BS in Computer Science: Software Engineering (693225) MAP Sheet
Physical and Mathematical Sciences, Computer Science
For students entering the degree program during the 2019-2020 curricular year.

### University Core and Graduation Requirements

#### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religion Cornerstones</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
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<td>2.0</td>
<td>REL A 250</td>
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<tr>
<td>Foundations of the Restoration</td>
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<td>2.0</td>
<td>REL C 225</td>
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<tr>
<td>The Eternal Family</td>
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<td>2.0</td>
<td>REL C 200</td>
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<tr>
<td><strong>The Individual and Society</strong></td>
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<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
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<tr>
<td>First Year Writing</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
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<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>4.0</td>
<td>from approved list</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
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<tr>
<td>Civilization 1</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
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<tr>
<td>Civilization 2</td>
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<tr>
<td>Arts</td>
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<tr>
<td>Letters</td>
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<tr>
<td>Physical Science</td>
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<tr>
<td>Social Science</td>
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<tr>
<td><strong>Core Enrichment: Electives</strong></td>
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<td>Religion Electives</td>
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<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
</tr>
</tbody>
</table>

#### Graduation Requirements:

- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

### Suggested Sequence of Courses

#### FRESHMAN YEAR

**1st Semester**
- C S 142: 3.0
- First-year Writing or American Heritage: 3.0
- MATH 112: 4.0
- Religion Cornerstone course: 2.0
- General education, university requirements, and/or general electives: 3.0
- **Total Hours: 15.0**

**2nd Semester**
- C S 202: 1.0
- C S 235: 3.0
- PHSCS 121: 3.0
- First-year Writing or American Heritage: 3.0
- MATH 113: 4.0
- Religion Cornerstone course: 2.0
- **Total Hours: 16.0**

#### SOPHOMORE YEAR

**3rd Semester**
- C S 203: 1.0
- C S 224: 3.0
- C S 236: 3.0
- Biological Science: 3.0
- Civilization 1: 3.0
- Religion Cornerstone course: 2.0
- **Total Hours: 15.0**

**4th Semester**
- C S 240: 4.0
- C S 260 or other C S elective: 3.0
- MATH 213: 3.0
- MATH 215: 2.0
- Civilization 2: 3.0
- Religion Cornerstone course: 2.0
- **Total Hours: 15.0**

#### JUNIOR YEAR

**5th Semester**
- C S 204: 1.0
- C S 312: 3.0
- C S 324: 3.0
- Social Science: 3.0
- STAT 121, STAT 201, or MATH 431: 3.0
- Religion Elective: 2.0
- **Total Hours: 15.0**

**6th Semester**
- C S 239: 3.0
- C S 340: 3.0
- C S 452: 3.0
- Letters: 3.0
- Religion Elective: 2.0
- **Total Hours: 16.0**

#### SENIOR YEAR

**7th Semester**
- C S 494: 3.0
- C S Elective: 3.0
- ENGL 316: 3.0
- Arts: 3.0
- Religion Elective: 2.0
- General education, university requirements, and/or general electives: 2.0
- **Total Hours: 16.0**

**8th Semester**
- C S 495: 3.0
- C S Elective: 3.0
- C S Elective: 3.0
- C S 404: 2.0
- Global and Cultural Awareness: 3.0
- **Total Hours: 14.0**
## BS in Computer Science: Software Engineering (693225)
### 2019-2020 Program Requirements (74 - 76 Credit Hours)

**Grades below C- are not allowed in major courses.**

### REQUIREMENT 1: Complete 14 courses

**CORE COURSES:**
- C S 142 - Introduction to Computer Programming (3.0)
- C S 202 - Software Engineering Lab 1 (1.0)
- C S 203 - Software Engineering Lab 2 (1.0)
- C S 204 - Software Engineering Lab 3 (1.0)
- C S 224 - Introduction to Computer Systems (3.0)
- C S 235 - Data Structures and Algorithms (3.0)
- C S 236 - Discrete Structures (3.0)
- C S 240 - Advanced Programming Concepts (4.0)
- C S 312 - Algorithm Design and Analysis (3.0)
- C S 324 - Systems Programming (3.0)
- C S 329 - Testing, Analysis, and Verification (3.0)
- C S 340 - Software Design and Testing (3.0)
- C S 404 - Ethics and Computers in Society (2.0)
- C S 452 - Database Modeling Concepts (3.0)

**Note:** A student may only take CS 494 and 495 or take CS 480 and 481.

**SUPPORTING COURSES:**
- PHSCS 121
- MATH 113
- MATH 112

### REQUIREMENT 2: Complete 1 option

**OPTION 2.1** Complete 1 course
- C S 494 - Capstone 1 (3.0) [Currently offered]

**OPTION 2.2** Complete 1 course
- C S 480 - (Not currently offered)

### REQUIREMENT 3: Complete 1 option

**OPTION 3.1** Complete 1 course
- C S 495 - Capstone 2 (3.0) [Currently offered]

**OPTION 3.2** Complete 1 course
- C S 481 - (Not currently offered)

**Note:** Students should complete the sections of C S 494 and 495 designated for the Software Engineering emphasis.

### REQUIREMENT 4: Complete 4 courses

**SUPPORTING COURSES:**
- ENGL 316 - Technical Communication (3.0)
- MATH 112 - Calculus 1 (4.0)
- MATH 113 - Calculus 2 (4.0)
- PHSCS 121 - Introduction to Newtonian Mechanics (3.0)

### REQUIREMENT 5: Complete 1 option

**OPTION 5.1** Complete 1 course
- MATH 313 - (Not currently offered)

**OPTION 5.2** Complete 2 courses
- MATH 213 - Elementary Linear Algebra (2.0)
- MATH 215 - Computational Linear Algebra (1.0)

### REQUIREMENT 6: Complete 1 course

- STAT 121 - Principles of Statistics (3.0)
- STAT 201 - Statistics for Engineers and Scientists (3.0)

### REQUIREMENT 7: Complete 2 courses

- C S 260 - Web Programming (3.0)
- C S 330 - Concepts of Programming Languages (3.0)
- C S 345 - Operating Systems Design (3.0)
- C S 356 - Designing the User Experience (3.0)
- C S 453 - Fundamentals of Information Retrieval (3.0)
- C S 456 - Introduction to User Interface Software (3.0)
- C S 460 - Computer Communications and Networking (3.0)
- C S 462 - Large-Scale Distributed System Design (3.0)
- C S 465 - Computer Security (3.0)
- C S 486 - Verification and Validation (3.0)

### REQUIREMENT 8: Complete 2 courses

**OPTIONS WILL NOT DOUBLE COUNT BETWEEN REQUIREMENT 4 AND REQUIREMENT 5.**

- C S 252 - Introduction to Computational Theory (3.0)
- C S 260 - Web Programming (3.0)
- C S 330 - Concepts of Programming Languages (3.0)
- C S 345 - Operating Systems Design (3.0)
- C S 355 - Interactive Graphics and Image Processing (3.0)
- C S 356 - Designing the User Experience (3.0)
- C S 401R - Topics in Computer Science (3.0v)
  - You may take up to 3 credit hours.
- C S 405 - Creating and Managing a Software Business (3.0)
- C S 412 - Linear Programming and Convex Optimization (3.0)
- C S 418 - Bioinformatics (3.0)
- C S 450 - Computer Vision (3.0)
- C S 453 - Fundamentals of Information Retrieval (3.0)
- C S 455 - Computer Graphics (3.0)
- C S 456 - Introduction to User Interface Software (3.0)
- C S 460 - Computer Communications and Networking (3.0)
- C S 462 - Large-Scale Distributed System Design (3.0)
- C S 465 - Computer Security (3.0)
- C S 470 - Introduction to Artificial Intelligence (3.0)
- C S 472 - Introduction to Machine Learning (3.0)

**Note:** If C S 493R, C S 498R, or C S 501R is chosen, it must be taken for 3 credit hours.

### REQUIREMENT 9

Complete Senior Exit interview with the C S department during last semester or term.

**Note:** Math 112, Math 113, Phscs 121, Engl 316, and C S 312 can be used to fill both General Education and program requirements. Advanced Writing and Oral Communication: Engl 316. Quantitative Reasoning: Math 112 or 113. Languages of Learning: Math 112 or 113. Physical Science: C S 312 or Phscs 121.

### MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

### DEPARTMENT INFORMATION

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