Applications. Problem solving using MATLAB. Introduces differential equations, theoretical and practical solution techniques. Project-centered course covering testing and quality.

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**SER221: Programming Languages and Their Execution Environment -** Microcomputer architecture, instruction set, assembly language programming and debugging, I/O considerations, memory interface, peripherals and busses, exception/interrupt handling.

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

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**SER200: Core Data Structures with Object Oriented Programming -** Design, implementation and use of core data structures; object-oriented software development: design, analysis and programming.

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

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**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.

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**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.

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**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.


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**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.

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**SER401: Computing Capstone Project I** – First half of a comprehensive project experience based on cumulative knowledge and skills gained in earlier coursework.

**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.