

# MERCER COUNTY COMMUNITY COLLEGE

## Division of Business and Technology

### NET124

#### Network Infrastructure Administration

##### COURSE DESCRIPTION:

Students plan the infrastructure for a Window-based network, including installing and configuring TCP/IP for cross-platform and Internet connectivity, using Windows Internet Name Service (WINS) and Domain Name System (DNS) to resolve host names on local networks and the Internet, deploying Dynamic Host Configuration Protocol (DHCP) to automate and centrally manage address configuration, providing clients with Remote Access Services (RAS), including dial-up connectivity and virtual private networks, and sharing a single Internet connection on a small network with Network Address Translation. In addition, students learn how to secure network communications with certificates, Internet Protocol Security (IPSec), authentication and encryption. Hands-on exercises reinforce certification exam objectives.

Text(s): Reference Division Booklist

**Prerequisites:** NET 122

Credits: 3

Lecture Hours: 2

Studio/Lab Hours: 2

**Food and Drink are strictly prohibited in classrooms as per Health and Safety Laws. Students may not bring in chemicals of any kind without the appropriate MSD sheets.**

**Course Coordinator: Jeff Weichert**

**Latest Review: Spring 2004**

## **I. OVERVIEW OF THE COURSE**

Issues such as network protocol and services are introduced and compared based on requirements of an organization, including IPX/SPX - compatible protocol to integrate with NetWare, and TCP/IP as it is the Internet - standard protocol and is the best choice for enterprise networks. The student will learn how to utilize, manage and configure TCP/IP and use features such as NetBIOS, WINS, DHCP and DNS. In addition, configuring, managing and troubleshooting routing and remote access is covered.

The course is intended for those who administer Microsoft Windows NT Networks or who are on the Microsoft Certified Systems Engineer Windows NT track.

This three-credit course uses a combination of lectures, demonstrations, discussions, online assignments, and hands-on labs.

## **II. PREREQUISITES**

The following skills are required to complete the course successfully:

- Knowledge of the fundamentals of current networking technology is required.
- Knowledge and experience administering Window NT 4.0 Networks is recommended.
- Successful completion of the MCSE Training Kit - Windows 2000 Server is recommended.

## **III. OUTLINE**

- Design a network, including overview, implementation plan, and choosing a protocol.
- Implement TCP/IP, including addressing, installation and configuration, and basic routing.
- Implement NWLink, including Gateway Service for NetWare (GSNW), Client Service for NetWare (CSNW), and installing and configuring NWLink.
- Monitor network activity, including installing and using Network Monitor, and installing and using other administration tools.
- Implement IPsec, including enabling, configuring, customizing, and monitoring.
- Resolve network Host Names, including naming schemes and HOSTS file.
- Implement Domain Name Service (DNS), including files that make up DNS, planning a DNS implementation, installing and configuring DNS, and working with Zones.
- Implement Windows Internet Name Service (WINS), including the WINS resolution process, and installing and configuring WINS.
- Implement Dynamic Host Configuration Protocol (DHCP), including installing and configuring, integration with naming Services, using with Active Directory, and troubleshooting.

### III. OUTLINE (cont'd)

- Implement RAS, including installing and configuring IP routing, supporting Virtual Private Networks (VPN), supporting Multilink connections, integrating with DHCP, and general monitoring and management.
- Implement and support Network Address Translation (NAT), including installing and configuring, and Internet Connection Sharing.
- Implement Certificate Services, including installing and configuring, and general overall management.
- Implement enterprise-wide network security, including RRAS Security, and monitoring security events.

### IV. COURSE SUMMARY

At the completion of this course, with appropriate study, you will be able to:

- Implement TCP/IP and NWLink
- Monitor network activity
- Implement IPsec
- Resolve network host names
- Implement and use Domain Name System (DNS)
- Implement and use Windows Internet Naming Service (WINS)
- Implement and use Dynamic Host Connection Protocol (DHCP)
- Implement and use Remote Access Service (RAS)
- Understand Network Address Translation
- Implement Certificate Services
- Implement Network Security

### V. EVALUATION

Final grades are determined by a weighted average of midterm and final examinations, quizzes, laboratory assignments, homework assignments, class participation, and attendance. Your final grade in the course will be based on the following:

Class attendance and participation	10%
Homework assignments	15%
Laboratory assignments	15%
Quizzes	20%
Midterm examination	20%
Final examination	<u>20%</u>
	<b>100%</b>

## **Classroom Conduct Statement**

It is the student's responsibility to attend all classes. If a student misses a class meeting for any reason, he/she is responsible for all content that is covered, for announcements made, and for acquiring any materials that may have been distributed in class. It is expected that students be on time for all classes. Students who walk into class after it has begun are expected to choose seats close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during the class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are here to work cooperatively and to learn together.

## **Academic Integrity Statement**

A student who knowingly represents work of others as his/her own, uses or obtains unauthorized assistance in the execution of any academic work, or gives fraudulent assistance to another student is guilty of cheating. The penalty for violating the honor code is severe. (*See Student Handbook.*) Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs. If a student is unclear about whether a particular situation may constitute an honor code violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions of computing techniques; general advice and interaction are encouraged. Each person, however, must develop his or her own solutions to the assigned homework and laboratory exercises. Students may not "work together" on graded assignments. Such collaboration constitutes cheating, unless it is a group assignment. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his/her own.