Software Engineering, BS
Bachelor of Science, 2015 -2016 Catalog Year
TSSERBS

FALL-1
ENG 101 (3) 1st-Year Comp. ***
MAT 265 (3) CALC I ***
CST 100 (3) Object Oriented Software Development
SER 232 (3) Computer Systems Fundamentals ***
HU/ASU (3)

16 HOURS

SPRING-2
ENG 102 (3) 1st-Year Comp.
MAT 266 (3) CALC II
CST 200 (3) Core Data Structures w/ OOP
SER 220 (3) Design Analysis of Data Structures

15 HOURS

FALL-3
MAT 243 (3) Discrete Math
MAT 267 (3) CALC III OR MAT 275 (3) DIFF EQ
SER 215 (3) Software Enterprise I Personal Proc.
SER 221 (3) Programming Lang & Execut. Environment
EGR 104 (3) Engineering Structures (L) %
SER 234 (3) Operating Systems & Networks

15 HOURS

SPRING-4
EGR280 (3) Engineering Statistics
PHY121 (3) & PHY122 (1) Univ Physic I
SER 216 (3) Software Enterprise II Testing
SER 221 (3) Software Enterprise II Testing
SER 235 (3) Principles of Distributed Software Syst. %
HST 318 (3) History of Engineering SB/L (G)

16 HOURS

FALL-5
MAT Elective Or SG / SQ (3-4)
**Secondary Focus (3)

16 HOURS

SPRING-6
**UD Second Focus (3)
MAT 343 (3) Applied Linear Algebra %
SER 401 (3) Computing Capstone I %

15-16 HOURS

FALL-7
**UD Second Focus (3)
SER 402 (3) Computing Capstone II

15 HOURS

SPRING-8
HST 318 (3) History of Engineering SB/L (G)
HU/ASU (3)

12 HOURS

Notes: ** See CIDSE website or Advisor for Secondary Focus requirements. Shaded courses designates critically tracked requirements. Prerequisite Co-requisite % indicates prerequisites not listed by arrows. See major map for more information. *** Requires placement exam score and may require additional courses dependent on placement. Color Coding Key: Completed Requirements Enrolled Need to Retake

Primary Focus: Web and Mobile Applications

Name: 
ID:
CST100: Object-Oriented Software Development - Introduces problem solving with a state-of-the-art programming language. Expressions, statements, basic control flow and methods. Data, data aggregation and usage. Uses a structured personal software development process to implement solutions representative of common computing applications. Uses development kits for some course activities.

SER232: Systems Fundamentals I - Logic design and computer organization; number systems and arithmetic, boolean algebra; digital systems components; assembly language and instruction set concepts and application.

ASU: Success in Technology and Innovation
MAT265: Calculus for Engineers I - Limits and continuity, differential calculus of functions of one variable, introduction to integration.

ENG101: First Year Composition
HU and C: Humanities and Cultural Awareness

Term 2:

CST 200: Core Data Structures with Object Oriented Programming - Design, implementation and use of core data structures; object-oriented software development: design, analysis and programming.

MAT266: Calculus for Engineers II - Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series.

CST250: Microcomputer Architecture and Programming - Microcomputer architecture, instruction set, assembly language programming and debugging, I/O considerations, memory interface, peripherals and busses, exception/interrupt handling.

ENG102: First Year Composition
SB: Social and Behavioral Science

Term 3:

MAT243: Discrete Mathematical Structures - Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.

MAT267: Calculus for Engineers - Vector-valued functions of several variables, partial derivatives, multiple integration. OR Mat 275: Modern Differential Equations - Introduces differential equations, theoretical and practical solution techniques. Applications. Problem solving using MATLAB.

SER215: Software Enterprise I: Tools and Process - Introduces tools and techniques used in software enterprise development, including coding, design, testing, configuration management, and personal process management.

HST318: History of Engineering - The history of engineering from the earliest record to modern times, examining the social, cultural, and economic effects on society.

SER321: Software Systems - Design and implementation of distributed software components; process and memory management underlying software applications; sockets, protocols, threads, XML, serialization, reflection, security, and events. Prerequisites:

Secondary Focus
SQ or SG: Natural Science Quantitative or Qualitative

Term 6:

CST316: Software Enterprise II - Construction and Transition – Best practices in software construction in the context of a team project, including refactoring, defensive programming, unit testing, and configuration and release management.

MAT343: Applied Linear Algebra - Solving linear systems, matrices, determinants, vector spaces, bases, linear transformations, eigenvectors, norms, inner products, decompositions, applications. Problem solving using MATLAB.4

Upper Division Primary Focus:
SG or Math elective
HU and H: Humanities, Arts, and Design and Historical Awareness

Term 7:

CST415: Software Enterprise III: Inception and Elaboration - Third course in the four-course enterprise sequence. Students perform inception (project launch) and elaboration (requirements analysis) activities in project teams.

SER 401: Computing Capstone Project I - First half of a comprehensive project experience based on cumulative knowledge and skills gained in earlier coursework.

UD PF: Upper Division Primary Focus
UD SF: Upper Division Secondary Focus
UD or HU: Social Behavioral Sciences or Humanities

Term 8:

CST416: Software Enterprise IV: Project and Process – Project-centric course focusing on applying software process project management, and technical leadership. Final course in the software enterprise sequence.

SER402: Computing Capstone Project II – Second half of a comprehensive project experience based on cumulative knowledge and skills gained in earlier coursework.

UD PF: Upper Division Primary Focus
UD SF: Upper Division Secondary Focus