**SER100: 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.

**MAT265: Calculus for Engineers I** - Limits and continuity, differential calculus of functions of one variable, introduction to integration.

**Term 2:**

**SER 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.

**SER250: Microcomputer Architecture and Programming** - Microcomputer architecture, instruction set, assembly language programming and debugging, I/O considerations, memory interface, peripherals and busses, exception/interrupt handling.

**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.


**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.

**Term 4:**

**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.


**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 5:**

**SER315: 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.

**SER334: 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.


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

**Term 6:**

**SER316: 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.

**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.

**Term 7:**

**SER415: 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.

**Term 8:**

**SER416: 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.