General Information

Date
11/03/2016

Department
Computing Sciences

Course Prefix:
CSC

Course Number:
260

Course Title:
Networking Technologies

Course Information

Credit Hours
3

Lecture Contact Hours
3

Catalog Description
The increasing computerization of today's workplace has created the need for knowledgeable technicians, managers, and administrators well-grounded in the techniques of connecting multiple computer platforms, enabling networking in diverse hardware and software environments, and providing reliable communication between all parts of the organization. This course provides an overview of the essential fundamentals of networking and system administration required in today's local area network (LAN) environment as well as a solid foundation for the student's pursuit of industry certification, such as CompTIA's Network+ and Cisco's CCNA. Specifically, the course will focus on the networking technology, including telecommunication basics, LAN fundamentals, and wide area network (WAN) principles that comprise today's complex networking environment.

Prerequisites
CSC 115 with a grade of C or better

Grading Scheme
Letter Grade

FLCC Values

College Learning Outcomes Addressed by the Course

Inquiry
Interconnectedness
Vitality
Perseverance
Course Learning Outcomes

1: Explain networking terminology and concept
2: Configure client systems
3: Implement a solution to a network security vulnerability

Program Affiliation

This course is required as a core program course in the following program(s)

AAS Information Technology

Outline of Topics Covered

1. An Introduction to Networking
   a) Why Use Networks?
   b) Types of Networks
      i. Differences between LANs and WANs
   c) Elements Common to Client/Server Networks
   d) How Networks are Used
   e) Becoming a Networking Professional

2. Networking Standards and the OSI Model
   a) Networking Standards Organizations
   b) The OSI Model
   c) Applying the OSI Model
   d) IEEE Networking Specifications

3. Transmission Basics and Networking Media
   a) Transmission Basics
   b) Common Media Characteristics
   c) Coaxial Cable
   d) Twisted Pair Cable
   e) Fiber-Optic Cable
   f) DTE (Data Terminal Equipment) and DCE (Data Circuit Terminating Equipment) Connector Cables

4. Introduction to TCP/IP Protocols
   a) Characteristics of TCP/IP (Transmission Control Protocol/Internet Protocol)
   b) The TCP/IP Core Protocols
   c) IPv4 Addressing
   d) Assigning IP Addresses
   e) IPv6 Addressing
   f) Sockets and Ports
   g) Host Names and DNS (Domain Name System)
   h) Application Layer Protocols

5. Topologies and Ethernet Standards
   a) Simple Physical Topologies
   b) Logical Topologies
   c) Hybrid Physical Topologies
   d) Backbone Networks
   e) Switching
   f) Ethernet
   g) Summary of Common Ethernet Standards

6. Network Hardware
   a) NICs (Network Interface Cards)
b) Repeaters and Hubs
c) Bridges
d) Switches
e) Routers
f) Gateways and Other Multifunction Devices

7. Wireless Networking
   a) The Wireless Spectrum
   b) Characteristics of Wireless Transmission
   c) WLAN (Wireless LAN) Architecture
   d) 802.11 WLANs
   e) Bluetooth Networks
   f) Summary of WLAN Standards
   g) Implementing a WLAN
   h) Wireless WLANs and Internet Access