WEST VIRGINIA UNIVERSITY AT PARKERSBURG
UNIFORM COURSE SYLLABUS

Name of Course: Fundamentals of UNIX
Course Number: CIT 315 Hours: 3
Department: Computer & Information Technology Division: Technology
Prerequisites: CIT 112

I. Course Description

Fundamentals of UNIX teaches students how to use UNIX operating system commands and, in the hands-on exercises, basic Sun Microsystems' Solaris™ operating environment commands, and introduces you to the Common Desktop Environment (CDE - graphical interface between different environments). The class is intended for new users of UNIX. Students will learn fundamental command-line features of the Solaris environment including file system navigation, file permissions, the vi text editor, command shells and basic network use. CDE features include Standard Desktop Tools, Text Editor, printing and mail.

II Course Objectives

Chapter 1: The UNIX Computing Environment
Upon completion of this chapter, students will be able to perform tasks related to:

The Main Components of a Computer
- Main components of a computer

Overview of Computer Operating Systems
- Desktop operating systems
- Network operating systems
- Network operating system capabilities

Overview of the UNIX Operating System
- Brief history of UNIX
- UNIX varieties
- Benefits of UNIX

The Solaris Operating Environment
- SunOS operating system
- Graphical User Interface (GUI) options

Chapter 2: Accessing Your System and the Common Desktop Environment
Upon completion of this chapter, students will be able to perform tasks related to:

User Accounts
- Account Types
- Login ID and password requirements
- CDE v. command line environment
- Logging in and out of the system
- Changing your password

Becoming Familiar with the Common Desktop Environment
- Front panel layout
- Using the mouse and keyboard
- Managing windows

- Locking the display
- Workspace buttons
- Minimizing and maximizing the front panel
- The workspace menu

Customizing Your Workspace with Style Manager
- Using style manager options

Working with Subpanels
- Adding and removing applications with subpanels
- Application manager

Chapter 3: CDE User Applications
Upon completion of this chapter, students will be able to perform tasks related to:

Using the Mail Tool
- Introduction to mail tool
- Composing a new mail messages
- Responding to a received message
- Deleting mail messages
- Mail tool options menu
- Creating alternate mailboxes

Using Calendar Manager
- Introduction to calendar manager
- Viewing your calendar
- Setting calendar options
- Working with appointments
- Working with other users' calendars

Other Built-in Applications
- Voice and text note applications
- Address manager
- Calculator
- Clock
- Terminal windows

Chapter 4: Getting Help
Upon completion of this chapter, students will be able to perform tasks related to:

Using CDE Help
- Using help viewer
- Searching the help index
- Using item help
- Other ways to access help

Referencing AnswerBook2
- AnswerBook2

Command Line Help
- Man pages
- The man command
- Working with man pages

Troubleshooting
- Troubleshooting

DOS / UNIX Reference Table
- Reference table

Chapter 5: Accessing Files and Directories
Upon completion of this chapter, students will be able to perform tasks related to:

The File System
- Sample user directory structure
- Function of directories
- File system structure

Directory Paths
- Pathnames
- Path components
- Types of pathnames

Navigating the File System
- Command-line syntax
- Displaying the current directory
- Changing directories using the cd command

Listing Directory Contents
- The ls command
- Displaying hidden files
- Displaying file types
- Displaying a long listing
- Listing individual directories
- Listing directories recursively

Identifying and Using Metacharacters
- Identifying metacharacters
- Using metacharacters

Chapter 6: Basic Directory and File Management
Upon completion of this chapter, students will be able to perform tasks related to:

Directory and File Management Using the Command Line
- Using control characters
- Determining file type
- Displaying file contents with cat and more
- Displaying file contents with head and tail
- The wc command
- Comparing files
- File and directory naming conventions
- Creating files
- Creating directories
- Removing files and directories

Using CDE File Manager
- The file manager
- File and folder icons
- File menu options
- Creating new folders and files
- Changing folders
- Recovering files

Chapter 7: Advanced Directory and File Management
Upon completion of this chapter, students will be able to perform tasks related to:

Advanced Directory and File Management Using the Command Line
- Copying files
- Copying directories
- Renaming and moving files
- Renaming and moving directories
- Input / Output redirection
- Command piping

Advanced Directory and File Management Using File Manager
- Moving and copying files using drag-and-drop
- Selected menu options
- View menu options

Chapter 8: File and User Information Utilities
Upon completion of this chapter, students will be able to perform tasks related to:

File Systems Overview
- Partitions

File Processing Commands
- Finding files
- Searching for strings
- Finding files using the file manager
- Sorting output

Identifying Users
- The who command
- Switching to another user account
- User account information

Chapter 9: Using Text Editors
Upon completion of this chapter, students will be able to perform tasks related to:

The vi Editor
- Introducing vi
- The vi modes
- Opening files with vi
- Input commands (entry mode)
- Saving files and quitting vi (last-line mode)
- Positioning commands (command mode)
- Editing commands (command and last-line mode)
- Advanced editing options (last-line mode)

Using the CDE Text Editor
- Opening a text editor window
- Using file options
- Editing options
- Replacing text
- Format menu options
- Text editor options

Chapter 10: File System Security
Upon completion of this chapter, students will be able to perform tasks related to:

Security Overview
- Security policies
- The superuser account

File System Permissions
- Displaying file system permissions
- Permission categories (classes)
- Permission types
- Determining file and directory access

Changing Permissions From the Command Line
- Changing permissions
- Symbolic (relative) mode
- Octal (absolute) mode

Changing Permissions with File Manager
- Changing properties

Chapter 11: Printing
Upon completion of this chapter, students will be able to perform tasks related to:

The UNIX Printing Environment
- Printing environment components
- The printing process

Command Line Printing
- The lp print spooler

Managing Printer Queues
- Monitoring queue status
- Canceling a print request

Using CDE Print Manager
- Printer jobs
- Printer properties and job options
- Printing from file manager

Chapter 12: Backing Up and Restoring
Upon completion of this chapter, students will be able to perform tasks related to:

Backup Strategies
- Importance of backups
- Backup methods
- Data restoration issues

Backup Media
- Magnetic tape
- Magnetic and optical disks

Backing Up, Compressing, and Restoring Files
- Backing up files with tar
- Compressing files
- Uncompressing files
- Backing up and compressing the home directory
- Restoring files

Combining Backup and Compression
- The jar command

GUI Backup Tools
- Third party backup tools
- Using CDE to archive, compress, and restore

Chapter 13: System Processes and Memory Management
Upon completion of this chapter, students will be able to perform tasks related to:

UNIX System Processes
- System process overview
- Types of processes

Displaying processes
- The ps command
- Searching for a specific process

Terminating Processes
- Identifying processes to terminate
- Signals and the kill command

Memory Management
- Physical memory (RAM) and swap space

Chapter 14: Basic Features of the Korn and C Shells
Upon completion of this chapter, students will be able to perform tasks related to:

Review of the Shell
- Shell overview

Korn Shell Features
- Korn shell aliases
- The history command in the Korn shell
- Re-executing commands in the Korn shell
- Editing the command line in the Korn shell
- Custom prompts with the Korn shell

C Shell Features
- Custom prompts in the C shell
- Aliases in the C shell
- The history command in the C shell
- Re-executing commands in the C shell
- Command-line substitution with the C shell

Chapter 15: Customizing your Login Environment
Upon completion of this chapter, students will be able to perform tasks related to:

Initialization Files
- Features of initialization files
- System wide initialization files
- User specific initialization files

Shell Customization
- Korn shell customization
- C shell customization

CDE Customization
- The CDE initialization file

Chapter 16: Network Basics
Upon completion of this chapter, students will be able to perform tasks related to:

Network Infrastructure Concepts
- Local Area Networks (LANs)
- Wide Area Networks (WANs)
- LAN architecture elements
- Shared Ethernet
- Switched Ethernet
- Token ring and FDDI
- Network topologies

Networking Protocols
- The OSI model
- The TCP/IP protocol

Client-Server Computing
- Client-Server Computing

Network Commands
- The ping utility
- Telnet
- The rlogin command
- The ftp command

Naming Services and NFS
- Naming service overview
- NIS administration
- NFS system

III. Topics to Be Studied

- The Unix Computing Environment
- Accessing Your System and the CDE
- CDE User Applications
- Getting Help
- Accessing Files and Directories
- Basic and Advanced Directory and File Management
- File and User Information Utilities
- Using Text Editors
- File System Security
- Printing
- Backing Up and Restoring
- System Processes and Memory Management
- Korn and C Shells
- Customizing Your Login Environment
- Networking

IV. Special Projects to Be Included in Course

Final Case Study

V. Methods of Student Evaluation

- Tests
- Lab Activities
- Lab Simulators
- Application Projects
- Skills-Assessment Exams

VI. Assessment of Outcomes

The course itself serves as an assessment of the Unix Operating System requirements. Successful course completion demonstrates that students have mastered the criteria.

VII. Other Information

This course is designed to prepare the student for an entry level of proficiency with the Unix Operating System.

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