

INFORMATION TECHNOLOGY (BSIT)

BSIT 1315. Introduction to Computer Science. 3 Hours.

This course is offered to introduce basic concepts of computer science and programming. Topics include information and data representation, hardware, programming methodology, algorithm design, abstract data types, programming languages, operating systems, applications, and communications.

BSIT 316. Web and UI Design. 3 Hours.

This course provides the fundamentals of web design programming, challenging students to think conceptually in order to both visualize and create functioning rich experiences in an interactive medium. Course topics covered include basic principles of web design programming using HTML, CSS, JavaScript, PHP and Relational Databases SQL. Through projects and assignments students will explore creating user experiences across various mediums and learn regarding interactivity and usability, sharpening their design skills. Prerequisite: COSC 1315 or instructor permission.

BSIT 361. Database System and Design. 3 Hours.

This course introduces the fundamental concepts of database systems management and design. It focuses on the essential functions of database management systems (DBMS) and their critical role in supporting organizational operations. Key topics covered include various types of database models, database design methodologies, entity-relationship (ER) diagrams, normalization, and the implementation of database structures. Additionally, the course delves into DBMS administration, covering essential aspects such as database security, error recovery, concurrency control, and the management of distributed databases. Students will gain hands-on experience in designing databases, starting with conceptual design and progressing through the creation of a physical database schema. The course also emphasizes the development of user interfaces for database interaction. Students will utilize industry-standard DBMS software and development tools to design and implement databases. Furthermore, an in-depth understanding of the Structured Query Language (SQL) will be developed, enabling students to efficiently query and manipulate data in relational databases. Upon completion, students will be equipped with the skills needed to design robust, secure, and efficient databases for a variety of applications, ensuring that they can manage and maintain data effectively in real-world organizational contexts.

BSIT 410. Operating Systems. 3 Hours.

This course provides the basic understanding to the general architecture and the most important components of modern operating system concerning both the design and implementation issues. The topics include the resource management (e.g., disks, networks, and processors to be shared), common services needed by many different programs (e.g., file service, the ability to start or stop processes, and access to the I/O), and protection to the individual programs from one another. The student will learn these topics by three major OS subsystems: process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), and operating system support for distributed systems.

BSIT 420. Computer Networks. 3 Hours.

This course provides students with a comprehensive introduction to computer networking concepts, focusing on the OSI and TCP/IP reference models for networking protocols. Topics include network architectures, communication protocols, physical media, error control, data link control, and medium access control. Students will also explore Local Area Networks (LANs), the network layer, congestion control, and an introduction to virtual circuit and datagram networks. Additionally, the course covers essential networking topics such as IP addressing, routing algorithms, subnetting, and the TCP/UDP protocols. Students will study network design principles, examine network security fundamentals, and explore the impact of emerging technologies on modern networks, such as wireless networks and software-defined networking (SDN). The course incorporates case studies and hands-on lab assignments that allow students to work with real-world networks, analyzing network configurations, performance, and troubleshooting. Students will gain practical experience in configuring network devices and implementing solutions for common networking challenges. Prerequisite: CS 332.

BSIT 465. Computer & Information Security. 3 Hours.

This course will provide a broad introduction to host-based and Internet-based computer security. Topics covered include an introduction to cryptography, authentication protocols, access control, database security, intrusion detection, malicious software such as worms and virus propagation, and techniques to secure the Internet such as firewalls, intrusion detection systems, and Web and IP security. Prerequisite: CS 332.

BSIT 471. Network Security and Policy. 3 Hours.

The course will provide cybersecurity policies and security evolution, learn cyber security objectives and guidance, study policy catalog and issues, comprehend cyber management and infrastructure issues and go through various case studies.

BSIT 489. Independent Study. 3 Hours.

This course provides individual instruction. Students may repeat the course when topics vary.

BSIT 497. Special Topics. 3 Hours.

Instructors will provide an organized class designed to cover areas of specific interest. Students may repeat the course when topics vary. Prerequisite: Instructor permission.