Information Technology (IT)

Courses

IT 120  CompTIA A+ Practical Applications (3 Hours)
Students will gain knowledge required to install, configure and maintain software for end users. This course will also cover the basics of networking as well as networking security/forensics. Students will apply troubleshooting skills to properly and safely diagnose, resolve and document common software issues. Students will also apply appropriate customer support and soft skills, understand the basics of virtualization and examine desktop imaging and deployment. 2 hrs. lecture/wk, 2 hrs. lab/wk, 1 hr. open lab/wk.

IT 140  Networking Fundamentals (4 Hours)
This course serves as the first module of four that are designed to prepare students to complete the Cisco Certified Network Associate (CCNA) Certification. The course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the CCNA curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. 3 hrs. lecture 2 hrs. open lab/wk.

IT 145  Routing and Switching Essentials* (3 Hours)
Prerequisites: IT 140.
This course is designed to provide students with a fundamental understanding of network routing and switching. Students successfully completing this course will be able to configure and troubleshoot routers and switches and resolve common issues with RIP (Routing Information Protocol) and OSPF (Open Shortest Path First) in IPv4 and IPv6 (Internet Protocol version 4 and 6) networks. Laboratory exercises will accompany lectures. 3 hrs. lecture, 2 hrs. open lab/wk.

IT 201  Network Security Fundamentals* (4 Hours)
Prerequisites: IT 145.
This course is designed to provide an introduction to the core security concepts and skills needed for the installation, troubleshooting and monitoring of network devices to maintain the integrity, confidentiality and availability of data and devices. Topics covered include network threats, mitigation techniques, securing network devices, implementing firewall technologies, implementing intrusion prevention, securing local area networks (LANs), implementing virtual private networks (VPNs), and managing a secure network. Hands-on exercises will be used to reinforce the concepts. 2 hrs. lecture, 3 hrs. lab/wk.

IT 203  Voice Over IP Fundamentals* (4 Hours)
Prerequisites: IT 145.
This course is designed to provide students with the fundamentals of Voice over IP (VoIP) networking technology. Concepts covered include an explanation of the national voice and data network, telephony terminology, VoIP protocol analysis and telephony survey techniques. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 205  Implementing Windows Client (3 Hours)
The focus of this course is the use of Microsoft Windows as an operating system in a business environment. Planning a simple network system, installation and configuration of the software and hardware, resource management, connectivity, running application software under Windows, monitoring and optimizing system hardware and troubleshooting all lead the student to a deeper understanding of local area network use and administration. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 209  Scaling Networks* (4 Hours)
Prerequisites: IT 145.
This course is designed to provide students with the necessary knowledge and skills to interconnect and configure routers and switches in large networks. Students successfully completing this course should be able to perform switch and router administration tasks including installing, configuring and troubleshooting. Students will build networks based on the hierarchical design model supported by Virtual Local Area Networks (VLANs), Spanning Tree Protocol (STP), Open Shortest Path First (OSPF) and Enhanced Interior Gateway Routing Protocol (EIGRP) in Internet Protocol Version 4 and 6 (IPv4 and IPv6) networks. 3 hrs. lecture, 2 hrs. open lab/wk.

IT 221  Windows Server* (3 Hours)
Prerequisites or corequisites: IT 205.
This course is designed to provide students with the knowledge and skills to perform competently in the role of a network administrator utilizing the Windows network operating system. Students completing this course will be able to accomplish basic fundamental network management tasks, including planning server roles and subsequent requirements, planning the network file system, implementing user accounts and file system security, implementing network printing, and managing the network servers. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.
IT 225  Windows Active Directory Services* (3 Hours)
Prerequisites: IT 221.

The focus of this course is using Microsoft Windows Server or Advanced Server software to install, configure and troubleshoot Active Directory components, Domain Name Space (DNS) for Active Directory and Active Directory security solutions. The course also emphasizes the skills required to manage, monitor and optimize the desktop environment using Group Policy. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 228  Exchange Server* (3 Hours)
Prerequisites: IT 225.

This course is designed to provide network administrators with information that enhances their ability to manage an Exchange server network. Included are topics related to server and client mail management and server performance, e-mail concepts and advanced Internet networking. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 230  Linux Fundamentals (3 Hours)
This course is designed to provide students with a fundamental understanding of the Linux operating system environment. Students successfully completing this course will be able to perform Linux installation and package management; execute common Linux commands and utilities; and accomplish different system tasks such as navigating the filesystem and utilizing the resources of a basic Linux system. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 231  Linux Administration* (3 Hours)
Prerequisites: IT 230.

This course is designed to provide students with the necessary knowledge and skills to perform competently as a Linux system administrator. Students successfully completing this course should be able to perform basic system administration tasks including configuring the graphical user interface, managing user accounts, managing system logging, configuring basic networking, writing shell scripts and maintaining system security. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 232  Linux Networking* (4 Hours)
Prerequisites: IT 231.

This course is designed to provide students with skills that enhance their ability to manage Linux systems in a networked environment. Topics covered in this course include configuring and managing a Domain Name Server (DNS), web servers, file sharing servers, network client services, email services and network services. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 233  Linux Advanced Administration* (4 Hours)
Prerequisites: IT 231.

This course is designed to provide students with the skills and techniques to perform advanced administration tasks in a networked Linux environment. Topics will include compiling the Linux kernel, configuring advanced storage solutions, customizing system startup processes, and managing advanced network connections. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 238  Digital Forensics* (3 Hours)
Prerequisites: IT 120 and IT 205 and IT 230.

This course will cover the fundamentals of computer and cyber forensics. Students will learn different aspects of digital evidence and methods to uncover illegal activities left on storage media. Various forensics tools (both hardware and software), techniques and procedures will be used in a lab environment to perform forensic investigations. 2 hrs. lecture, 2 hrs. instructional lab and 1 hr. open lab/wk.

IT 239  Ethical Hacking* (3 Hours)
Prerequisites: IT 145 and IT 205 and IT 230.

This course is designed to introduce students to common computer vulnerabilities as well as exploits and techniques used by hackers. Students will develop countermeasures to mitigate attacks and strengthen system security. Topics covered include vulnerability scanning, social engineering, denial of service attacks, intrusion detection, buffer overflow and penetration testing. 2 hrs. lecture, 2 hrs. lab and 1 hr. instructional lab/wk.

IT 245  Network Infrastructure* (3 Hours)
Prerequisites: IT 221.

This course is designed to provide an in-depth understanding of the ability to install, manage, monitor, configure and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing and WINS in a Windows network infrastructure. In addition, it will provide an in-depth understanding of the ability to manage, monitor and troubleshoot Network Address Translation and Certificate Services. Laboratory exercises will accompany the lectures. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.
IT 247 Accessing Wide Area Networks* (3 Hours)
Prerequisites: IT 145 and IT 209.

The goal is to develop an understanding of various Wide Area Network (WAN) technologies to connect medium-size business networks. The course focuses on WAN technologies including Point-to-Point Protocol (PPP), Frame Relay and broadband links. WAN security concepts are discussed in detail, including types of threats, how to analyze network vulnerabilities, and general methods for mitigating common security threats. The course explains the principles of Access Control Lists (ACLs) and describes how to implement IP addressing services for an enterprise network, including Network Address Translation (NAT) and Dynamic Host Configuration Protocol (DHCP). IPv6 addressing concepts are also discussed. Finally, students learn how to troubleshoot and correct common network implementation issues. 2 hrs. lecture, 3 hrs. lab/wk.

IT 256 Windows Security* (4 Hours)
Prerequisites: IT 225 and IT 245.

This course is designed to provide students with the skills and techniques to properly secure a Windows network. The topics will include building a Windows Active Directory infrastructure, securing the Windows Active Directory infrastructure and penetrating the infrastructure with current hacking tool kits. This course serves as a capstone course in the Windows track of the Information Technology Department. It is the last course in a series of six Windows classes. It takes concepts and skills learned in the pre-requisite Windows courses and ties them together focusing on securing a Windows network. 3 hrs. lecture, 2 hrs. open lab/wk.

IT 271 Information Technology Internship I* (3 Hours)
Prerequisites: IT 210 or IT 221 or IT 230 and department approval.

This course affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide advanced information technology students with appropriate on-the-job experience with area employers, under instructional oversight, which will promote the student's career goals. Student will work a total of 300 hours a semester at an approved job site.

IT 272 Information Technology Internship II* (3 Hours)
Prerequisites: IT 271 and department approval.

This course is a continuation of IT 271, Internship I. It provides the student additional opportunity to apply classroom knowledge to an actual work environment. Students will work a total of 300 hours per semester at an approved job site.

IT 292 Special Topics:* (1-3 Hour)
Prerequisites: Department approval.

This course periodically presents specialized topics in computer networking that are not available in the regularly offered curriculum. Special Topics may be repeated for credit; but only on different topics.