Computer Science and Information Systems (CSIS)

Minor requirements in Information Technology

Required semester hours

20 sh

Prerequisites and supporting courses

MATH 1410

Required core courses

CSIS 1210, 1220, 2230, 3310, 3410

1010 **Introduction to Personal Computing and the Internet (4 sh)**
An introduction to computing concepts, to how computers work, and to the use of Windows 7 and Office 2010, including a laboratory component. Video documentaries about the beginning history of computing devices, the development of the personal computer, and the creation of the Internet. Ethical and moral issues relating to individual, commercial, and social effects of computers and networks

1210 **Computing Science I (4 sh)**
Top-down structured design and programming in a high level language such as Python. Topics including arithmetic, control structures, strings, functions, arrays, input/output, and introduction to objects. Prerequisite: CSIS 1010 or Consent of Instructor.

1220 **Computing Science II (4 sh)**
Introduction to the elements of computing processors: bits, bytes, memory, arithmetic, digital logic, and the components that comprise a central processing unit. Programming in the machine language and assembly language using the fundamental control structures. Prerequisite: CSIS 1210.

2230 **Object Oriented Programming (4 sh)**
Continuation of CSIS 1220. Object-oriented design and programming in Java, covering objects, classes, methods, inheritance, polymorphism, and dynamic binding, with emphasis on practical applications of these concepts. Graphic user interface class libraries. Ethical issues in information technology. Prerequisite: CSIS 1220. Co-requisite: MATH 1410.

3120 **Computer Architecture (4 sh)**
Digital logic and digital systems. Machine level representation of data and assembly level machine organization. Memory system organization and architecture. Interfacing and communication. Functional organization and performance enhancements. Multiprocessing and alternative architectures. Prerequisite: CSIS 1220.

3250 **Data Structures and Algorithms (4 sh)**
Fundamental programming constructs and data structures. Algorithms and problem solving. Recursion. Event-driven programming. Basic algorithm analysis. Software design. Using APIs. Software tools and environments. Software requirements and specifications. Prerequisite: CSIS 2230.

3310 **Data Communications, Networks and the Internet (4 sh)**
Introduction to network technologies and software, as well as to the Internet and the World Wide Web. Fundamentals of data, signals, and media. LAN basics, internetworking, software and support systems. Intranets and the Internet. Network design, management and security. Prerequisite: CSIS 1220.

3410 **Databases and Information (4 sh)**
Introduction to database design and management. Information collection and retrieval. SQL and the relational model. Normalization issues. Logical design and physical design. Distributed databases and the Internet. Such application packages as Access and Oracle. Prerequisite: CSIS 1220.

3510 **Operating Systems Programming (4 sh)**
Introduction to systems-level programming in a variety of environments such as Unix/Linux and Windows. Scripting languages. Prerequisite: CSIS 1220.

3910 **Topics in Computer Science (4 sh)**
An in-depth treatment of selected computer science or information system topics. Consent of instructor required.

4910 **Independent Study in Computer Science and Information Systems (1-4 sh)**

4970 **Internship in Computer Science and Information Systems (1-4 sh)**
Please refer to the appropriate section in the catalog for internship requirements and guidelines.