












2022 - 2023 Major Map

Manufacturing Engineering, BS

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

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 Historical Awareness (H)	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

❗ EGR 202: Use-Inspired Design Project II	3	C
❗ EGR 280: Engineering Statistics (CS)	3	C
EGR 217: Engineering Mechanics Fundamentals	3	C
EGR 219: Computational Modeling of Engineering Systems	3	C
MAT 275: Modern Differential Equations (MA)	3	C
❗ Complete EGR 216 AND EGR 217 AND EGR 218 AND EGR 219 course(s).		
❗ Complete MAT 267 course(s).		

Term hours subtotal: 15

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

Term 5 63 - 79 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MFG 308: Manufacturing System Project I	3	C	<ul style="list-style-type: none"> • Plan for success using the Junior Guide. • Network at student organization competitions or professional societies.
★ MFG 382: Modeling of Manufacturing Systems I	3	C	
CHM 116: General Chemistry II (SQ)	4	C	
MFG 381: Manufacturing Processes and Validation Lab	3	C	
MFG 383: Communications in a Production Environment	3		
Term hours subtotal:	16		

Term 6 79 - 91 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MFG 318: Manufacturing Systems Project II	3	C	<ul style="list-style-type: none"> • Research and prepare for graduate school. • Apply for an engineering 4+1 program. • Develop a professional profile online. • Begin looking for internships.
MAT 343: Applied Linear Algebra	3		
MFG 385: Design for Manufacturing	3		
MFG 387: Industrial Automation	3		
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	12		

Term 7 91 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ EGR 401: Professional Design Project 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.
★ MFG 482: Materials Science in Manufacturing	3		
HST 318: History of Engineering ((L or SB) & G)	3		
Upper Division Technical Elective	2		
Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	14		

Term 8 105 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ EGR 402: Professional Design Project II	3		
MFG 461: Engineering Economics	3		
MFG 480: Advanced Statistical Approaches for Manufacturing	3		
Upper Division Technical Elective	3		
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
Term hours subtotal:	15		

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

Technical Electives

EGR 370: Welding Survey

EGR 380: Advanced Computer Aided
Design and Drafting (CADD) and Solid
Modeling

MFG 472: Additive Manufacturing

MFG 485: Engineering Internship

MFG 486: CNC Computer Programming

MFG 494: Special Topics

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.