











2023 - 2024 Major Map








Aerospace Engineering (Autonomous Vehicle Systems), BSE

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

Term 1 0 - 16 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. FSE 100 required for first-year students and should be completed in the first semester. Non-first-year students: see advisor for petitioning replacement electives. If ENG 105 is taken, a three 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.
ASU 101-AEE: The ASU Experience	1		
CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)	4	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	
FSE 100: Introduction to Engineering	2	C	
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 2 16 - 32 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.
 MAT 266: Calculus for Engineers II (MA)	3	C	
 PHY 121: University Physics I: Mechanics (SQ)	3	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	
MAE 215: Introduction to Programming in MATLAB	1	C	
PHY 122: University Physics Laboratory I (SQ)	1	C	
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		

Term 3 32 - 46 Credit Hours Critical course signified by 	Hours	Minimum	Notes
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	MAE 201: Mechanics of Particles and Rigid Bodies I: Statics	3	C
	MAT 267: Calculus for Engineers III (MA)	3	C
	MAT 275: Modern Differential Equations (MA)	3	C
	PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C
	MAE 214: Computer-Aided Engineering I	1	C
	PHY 132: University Physics Laboratory II (SQ)	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:	14	




- Prep for success using the [Sophomore Guide](#).
- Create a [technical resume](#).

Term 4 46 - 62 Credit Hours  **Critical course signified by**

Hours

Minimum
Grade

Notes

	MAE 202: Mechanics of Particles and Rigid Bodies II: Dynamics	3	C
	MAE 213: Mechanics of Materials	3	C
	MAE 242: Introduction to Fluid Mechanics	3	C
	EEE 202: Circuits I	4	C
	MAE 384: Advanced Mathematical Methods for Engineers (CS)	3	C
	Term hours subtotal:	16	






- Pursue an [undergraduate research experience](#).
- Apply for [internships](#).
- Attend [career fairs and events](#).

Term 5 62 - 76 Credit Hours  **Necessary course signified by**

Hours

Minimum
Grade

Notes

	AEE 360: Aerodynamics (L)	3	C
	AEE 361: Aerodynamics Laboratory (L)	1	C
	MAE 241: Introduction to Thermodynamics	3	C
	MAE 301: Applied Experimental Statistics	3	C
	MAE 318: System Dynamics and Control I	4	C
	Term hours subtotal:	14	

- AEE 360, AEE 361 and AEE 362 must all be taken to secure Literacy and Critical Inquiry (L) General Studies credit.
- Plan for success using the [Junior Guide](#).
- Network at [student organization competitions](#) or professional societies.

Term 6 76 - 93 Credit Hours  **Necessary course signified by**

Hours

Minimum
Grade

Notes

	AEE 313: Aircraft Dynamics and Control	3	C
	AEE 325: Aerospace Structures and Materials	4	C

- AEE 360, AEE 361 and AEE 362 must all be taken to secure Literacy and

★ AEE 362: High-Speed Aerodynamics (L)	4	C
Upper Division AVS Technical Elective	3	C
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:	17	

- Critical Inquiry (L) General Studies credit.
- Research and prepare for **graduate school**.
 - Apply for an **engineering 4+1 program**.
 - Develop a **professional profile online**.

★ Term 7 93 - 108 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
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★ AEE 478: Fundamentals of Autonomous Aircraft Systems	3	C
AEE 463: Aircraft Propulsion	3	C
MAE 400: Engineering Profession (L)	3	C
Upper Division AVS Technical Elective	3	C
Social-Behavioral Sciences (SB)	3	
Term hours subtotal:	15	

- Plan for success using the **Senior Guide**.
- Use **Handshake** to apply for full-time positions.
- Complete an in-person or virtual **practice interview**.

★ Term 8 108 - 120 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
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★ AEE 479: Design of Autonomous Aircraft Systems	3	C
AEE 462: Space Vehicle Dynamics and Control	3	C
POS 325: Public Policy Development (SB) OR POS 300: Contemporary Global Controversies (SB & G) OR POS 370: Law and Society (SB) OR PHI 306: Applied Ethics (HU)	3	
Upper Division AVS Technical Elective	3	C
Term hours subtotal:	12	

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

AVS Technical Elective
EEE 203: Signals and Systems I
EEE 304: Signals and Systems II
EEE 350: Random Signal Analysis
EEE 455: Communication Systems
EEE 459: Communication Networks
EEE 480: Feedback Systems
EEE 481: Computer-Controlled Systems

EEE 582: Linear System Theory

MAE 417: System Dynamics and Control II

MAE 451: Applied Machine Learning for
Mechanical and Aerospace Engineers

MAE 494: Guidance and Navigation of
Aerospace Vehicles

MAE 506: Advanced System Modeling,
Dynamics, and Control

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 program petition. To take any 494 class, please check with your advisor first.

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.