BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

CSCI 26 - Linux 2, System Administration **3 Unit(s)**

Prerequisite(s): CSCI 25
Recommended Prep: Reading Level IV; English Level IV; Math Level III
Transfer Status: CSU
34 hours Lecture
51 hours Lab

In this course students learn how to perform basic administration of a multiuser Linux system. Topics include the selection of distributions, file and package management, user and group administration, the boot process and service initialization, and intermediate shell skills. Students will install, configure, and administer users, hardware, and software on a modern Linux distribution.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Select, install, and manage software on a modern Linux distribution.
B. Create and manage user accounts and groups including setting permissions and establishing disk quotas.
C. Manage the boot process, runlevels, and user-level processes and administer essential system services on a Linux system.
D. Configure a shell and create shell scripts to automate administration tasks.
E. Monitor and manage hardware devices on a Linux system.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. Command-line interface (CLI) and fundamental utilities	4.00
2. Selecting a distribution	2.00
3. System installation and package management	6.00
4. Managing users and groups	6.00
5. Managing essential system services	4.00
6. Monitoring and managing hardware	4.00
7. Shell scripting	6.00
8. Booting and runlevels	1.00
9. Display and window managers, desktop environments	1.00
Total Hours	34.00

Lab

Topics	Hours
1. Command-line interface (CLI) and fundamental utilities	6.00
2. Selecting a distribution	3.00
3. System installation and package management	9.00
4. Managing users and groups	9.00

5.	Managing essential system services	6.00
6.	Monitoring and managing hardware	6.00
7.	Shell scripting	9.00
8.	Booting and runlevels	1.50
9.	Display and window managers, desktop environments	1.50
Total Hours		51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Group Discussions
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Demonstrations
E. Multimedia Presentations

V. METHODS OF EVALUATION

A. Quizzes
B. Homework
C. Lab Projects
D. Mid-term and final examinations

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Read the chapter on regular expressions in your text, and work through the practice problems provided by the instructor. Be prepared to solve a variety of regex problems in class using simple characters, anchors, quantifiers, ranges, and metacharacters.
   2. Read the section in your text on configuring USB devices. Be prepared to discuss the "lsusb" utility, including its options, and demonstrate its use in class.

B. Writing Assignments
   1. Prepare a 2-3 page draft of a computer security policy for a small business of 15-20 employees with 15-20 workstations networked with a Linux server. Be sure to discuss user and group permissions, password policy, system services, and a software maintenance schedule and routine.
   2. Use the vi editor to prepare a 1-2 page "vi tutorial" that would be suitable for introducing a new user to the vi editor. Your tutorial should include a brief history and discussion of the purpose of vi, and description of the 3-4 vi commands that you consider most critical.

C. Out-of-Class Assignments
   1. You have been given the task of recommending a bootable/live distribution of Linux for a company that wants to audit their network for intrusions. Using the database of distributions at www.linux.com, select a distribution and write a short paragraph to explain your choice. Be prepared to present your solution in class.
   2. Use a variety of online job search databases (such as UnixAdminSearch.com) to identify career opportunities for Linux system administrators in California and the United States. As you do your research, take notes about your experience with these job search databases -- what are the pros/cons of each? Be prepared to discuss your findings in class.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Smith, Roderick W. LPIC-1: Linux Professional Institute Certification Study Guide: (Exams 101 and 102). 4th Edition. Sybex, 2015.

B. Nemeth, Evi, Snyder, Garth, et al. UNIX and Linux System Administration Handbook. 4th Edition. Prentice Hall, 2010.

Created/Revised by: John Trolinger
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