Linux Administrator Course Content

# Part 1: Core Linux Administration

## Module 1: Introduction to Linux and Accessing the Command Line

* Introduction to Linux
* Log in to a Linux system and run simple commands using the shell

## Module 2: Managing Files from the Command Line

* Copy, move, create, delete, and organize files using the bash shell

## Module 3: Getting Help in Red Hat Enterprise Linux

* Use man, info, and online help systems
* Use Red Hat support utilities

## Module 4: Creating, Viewing, and Editing Text Files

* Use basic editors (nano, vim) to manage text files

## Module 5: Managing Local Linux Users and Groups

* Create and manage users and groups
* Administer local password policies

## Module 6: Controlling Access to Files with Linux File System Permissions

* Understand and apply standard Linux permissions (rwx)
* Use chmod, chown, umask

## Module 7: Configuring and Securing the OpenSSH Service

* Securely access the command line on remote systems using OpenSSH
* Configure SSH key-based authentication
* Transfer files using scp and rsync

## Module 8: Analyzing and Storing Logs

* Locate and interpret system log files for troubleshooting
* Use journalctl and rsyslog

## Module 9: Managing Networking

* Configure basic IPv4 networking
* Use nmcli, ip, and hostnamectl

## Module 10: Archiving and Copying Files Between Systems

* Archive using tar, gzip, bzip2
* Copy files with scp, rsync

## Module 11: Installing and Updating Software Packages

* Manage software using yum, dnf, and repositories

## Module 12: Accessing Linux File Systems

* Mount, unmount, and inspect file systems using mount, df, du

## Module 13: Using Virtualized Systems

* Create and use VMs using KVM and libvirt tools (virt-manager, virsh)

# Part 2: Advanced Linux Administration

## Module 1: Automating Installation with Kickstart

* Create and deploy Kickstart-based automated installations

## Module 2: Using Regular Expressions with grep

* Write and use regex patterns to find data in text

## Module 3: Creating and Editing Text Files with vim

* Master vim editing modes, navigation, and saving

## Module 4: Scheduling Future Linux Tasks

* Use cron, at, and systemd timers for scheduling tasks

## Module 5: Managing Priority of Linux Processes

* Use nice, renice, and top to manage process priorities

## Module 6: Controlling Access with Access Control Lists (ACL)

* Set and manage POSIX ACLs on files and directories

## Module 7: Managing SELinux Security

* View and configure SELinux modes, booleans, and contexts

## Module 8: Adding Disks, Partitions, and File Systems

* Create and manage partitions using fdisk, parted, mkfs

## Module 9: Managing Logical Volume Management (LVM)

* Create and resize LVM volumes
* Use pvcreate, vgcreate, lvcreate, and lvextend

## Module 10: Accessing Network Storage with NFS

* Configure and mount (secure) NFS shares

## Module 11: Accessing Network Storage with SMB

* Use autofs and manual methods to mount/unmount SMB/CIFS shares

## Module 12: Controlling and Troubleshooting the Boot Process

* Understand GRUB2, systemd, and rescue/emergency targets

## Module 13: Limiting Network Communication with firewalld

* Configure firewall rules using firewalld and zones

# Part 3: Extra / Advanced Content

## 1. RAID Configuration using LVM

## 2. Running Containers

* 2.1: Introduction to Containers and Podman
* 2.2: Creating and Managing Containers
* 2.3: Working with Container Image Registries
* 2.4: Managing Container Lifecycle (start, stop, remove, persist)

## 3. Working with Bash Scripting

## 4. OS Upgrades

* Upgrade from RHEL 7 to RHEL 8
* Upgrade from RHEL 8 to RHEL 9

## 5. Automation with Ansible

* 5.1: What is Ansible?
* 5.2: Working with inventory and ansible.cfg
* 5.3: Running Ad-hoc Commands
* 5.4: Creating and Executing Basic Playbooks

## 6. DNS Configuration

## 7. Migrating VMware VMs to Cloud

## 8. Introduction to Public Cloud

* Overview of AWS, GCP, and Azure basics (IaaS, VM provisioning, CLI access)