













## 2022 - 2023 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"> <li>ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students.</li> <li>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.</li> <li>If ENG 105 is taken, a 3 hour applicable elective must also be taken prior to graduation. See advisor.</li> <li>Prep for success using the <a href="#">First-Year Student Guide</a>.</li> <li>Join a <a href="#">Fulton community</a>.</li> <li>Explore <a href="#">engineering and technical professions</a>.</li> </ul>
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	
 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 (MA)	3	C	<ul style="list-style-type: none"> <li>View ASU Online first-year student registration information <a href="#">here</a>.</li> </ul>
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 (MA)	3	C	
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (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"> <li>Create a <a href="#">Handshake</a> profile.</li> <li>Get involved with EPICS, the Generator Labs, and the <a href="#">Fulton Start-Up Center</a>.</li> </ul>
 PHY 121: University Physics I: Mechanics (SQ)	3	C	
 PHY 122: University Physics Laboratory I (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"><li>• MAE courses listed here are only offered in Session C (15 weeks long).</li><li>• Prep for success using the <a href="#">Sophomore Guide</a>.</li></ul>
❗ MAT 267: Calculus for Engineers III (MA)	3	C	
❗ PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
PHY 132: University Physics Laboratory II (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 (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 (MA) 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"><li>• MAE courses listed here are only offered in Session C (15 weeks long).</li><li>• Pursue an <a href="#">undergraduate research experience</a>.</li><li>• Apply for <a href="#">internships</a>.</li><li>• Attend <a href="#">career fairs and events</a>.</li></ul>
❗ MAE 213: Mechanics of Materials	3	C	
❗ MAE 241: Introduction to Thermodynamics	3	C	
MAE 384: Advanced Mathematical Methods for Engineers (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 - 69 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MAE 242: Introduction to Fluid Mechanics	3	C	<ul style="list-style-type: none"><li>• MAE, MEE and MSE courses listed here are only offered in Session C (15 weeks long).</li><li>• Plan for success using the <a href="#">Junior Guide</a>.</li><li>• Network at <a href="#">student organization</a> competitions or professional societies.</li></ul>
★ MEE 322: Structural Mechanics	3	C	
★ MEE 324: Structural Mechanics Laboratory	1	C	
★ MSE 250: Structure and Properties of Materials	3	C	
MAE 301: Applied Experimental Statistics	3	C	
Term hours subtotal: 13			

Term 5 - B 69 - 72 Credit Hours	Hours	Minimum Grade	Notes
Social-Behavioral Sciences (SB) AND Historical Awareness (H)	3		
Term hours subtotal: 3			

Term 6 - A 72 - 87 Credit Hours <b>Necessary course signified by</b> ★	Hours	Minimum Grade	Notes
★ MAE 318: System Dynamics and Control I	4	C	• MAE and MEE courses listed here are only offered in Session C (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	
MAE 400: Engineering Profession (L)	3	C	
Term hours subtotal:	15		
Term 6 - B 87 - 87 Credit Hours <b>Necessary course signified by</b> ★	Hours	Minimum Grade	Notes
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	0		
Term 7 - A 87 - 96 Credit Hours <b>Necessary course signified by</b> ★	Hours	Minimum Grade	Notes
★ MEE 488: Mechanical Engineering Design I	3	C	• MAE and MEE courses listed here are only offered in Session C (15 weeks long).
MAE 417: System Dynamics and Control II	3	C	
MEE 491: Experimental Mechanical Engineering (L)	3	C	
Term hours subtotal:	9		
Term 7 - B 96 - 102 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Technical Elective	3	C	
Humanities, Arts and Design (HU)	3		
Term hours subtotal:	6		
Term 8 - A 102 - 111 Credit Hours <b>Necessary course signified by</b> ★	Hours	Minimum Grade	Notes
★ MEE 489: Mechanical Engineering Design II	3	C	• MEE 489 is only offered in Session C (15 weeks long).
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Social-Behavioral Sciences (SB) AND Global Awareness (G)	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	
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	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 Technical Electives	Upper Division Technical Electives continued
AEE OR MAE OR MEE Upper Division Elective	MAT 421: Applied Computational Methods (CS)

AST 321: Introduction to Planetary and Stellar Astrophysics	PHY 310: Classical Particles, Fields, and Matter I
AST 322: Introduction to Galactic and Extragalactic Astrophysics	PHY 361: Introductory Modern Physics
CHM 325: Analytical Chemistry	SES 350: Engineering Systems and Experimental Problem Solving
EEE 304: Signals and Systems II	SES 407: Space Works II
EEE 333: Hardware Design Languages and Programmable Logic	By approval only:
EEE 334: Circuits II	MAE 492: Honors Directed Study
EEE 350: Random Signal Analysis	MAE 493: Honors Thesis (L)
EEE 360: Energy Systems and Power Electronics	MAE 499: Individualized Instruction
EEE 407: Digital Signal Processing	*Students who do not meet the enrollment requirements for these courses may be allowed to enroll with instructor consent.
EEE 434: Quantum Mechanics for Engineers	Courses not listed here require a department petition form. To take any 494 class, please check with your advisor first.
EEE 460: Nuclear Power Engineering	Students may only apply ONE (1) course from the list below:
EEE 463: Electrical Power Plants	FSE 301: Entrepreneurship and Value Creation
EEE 480: Feedback Systems	IEE 300: Economic Analysis for Engineers
EEE 481: Computer-Controlled Systems	IEE 431: Engineering Administration (L)
EEE 498: Science and Technology of Solar Cell Fabrication	
EGR 494: Engineering in Semiconductors and Microelectronics	
IEE 305: Information Systems Engineering (CS)	
IEE 376: Operations Research Deterministic Techniques/Applications	

#### 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.