Computer Science (CSIS) Courses

CSIS1000 Problem Solving and Programming Concepts
This introductory course teaches students the fundamentals of problem-solving in computer programming and basic automation. Students learn to use both textual and graphic algorithms as problem-solving tools. In experience-based learning exercises, students work from a problem statement, conduct a task analysis to solve the problem, decide what data is needed to solve the problem, create a visual representation of their solution, and then convert the visual representation to a textual step-by-step statement of their solution. Students also engage in batch scripting using a command-line interpreter to help solve problems using an automated process. Students use various tools currently used in industry, including functional decomposition diagrams, flowcharts, UML diagrams, use cases, metadata charts, data flow documents and pseudocode.
Offered at Charlotte, Online, Providence
3 Semester Credits

CSIS1101 Computer Science I
This course teaches students to think algorithmically and solve problems efficiently. This course is designed to present an introduction to computer science doctrine; an understanding of core algorithmic concepts (e.g., control structures, assignment, decision structures, mathematical/Boolean operations, etc.); an introduction to structured computer programming languages, problem classification, program development and specification; software development planning techniques; debugging techniques; an introduction to the power of development environments; and documentation of software projects. Students conduct a task analysis to solve the problem, identify relevant data, produce visual and textual step-by-step solutions, and design algorithms to solve problems and learn how to translate these algorithms into working computer programs. Experience is acquired through programming projects in a high-level programming language as well as industry standard documentation techniques, such as flowcharts, UML diagrams, use cases, data flow documents, and pseudocode.
Offered at Charlotte, Online, Providence
3 Semester Credits

CSIS1112 Computer Science II
This course further enhances students' understanding of computer science theory and methods and provides an introduction to the study of important algorithms. Main themes include designing with appropriate data structures (Advanced Data Types — ADTs) and classic algorithms, and analyzing the efficiency of the algorithms developed. Classic algorithms studied include those used for recursion, sorting, searching, graph algorithms and maintaining dynamic data structures. ADTs are presented from a generic/usage-oriented perspective.
Prerequisite(s): CSIS1101 or ENGN2009.
Offered at Charlotte, Online, Providence
3 Semester Credits

CSIS2030 Database Concepts
This course introduces students to the function of a database environment. The importance of databases to modern systems development provides the motivation for examining data structures and models as they relate to user needs. Relational data models are emphasized along with query languages and user-friendly packages. The various data structures and file storage techniques used with hierarchical, network and relational data management issues are developed. Out-of-class assignments are completed by all students.
Prerequisite(s): CSIS1000 or CSIS1101 or FIT1040.
Offered at Charlotte, Online, Providence
3 Semester Credits

CSIS2045 Introduction to Operating Systems
This course includes a survey of the functional characteristics of complex operating systems and an introduction to the basic techniques of operating systems design. The course discusses the topics of hardware configuration, channel operation, interrupts, register functions, multiprogramming, multiprocessing, timesharing and JCL.
Prerequisite(s): CSIS1020 or CSIS1040 or CSIS1101.
Offered at Charlotte, Online, Providence
3 Semester Credits

CSIS2080 Database Design
This course provides a foundation for the systems-development effort of using fourth and fifth generation tools in database environments by systematically examining the procedures and tools used in designing a database. This course emphasizes the relational model. Students study normal forms, decomposition, synthesis, semantic modeling, network and hierarchical models. All students complete out-of-class assignments.
Prerequisite(s): CSIS2030.
Offered at Charlotte, Online, Providence
3 Semester Credits