

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: CSIS 228 UNIX Networking Administration

UNIT VALUE: 2.5

MINIMUM NUMBER OF SEMESTER HOURS: 80

BASIC SKILLS REQUIREMENTS: Appropriate Language and Computational Skills

ENTRANCE REQUIREMENTS

PREREQUISITE: CSIS 227

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

A hands-on introduction to important administration activities required to manage a Linux network configuration. Course will cover topics configuring TCP/IP, DNS, PPP, send mail, Apache Web Server and the firewall.

SPECIFIC COURSE OBJECTIVES: The student will be able to:

1. Understand the sequence of steps to take to configure a system for networking.
2. Configure TCP/IP, DNS, PPP, Send mail, Apache Web Server and firewall.
3. Resolve system configuration problems and change existing configuration.
4. Set up the Internet host with mail, news, and dialup capabilities.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Introduction to Networking
 - A. History
 - B. TCP/IP
 - C. UUCP
 - D. Linux Networking
 - E. Maintaining Your System
- II. Issues of TCP/IP Networking
 - A. Networking Interfaces
 - B. IP Address
 - C. Address Resolution

- D. IP Routing
- E. The Internet Control Message Protocol
- F. Resolving Host Names
- III. Configuring Network Hardware
 - A. Kernel Configuration
 - B. Network Devices
 - C. Network Interface Card Installation
 - D. PLIP Driver
 - E. PPP and SLIP Drivers
 - F. Additional Network Types
- IV. Configuring the Serial Hardware
 - A. Software for Modem Connections
 - B. Serial Devices
 - C. Configuration Utilities
 - D. Serial Devices and the login: Prompt
- V. Configuring TCP/IP Networking
 - A. Mounting the /proc Filesystem
 - B. Installing Binaries
 - C. The Hostname
 - D. Assigning IP Addresses
 - E. Subnets
 - F. Host and networks files
 - G. Interface Configuration for IP
 - H. Ifconfig and netstat utility
 - I. ARP tables
- VI. Name Service and Resolver Configuration
 - A. The resolver
 - B. DNS
 - C. Running Named
- VII. Serial Line IP
 - A. General Requirements
 - B. SLIP
 - C. Private IP Networks
 - D. Dip and Server Mode
- VIII. The Point-to-Point Protocol
 - A. PPP on Linux
 - B. Pppd
 - C. Automating Dialup
 - D. IP Configuration Options
 - E. Link Control Options
 - F. General Security Considerations
 - G. Authentication with PPP
- IX. TCP/IP Firewall
 - A. Methods of Attack
 - B. What is a Firewall
 - C. IP Filtering
 - D. Firewall Setup
 - E. IP Firewall Chains
- X. IP Accounting
 - A. Configuring the Kernel for IP Accounting
 - B. Mastering IP Accounting

- XI. IP Masquerade and Network Address Translation
 - A. Pro's and Con's of IP Masquerading
 - B. Configuring IP Masquerade
 - C. Name Server Lookups
- XII. Important Networking Features
 - A. Inetd Super Server
 - B. Tcpsd Access Control Facility
 - C. Services and Protocol Files
 - D. Remote Procedure Call
 - E. Configuring Remote Login and Execution
- XIII. The Network Information System
 - A. Introduction to NIS
 - B. NIS Server
 - C. NIS Server Security
 - D. NIS Client
- XIV. The Network File System
 - A. Introduction to NFS
 - B. NFS Volumes
 - C. NFS Daemons
- XV. IPX and the NCP Filesystem
 - A. IPX and Linux
 - B. Configuring the Kernel for IPX and NCPfs
- XVI. Managing UUCP
 - A. Unix to Unix copy
 - 1. Transfers and Remote Execution
 - 2. Controlling access
 - 3. Dialing in
 - 4. UUCP Low-level Protocols
 - B. Troubleshooting UUCP
 - C. Log Files and Debugging
- XVII. Electronic Mail
 - A. The Mail Message
 - B. Mail Delivery
 - 1. Email Addresses
 - 2. Mail Routing
- XVIII. SendMail
 - A. Introduction to Sendmail
 - 1. Installation
 - 2. Configuration Files
 - 3. Sendmail.cf and sendmail.mc Files
 - 4. Sendmail Options
 - B. Running Sendmail
- XIX. Net News
 - A. History of Usenet
 - B. Internet News
 - C. News Reader Configuration
- XX. Example Network
 - A. Virtual Network
 - B. Cable Configuration
- XXI. Apache
 - A. Creating the Web Server and Site

- B. Logs and Security
- C. Virtual Domains
- D. Proxying
 - 1. Client Side
 - 2. Server Side

REQUIRED READING:

Kirch, Olaf, and Terry Dawson. Linux Networking Administrators Guide. Sebastopol, CA: O'Reilly and Associates

SUGGESTED READING:

Arnold, Mark, Jeff D. Almeida and Clint Miller. Administering Apache. 2000 by The McGraw-Hill Companies, Inc.

REQUIRED WRITING: None

OUTSIDE ASSIGNMENTS:

Students will be required to prepare 6 laboratory assignments consisting of 2-3 pages each, involving hands-on UNIX exercises on laboratory assignments and theory.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

6 Quizzes:	40%
6 Laboratory Assignments:	30%
Final Exam:	25%
Homework Assignments:	5%
	100%

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

B. Yes _____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON: Vickie McCullough x2502

SIGNATURES:

SIGNATURES ON FILE