Software Engineering, BS
Bachelor of Science, 2014-2015 Catalog Year
TSSERBS

FALL-1
ENG 101 (3) 1st-Year Comp. ***
CTI 101 (1) Success in Tech ****
MAT 265 (3) CALC I ***
CST 100 (3) Object Oriented Software Development
CST 200 (3) Core Data Structures w/ OOP
SER 232 (3) Computer Systems Fundamentals ***
ENG 102 (3) 1st-Year Comp.
SG/SQ (4)
MAT 266 (3) CALC II
MAT 243 (3) Discrete Math
MAT 245 (3) Programming Lang. & Exec. Environment
HU/SB (3)
13 HOURS

SPRING-2
EGR280 (3) Engineering Statistics
SER 215 (3) Software Enterprise I Personal Proc.
SER 221 (3) Programming Lang. & Exec. Environment
SER 222 (3) Design Analysis of Data Structures 
SER 234 (3) Operating Systems & Networks
CST 250 (3) Microcomputer Arch. & Programming
HU/SB (3)
16 HOURS

FALL-3
MAT 267 (3) CALC III or MAT 275 (3) DIFF EQ
MAT 268 (3) Critical Inquiry in Engineering (L) %
MAT 276 (3) Calculus III
MAT 277 (3) Discrete Math
HU/SB (3)
15 HOURS

SPRING-4
PHY121 (3) & PHY122 (1) %
**Secondary Focus (3)
**Secondary Focus (3)
**Secondary Focus (3)
Hu/Sb (3)
15 HOURS

FALL-5
PHYS 121 (3) Critical Inquiry in Engineering (L) %
MAT 278 (3) Calculus IV
MAT 343 (3) Applied Linear Algebra
MAT 344 (3) Linear Algebra
MAT Elective or SG (3-4)
**UD Second Focus (3)
**UD Second Focus (3)
16 HOURS

SPRING-6
SER 401 (3) Computing Capstone I %
SER 402 (3) Computing Capstone II
SER 403 (3) Game and Graphic Development
SER 404 (3) Game and Graphic Development
SER 405 (3) Game and Graphic Development
15 HOURS

FALL-7
CST 415 (3) Software Enterprise III Inception (L) %
CUSP 416 (3) Software Enterprise IV Project & Proc. %
CUSP 417 (3) Software Enterprise IV Project & Proc. %
CST 418 (3) Game and Graphic Development
CUSP 419 (3) Game and Graphic Development
CUSP 420 (3) Game and Graphic Development
15-16 HOURS

SPRING-8
CUSP 421 (3) Game and Graphic Development
CUSP 422 (3) Game and Graphic Development
CUSP 423 (3) Game and Graphic Development
CUSP 424 (3) Game and Graphic Development
CUSP 425 (3) Game and Graphic Development
CUSP 426 (3) Game and Graphic Development
15 HOURS

Notes:
** See CIDSE website or Advisor for Secondary Focus requirements.
Shaded courses designate 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.
**** Not required for transfer students
Color Coding Key: Completed Requirements Enrolled Need to Retake

Primary Focus: Game and Graphic Development

Name:
ID:

Cultural
Global
Historical
Term 1:
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.
CTI101: 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.
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.
ENG102: First Year Composition
SQ or SG

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.
SER221: Programming Languages and Their Execution Environment - Introduces the fundamental programming language concepts of data, type, control, abstraction, and structure; software development and execution environments; programming language paradigms.
SB: Social and Behavioral Science

Term 4:
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.
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.
SER216: Software Enterprise II - Project-centered course covering testing and quality in software engineering; concepts, tools, and methods in testing and quality management; teamwork and communication in software engineering. Project based.
SER222: Data Analysis of Data Structures and Algorithms - Data structures and related algorithms for their specification, complexity analysis, implementation and application. Sorting and searching. Professional responsibilities that are part of program development, documentation and testing.
SER234: Operating Systems and Networks - Fundamentals of operating systems, process management, scheduling, synchronization techniques and file management. Network technology, topologies, protocols, application control; network and operating system security.

Term 5:
CST315: 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:
PHY121/122: University Physics Mechanics 1 Mechanics and laboratory - Kinematics; Newton's laws; work, energy, momentum, conservation laws; dynamics of particles, solids, and fluids. Both PHY 121 and PHY 122 must be taken to secure SQ General Studies credit.

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.

Upper Division Primary Focus:
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
SG or Math elective

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
UD SB or UD HU: Upper Division Social Behavioral Sciences or Humanities