

CAP443: LINUX AND SHELL SCRIPTING - LAB

L:0 T:0 P:4 Credits:2

Course Outcomes: Through this course students should be able to

CO1 :: understand the installation process of Linux and the working of file system utilities

CO2 :: understand how to administer a Linux machine and configure different Linux servers like samba, ftp, apache and nfs

CO3 :: use the various file editors and the modes to edit the files.

CO4 :: analyze the shell scripting and programming in Linux using Bourne Again shell and TC shell

List of Practicals / Experiments:

Installation guidelines of RED HAT LINUX

- Overview of Linux
- Additional Features of Linux
- Installing Red Hat Linux
- Booting from CD/image
- Partitioning Hard Drives
- Setting up Swap Space
- Choosing Partitions to Format Booting with LILO
- Multi-boot with Other Operating Systems
- Logging In from a Terminal or Terminal Emulator
- More About Logging In
- Root user
- Working with desktop
- X windows
- Runlevels

Getting connected with network

- Network Configuration Tool
- DHCP connection
- DNS

Utilities and Filesystems

- Basic Utilities
- File Systems Overview
- Anatomy of file system
- Working with Files
- Pipe
- Four More Utilities
- Compressing and Archiving Files
- Locating Commands
- Obtaining User and System Information

- Communicating with Other Users
- Directory Files and Ordinary Files
- Pathnames
- Working with Directories
- Access Permissions
- Access Control Lists
- Links

Working with users, groups and permissions

- Managing Users and Groups
- Commands for User Management
- Managing Passwords
- Modifying and Deleting User Accounts
- Configuration Files
- Creating Groups
- Using Graphical Tools for User and Group Management
- Managing Permissions
- Understanding the Role of Ownership
- Basic Permissions: Read, Write, and Execute
- Setting Default Permissions with umask

The Shell and popular editors

- The Command Line
- Standard Input and Standard Output
- Running a Command in the Background
- Filename Generation/Pathname Expansion
- Builtins
- Using VIM to Create and Edit a File
- Introduction to vim Features
- Command Mode
- Input Mode
- Emacs versus Vim
- Getting Started with Emacs
- Basic Editing Commands
- Understanding RPM
- Compress your files
- Querying Software

The Bourne Again Shell and TC Shell

- Shell Basics
- Parameters and Variables
- Special Characters
- Processes
- Re-executing and Editing Commands

- Aliases
- Functions
- Controlling bash
- Entering and Leaving the TC Shell
- Features Common to the Bourne Again and TC Shells

Programming the Bourne Again Shell

- Control Structures
- File Descriptors
- Parameters and Variables
- Builtin Commands
- Expressions

Linux System Administration

- System Administrator and Superuser
- Rescue Mode
- SELinux
- System Operation
- System Administration Utilities
- Setting Up a Server
- Important Files and Directories
- File Types
- Filesystems
- Configuring User and Group Accounts
- Backing Up Files
- Scheduling Task
- System Reports
- Parted

Get started with servers

- Installing and configuring Apache web server
- Understanding the Apache Configuration Files
- Working with Virtual Hosts
- Setting up first web page
- Setting firewalls with iptables
- FTP protocol
- Installing and configuring vsftpd
- Using FTP client to test anonymous read access
- Testing FTP server
- Installing and configuring Samba server
- Installing SAMBA server
- SAMBA configuration with SWAT and starting SWAT service
- Adding SAMBA user
- Creating and configuring SAMBA share

- Installing and configuring NFS
- Configuring NFS server and client
- Using auto mount services
- Examining NFS security

Text Books: 1. THE COMPLETE REFERENCE, SIXTH EDITION by PETERSEN RICHARD, MC GRAW HILL

References: 1. BEGINNING LINUX PROGRAMMING 4TH EDITION by NEIL MATTHEW , RICHARD STONES, WROX PROGRAMMER