# 2019 - 2020 Major Map

**Environmental Engineering, BSE**

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

## Term 1 - 16 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSE 100: Introduction to Engineering</td>
<td>2</td>
<td>C</td>
<td>ASU 101 is required of all freshman students; FSE 394 is required for all new transfer students.</td>
</tr>
<tr>
<td>MAT 265: Calculus for Engineers I (MA)</td>
<td>3</td>
<td>C</td>
<td>An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses</td>
</tr>
<tr>
<td>ASU 101-CEE: The ASU Experience</td>
<td>1</td>
<td></td>
<td>Mathematics Placement Assessment score determines placement in mathematics course</td>
</tr>
<tr>
<td>CHM 113: General Chemistry I (SQ)</td>
<td>4</td>
<td></td>
<td>Prep for success using the Freshman Guide.</td>
</tr>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</td>
<td>Join a Fulton community.</td>
</tr>
<tr>
<td>ASU 101-CEE: The ASU Experience</td>
<td>1</td>
<td></td>
<td>Explore engineering and technical professions.</td>
</tr>
<tr>
<td>CEE 181: Technological, Social, and Sustainable Systems (HU)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 107 or ENG 108: First-Year Composition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 16

## Term 2 - 16 - 31 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 242: Elementary Linear Algebra</td>
<td>2</td>
<td>C</td>
<td>Create a Handshake profile.</td>
</tr>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</td>
<td>Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.</td>
</tr>
<tr>
<td>CEE 181: Technological, Social, and Sustainable Systems (HU)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 107 or ENG 108: First-Year Composition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
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</table>

**Term hours subtotal:** 15

## Term 3 - 31 - 47 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 275: Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td>Prep for success using the Sophomore Guide.</td>
</tr>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3</td>
<td>C</td>
<td>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.</td>
</tr>
<tr>
<td>PHY 122: University Physics Laboratory I (SQ)</td>
<td>1</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVE 261: Introduction to Environmental Processes</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
<td></td>
<td></td>
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</tbody>
</table>

**Term hours subtotal:** 16

## Term 4 - 47 - 62 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 122: University Physics Laboratory I (SQ)</td>
<td>1</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVE 261: Introduction to Environmental Processes</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum 2.00 GPA ASU Cumulative.</td>
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<td></td>
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</table>

**Term hours subtotal:** 16
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 267: Calculus for Engineers III (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHE 211: Introduction to Chemical Processing</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>EVE 214: Environmental Engineering Mechanics</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>EVE 302: Environmental Engineering Fundamentals: Physical and Chemical Processes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLG 101: Introduction to Geology I (Physical) (SQ) OR GLG 108: Water Planet (SQ) OR GLG 110: Dangerous World (SG &amp; G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
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</table>

Term hours subtotal: 15

<table>
<thead>
<tr>
<th>Term 5 62 - 77 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 213: Introduction to Deformable Solids</td>
<td>3</td>
<td>C</td>
<td>• Network at student organization competitions or professional societies.</td>
</tr>
<tr>
<td>CEE 300: Engineering Business Practice (L)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEE 384: Numerical Methods for Engineers (CS)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEE 380: Probability and Statistics for Engineering Problem Solving (CS)</td>
<td>3</td>
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</table>

Term hours subtotal: 15

<table>
<thead>
<tr>
<th>Term 6 77 - 91 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 341: Fluid Mechanics for Civil Engineers</td>
<td>4</td>
<td></td>
<td>• Research and prepare for graduate school.</td>
</tr>
<tr>
<td>CEE 353: Civil Engineering Materials</td>
<td>4</td>
<td></td>
<td>• Apply for a Fulton Schools 4+1 program.</td>
</tr>
<tr>
<td>EVE 304: Environmental Engineering Processes Lab</td>
<td>2</td>
<td></td>
<td>• Develop a professional profile online.</td>
</tr>
<tr>
<td>EVE 452: Fundamentals of Geoenvironmental Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>1</td>
<td></td>
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</table>

Term hours subtotal: 14

<table>
<thead>
<tr>
<th>Summer 6 91 - 92 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVE 484: Internship</td>
<td>1</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 1

<table>
<thead>
<tr>
<th>Term 7 92 - 107 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 467: Environmental Microbiology</td>
<td>3</td>
<td></td>
<td>• Plan for success using the Senior Guide.</td>
</tr>
<tr>
<td>CEE 400: Earth Systems Engineering and Management ((L or HU) &amp; H)</td>
<td>3</td>
<td></td>
<td>• Use Handshake to apply for full-time positions.</td>
</tr>
<tr>
<td>CEE 440: Hydrology</td>
<td>3</td>
<td></td>
<td>• Complete an in-person or virtual practice interview.</td>
</tr>
<tr>
<td>CEE 462: Unit Operations in Environmental Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</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>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15

<table>
<thead>
<tr>
<th>Term 8 107 - 120 Credit Hours Necessary course signified by ⭐</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEE 486: Integrated Civil Engineering Design (L)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEE 441: Water Resources Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERM 401: Hazardous Waste Management</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
General Studies Awareness Requirements:

**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 (HU)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

**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

Technical Elective

- CEE 281: Surveying
- CEE 351: Geotechnical Engineering
- CEE 372: Transportation Engineering
- CEE 466: Urban Water System Design
- CEE 470: Sustainable Environmental Biotechnologies
- CEE 481: Civil Engineering Project Management
- CEE 485: Sustainable Civil and Environmental Systems Engineering
- CEE 493: Honors Thesis (L)
- CEE 499: Individualized Instruction
- CHE 469: Air Quality Engineering
- CHM 231: Elementary Organic Chemistry (SQ)
- EVE 484: Internship
- EVE 494: Special Topics
- EVE 498: Pro-Seminar
- EVE 499: Individualized Instruction
- PUP 301: Introduction to Urban Planning (L)
- PUP 442: Environmental Planning
- PUP 465: Sustainable Urbanism

**Term hours subtotal:** 13
• 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.