-type: none"> Prep for success using the Sophomore Guide.
ECN 211: Macroeconomic Principles (SOBE OR SB) OR ECN 212: Macroeconomic Principles (SOBE OR SB)	3		
MAT 267: Calculus for Engineers III (MATH OR MA)	3	C	

PHY 121: University Physics I: Mechanics (SCIT OR SQ) AND PHY 122: University Physics Laboratory I (SCIT OR SQ)	4	C	
Sustainability (SUST) Track Course	3		
 Minimum 2.00 GPA ASU Cumulative. Complete Mathematics (MA) requirement.			
Term hours subtotal:	16		
Term 4 47 - 62 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 IEE 380: Probability and Statistics for Engineering Problem Solving (QTRS OR CS)	3	C	<ul style="list-style-type: none"> Pursue an undergraduate research experience. Apply for internships. Attend career fairs and events.
ACC 231: Uses of Accounting Information I	3	C	
MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra	3	C	
Math or Science Elective	3	C	
Governance and Civic Engagement (CIVI)	3		
Term hours subtotal:	15		
Term 5 62 - 77 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 300: Economic Analysis for Engineers	3	C	<ul style="list-style-type: none"> Plan for success using the Junior Guide. Network at student organization competitions or professional societies.
ACC 241: Uses of Accounting Information II	3	C	
Upper Division Industry Focus Area Elective	3	C	
Industry Focus Area Elective	3	C	
Math or Science Elective	3	C	
Term hours subtotal:	15		
Term 6 77 - 93 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 321: Professional Engineering Practice	1	C	<ul style="list-style-type: none"> Research and prepare for graduate school. Apply for an engineering accelerated program. Develop a professional profile online.
 IEE 369: Work Analysis and Design (L)	3	C	
 IEE 458: Project Management	3	C	
IEE 381: Lean Six Sigma Methodology	3	C	
Industry Focus Area Elective	3	C	
Global Communities, Societies and Individuals (GCSI)	3		
Term hours subtotal:	16		
Term 7 93 - 108 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 485: Systems Design Capstone I (L)	3	C	<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.
IEE 431: Engineering Administration (L)	3	C	
IEE 454: Risk Management	3	C	
Complete 2 courses: Upper Division Industry Focus Area Elective	6	C	
Term hours subtotal:	15		
Term 8 108 - 120 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 IEE 486: Systems Design Capstone II (L)	3	C	
IEE 456: Introduction to Systems Engineering	3	C	
IEE 477: System Dynamics and Thinking	3	C	
MGT 300: Principles of Management and Leadership	3	C	
Term hours subtotal:	12		

- Some Industry Focus Area Electives are sequential and may be offered only in the Fall or Spring semester.
- Some Industry Focus Area Electives may require additional prerequisites.
- For additional information on major curriculum, including Industry Focus Area Electives, please visit the [Engineering Management Degree Requirements website](#).

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

SUST Track Course	Industry Focus Area Elective (Business Analytics Industry)	Industry Focus Area Elective (Communication and Networks Industry)
ALA 102: Landscapes and Sustainability (SUST OR HU & G)	IEE 3** Elective	EEE 202: Circuits I
CEE 181: Technological, Social, and Sustainable Systems (SUST OR HU) or SOS 181: Technological, Social, and Sustainable Systems (SUST OR HU)	IEE 4** Elective Not From IEE 431 or IEE 454 or IEE 456 or IEE 458 or IEE 485 or IEE 486	EEE 203: Signals and Systems I EEE 350: Random Signal Analysis EEE 455: Communication Systems
SOS 100: Introduction to Sustainability (SUST OR G)	Math or Science Elective (Business Analytics Industry)	EEE 459: Communication Networks
SOS 110: Sustainable World (SUST OR SB)	MAT 275: Modern Differential Equations (MATH OR MA)	Math or Science Elective (Communication and Networks industry)
SOS 111: Sustainable Cities (SUST OR (HU or SB) & G) or PUP 190: Sustainable Cities (SUST OR (HU or SB) & G)	PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)	MAT 275: Modern Differential Equations (MATH OR MA) PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)
SOS 171: The Thread of Energy (SUST OR G) or GCU 171: The Thread of Energy (SUST OR G)		
Industry Focus Area Elective (Electronics and Semiconductor Industry)	Industry Focus Area Elective (Mechanical Systems Industry)	Industry Focus Area Elective (Power Systems Industry)
EEE 202: Circuits I	Required Courses:	EEE 202: Circuits I
EEE 241: Fundamentals of Electromagnetics	MAE 201: Mechanics of Particles and Rigid Bodies I: Statics	EEE 241: Fundamentals of Electromagnetics
EEE 352: Properties of Electronic Materials	MAE 241: Introduction to Thermodynamics	EEE 360: Energy Systems and Power Electronics
EEE 434: Quantum Mechanics for Engineers	CEE 384: Numerical Methods for Engineers (QTRS OR CS) or MAE 384: Advanced Mathematical Methods for Engineers (QTRS OR CS)	EEE 463: Electrical Power Plants
EEE 435: Fundamentals of CMOS and MEMS	MAE OR MEE OR MSE 3** Elective	EEE 470: Electric Power Devices
EEE 436: Fundamentals of Solid-State Devices	MAE OR MEE OR MSE 4** Elective	EEE 472: Power Electronics and Power Management
EEE 439: Semiconductor Facilities and Cleanroom Practices	Math or Science Elective (Mechanical Systems Industry)	Math or Science Elective (Power Systems Industry)
Math or Science Elective (Electronics and Semiconductor Industry)	MAT 275: Modern Differential Equations (MATH OR MA)	MAT 275: Modern Differential Equations (MATH OR MA)
MAT 275: Modern Differential Equations (MATH OR MA)	MAE 202: Mechanics of Particles and Rigid Bodies II: Dynamics	PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)
PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)	MAE 213: Mechanics of Materials	
	MSE 250: Structure and Properties of Materials	

PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)

Industry Focus Area Elective (Software Industry)	Industry Focus Area Elective (Sustainable and Environmentally Benign Industry)
CSE 240: Introduction to Programming Languages or CSE 220: Programming for Computer Engineering	CEE 213: Introduction to Deformable Solids
CSE 310: Data Structures and Algorithms	CEE 361: Introduction to Environmental Engineering
CSE 360: Introduction to Software Engineering	CEE 384: Numerical Methods for Engineers (QTRS OR CS) or MAE 384: Advanced Mathematical Methods for Engineers (QTRS OR CS)
CSE OR SER 3** Elective	CEE 400: Earth Systems Engineering and Management (SUST OR (L or HU) & H)
CSE OR SER 4** Elective	CEE 467: Environmental Microbiology
Math or Science Elective (Software Industry)	CEE 470: Sustainable Environmental Biotechnologies
MAT 243: Discrete Mathematical Structures (required)	Math or Science Elective (Sustainable and Environmentally Benign Industry)
General Math or Science Course Approved by SCAI Advisor	CEE 210: Engineering Mechanics I: Statics or EVE 214: Environmental Engineering Mechanics
	MAT 275: Modern Differential Equations (MATH OR MA)

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- **University Undergraduate Graduation Requirements**

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 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.