

NOS 120

LINUX/UNIX SINGLE USER

COURSE DESCRIPTION:

Prerequisites: None

Corequisites: None

This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles. Course Hours Per Week: Class, 2. Lab, 2. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon completion of this course, students will be able to:

- a. Become familiar with the Linux desktop and basic tasks
- b. Utilize Linux in physical and virtual environments
- c. Find appropriate assistance with installation or configuration problems
- d. Describe the directory structure of the Linux file system
- e. Manipulate file and directories
- f. Utilize the shell and command line interface to perform tasks
- g. Describe regular expressions and implement basic examples
- h. Create and manage users, groups, and their file system permissions
- i. Edit configuration files with command line and graphical editors
- j. Manage software installation with package management tools

OUTLINE OF INSTRUCTION:

- I. Linux desktop introduction
 - a. X-windows
 - b. GNOME and KDE environments
 - c. Access GUI and command line interfaces
- II. Locate and use help resources
 - a. man and info pages
 - b. GUI-based help
 - c. Online assistance

III. Manage Linux filesystem

- a. File System Hierarchy standard (FHS)
- b. Mount points
- c. File types (files, directories, links, devices)
- d. Directory navigation and listing
- e. Creating, copying, moving, viewing files
- f. Searching directories for files
- g. Basic regular expressions (regex) with *, ?, \, \$, ^, ., +,
- h. Searching within files

IV. Command line and shells

- a. Login vs. non-Login shell, Interactive shells
- b. History, shell variables, aliases
- c. Shell interpretation and escaping with \, `, `, and “
- d. Piping and redirection of stdin, stdout, and stderr with |, <, >, >> and 2>
- e. Basic shell programming with && and ||

V. Manage users, groups, and permissions

- a. Creating user and group accounts with GUI and command line
- b. root user, su, and sudo
- c. UIDs and passwords: /etc/passwd, /etc/shadow, and /etc/group
- d. File permissions: read, write, execute, and special for user, group, other
- e. chmod, chown, chgrp, umask
- f. ACL implementation, benefits, and drawbacks

VI. Linux text editors

- a. Command line editors
- b. GUI editors

VII. Software package management

- a. RPM
- b. APT

REQUIRED TEXTBOOK AND MATERIALS:

Text to be assigned by the instructor each semester

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 919-536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1209.