# 2019 - 2020 Major Map
## Manufacturing Engineering, BS
### School/College: Ira A. Fulton Schools of Engineering
### Location: Polytechnic campus

**Term 1 - 16 Credit Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASU 101-TPS</td>
<td>The ASU Experience</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGR 101</td>
<td>Foundations of Engineering Design Project I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or 108: First-Year Composition</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 265: Calculus for Engineers I (MA) Humanities, Arts and Design (HU) Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 16

**Term 2 - 16 - 32 Credit Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 102: Foundations of Engineering Design Project II</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHM 113: General Chemistry I (SQ)</td>
<td>4 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGR 104: Critical Inquiry in Engineering (L)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or 108: First-Year Composition</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 201: Use-Inspired Design Project I</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGR 216: Engineering Electrical Fundamentals</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGR 218: Materials and Manufacturing Processes</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 267: Calculus for Engineers III (MA)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Complete MAT 266 course(s).**

**Term hours subtotal:** 15

**Term 4 - 47 - 62 Credit Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 202: Use-Inspired Design Project II</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGR 280: Engineering Statistics (CS)</td>
<td>3 C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

- ASU 101 is required of all freshman 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.
- ASU Mathematics Placement Assessment score determines placement in mathematics course.
- Prep for success using the Freshman Guide.
- Join a Fulton community.
- Explore engineering and technical professions.

- Create a Handshake profile.
- Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
- Consult the Resume, Presentation, and Resource Library for tips on how to create a technical resume, job shadow, do informational interviews and mentor with alumni.
- Prep for success using the Sophomore Guide.
- Pursue an undergraduate research experience.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 217</td>
<td>Engineering Mechanics Fundamentals</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>EGR 219</td>
<td>Computational Modeling of Engineering Systems</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 275</td>
<td>Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

- Complete EGR 216 AND EGR 217 AND EGR 218 AND EGR 219 course(s).
- Complete MAT 267 course(s).

**Term hours subtotal:** 15

**Term 5 62 - 78 Credit Hours Necessary course signified by ⭐**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 308</td>
<td>Manufacturing System Project I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 382</td>
<td>Modeling of Manufacturing Systems I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHM 116</td>
<td>General Chemistry II (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 381</td>
<td>Manufacturing Processes and Validation Lab</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 383</td>
<td>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 Necessary course signified by ⭐**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 318</td>
<td>Manufacturing Systems Project II</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>HST 318</td>
<td>History of Engineering ((L or SB) &amp; G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 343</td>
<td>Applied Linear Algebra</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 385</td>
<td>Design for Manufacturing</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 387</td>
<td>Industrial Automation</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Term hours subtotal:** 15

**Term 7 93 - 105 Credit Hours Necessary course signified by ⭐**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 401</td>
<td>Professional Design Project I (L)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MFG 482</td>
<td>Materials Science in Manufacturing</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFG 485</td>
<td>Engineering Internship</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Humanities, Arts and Design (HU) AND Historical Awareness (H) course(s).**

**Term hours subtotal:** 12

**Term 8 105 - 120 Credit Hours Necessary course signified by ⭐**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 402</td>
<td>Professional Design Project II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPG 461</td>
<td>Manufacturing Enterprise Operations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPG 480</td>
<td>Advanced Statistical Approaches for Manufacturing</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

- Attend career fairs and events.

- Complete EGR 216 AND EGR 217 AND EGR 218 AND EGR 219 course(s).
- Complete MAT 267 course(s).

- 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.

- MFG 485: Must complete an internship two weeks prior to registration.
- Plan for success using the Senior Guide.
- Use Handshake to apply for full-time positions.
- Complete an in-person or practice interview.

**Hide Course List(s)/Track Group(s)**
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 2019 - 2020 academic year.