













2024 - 2025 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-MSN: The ASU Experience	1		<ul style="list-style-type: none"> ASU 101 is required of all first-year students. Prep for success using the First-Year Student Guide. Join a Fulton community. Explore engineering and technical professions.
 CSE 101: Introduction to Computer Science and Programming for Non-Computer Science Majors (QTRS)	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 265: Calculus for Engineers I (MATH OR MA)	3	C	
Humanities, Arts and Design (HUAD)	3		
Social and Behavioral Sciences (SOBE)	3		
Term hours subtotal:	16		
Term 2 16 - 32 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MFG 101: Introduction to Manufacturing Engineering	2		<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 (SCIT OR SQ)	4	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 (MATH OR MA)	3	C	
MFG 190: Prototyping Lab	1		
Sustainability (SUST)	3		
 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 216: Engineering Electrical Fundamentals	3	C	<ul style="list-style-type: none"> Prep for success using the Sophomore Guide.
 RAS 210: Computer-Aided Design and Manufacturing (CAD/CAM)	3	C	
EGR 217: Engineering Mechanics Fundamentals	3	C	
MAT 267: Calculus for Engineers III (MATH OR MA)	3	C	
PHY 121: University Physics I: Mechanics (SCIT OR SQ)	3	C	
PHY 122: University Physics Laboratory I (SCIT OR SQ)	1	C	
 Complete MAT 266 course(s).			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	16		
Term 4 48 - 64 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes

❗ EGR 218: Materials and Manufacturing Processes	3	C
❗ EGR 280: Engineering Statistics (QTRS OR CS)	3	C
❗ RAS 205: Design and Analysis of Data Structures and Algorithms	3	C
MAT 275: Modern Differential Equations (MATH OR MA)	3	C
MAT 343: Applied Linear Algebra	3	
MFG 290: Machining Lab	1	
❗ Complete EGR 216 AND EGR 217 AND EGR 218 course(s).		
❗ Complete MAT 267 course(s).		
Term hours subtotal:	16	

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

Term 5 64 - 79 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ MFG 311: Materials Processing Science	3	
CHM 116: General Chemistry II (SCIT OR SQ)	4	C
MFG 390: Advanced Manufacturing Processes Lab	1	
MFG 391: Materials Characterization Lab	1	
Upper Division Technical Elective	3	
Global Communities, Societies and Individuals (GCSI)	3	
Term hours subtotal:	15	

- Plan for success using the **Junior Guide**.
- Network at **student organization** competitions or professional societies.

Term 6 79 - 95 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ MFG 388: Industrial Robotics	3	
HST 318: History of Engineering (HUAD OR (L or SB) & G)	3	
MFG 385: Design for Manufacturing	3	
MFG 387: Industrial Automation	3	
MFG 491: Computer Numerical Control Machining Lab	1	
Upper Division Technical Elective	3	
Term hours subtotal:	16	

- Research and prepare for **graduate school**.
- Apply for an **engineering 4+1 program**.
- Develop a **professional profile online**.
- Begin looking for **internships**.

Term 7 95 - 108 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ EGR 401: Professional Design Project I (L)	3	C
★ MFG 461: Engineering Economics	3	
★ MFG 480: Advanced Statistical Approaches for Manufacturing	3	
MFG 490: Measurement and Metrology Lab	1	
Upper Division Technical Elective	3	
Term hours subtotal:	13	

- 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	
Upper Division Technical Elective	3	
American Institutions (AMIT)	3	
Governance and Civic Engagement (CIVI)	3	
Term hours subtotal:	12	

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

Technical Electives

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EGR 370: Welding Survey
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EGR 380: Advanced Computer Aided
Design and Drafting (CADD) and Solid
Modeling
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EGR 494: Manufacturing Systems
Management
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MFG 472: Additive Manufacturing
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MFG 480: Advanced Statistical Approaches
for Manufacturing
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MFG 485: Engineering Internship
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MFG 486: CNC Computer Programming
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MFG 494: Special Topics
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- **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.