Software Engineering, B.S.

Program Learning Outcomes for B.S. in Software Engineering.

Students pursuing the B.S. in Software Engineering are required to:

- Earn an overall GPA of 2.500 for all required lower-division major courses.
- Earn an overall GPA of 2.000 for all required major courses.
- Complete all courses in the major for a letter grade of "C-" or higher, except those where the default grading option is P/NP.
- Complete a minimum of 21 credits from upper division courses in the major.

Majors are required to enroll in FFC 100B - First Year Foundations: Grand Challenges in Science and Engineering to satisfy their General Education requirement.

Grand Challenges Initiative (3 credits)

- GCI 150 - Grand Challenges in Science and Engineering I **1 credit**
- GCI 200 - Grand Challenges in Science and Engineering II **1 credit**
- GCI 250 - Grand Challenges in Science and Engineering III **1 credit**

lower-division requirements (29-30 credits)

- ENGR 101 - Foundations of Design and Fabrication **3 credits**
- MATH 115 - Accelerated Calculus Part I: Differentiation and Integration **4 credits** *
- MATH 116 - Accelerated Calculus Part II: Series, Differential Equations and Multivariable Calculus **4 credits** *
- MATH 203 - Introduction to Statistics **3 credits**
- MATH 215 - Introduction to Linear Algebra and Differential Equations **3 credits**
- CPSC 230 - Computer Science I **3 credits**
- CPSC 231 - Computer Science II **3 credits**
- MATH 250 - Discrete Mathematics I **3 credits**
- CPSC 285 - Social and Ethical Issues in Computing **3 credits**

upper-division requirements (33 credits)

- SE 300 - Software Requirements and Testing **3 credits**
- SE 310 - Software Design **3 credits**
- SE 320 - The Software Development Lifecycle **3 credits**
- CPSC 349 - Human Factors **3 credits**
- CPSC 350 - Data Structures and Algorithms **3 credits**
- CPSC 354 - Programming Languages **3 credits**
- CPSC 355 - Human Computer Interaction **3 credits**
- ENG 370 - Technical Writing **3 credits**
- CPSC 380 - Operating Systems **3 credits**
- CPSC 408 - Database Management **3 credits**
- SE 498 - Software Engineering Capstone Project **3 credits**

colloquium requirement (3 credits)

Students must complete three 1-credit sections of CPSC 298 - Computer Science Colloquium.

electives (9 credits)

Students, in consultation with and approval from the software engineering advising committee, will design individual elective programs to suit their academic goals. Software engineering electives may be satisfied by any of the following courses.

- CENG 381 - Modeling and Simulation **3 credits**
- CPSC 356 - Android Application Development **3 credits**
- CPSC 357 - iOS Application Development **3 credits**
- CPSC 358 - Assistive Technology **3 credits**
- CPSC 359 - Computer-Supported Cooperative Work **3 credits**
- ISP 363 - Cybersecurity 1 **3 credits**
- SE 370 - Topics in Software Engineering **3 credits**
- CPSC 390 - Artificial Intelligence **3 credits**
- CPSC 392 - Introduction to Data Science **3 credits**
- CPSC 393 - Machine Learning **3 credits**
- CPSC 406 - Algorithm Analysis **3 credits**
- CPSC 458 - Web Engineering **3 credits**
- SE 410 - Software Process and Management **3 credits**
- SE 420 - Formal Methods in Software Engineering **3 credits**

total credits 77-78

*MATH 110/MATH 111/MATH 210 may be substituted for MATH 115 and MATH 116.

The program strongly recommends the following general education courses for natural science inquiry: PHYS 101/PHYS 101L and social inquiry: ECON 200.

Software Engineering, B.S. Suggested 4-year Plan

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