VMware vSphere Administrator (vSphere 8/9)

Duration: 3 Months

Training Hours: 8 Hours/Week (96 Hours Total)

MONTH 1 – VMware Fundamentals & Infrastructure Deployment

Week 1 – Introduction to VMware Virtualization

Module 1: VMware & Server Virtualization Fundamentals

What You'll Learn

- Introduction to Server Virtualization
- What is a Hypervisor?
- Type 1 vs Type 2 Hypervisors
- VMware vSphere Architecture
- Overview of ESXi
- Role of vCenter Server
- Virtual Machines (VM)
- VMware Tools
- Hot Add Features
- Enterprise Features (vMotion, Storage vMotion, HA, DRS, FT)
- Introduction to VMware vSAN

Practical Lab

- Exploring VMware Environment
- Understanding Enterprise Virtualization Architecture

Week 2 – ESXi Installation & Host Configuration

Module 2: VMware ESXi Administration

What You'll Learn

- Server, Storage & Network Virtualization
- Datastore Concepts
- VMFS File System
- Thin vs Thick Provisioning
- ESXi Hardware Requirements
- Installing VMware ESXi
- Direct Console User Interface (DCUI)
- Initial Host Configuration
- Network Configuration
- Host Security Basics

Practical Lab

- Install ESXi
- Configure Management Network
- Create Local Datastore
- Configure ESXi using DCUI

Week 3 – Deploying VMware vCenter

Module 3: vCenter Server Installation

What You'll Learn

- What is VMware vCenter
- Installing Active Directory
- Configuring DNS
- Adding Datastore
- Deploying VMware vCenter Server Appliance (VCSA)
- Stage 1 Deployment
- Stage 2 Deployment
- Single Sign-On (SSO)
- Downloading ESXi & vCenter
- VMware Licensing (vSphere 8 & vSphere 9)

Practical Lab

- Install Active Directory
- Install DNS
- Deploy VCSA
- Configure SSO Domain
- Apply Licenses

Week 4 – Building VMware Infrastructure

Module 4: Infrastructure Configuration

What You'll Learn

- VMware Cloud Labs
- VMFS vs VMFSL
- Understanding PSOD
- VMware Appliance Management Interface (VAMI)
- Configure vCenter
- Create Datacenter
- Create Cluster
- Create Folder Structure
- Add ESXi Hosts
- Lockdown Mode
- Maintenance Mode

Practical Lab

- Build Complete VMware Infrastructure
- Configure Multiple Hosts
- Test Lockdown & Maintenance Mode

MONTH 2 – Virtual Machine & Network Administration

Week 5 – Virtual Machine Management

Module 5: Managing Virtual Machines

What You'll Learn

- vSphere Client vs VMware Host Client
- Client Navigation
- Register & Unregister Virtual Machines
- Create Virtual Machines
- Install Guest Operating Systems
- ISO Mounting Methods
- VMware Tools Installation
- Hot Add CPU & RAM
- VMware Hardware Compatibility

Practical Lab

- Deploy Windows Server VM
- Deploy Linux VM
- Install VMware Tools
- Enable Hot Add Features

Week 6 – VMware Licensing & Advanced VM Administration

Module 6: Licensing & Virtual Machine Operations

What You'll Learn

- VMware Licensing
- ESXi Licensing
- vCenter Licensing
- VM Registration
- VMFS Architecture
- PSOD Overview
- Creating VMs with Hot Add
- Hot Add CPU, RAM & HDD
- Hot Extend Virtual Disks

Practical Lab

- Configure Licensing
- Expand Virtual Disk
- Resource Scaling without Downtime

Week 7 – Templates, Snapshots & Cloud Integration

Module 7: Templates & VMware Content Library

What You'll Learn

- Export OVF Templates
- Deploy OVF Templates
- VM Templates
- Content Library
- ISO Management
- VM File Structure
- Cloud Computing Fundamentals
- IaaS, PaaS & SaaS
- VMware Integration with AWS
- VM Cloning
- Guest OS Customization
- Suspended VM State
- Backup vs Snapshot
- Snapshot Management

Practical Lab

- Create Golden Templates
- Deploy Multiple VMs
- Manage Snapshots
- Configure Content Library

Week 8 – VMware Virtual Networking

Module 8: Network Configuration

What You'll Learn

- VMware Virtual Networking
- Standard Virtual Switch (vSwitch)
- Virtual Machine Port Groups
- VMkernel Adapters
- Creating Port Groups
- Adding & Removing Physical NICs
- NIC Teaming
- Active/Passive Failover
- Advanced Networking
- VLAN Tagging
- Trunk Ports
- vMotion Network

- Fault Tolerance Network

Practical Lab

- Configure vSwitch
- Configure VLANs
- Configure NIC Teaming
- Test Network Failover

MONTH 3 – Enterprise VMware Administration

Week 9 – Storage Administration

Module 9: VMware Storage

What You'll Learn

- Datastore Concepts
- Shared Storage
- SAN vs NAS
- VMFS vs NFS
- Fibre Channel SAN
- iSCSI SAN
- VMware vSAN
- Thin, Thick Lazy & Thick Eager Disks
- Hyper-Converged Infrastructure (HCI)
- Mounting NFS Storage
- Configuring iSCSI Storage
- Storage vMotion

Practical Lab

- Configure Shared Storage
- Mount NFS Datastore
- Configure iSCSI
- Perform Storage Migration

Week 10 – VMware Cluster Features

Module 10: Enterprise Cluster Administration

What You'll Learn

- Live Migration using vMotion
- Storage Migration
- Migration without Shared Storage
- Distributed Resource Scheduler (DRS)
- Enhanced vMotion Compatibility (EVC)
- Automation Levels
- VM Affinity & Anti-Affinity Rules
- VM to Host Rules
- Distributed Power Management (DPM)

Practical Lab

- Configure Cluster
- Configure DRS
- Configure EVC
- Live VM Migration

Week 11 – High Availability & Fault Tolerance

Module 11: Business Continuity

What You'll Learn

- High Availability (HA)
- HA Licensing Requirements
- Master & Secondary Host Election
- Configuring HA
- Testing HA
- VMware Fault Tolerance
- Primary & Secondary VM
- Configuring FT
- Testing FT
- Need for VMware vSAN
- vSAN Architecture
- Production Deployment Best Practices

Practical Lab

- Configure HA Cluster
- Configure Fault Tolerance

- Build vSAN Cluster
- Test Automatic Failover

Week 12 – Backup, Upgrade & Enterprise Project

Module 12: VMware Administration & Maintenance

What You'll Learn

- Backup & Restore of vCenter
- ESXi Backup Best Practices
- Patching ESXi Hosts
- ESXi Upgrade Procedures
- VMware Lifecycle Management
- Infrastructure Health Checks
- Troubleshooting Best Practices
- Production Environment Management

Capstone Project

Students will design and deploy a complete VMware enterprise infrastructure from scratch, including:

- ESXi Installation
- vCenter Deployment
- Datacenter & Cluster Creation
- VM Deployment
- Virtual Networking
- Shared Storage
- Storage vMotion
- vMotion
- DRS
- High Availability (HA)
- Fault Tolerance (FT)
- vSAN Configuration
- Backup & Restore
- ESXi Patching & Upgrade

Course Outcomes

Upon successful completion of this course, learners will be able to:

- Deploy and manage VMware vSphere 8/9 environments.
- Install, configure, and administer ESXi hosts and vCenter Server.
- Build highly available virtual infrastructures using HA, DRS, vMotion, and vSAN.
- Configure enterprise-grade virtual networking and shared storage solutions.
- Perform backup, disaster recovery, patch management, and infrastructure upgrades.
- Design, deploy, and troubleshoot production-ready VMware environments following industry best practices.