










2023 - 2024 Major Map


Engineering (Automotive Systems), BSE


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





Term 1 0 - 16 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 ASU 101-TPS: The ASU Experience OR FSE 310: Transfer Success in Engineering	1		<ul style="list-style-type: none"> ASU 101 is required of all first-year students; FSE 310 is required for all new transfer students; LIA 294 is highly recommended for all new veteran students. Prep for success using the First-Year Student Guide. Join a Fulton community. Explore engineering and technical professions.
 EGR 101: Foundations of Engineering Design Project I	3		
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	
MAT 265: Calculus for Engineers I (MA)	3	C	
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	16		

Term 2 16 - 32 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 EGR 102: Foundations of Engineering Design Project II	3		<ul style="list-style-type: none"> Create a Handshake profile. Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
CHM 113: General Chemistry I (SQ)	4	C	
EGR 104: Critical Inquiry in Engineering (L) OR TWC 104: Critical Inquiry in Engineering (L)	3	C	
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	
MAT 266: Calculus for Engineers II (MA)	3	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
 Complete MAT 265 course(s).			
Term hours subtotal:	16		


Term 3 32 - 48 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 EGR 201: Use-Inspired Design Project I	3	C	<ul style="list-style-type: none"> Prep for success using the Sophomore Guide.
EGR 216: Engineering Electrical Fundamentals	3	C	
EGR 218: Materials and Manufacturing Processes	3	C	



MAT 267: Calculus for Engineers III (MA)	3	C
PHY 121: University Physics I: Mechanics (SQ)	3	C
PHY 122: University Physics Laboratory I (SQ)	1	C
 Complete MAT 266 course(s).		
Complete Mathematics (MA) requirement.		
Term hours subtotal:	16	

Term 4 48 - 63 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
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 EGR 202: Use-Inspired Design Project II	3	C
 EGR 217: Engineering Mechanics Fundamentals	3	C
 EGR 219: Computational Modeling of Engineering Systems	3	C
EGR 280: Engineering Statistics (CS)	3	
MAT 275: Modern Differential Equations (MA)	3	C
 Complete EGR 216 AND EGR 218 course(s).		
Term hours subtotal:	15	



- Pursue an **undergraduate research experience**.
- Apply for **internships**.
- Attend **career fairs and events**.

Term 5 63 - 75 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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 EGR 306: Automotive Systems Project I	3	C
 EGR 340: Engineering Thermo-Fluids I	3	C
PHY 321: Vector Mechanics and Vibration	3	
Upper Division Secondary Focus Area (EGR 360 Recommended)	3	
Term hours subtotal:	12	

- A secondary focus area is a group of courses comprising of 12 or more credit hours (at least six credit hours must be at the upper-division level) which form a coherent theme. For example, all courses may share a common subject code. Students work with an academic advisor to identify their secondary focus area.
- Plan for success using the **Junior Guide**.
- Network at **student organization** competitions or professional societies.

Term 6 75 - 90 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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 EGR 316: Automotive Systems Project II	3	C
 EGR 363: Automotive Powertrains and Thermal Systems	3	C
HST 318: History of Engineering ((L or SB) & G)	3	
MAT 343: Applied Linear Algebra	3	
Secondary Focus Area	3	

- A secondary focus area is a group of courses comprising of 12 or more credit hours (at least six credit hours must be at the upper-division level) which form a coherent theme. For example, all courses may share a common subject code. Students work with an academic advisor to identify their secondary focus area.
- Research and prepare for **graduate school**.



Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

Term hours subtotal: 15

- Apply for an [engineering 4+1 program](#).
- Develop a [professional profile online](#).

Term 7 90 - 108 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
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EGR 401: Professional Design Project I (L)

3

C

EGR 330: Design of Electrical Systems OR
EGR 432: Engineering Thermo-Fluids II

3

Upper Division Secondary Focus Area

3

Science Elective

3

Secondary Focus Area

3

Humanities, Arts and Design (HU) AND Historical Awareness (H)

3

Term hours subtotal: 18

- If in the Electrical specialization, students must take EGR 330.
- If in the Mechanical specialization, students must take EGR 432.
- A secondary focus area is a group of courses comprising of 12 or more credit hours (at least six credit hours must be at the upper-division level) which form a coherent theme. For example, all courses may share a common subject code. Students work with an academic advisor to identify their secondary focus area.
- Students must select a Science Elective from the listed courses below.
- 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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EGR 402: Professional Design Project II

3

EGR 463: Vehicle Electrical Systems and Hybrid Systems

3

EGR 465: Ground Vehicle Dynamics

3

Upper Division Humanities, Arts and Design (HU) OR
Upper Division Social-Behavioral Sciences (SB)

3

Term hours subtotal: 12

- A secondary focus area is a group of courses comprising of 12 or more credit hours (at least six credit hours must be at the upper-division level) which form a coherent theme. For example, all courses may share a common subject code. Students work with an academic advisor to identify their secondary focus area.

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

Science Elective

ABS 130: Introduction to Environmental Science (SQ)

ABS 225: Soils (SQ)

AST 111: Introduction to Solar Systems Astronomy (SQ)

BIO 181: General Biology I (SQ)

CHM 116: General Chemistry II (SQ)

CHM 231: Elementary Organic Chemistry (SQ)

ENV 130: Introduction to Environmental Science (SQ)

GLG 101: Introduction to Geology I (Physical) (SQ)

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

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.