

Course Outline

Fall 2005

Division: Information Technology			
Program/Dept: Network Design and Administration			
Course Number:	NET 134	Credits:	5
Variable:			
Course Title: Network Communications - TCP/IP			
Inst. Intent:	21 Vocational Preparatory	CIP:	11.0901
Fee: Yes		Type: Computer Lab Fee	

Degree/Certificate Requirement: Yes			
Name of Degree/		Network Administration – Certificate/Cisco Alternative/AAS-	
Certificate Requirements:		T Programs	
Distribution Requirement for AA/AAS: Yes			
Transfer Status to 4-year institution: No			
If yes, please describe:			
Course Length: Based on 11 wks/qtr.		Class Size: 24	
Course Contact Hours: 55 hours			
Lecture:	55	Lab:	
		Clinical:	
		Other:	
Prerequisite:	Yes	If yes, please describe: NET 124(may be taken concurrently) or instructor permission	
Required Placement Tests:	No	If yes, please describe:	
Comments:			

Course Description:

This course provides students with knowledge and skills required to set up, configure, use and support Transmission Control Protocol/Internet Protocol (TCP/IP) on major operating systems used on the computers in a networked environment.

Course Outcomes/Learning Objectives:

At the end of the course, students will be able to define TCP/IP and describe its advantages;
 Install and configure Microsoft TCP/IP in Windows based network;
 Test a TCP/IP configuration with the Packet InterNet Groper (PING) and IPCONFIG utilities;
 Identify the network ID and host ID; describe the future direction of IP addressing;
 Explain the function of a subnet mask;
 Explain supernetting;
 Explain the difference between static and dynamic IP routing;
 Configure a computer running Windows based network to function as a dynamic IP router;
 Use the TRACERT utility to isolate route or network link problems;
 Explain how a dynamic host configuration protocol (DHCP) client obtains IP addresses from a DHCP server;
 Install and configure a DHCP relay agent;
 Back up and restore the DHCP database;
 Describe the types of services provided by NetBIOS over TCP/IP;
 Explain how the HOSTS file resolves a host name to an IP address on local and remote networks;
 Modify the HOSTS file so that host names are resolved correctly;
 Describe the function of Windows Internet Name Service (WINS);
 Install and configure a WINS server;
 Back up and restore the WINS database;
 Explain the Windows based network browsing service;
 Describe the domain logon, account password changes and domain synchronization processes;
 Describe the structure and architecture that make up the domain name system (DNS);
 Describe the contents of the DNS database files;
 Integrate DNS with WINS Lockup;
 Troubleshoot DNS with NSLOOKUP;
 Use various TCP/IP utilities to connect to and access resources on a TCP/IP based UNIX host; install and configure the FTP server on a Windows based network;
 Install and configure TCP/IP Network Printing.

SCCC General Education Outcomes and/or Related Instructional Outcomes (for technical courses) Met by Course: (list each outcome):

- Outcome 1: Think critically in reading and writing.
- A. Develop the attitudes that support the reasoning process needed for troubleshooting.
 - B. To apply critical thinking skills.
- Outcome 6: Work and communicate effectively in groups.
- A. To demonstrate effective listening skills.
 - C. To integrate with a group effectively.

Topical Outline and/or Major Divisions:

- I. Host Name addressing:
 - A. IP address schemes and Classes
 - B. Subnet Mask
 - C. Host name resolution, all the varying types of methods
 - D. How to troubleshoot failed host name to IP address resolution, vice versa
 - E. How to print to and from Windows based Servers and UNIX hosts
- II. Using Diagnostic Tools:
 - A. When to use Performance Monitor
 - B. Network Monitor
 - C. Using netstat.exe in different situations
- III. TCP/IP Utilities:
 What commands and utilities to use in various situations:

- A. Traceroute and Tracert
 - B. Route
 - C. Arp
 - D. Netstat
 - E. Nostat
 - F. Ping, etc.
- IV. Setting up DNS Servers in Windows / UNIX based network:
- A. How to set up DNS Servers for different functions
 - B. Implementing DDNS in Win2003 Servers
 - C. How WINS Servers work?
 - D. What DHCP is used for? How to create scope options, and what they are used for?
- V. Interoperability in heterogeneous environment:
- A. Ask what FTP and TELNET are used for with UNIX computers
 - B. What settings you change in the Registry In Windows based networks
 - C. How multi-homed (Windows/UNIX routers) computers configured
 - D. Differences between Hosts and LMHosts files
 - E. How RAS uses gateways with remote computers/servers
 - F. SLIP, PPP, VPN and PPTP protocols
 - G. TCP/IP version 6.0

Course Requirements (Expectation of Students):

1. Attending class sessions
2. Reading as indicated by instructor
3. Completing course assignments and exams as indicated by instructor

Methods of Assessment/Evaluation:

Lab performance, assignments, participation and written exams will be administered.

Required Text(s) and/or Materials:

Text prescribed by the instructor, on-line resources and instructor materials.

Supplemental Text(s) and/or Materials:

As recommended by instructor.

Outline Developed by:

Revised by: Kuldeep Nagi, Vince Offenback,
DC Shoemaker, R.M. Costello
Lisa Sandoval

Date: 10/00

Date: 10/00, 2/1/01,9/11/03,
10,24/03, 12/05
8/05