# 2021 - 2022 Major Map
## Software Engineering, BS

**School/College:** Ira A. Fulton Schools of Engineering  
**Location:** Online, ASU Local@Los Angeles

**TSSERBS**

### Term 1 - A 0 - 6 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-FSE: The ASU Experience</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSE 100: Introduction to Engineering</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

- If ENG 105 is taken, a three credit hour elective course must also be taken prior to graduation.
- ASU 101 is only required of new first-year students transferring in fewer than 24 hours to ASU.

### Term 1 - B 6 - 12 Credit Hours Critical course signified by 🔴

<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>CSE 110: Principles of Programming (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

- View ASU Online first-year student registration information here.
- Prep for success using the First-Year Student Guide.
- Join a Fulton community.
- Explore engineering and technical professions.

### Term 2 - A 12 - 18 Credit Hours Critical course signified by 🔴

<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>CSE 205: Object-Oriented Programming and Data Structures (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 265: Calculus for Engineers I (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

### Term 2 - B 18 - 24 Credit Hours Critical course signified by 🔴

<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>SER 232: Computer Systems Fundamentals (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</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>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

- Create a Handshake profile.
- Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.

### Term 3 - A 24 - 30 Credit Hours Critical course signified by 🔴

<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>MAT 243: Discrete Mathematical Structures</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSE 230: Computer Organization and Assembly Language Programming</td>
<td>3</td>
<td>C</td>
<td></td>
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</tr>
</tbody>
</table>

Term hours subtotal: 6

### Term 3 - B 30 - 36 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></td>
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<td></td>
</tr>
<tr>
<td>Course</td>
<td>Hours</td>
<td>Grade</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>CSE 240: Introduction to Programming Languages</td>
<td>3</td>
<td>C</td>
<td>• Prep for success using the Sophomore Guide.</td>
<td></td>
</tr>
<tr>
<td>MAT 267: Calculus for Engineers III (MA) OR MAT 275: Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Mathematics (MA) requirement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term 4 - A 36 - 42 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 222: Design and Analysis of Data Structures and Algorithms</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>EGR 104: Critical Inquiry in Engineering (L)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
<td></td>
<td></td>
</tr>
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</table>

**Term 4 - B 42 - 48 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 280: Engineering Statistics (CS)</td>
<td>3</td>
<td>C</td>
<td>• Pursue an undergraduate research experience.</td>
</tr>
<tr>
<td>SER 216: Software Enterprise: Personal Process and Quality</td>
<td>3</td>
<td>C</td>
<td>• Apply for internships.</td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
<td></td>
<td>• Attend career fairs and events.</td>
</tr>
</tbody>
</table>

**Term 5 - A 48 - 54 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>SER 315: Software Enterprise: Design and Process</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term 5 - B 54 - 61 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 334: Operating Systems and System Programming</td>
<td>3</td>
<td>C</td>
<td>• In addition to PHY 121 and PHY 122, students must complete 8 semester hours (2 courses) of lab science from the following: BIO 181, BIO 182, BIO 201, BIO 202, CHM 113, CHM 116, GLG 101/103, GLG 102/104, GLG 110/111, PHY 131/132.</td>
</tr>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3</td>
<td>C</td>
<td>• Plan for success using the Junior Guide.</td>
</tr>
<tr>
<td>PHY 122: University Physics Laboratory I (SQ)</td>
<td>1</td>
<td>C</td>
<td>• Network at student organization competitions or professional societies.</td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>7</strong></td>
<td></td>
<td></td>
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**Term 6 - A 61 - 67 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 321: Principles of Distributed Software Systems</td>
<td>3</td>
<td>C</td>
<td>• During the junior year of the program, students should contact an academic advisor to identify course options.</td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term 6 - B 67 - 73 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 316: Software Enterprise: Construction and Transition</td>
<td>3</td>
<td>C</td>
<td>• Research and prepare for graduate school.</td>
</tr>
<tr>
<td>SER 335: Engineering Secure Software Systems</td>
<td>3</td>
<td>C</td>
<td>• Develop a professional profile online.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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**Term 7 - A 73 - 79 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 415: Software Enterprise: Inception and Elaboration (L)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>SER 322: Principles of Database Management</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>6</strong></td>
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</table>
Term 7 - B 79 - 86 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Science Sequence AND Natural Science - General (SG) OR Natural Science - Quantitative (SQ)</td>
<td>4</td>
<td></td>
<td>• During the junior year of the program, students should contact an academic advisor to identify course options/selection.</td>
</tr>
<tr>
<td>SER 4** Elective</td>
<td>3</td>
<td>C</td>
<td>• In addition to PHY 121 and PHY 122, students must complete 8 semester hours (2 courses) of lab science from the following: BIO 181, BIO 182, BIO 201, BIO 202, CHM 113, CHM 116, GLG 101/103, GLG 102/104, GLG 110/111, PHY 131/132.</td>
</tr>
</tbody>
</table>

Term hours subtotal: 7

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Term 8 - A 86 - 93 Credit Hours Necessary course signified by 🎁

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Science Sequence AND Natural Science - General (SG) OR Natural Science - Quantitative (SQ)</td>
<td>4</td>
<td></td>
<td>• Use Handshake to apply for full-time positions.</td>
</tr>
</tbody>
</table>

Term hours subtotal: 7

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Term 8 - B 93 - 99 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 2 courses:</td>
<td>6</td>
<td>C</td>
<td>• Complete an in person or virtual practice interview.</td>
</tr>
<tr>
<td>SER 4** Elective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

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Term 9 - A 99 - 105 Credit Hours Necessary course signified by 🎁

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 401: Computing Capstone Project I</td>
<td>3</td>
<td>C</td>
<td>• During the junior year of the program, students should contact an academic advisor to identify course options/selection.</td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 6

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Term 9 - B 105 - 114 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB) ( HST 318 recommended)</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>
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</tr>
</tbody>
</table>

Term hours subtotal: 9

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Term 10 - A 114 - 120 Credit Hours Necessary course signified by 🎁

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER 402: Computing Capstone Project II</td>
<td>3</td>
<td>C</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: 6
Notes:

- First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU’s first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: https://cisa.asu.edu/DSP
- Mathematics Placement Assessment score determines placement in first mathematics course.

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 2021 - 2022 academic year.