

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 227 UNIX System Administration

UNIT VALUE: 2

MINIMUM NUMBER OF SEMESTER HOURS: 64

BASIC SKILLS REQUIREMENTS: Appropriate Language and Computational Skills

ENTRANCE REQUIREMENTS

PREREQUISITE: CSIS 225 UNIX Operating System

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

A hands-on/theory introduction to UNIX System Administration including system start-up and shutdown, administration files, system security, backup procedures, and user registration. Course will cover terminal and printer administration.

SPECIFIC COURSE OBJECTIVES: The student will be able to:

1. Start up, shutdown and maintain associated files; maintain system files and monitor the security of the files necessary to operate the UNIX Operating System.
2. Register new users, maintain the password file and modify the group file; remove users and associated directories and user files; monitor system and users activities.
3. Configure and administer terminals and printers and trouble-shoot minor configuration problems.
4. Create, mount and unmount file systems. Check and repair the file systems. Perform backup and recovery procedures.
5. Discuss fundamental UNIX security issues and techniques as well as important additional security features offered by some UNIX versions.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. System Administrator's Overview of UNIX
 - A. What is an Operating System
 - B. Shells
 - C. The Kernel
 - D. Portability
 - E. Programming Environment
 - F. Communications
 - G. UNIX Users
- II. System Startup
 - A. System Peripherals
 - B. UNIX System size and differences
 - C. Booting the system
 - D. Date
 - E. Single-User Mode vs multiuser mode
 - F. UNIX File theory
 - G. Blocks and inodes
 - H. The lost+found Directory
- III. Checking the File System
 - A. The Super Block
 - B. Update
 - C. The fsck Program
 - D. Reporting and Repair Tools
 - E. Administrative Tips
- IV. UNIX System Administrative Files - Standard and Non-Standard Files
- V. Mounting and Unmounting File Systems
 - A. Partitions and disk devices
 - B. Making a File System
 - C. Mount and Unmount
- VI. Shutting Down The System
 - A. Recovering from System Catastrophes
 - B. Processes
 - C. System Crashes
- VII. Adding and Removing Users from The System
 - A. Password File
 - B. Group File
 - C. Directory Creation
 - D. Adduser Shell Script Program
- VIII. Backing Up The System
 - A. Schedules
 - B. Media
 - C. Tape vs. Cartridge
 - D. Archive vs. Copy Program
 - E. Backup Shell Script Program
- IX. Security
 - A. Changing Ownership of Files and Directories
 - B. Protection Bits
 - C. Special Modes
 - D. Root Password Rules
 - E. Crontab
 - F. The Sticky Bit

- G Security with Passwords
- H. The Restricted Shell
- X. Terminals
 - A. Initializing the Ports
 - B. Screen Control
 - C. Hardware Installation
- XI. Printers
 - A. Attaching a Printer to the System
 - B. The lp Printer Spooler
 - C. Troubleshooting the lp Spooler
 - D. Printer Interface Programs
- XII. Shell Programming
 - A. Bourne Shell
 - B. Control Constructs
 - C. Case Statement
 - D. Special Characters
- XIII. File System Maintenance
 - A. System Tuning
 - B. Analyzing and Protecting Special Files
 - C. The System Log

REQUIRED READING:

Nemeth, Evi, Snyder, Garth, Seebass, Scott, and Hein, Trent R. UNIX System Administration Handbook. Upper Saddle River, NJ: Prentice Hall PTR 2001.

SUGGESTED READING:

Frisch, Eleen. Essential System Administration. Sebastopol, CA: O'Reilly & Associates, Inc, 1995.

REQUIRED WRITING:

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

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Students are expected to read the text, study lecture/laboratory notes and complete 5 programming assignments

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 X

If yes, check all that apply:

- X Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- X 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)
- X 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):

5 Quizzes:	30%
8 Laboratory Assignments:	40%
Final Exam:	25%
Homework Assignments:	<u> 5% </u>
	100%

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

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

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

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SIGNATURES ON FILE