







2024 - 2025 Major Map





Mechanical Engineering, BSE

School/College: [Ira A. Fulton Schools of Engineering](#)
ESMAEMBSE

Term 1 - A 0 - 6 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
ASU 101-MEE: 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. FSE 100 is required for first-year students and should be completed the first semester. Non-first year students: see advisor for petitioning replacement electives. 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.
FSE 100: Introduction to Engineering	2	C	
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	
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	6		

Term 1 - B 6 - 12 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	<ul style="list-style-type: none"> View ASU Online first-year student registration information here.
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	
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	6		

Term 2 - A 12 - 19 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	<ul style="list-style-type: none"> Students who have credit for CHM 113 should take CHM 116.
CHM 114: General Chemistry for Engineers (SCIT OR SQ) OR CHM 116: General Chemistry II (SCIT OR SQ)	4	C	
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	7		

Term 2 - B 19 - 26 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 242: Elementary Linear Algebra	2	C	<ul style="list-style-type: none"> Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
 PHY 121: University Physics I: Mechanics (SCIT OR SQ)	3	C	
 PHY 122: University Physics Laboratory I (SCIT OR SQ)	1	C	
MAE 215: Introduction to Programming in MATLAB	1	C	

❗ Complete ENG 101 OR ENG 105 OR ENG 107 course(s).

❗ Minimum 2.00 GPA ASU Cumulative.

Term hours subtotal: 7

Term 3 - A 26 - 36 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAE 201: Mechanics of Particles and Rigid Bodies I: Statics	3	C	<ul style="list-style-type: none">• MAE 201 is a Session C course (15 weeks long).• Prep for success using the Sophomore Guide.
❗ MAT 267: Calculus for Engineers III (MATH OR MA)	3	C	
❗ PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)	3	C	
PHY 132: University Physics Laboratory II (SCIT OR SQ)	1	C	
❗ Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	10		

Term 3 - B 36 - 40 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAT 275: Modern Differential Equations (MATH OR MA)	3	C	
MAE 214: Computer-Aided Engineering I	1	C	
❗ Complete CHM 114 OR CHM 116 course(s).			
❗ Complete First-Year Composition requirement.			
❗ Minimum 2.00 GPA ASU Cumulative.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	4		

Term 4 - A 40 - 52 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAE 202: Mechanics of Particles and Rigid Bodies II: Dynamics	3	C	<ul style="list-style-type: none">• All MAE courses in this term are Session C courses (15 weeks long).• Pursue an undergraduate research experience.• Apply for internships.• Attend career fairs and events.
❗ MAE 213: Mechanics of Materials	3	C	
❗ MAE 241: Introduction to Thermodynamics	3	C	
MAE 384: Advanced Mathematical Methods for Engineers (QTRS OR CS)	3	C	
❗ Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	12		

Term 4 - B 52 - 56 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
EEE 202: Circuits I	4	C	
❗ Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	4		

Term 5 - A 56 - 68 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MAE 242: Introduction to Fluid Mechanics	3	C	<ul style="list-style-type: none">• All MAE, MEE, and MSE courses in this term are Session C courses (15 weeks long).• Plan for success using the Junior Guide.• Network at student organization competitions or professional societies.
★ MEE 322: Structural Mechanics	3	C	
★ MSE 250: Structure and Properties of Materials	3	C	
MAE 301: Applied Experimental Statistics	3	C	
Term hours subtotal:	12		

Term 5 - B 68 - 71 Credit Hours	Hours	Minimum Grade	Notes
Humanities, Arts and Design (HUAD)	3		
Term hours subtotal:	3		

Term 6 - A 71 - 85 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MAE 318: System Dynamics and Control I	3	C	<ul style="list-style-type: none"> All MAE and MEE courses in this term are Session C courses (15 weeks long).
★ MEE 323: Computer-Aided Engineering II	2	C	
★ MEE 340: Heat Transfer	3	C	
★ MEE 342: Principles of Mechanical Design	3	C	
Sustainability (SUST)	3	C	
Term hours subtotal:	14		
Term 6 - B 85 - 96 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MEE 488: Mechanical Engineering Design I	3	C	
MEE 491: Experimental Mechanical Engineering (L)	2	C	
MAE 417: System Dynamics and Control II	3	C	
Global Communities, Societies and Individuals (GCSI)	3		
Term hours subtotal:	11		
Term 7 - A 96 - 102 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Technical Elective	3	C	<ul style="list-style-type: none"> All MEE and MAE courses in this term are Session C courses (15 weeks long). Upper Division SOBE track course must be selected from the course list at the bottom of the major map.
Upper Division SOBE Track Course	3		
Term hours subtotal:	6		
Term 7 - B 102 - 111 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MEE 489: Mechanical Engineering Design II	3	C	<ul style="list-style-type: none"> Upper Division HUAD track course must be selected from the course list at the bottom of the major map.
Upper Division HUAD Track Course	3		
American Institutions (AMIT)	3		
Term hours subtotal:	9		
Term 8 - B 111 - 120 Credit Hours	Hours	Minimum Grade	Notes
Complete 2 courses:			
Upper Division Technical Elective	6	C	
Governance and Civic Engagement (CIVI)	3		
Term hours subtotal:	9		

- For additional information about Upper Division Technical Electives please go to: [Upper Division Technical Electives](#).

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

Upper Division Humanities, Arts and Design (HUAD) Courses	Upper Division Social and Behavioral Sciences (SOBE) Courses	Upper Division Technical Electives
ARC 434: Great Cities (HUAD OR (L or HU) & H)	PAF 311: Leadership and Change (SOBE OR SB)	AEE OR MAE OR MEE Upper Division Elective
BIS 345: Organizational Ethics (HUAD OR HU)	PAF 410: Building Leadership Skills (SOBE OR SB)	AST 321: Stellar and Planetary Astrophysics
		AST 322: Introduction to Galactic and Extragalactic Astrophysics
		CHM 325: Analytical Chemistry

HPS 314: Philosophy of Science (HUAD OR HU)	SWU 349: Stress Management Tools II (SOBE OR SB)	EEE 304: Signals and Systems II
PHI 330: Theory of Knowledge (HUAD OR HU)	SWU 350: Whole Person Health Across the Lifespan (SOBE OR SB)	EEE 333: Hardware Design Languages and Programmable Logic
REL 330: Native American Worldviews (HUAD OR HU & C)	POS 301: Empirical Political Inquiry (SOBE OR SB)	EEE 334: Circuits II
	STS 304: Science, Technology and Society (SOBE OR SB)	EEE 350: Random Signal Analysis
		EEE 360: Energy Systems and Power Electronics
		EEE 407: Digital Signal Processing
		EEE 434: Quantum Mechanics for Engineers
		EEE 460: Nuclear Power Engineering
		EEE 463: Electrical Power Plants
		EEE 480: Feedback Systems
		EEE 481: Computer-Controlled Systems
		EEE 498: Science and Technology of Solar Cell Fabrication
		EGR 494: Engineering in Semiconductors and Microelectronics
		IEE 305: Information Systems Engineering
		IEE 376: Operations Research Deterministic Techniques/Applications

Upper Division Technical Electives continued

MAT 421: Applied Computational Methods (MATH OR CS)

PHY 310: Classical Particles, Fields, and Matter I

PHY 361: Introductory Modern Physics

SES 350: Engineering Systems and Experimental Problem Solving (QTRS OR CS)

SES 407: Space Works II: Model, Fabricate, Test

By approval only:

MAE 492: Honors Directed Study

MAE 493: Honors Thesis (L)

MAE 499: Individualized Instruction

*Students who do not meet the enrollment requirements for these courses may be allowed to enroll with instructor consent. Courses not listed here require a department petition form. To take any 494 class, please check with your advisor first.

Students may only apply ONE (1) course from the list below:

FSE 301: Entrepreneurship and Value
Creation

IEE 300: Economic Analysis for Engineers

IEE 431: Engineering Administration (L)

- **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.