Wayne County Community College District

COURSE SYLLABUS

CIS 270   Network +

CREDIT HOURS: 3.00   **CONTACT HOURS:** 45.00

COURSE DESCRIPTION:

This course will prepare students with the knowledge and skills to understand network technologies most commonly used today. The course also provides the broad-based knowledge of the underlying concepts of data networking, such as the Open Systems Interconnection (OSI) reference model and the protocols that operate at the various model layers. Students will be prepared for the Network+ certification exam administered by the Computing Technology Industry Association (CompTIA).

PREREQUISITES/ COREQUISITES: *CIS 110, CIS 240*

EXPECTED COMPETENCIES: *Upon completion of this course, the student will:*

- List the services provided by network protocols
- Identify the layers of the OSI reference model and describe the functions of each layer
- List the cabling topologies and the types of cables used to build LANs
- Describe the functions of a network interface adapter
- Describe the different types of hubs, bridges, switches, and routers and explain their functions
- List the network operating systems used for server systems
- Describe the client capabilities of the major operating systems
- Identify the directory services provided with the Microsoft Windows NT Server, Microsoft Windows 2000 Server, and Novell NetWare operating systems
- Describe the functions of the Ethernet, Token Ring, and FDDI protocols
- Describe the two basic wireless topologies
- Describe the functions of the Internet Protocol (IP) protocol
- Explain the basics of IP routing and fragmentation
- Describe the functions of the IPX protocol
- Describe the NetBIOS Extended User Interface (NetBEUI) Frame format
- Describe the services provided by the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP)
- Describe the services provided by the Sequenced Packet Exchange (SPX) and Network Control Protocol (NCP) protocols
- Explain the function of the Address Resolution Protocol (ARP)

- Describe the functions of the Internet Control Message Protocol (ICMP)
- Explain the elements of an IP address
- Explain how the Dynamic Host Configuration Protocol (DHCP) assigns TCPIIP configuration settings to workstations
- Explain the functions of the Domain Name System (DNS) and the Windows Internet Name Service (WINS)
- Configure the TCP/IP client on a computer running Windows 2000 and explain the functions of the parameters
- Describe the technologies used to connect remote computers to networks
- Explain what types of passwords are most secure
- Explain how the client/server and peer-to-peer networking models affect security
- Describe how to use packet filtering to protect a network from unauthorized access
- Explain how network address translation (NAT) enables networked computers to use unregistered IP addresses and still participate on the Internet
- Describe how Internet Protocol Security (IPsec) secures LAN communications
- Evaluate the physical installation site for a network and explain how environmental conditions can affect the network planning process
- Explain the various mechanisms used to make network data continuously available
- Describe how to install cables externally, secure them in place, and run them around common obstacles
- Describe the types of hardware and software used to perform backups
- Describe how the major types of viruses work and explain the functions of antivirus software
- Explain how software manufacturers release product updates
- List the steps involved in troubleshooting a network problem
- Describe the various informational resources available to network administrators on the Internet
- Monitor the status of a computer running Windows 2000 by using the Performance console
- Examine network traffic by using a protocol analyzer
- List the capabilities of multifunction cable testers
- Distinguish among network problems, computer problems, and user problems

ASSESSMENT METHODS:

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:
90%-100% = A
80%-89.9%= B
70%-79.9%= C
60%-69.9%= D
<60% = E