# 2020 - 2021 Major Map
## Manufacturing Engineering, BS

**School/College:** Ira A. Fulton Schools of Engineering  
**Location:** Polytechnic campus  
**TSMERGBS**

### Term 1 0 - 16 Credit Hours Critical course signified by 🔴

<table>
<thead>
<tr>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1     |               | • 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.  
• An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses  
• Mathematics Placement Assessment score determines placement in mathematics course  
• Prep for success using the First-Year Student Guide.  
• Join a Fulton community.  
• Explore engineering and technical professions. |
| 3     | C             | ASU 101-TPS: The ASU Experience OR FSE 310: Transfer Success in Engineering  
EGR 101: Foundations of Engineering Design Project I  
ENG 101 or ENG 102: First-Year Composition OR  
ENG 105: Advanced First-Year Composition OR  
ENG 107 or ENG 108: First-Year Composition  
MAT 265: Calculus for Engineers I (MA)  
Humanities, Arts and Design (HU)  
Social-Behavioral Sciences (SB) |

**Term hours subtotal:** 16

### Term 2 16 - 32 Credit Hours Critical course signified by 🔴

<table>
<thead>
<tr>
<th>Hours</th>
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<th>Notes</th>
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</thead>
</table>
| 3     | C             | • Create a Handshake profile.  
• Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center. |
| 4     | C             | EGR 102: Foundations of Engineering Design Project II  
CHM 113: General Chemistry I (SQ)  
EGR 104: Critical Inquiry in Engineering (L) OR TWC 104: Critical Inquiry in Engineering (L)  
ENG 101 or ENG 102: First-Year Composition OR  
ENG 105: Advanced First-Year Composition OR  
ENG 107 or ENG 108: First-Year Composition  
MAT 266: Calculus for Engineers II (MA)  
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).  
Complete MAT 265 course(s). |

**Term hours subtotal:** 16

### Term 3 32 - 47 Credit Hours Critical course signified by 🔴

<table>
<thead>
<tr>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>C</td>
<td>• Prep for success using the Sophomore Guide.</td>
</tr>
</tbody>
</table>
| 3     | C             | EGR 201: Use-Inspired Design Project I  
EGR 216: Engineering Electrical Fundamentals  
EGR 218: Materials and Manufacturing Processes  
MAT 267: Calculus for Engineers III (MA)  
PHY 121: University Physics I: Mechanics (SQ)  
Complete MAT 266 course(s).  
Complete Mathematics (MA) requirement. |

**Term hours subtotal:** 15

### Term 4 47 - 62 Credit Hours Critical course signified by 🔴

<table>
<thead>
<tr>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
### Term 5 62 - 78 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 308: Manufacturing System Project I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 382: Modeling of Manufacturing Systems I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 381: Manufacturing Processes and Validation Lab</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 383: Communications in a Production Environment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 16

### Term 6 78 - 93 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 318: Manufacturing Systems Project II</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>HST 318: History of Engineering (L or SB) &amp; G</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 385: Design for Manufacturing</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 387: Industrial Automation</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</td>
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</tr>
</tbody>
</table>

**Term hours subtotal:** 15

### Term 7 93 - 105 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 401: Professional Design Project I (L)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 482: Materials Science in Manufacturing</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Technical Elective</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 12

### Term 8 105 - 120 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 402: Professional Design Project II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 461: Manufacturing Enterprise Operations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 480: Advanced Statistical Approaches for Manufacturing</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Technical Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

- Pursue an undergraduate research experience.
- Attend career fairs and events.
- Plan for success using the Junior Guide.
- Network at student organization competitions or professional societies.
- Research and prepare for graduate school.
- Apply for an engineering 4+1 program.
- Develop a professional profile online.
- Begin looking for internships.
- Plan for success using the Senior Guide.
- Use Handshake to apply for full-time positions.
- Complete an in person or virtual practice interview.
Technical Electives

- EGR 370: Welding Survey
- EGR 380: Advanced Computer Aided Design and Drafting (CADD) and Solid Modeling
- EGR 431: Power Management
- EGR 476: Microgrid Design and Operation
- EGR 494: Integration of Automation Systems
- MFG 472: Additive Manufacturing
- MFG 485: Engineering Internship
- MFG 486: CNC Computer Programming

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 on the major map are current for the 2020 - 2021 academic year.