## 2019 - 2020 Major Map
### Engineering (Robotics), BSE

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

### Term 1 - 0 - 16 Credit Hours

<table>
<thead>
<tr>
<th>Hours</th>
<th>Minimum Grade</th>
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**ASU 101-TPS: The ASU Experience**  
**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

- 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.
- 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.

### Term 2 - 16 - 32 Credit Hours

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<th>Hours</th>
<th>Minimum Grade</th>
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</table>

**EGR 102: Foundations of Engineering Design Project II**  
**CHM 113: General Chemistry I (SQ)**  
**EGR 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

- Create a [Handshake](#) profile.
- Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.

### Term 3 - 32 - 48 Credit Hours

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<th>Hours</th>
<th>Minimum Grade</th>
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**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)**  
**PHY 122: University Physics Laboratory I (SQ)**

Complete MAT 266 course(s).  
Complete Mathematics (MA) requirement.

**Term hours subtotal:** 16

- Prep for success using the [Sophomore Guide](#).
- 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.

### Term 4 - 48 - 63 Credit Hours

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<tr>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</table>

**EGR 202: Use-Inspired Design Project II**
<table>
<thead>
<tr>
<th>Term 5 63 - 78 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| EGR 304: Embedded Systems Design Project I | 3 | C | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| EGR 455: Robotic Systems I | 3 | C | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| PHY 321: Vector Mechanics and Vibration | 3 | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| Secondary Focus Area | 3 | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |

Term hours subtotal: 15

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<tr>
<th>Term 6 78 - 93 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| EGR 314: Embedded Systems Design Project II | 3 | C | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| EGR 456: Robotic Systems II | 3 | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| MAT 343: Applied Linear Algebra | 3 | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| Secondary Focus Area | 3 | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |
| Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s). | | | **•** If Electrical, must take EGR 330.  
**•** If Mechanical, must take EGR 343.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper-division level) which form a coherent theme.  
**•** Plan for success using the Junior Guide.  
**•** Network at student organization competitions or professional societies. |

Term hours subtotal: 15

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<tr>
<th>Term 7 93 - 108 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
</table>
| EGR 401: Professional Design Project I (L) | 3 | C | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
| Upper Division Secondary Focus Area | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
| Science Elective | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
| Humanities, Arts and Design (HU) AND Historical Awareness (H) | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
| Upper Division Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Upper Division Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |

Term hours subtotal: 15

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<tr>
<th>Term 8 108 - 120 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
</table>
| EGR 402: Professional Design Project II | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
| EGR 433: Transforms and Systems Modeling | 3 | | **•** If Electrical, must take EGR 334.  
**•** If Mechanical, must take EGR 444.  
**•** A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.  
**•** Plan for success using the Senior Guide.  
**•** Use Handshake to apply for full-time positions.  
**•** Complete an in-person or virtual practice interview. |
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.

### 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)

### Upper Division Secondary Focus Area

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HST 318: History of Engineering ((L or SB) &amp; G)</td>
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<tr>
<td>Science Elective</td>
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<td>BIO 181: General Biology I (SQ)</td>
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<td>CHM 116: General Chemistry II (SQ)</td>
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<td>GLG 101: Introduction to Geology I (Physical) (SQ)</td>
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<td>GLG 103: Introduction to Geology I-Laboratory (SQ)</td>
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<td>PHY 131: University Physics II: Electricity and Magnetism (SQ)</td>
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<td>PHY 132: University Physics Laboratory II (SQ)</td>
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| Term hours subtotal | 12 |

Total Community College Hrs: 64 maximum

Term hours subtotal: 12

- A secondary focus area is a group of courses comprising of 12 or more credit hours (at least 6 must be at the upper division level) which form a coherent theme.