**Bachelor of Science in Software Engineering**

**This is a GATED PROGRAM** *Updated 5/7/2019*

**Catalog Year: 2018-2019** Total Degree Credit Hours: 125

**General Education Requirements** (See Degreeworks for Prerequisites)

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| **A-1** | **ENGL 1101** Composition I | 3 |  |
| **ENGL 1102** Composition II | 3 |  |
| **A-2** | **MATH 1190** Calculus I | 4 |  |

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| **Area A: Essential Skills (10 credit hours)**  All Area A courses must be completed within the first 30 credit hours with a grade of C or higher. |

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| **B-1** | **ECON 1000** Contemporary Economic Issues | 2 |  |
| **B-2** | **COM 1100** Human Communication | 3 |  |

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| **Area B: Institutional Options (5 credit hours)**  COM 1100 is essential for Software Engineering majors. |

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| **C-1** | **ENGL 2110, 2111, 2112, 2120, 2121, 2122, 2130, 2131, 2132,** *or* **2300** | 3 |  |
| **C-2** | **ART 1107, MUSI 1107, DANC 1107,** *or* **TPS 1107** | 3 |  |

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| **Area C: Humanities, Fine Arts, and Ethics (6 cr hrs)**  Choose one course from each area. |

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| **D-1** | **MATH 2202** Calculus II | 4 |  |
| **D-2** | **Group 1: BIOL 1107/L, CHEM 1211/L,** *or*  **PHYS 2211/L**  **Group 2: BIOL 1108/L, CHEM 1212/L,** *or*  **PHYS 2212/L** | 8 |  |

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| **Area D: Science, Math, and Technology (12 cr hrs)**  Software Engineering majors must complete a Science sequence. “L” denotes the corresponding Lab course. |

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| **E-1** | **POLS 1101** American Government | 3 |  |
| **E-2** | **HIST 2111** *or* **2112** US History | 3 |  |
| **E-3** | **HIST 1100, 1111,** *or* **1112** World History | 3 |  |
| **E-4** | **CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102,** *or* **ECON 2100** | 3 |  |

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| **Area E: Social Sciences (12 credit hours)**  Choose one course from each area for E-2, E-3, & E-4. |

**Area F Lower Division Major Requirements**

Prerequisites

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| **CSE 1321/L** Programming & Problem Solving I | Co-req w/ MATH 1112, 1113, 1190 or CSE 1300 | 4 |  |
| **CSE 1322/L** Programming & Problem Solving II | Minimum grade of ‘B’ in CSE 1321/L | 4 |  |
| **MATH 2345** Discrete Mathematics *or*  **CSE 2300** Discrete Structures for Computing | MATH 1112, 1113, or 1190 | 3 |  |
| MATH 1113 & CSE 1321/L |
| **TCOM 2010** Technical Writing | ENGL 1102 | 3 |  |
| **MATH 2332** Probability and Data Analysis | MATH 1190 | 3 |  |
| **Carryover credit hour from Area D Math** | See Area D Math requirement | *1* |  |

CSE 1321/L and CSE 1322/L must have a minimum grade of ‘B.’

Upon completing CSE 1322/L with a minimum grade of ‘B,’ students should request to have their major changed to the fully admitted Software Engineering major.

**Free Electives (5 credit hours)**

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**CSE 1300** is highly recommended for students who are new to programming and have available free elective credits to complete.

Prerequisites

**Upper Division Major Requirements**

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| **Math/Science Electives**  Make an appointment with a CCSE Academic Advisor to discuss the course options for this requirement | Varies | 3 |  |
| 3 |  |
| **Science Elective\*\*\***  \*\*\*IF PHYS 2211/L WAS NOT COMPLETED IN AREA D, IT MUST BE COMPLETED HERE. IF PHYS 2211/L WAS COMPLETED IN AREA D, STUDENTS MAY TAKE EITHER BIOL 1107/L OR CHEM 1211/L TO MEET THIS REQUIREMENT.\*\*\* | Varies | 4 |  |
| **CSE 3153** Database Systems | CSE 1322/L | 3 |  |
| **CSE 3801** Professional Practices and Ethics | CSE 1322/L | 2 |  |
| **CS 3305/L** Data Structures | CSE 1322/L & (MATH 2345/CSE 2300) | 4 |  |
| **CS 3503/L** Computer Organization & Architecture | CSE 1322/L | 4 |  |
| **CS 3502** Operating Systems | CS 3503/L & CS 3305/L | 3 |  |
| **SWE 3313** Intro to Software Engineering | CSE 1322/L | 3 |  |
| **SWE 3623** Software Systems Requirements | SWE 3313 & (MATH 2345/CSE 2300) | 3 |  |
| **SWE 3633** Software Architecture and Design | SWE 3313 | 3 |  |
| **SWE 3643** Software Testing & Quality Assurance | SWE 3313 | 3 |  |
| **SWE 4324** User-Centered Design | SWE 3313 | 4 |  |
| **SWE 4663** Software Project Management | SWE 3313 & MATH 2332 | 3 |  |
| **SWE 4713** SWE Application Domain | Three of the following: SWE 3623, SWE 3633, SWE 3643, SWE 4663 | 3 |  |
| **SWE 4724** Software Engineering Project | TCOM 2010 & COM 1100 & Three of the following: SWE 3623, SWE 3633, SWE 3643, SWE 4324, SWE 4663 | 4 |  |

All major courses must have a minimum grade of ‘C,’ except for CSE 1321/L and CSE 1322/L, which must have a minimum grade of ‘B.’

(MATH 2345/CSE 2300) denotes either course will complete the 2nd part of the prerequisite requirement.

**Upper Level Electives (Choose 2 courses; at least one must be an SWE course)**

CSE 4983 may be used as your one non-SWE elective, even if it is a Software Engineering Internship.

Prerequisites

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| **SWE 3683** Embedded Systems Analysis & Design | CS 3305/L | 3 |  |
| **SWE 3843** Embedded Systems Construction and Testing | CS 3502 | 3 |  |
| **SWE 4633** Component-Based Software Development | CS 3305/L | 3 |  |
| **SWE 4743** Object-Oriented Development | CS 3305/L | 3 |  |
| **SWE 4783** User Interaction Engineering | SWE 3313 or SWE 4324 | 3 |  |
| **CGDD 4003** Digital Media and Interaction | CGDD 3103 | 3 |  |
| **CGDD 4203** Mobile and Casual Game Development | CGDD 4003 | 3 |  |
| **CS 4504** Distributed Computing | CS 3502 | 3 |  |
| **CS 4512** Systems Programming | CS 3502 | 3 |  |
| **CS 4514** Real-Time Systems | CS 3502 | 3 |  |
| **CS 4523** Programming Massively Parallel Processors | CS 3502 | 3 |  |
| **CS 4622** Computer Networks | CS 3503/L | 3 |  |
| **CS 4722** Computer Graphics and Multimedia | CS 3305/L | 3 |  |
| **CS 4732** Machine Vision | CS 3305/L | 3 |  |
| **CSE 4983** Computer Science Internship | Varies | 3 |  |
| **IT 4123** Electronic Commerce | IT 3203 and CSE 3153 | 3 |  |
| **IT 4823** Information Security Administration & Privacy | CSE 3153 & (MATH 2345/CSE 2300) & IT 3123 or CS 3503/L | 3 |  |
| **IT 4833** Wireless Security | CS 3502 or IT 4823 | 3 |  |
| **IT 4843** Ethical Hacking for Effective Defense | IT 4323 or ECET 3400 or CS 4622 | 3 |  |