Linux System Administration

Course Duration: 1 month

1. Accessing the Command line

- Accessing the Command Line Using the Local Console
- Practice: Local Console Access Terms
- Accessing the Command Line Using the Desktop
- Practice: The GNOME 3 Desktop Environment
- Executing Commands Using the Bash shell
- Practice: Bash Commands and Keyboard Shortcuts
- Lab: Accessing the Command line

2. Managing Files from the Command Line

- The Linux File System Hierarchy
- Practice: File system Hierarchy
- Locating File by name
- Practice: Locating files and Directories
- Managing File Using Command –Line Tools
- Practice: Command-Line File Management
- Matching File Name Using Path Name Expansion
- Practice: path Name Expansion
- Lab: Managing Files With Shell Expansion

3. Getting Help in Red Hat Enterprise Linux

- Reading Documentation Using man Command
- Practice: Using the man Command
- Reading Documentation Using pinfo Command
- Practice: Using the pinfo command
- Reading Documentation in /usr/share/doc
- Practice: Viewing package Documentation
- Getting Help From Red Hat
- Practice: Creating and Viewing an SoS Report

- Lab: Viewing and Printing Help Documentation

4. Creating, Viewing, and Editing Text Files

- Redirecting Output to a File or Program
- Practice: I/O Redirection and pipelines
- Editing Text Files from the shell Prompt
- Practice: Editing Files with Vim
- Editing Text Files with a Graphical Editor
- Practice: Copying Text Between Windows
- Lab: Creating, Viewing, and Editing Text Files

5. Managing Local Linux Users and Groups

- Users and Groups
- Practice: User and Group Concepts
- Gaining Super user Access
- Practice: Running commands as root
- Managing Local User Accounts
- Practice: Creating Users Using Command-line Tools
- Managing Local Group Accounts
- Practice: Managing Group Using Command-line Tools
- Managing User Passwords
- Practice: Managing User Password Aging
- Lab: Managing Local Linux Users and Groups

6.   Controlling Access to Files with Linux File System Permissions

- Linux File System permissions
- Practice: interpreting File and Directory Permissions
- Managing File System Permission From the Command Line
- Practice: Managing File Security from the Command Line
- Managing Default Permissions and File Access
- Practice: Controlling New File Permissions and Ownership
- Lab Controlling Access to Files with Linux File System Permissions

7.   Monitoring and Managing Linux Processes

- Processes
- Practice: Processes
- Controlling Jobs
- Practice: Background and Foreground Processes
- Killing Processes
- Practice: Killing Processes
- Monitoring Process Activity
- Practice: Monitoring Process Activity
- Lab Monitoring and Managing Linux Processes

8.   Controlling Services and Daemons

- Identifying Automatically Started processes
- Practice: Identify the Status of Systemd units
- Controlling System Services
- Practice: Using Systemctl to Manage Services
- Lab: Controlling Services and Daemons

9.   Configuring and Securing OpenSSH Service

- Accessing the Remote Command Line With SSH
- Practice: Accessing the Remote Command Line
- Configuring SSH key-based Authentication
- Practice: Using SSH Key-based Authenticating
- Customizing SSH Service Configuration
- Practice: Restricting SSH Longin
- Lab: Configuring and Securing OpenSSH Service

10.   Analyzing and Storing Logs

- System Log Architecture

- Practice: Syslog Logging Components
- Reviewing Syslog Files
- Practice: Finding Log Entries
- Reviewing Systemd Journal Entries
- Practice: Finding Events With Journalctl
- Preserving the Systemd Journal
- Practice: Configure a Persistent Systemd Journal
- Maintaining Accurate Time
- Practice: Adjusting System Time
- Lab: Analyzing and Storing Logs

11.   **Managing Red hat Enterprise Linux NetWorking**

- Networking Concepts
- Practice: Networking concepts
- Validating Network Configuration
- Practice: Examining Network Configuration
- Configuring Networking with nmcli
- Practice: Configuring Networking With nmcli
- Editing Network Configuration Files
- Practice: Editing Network Configuration Files
- Configuring host Names and name Resolution
- Practice: Configuring Host Names and name Resolution
- Lab: Managing Red Hat Enterprise Linux Networking

12.   **Archiving and Copying Files between Systems**

- Managing Compressed tar Archives
- Practice: Backing UP and Restoring Files From a tar Archive
- Copying Files Between Systems Securely
- Practice: Copying Files Over the Network with SCP
- Synchronizing Files Between Systems Securely
- Practice: Synchronizing Two Directories Securely With RSYNC
- Lab: installing and Updating Software Packages.

13.   **Installing and Updating Software Packages**

- Attaching Systems to Subscriptions for Software Updates

- Practice: Red Hat Subscription Management
- Rpm Software Packages and yum
- Practice: RPM Software Packages
- Managing Software updates with YUM
- Practice: Installing and Updating Software with YUM
- Enabling YUM Software Repositories
- Practice: Working with RPM package Files
- Lab: installing and Updating Software Packages

14. **Accessing Linux File Systems**

- Identifying File Systems and Devices
- Practice: Identifying File Systems and Devices
- Mounting and Unmounting File Systems
- Practice: Mounting and Unmounting File Systems
- Making Links Between Files
- Practice: Making Links Between Files
- Locating Files on the System
- Practice: Locating Files on the System
- Lab: Accessing Linux File Systems

15. **Using Virtualized Systems**

- Managing a Local Virtualized Host
- Practice: Managing a local virtualized Host
- Installing a new Virtual Machine
- Practice: Installing a New Virtualized Machine
- Chapter Test: Using virtualized Systems