Software Engineering, BSSWE

Program Description

Software Engineering represents the fastest growing segment of software professionals - men and women who solve problems and issues in the development of mission-critical software to meet the needs of business and industry. The undergraduate program in Software Engineering, which is the only one offered at a public university in the state of Georgia, has the primary objective of preparing a new generation of software developers focused on the engineering of software systems; that is, those systems that meet specified requirements, that are built with mission critical quality levels, and that are within cost and schedule requirements.

 This program is a part of the College of Computing and Software Engineering.

Accreditation

The Bachelor of Science in Software Engineering has been accredited by the Engineering Accreditation Commission of ABET since Oct 1, 2012.

Admission, Enrollment, and Graduation Policies

Admission Requirements

This program does not have specific admission requirements and only Admissions to Kennesaw State University is required.

Enrollment Requirements

Progression through the program requires students to successfully complete or transfer the equivalent of CSE 1321, CSE 1321L, CSE 1322 and CSE 1322L with a grade of "B" or better in all four courses.

Graduation Requirements

Each student is expected to meet the requirements outlined in Academic Policies: 5.0 PROGRAM REQUIREMENTS & GRADUATION.

Program Course Requirements

Core IMPACTS Curriculum (42 Credit Hours)

General Education Core IMPACTS Curriculum

Core IMPACTS Curriculum Requirements Specific to This Major

Engineering Majors: Must take MATH 1190 in Mathematics & Quantitative Skills and MATH 2202 in Applied Math.

Science and Engineering Majors: Must take two four-hour laboratory sciences in Natural Sciences. Students must choose from CHEM 1211 / 1112L , CHEM 1212 / 1212L , PHYS 1111 / 1111L *, PHYS 1112 / 1112L , PHYS 2211 / 2211L *, PHYS 2212 / 2212L , BIOL 1107 / 1107L , or BIOL 1108 / 1108L.

*Students cannot take both PHYS 1111/L and PHYS 2211/L nor PHYS 1112/L and PHYS 2212/L.

Core Field of Study (18 Credit Hours)

Students must earn a grade of "C" or better in these courses.

- CSE 1321: Programming and Problem Solving I
- CSE 1321L: Programming and Problem Solving I Laboratory
- CSE 1322: Programming and Problem Solving II
- CSE 1322L: Programming and Problem Solving II Laboratory
- CSE 2300: Discrete Structures for Computing
  or
- MATH 2345: Discrete Mathematics
- TCOM 2010: Technical Writing
- STAT 2332: Probability and Data Analysis
  One (1) credit hour carried over from Mathematics & Quantitative Skills.

Major Requirements (41 Credit Hours)

Students must earn a grade of "C" or better in these courses.

- CSE 3153: Database Systems
- CS 3305: Data Structures
- CSE 3801: Professional Practices and Ethics
- CS 3503: Computer Organization and Architecture
- CS 3502: Operating Systems
- SWE 3313: Introduction to Software Engineering
- SWE 3623: Software Systems Requirements
- SWE 3633: Software Architecture and Design
- SWE 3643: Software Testing & Quality Assurance
- SWE 4324: User-Centered Design
- SWE 4663: Software Project Management

- SWE 4713: SWE Application Domain
- SWE 4724: Software Engineering Capstone Project
  Two (2) credit hours carried over from Technology, Mathematics, & Sciences.

Math/Science Courses (8 Credit Hours)

Select 8 credit hours from the following prefixes: PHYS, CHEM, BIOL, MATH (Calculus I or higher).

Exclusions include: (PHYS 1111 / 1111L and PHYS 1112 / PHYS 1112L and if PHYS 1111 / 1111L & PHYS 1112 / 1112L were taken in Natural Sciences, students cannot retake their equivalents PHYS 2211 / 2211L & PHYS 2212 / 2212L respectively), (CHEM 1151 / 1151L and CHEM 1152 / 1152L), (eCore: BIOL 1011K and BIOL 1012K) (MATH 0989, MATH 0999, MATH 1001, MATH 1101, MATH 1111, MATH 1113, MATH 1160, MATH 1190, MATH 1401, MATH 1501, MATH 2202, MATH 2345, MAED 3295, MAED 3316, MAED 3317, MATH 3318, MATH 3322, MAED 3495, MAED 4495).

Major Electives (6 Credit Hours)

Students must earn a grade of "C" or better in these courses. Select 6 credit hours from the following lists of courses:

List 1

*Note: At least 3 credit hours must be taken from List 1 courses.

- SWE 3683: Embedded Systems Analysis and Design
- SWE 4633: Cloud Software Development
- SWE 4723: Undergraduate Research Methods
- SWE 4743: Object-Oriented Development
- SWE 4783: User Interaction Engineering
- SWE 4490: Special Topics
- SWE 4803: Independent Study
- CSE 4983: CSE Computing Internship
- CS 4720: Internet Programming
- CS 4524: Cloud Computing
- CS 4612: Software Security
- CS 4632: Modeling and Simulation
- CS 4712: User Interface Engineering
- CS 4514: Real-Time Systems
- CS 4308: Concepts of Programming Languages

List 2

- CS 4504: Parallel and Distributed Computing
- CS 4523: Programming Massively Parallel Processors
- CS 4622: Computer Networks
- CS 4722: Computer Graphics and Multimedia
- CS 4732: Machine Vision
- IT 4823: Information Security Administration & Privacy
  IT, CS, CGDD 4000-level courses- coordinator approval

University Electives (5 Credit Hours)
In accordance with KSU Graduation Policy, students must earn a grade of "D" or better in these courses while maintaining a minimum 2.00 cumulative GPA.

Free Electives (5 Credit Hours)
Select 5 credit hours of 1000-4000 level coursework from the University Catalog.

Program Total (120 Credit Hours)