

Microsoft Windows Server 2016

**Bootcamp Title – MCSA: Windows Server 2016 (1 Cert)**
Number of Days – 9
Number of Exams – 3
Number of Certifications – 1
Cost - $5,995.00

Certifications:

MCSA: Windows Server 2016

Exams:

**20740:** Installation, Storage, and Compute with Windows Server 2016 **20741:** Networking with Windows Server 2016 **20742:** Identity with Windows Server 2016

Course Description:

The MCSA Windows Server 2016 certification boot camp is a 9-day comprehensive deep dive into the Windows Server covering topics such as planning, monitoring, and configuring. This instructor led face to face training camp will teach you the skills needed to support a Windows Server environment.

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| **Course Outline****Module 1: Installing, upgrading, and migrating servers and workloads**This module explains how to prepare and install Nano Server and Server Core. This module also explains how to upgrade and migrate server roles and workloads. Finally, this module explains how to choose an activation model based on your environment characteristics.**Lessons*** Introducing Windows Server 2016
* Preparing and installing Nano Server and Server Core
* Preparing for upgrades and migrations
* Migrating server roles and workloads
* Windows Server activation models

**Lab : Installing and configuring Nano Server*** Implementing Nano Server
* Completing post-installation tasks on the Nano Server
* Performing remote management

After completing this module, students will be able to:* Choose the appropriate version of the Windows Server operating system, and describe the

installation options and new features of Windows Server 2016.* Prepare and install Nano Server and Server Core.
* Consider whether an upgrade or migration is the best approach, and use tools to help determine

 upgrade or migration suitability.* Migrate server roles and workloads within a domain and across domains or forests.
* Choose an activation model based on your environment characteristics.

**Module 2: Configuring local storage**This module explains how to manage disks and volumes in Windows Server 2016.**Lessons*** Managing disks in Windows Server 2016
* Managing volumes in Windows Server 2016

**Lab : Managing disks and volumes in Windows Server 2016*** Creating and Managing virtual hard disks by using Windows PowerShell
* Converting virtual hard disks from .vhd to .vhdx
* Resizing a volume

After completing this module, students will be able to:* Manage disks in Windows Server 2016.
* Manage volumes in Windows Server 2016.

**Module 3: Implementing enterprise storage solutions**This module describes the direct-attached storage (DAS), network-attached storage (NAS), and storage area networks (SANs). It also helps you understand Microsoft Internet Storage Name Service (iSNS) Server, data center bridging, and Multipath I/O (MPIO). Additionally, this module also compares Fibre Channel, Internet Small Computer System Interface (iSCSI), and Fibre Channel Over Ethernet (FCoE), and describes how to configure sharing in Windows Server 2016.**Lessons*** Overview of direct-attached storage, network-attached storage, and storage area networks
* Comparing Fibre Channel, iSCSI, and FCoE
* Understanding iSNS, data centre bridging, and MPIO
* Configuring sharing in Windows Server 2016

**Lab : Planning and configuring storage technologies and components*** Planning storage requirements
* Configuring iSCSI storage
* Configuring and managing the share infrastructure

After completing this module, students will be able to:* Describe DAS, NAS, and SANs, and the usage scenarios for each topology.
* Compare Fibre Channel, FCoE, an iSCSI target and initiator.Describe iSNS, MPIO, data center

bridging, and Windows Storage Server 2016 (two versions—Workgroup and Standard).* Configure server message block (SMB) and network file system (NFS) shares by using Server

Manager and Windows PowerShell.**Module 4: Implementing Storage Spaces and Data Deduplication**This module explains how to implement and manage Storage Spaces. This module also explains how to implement Data Deduplication.**Lessons*** Implementing Storage Spaces
* Managing Storage Spaces
* Implementing Data Deduplication

**Lab : Implementing Storage Spaces*** Creating a storage space
* Enabling and configuring storage tiering

**Lab : Implementing Data Deduplication*** Installing Data Deduplication
* Configuring Data Deduplication

After completing this module, students will be able to:* Implement Storage Spaces as an enterprise storage solution.
* Manage Storage Spaces by using Server Manager and Windows PowerShell.
* Implement Data Deduplication.

**Module 5: Installing and configuring Hyper-V and virtual machines**This module provides an overview of Hyper-V. This module also explains how to configure, manage, and install Hyper-V.**Lessons*** Overview of Hyper-V
* Installing Hyper-V
* Configuring storage on Hyper-V host servers
* Configuring networking on Hyper-V host servers
* Configuring Hyper-V virtual machines
* Managing Hyper-V virtual machines

**Lab : Installing and configuring Hyper-V*** Installing the Hyper-V server role
* Configuring Hyper-V settings
* Creating and configuring a virtual machine
* Managing a virtual machine by using PowerShell Direct

After completing this module, students will be able to:* Describe Hyper-V and virtualization.
* Prepare to install the Hyper-V role.
* Configure storage on Hyper-V host servers.
* Configure networking on Hyper-V host servers.
* Configure Hyper-V virtual machines.
* Move virtual machines from one host to another host, using PowerShell Direct to manage a virtual

 machine, and manage miscellaneous virtual machine settings.**Module 6: Deploying and managing Windows Server and Hyper-V containers**This module provides and overview of containers in Windows Server 2016. It also explains how to deploy, install, configure, and manage containers in Windows Server 2016.**Lessons*** Overview of containers in Windows Server 2016
* Deploying Windows Server and Hyper-V containers
* Installing, configuring, and managing containers

**Lab : Installing and configuring containers*** Installing and configuring Windows Server containers by using Windows PowerShell
* Installing and configuring Windows Server containers by using Docker

After completing this module, students will be able to:* Explain the purpose of Windows Server and Hyper-V containers.
* Deploy and manage Windows Server and Hyper-V containers.
* Install, configure, and manage containers.

**Module 7: Overview of high availability and disaster recovery**This module provides an overview of high availability, business continuity, and disaster recovery. It further explains how to plan high availability and disaster recovery solutions. Additionally, in this module you will know how to back up and restore the Windows Server 2016 operating system and data by using Windows Server Backup. Finally, you will learn about Windows Server 2016 high availability with failover clustering.**Lessons*** Defining levels of availability
* Planning high availability and disaster recovery solutions with Hyper-V virtual machines
* Backing up and restoring the Windows Server 2016 operating system and data by using Windows Server B
* High availability with failover clustering in Windows Server 2016

**Lab : Planning and implementing a high availability and disaster recovery solution*** Determining the appropriate high availability and disaster recovery solution
* Implementing storage migration
* Implementing Hyper-V Replica

After completing this module, students will be able to:* Describe high availability, business continuity, and disaster recovery.
* Plan for high availability and disaster recovery solutions with Hyper-V virtual machines.
* Back up and restore Hyper-V hosts, virtual machines, Active Directory Domain Services (AD DS),

and file and web servers by using Windows Server Backup.* Describe Windows Server 2016 high availability with failover clustering.

**Module 8: Implementing and managing failover clustering**This module explains how to plan, create, configure, maintain, and troubleshoot a failover cluster. This module also explains how to implement site high availability with stretch clustering.**Lessons*** Planning a failover cluster
* Creating and configuring a new failover cluster
* Maintaining a failover cluster
* Troubleshooting a failover cluster
* Implementing site high availability with stretch clustering

**Lab : Implementing a failover cluster*** Creating a failover cluster
* Verifying quorum settings and adding a node

**Lab : Managing a failover cluster*** Evicting a node and verifying quorum settings
* Changing the quorum from Disk Witness to File Share Witness, and defining node voting
* Adding and removing disks from the cluster

After completing this module, students will be able to:* Describe the requirements and infrastructure considerations for a failover cluster.
* Create and configure a new failover cluster.
* Monitor and maintain failover clusters.
* Troubleshoot failover clusters by using various tools such as Performance Monitor, Event Viewer,

and Windows PowerShell.* Configure and implement a stretch cluster.

**Module 9: Implementing failover clustering for Hyper-V virtual machines**This module describes integrating Hyper-V virtual machines in a clustered environment. It also explains how to implement and maintain Hyper-V virtual machines on failover clusters. Additionally, this module also explains how to configure network health protection.**Lessons*** Overview of integrating Hyper-V in Windows Server 2016 with failover clustering
* Implementing and maintaining Hyper-V virtual machines on failover clusters
* Key features for virtual machines in a clustered environment

**Lab : Implementing failover clustering with Hyper-V*** Configuring a failover cluster for Hyper-V
* Configuring a highly available virtual machine

After completing this module, students will be able to:* Explain the integration of Hyper-V in Windows Server 2016 with failover clustering.
* Implement and maintain Hyper-V virtual machines on failover clusters.
* Describe and configure network health protection.

**Module 10: Implementing Network Load Balancing**This module provides an overview of NLB clusters. It also explains how to plan and configure an NLB cluster implementation.**Lessons*** Overview of NLB clusters
* Configuring an NLB cluster
* Planning an NLB implementation

**Lab : Implementing an NLB cluster*** Implementing an NLB cluster
* Configuring and managing the NLB cluster
* Validating high availability for the NLB cluster

After completing this module, students will be able to:* Describe NLB and how it works.
* Configure an NLB cluster.
* Describe the considerations for implementing NLB.

**Module 11: Creating and managing deployment images**This module provides an introduction to deployment images. It also explains how to create and manage deployment images by using the Microsoft Deployment Toolkit (MDT). Additionally, it explains how to evaluate an organization’s requirements for server virtualization.**Lessons*** Introduction to deployment images
* Creating and managing deployment images by using MDT
* Virtual machine environments for different workloads

**Lab : Using MDT to deploy Windows Server 2016*** Installing and configuring MDT
* Creating and deploying an image

After completing this module, students will be able to:* Explain the purpose of deployment images and the tools that you use to deploy and maintain them.
* Implement and manage deployment images by using MDT.
* Evaluate their organization’s requirements for server virtualization.

**Module 12: Managing, monitoring, and maintaining virtual machine installations**This module provides an overview on WSUS and explains the deployment options. It explains how to update management process with WSUS and also how to use Performance Monitor. Additionally, this module also provides an overview of PowerShell Desired State Configuration (DSC) and Windows Server 2016 monitoring tools. Finally, this module describes how to use Performance Monitor and monitor Event Logs.**Lessons*** WSUS overview and deployment options
* Update management process with WSUS
* Overview of PowerShell DSC
* Overview of Windows Server 2016 monitoring tools
* Using Performance Monitor
* Monitoring Event Logs

**Lab : Implementing WSUS and deploying updates*** Implementing WSUS
* Configuring update settings
* Approving and deploying an update by using WSUS

**Lab : Monitoring and troubleshooting Windows Server 2016*** Establishing a performance baseline
* Identifying the source of a performance problem
* Viewing and configuring centralized event logs

After completing this module, students will be able to:* Describe the purpose of Windows Server Update Services (WSUS) and the requirements to

 implement WSUS.* Manage the update process with WSUS.
* Describe the purpose and benefits of PowerShell DSC.
* Describe the monitoring tools available in Windows Server 2016.
* Describe how to use Performance Monitor.
* Describe how to manage event logs.
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| **Course Outline****Module 1: Planning and implementing an IPv4 network**This module explains how to plan and implement an IPv4 addressing scheme to support organizational needs. This module also explains how to use fundamental networking tools and techniques to configure and troubleshoot IPv4-based networks.**Lessons*** Planning IPv4 addressing
* Configuring an IPv4 host
* Managing and troubleshooting IPv4 network connectivity

**Lab : Planning an IPv4 network*** Planning the IPv4 address assignments

**Lab : Implementing and troubleshooting an IPv4 network*** Verifying the IPv4 configuration
* Troubleshooting IPv4

After completing this module, students will be able to:* Plan IPv4 addressing.
* Configure an IPv4 host.
* Manage and troubleshoot IPv4 network connectivity.

**Module 2: Implementing DHCP**This module explains how to plan and implement DHCP to support the IPv4 infrastructure.**Lessons*** Overview of the DHCP server role
* Deploying DHCP
* Managing and troubleshooting DHCP

**Lab : Implementing DHCP*** Planning the DHCP server implementation
* Implementing the DHCP configuration
* Validating the DHCP implementation

After completing this module, students will be able to:* Explain the DHCP server role.
* Deploy DHCP.
* Manage and troubleshoot DHCP.

**Module 3: Implementing IPv6**This module explains how to implement IPv6, and how to integrate IPv6 and IPv4 networks.**Lessons*** Overview of IPv6 addressing
* Configuring an IPv6 host
* Implementing IPv6 and IPv4 coexistence
* Transitioning from IPv4 to IPv6

**Lab : Implementing IPv6*** Reviewing the default IPv6 configuration
* Implementing DHCPv6

**Lab : Configuring and evaluating IPv6 transition technologies*** Configuring network integration by using ISATAP
* Configuring native IPv6 connectivity
* Configuring 6to4 connectivity

After completing this module, students will be able to:* Describe the features and benefits of IPv6.
* Configure an IPv6 host.
* Implement the coexistence between IPv4 and IPv6 networks.
* Transition from an IPv4 network to an IPv6 network.

**Module 4: Implementing DNS**This module explains how to install, configure, and troubleshoot DNS within the organization’s network.**Lessons*** Implementing DNS servers
* Configuring zones in DNS
* Configuring name resolution between DNS zones
* Configuring DNS integration with Active Directory Domain Services (AD DS)
* Configuring advanced DNS settings

**Lab : Planning and implementing name resolution by using DNS*** Planning DNS name resolution
* Implementing DNS servers and zones

**Lab : Integrating DNS with Active Directory*** Integrating DNS with Active Directory

**Lab : Configuring advanced DNS settings*** Configuring DNS policies
* Validating the DNS implementation
* Troubleshooting DNS

After completing this module, students will be able to:* Implement DNS servers.
* Configure zones in DNS.
* Configure name resolution between DNS zones.
* Configure DNS integration with AD DS.
* Configure advanced DNS settings.

**Module 5: Implementing and managing IPAM**This module explains how to implement and manage the IPAM feature in Windows Server 2016. This module also explains how to use IPAM to manage services such as DHCP and DNS.**Lessons*** IPAM overview
* Deploying IPAM
* Managing IP address spaces by using IPAM

**Lab : Implementing IPAM*** Installing the IPAM Server feature
* Provisioning the IPAM Server feature
* Managing IP address spaces by using IPAM

After completing this module, students will be able to:* Describe IPAM functionality and components.
* Deploy IPAM.
* Manage IP address spaces by using IPAM.

**Module 6: Remote access in Windows Server 2016**This module explains how to plan for remote access in Windows Server 2016 and how to implement Web Application Proxy.**Lessons*** Remote access overview
* Implementing Web Application Proxy

**Lab : Implementing Web Application Proxy*** Implementing Web Application Proxy
* Validating Web Application Proxy

After completing this module, students will be able to:* Describe remote access.
* Implement Web Application Proxy.

**Module 7: Implementing DirectAccess**This module explains how to implement and manage DirectAccess in Windows Server 2016.**Lessons*** Overview of DirectAccess
* Implementing DirectAccess by using the Getting Started Wizard
* Implementing and managing an advanced DirectAccess infrastructure

**Lab : Implementing DirectAccess by using the Getting Started Wizard*** Verifying readiness for a DirectAccess deployment
* Configuring DirectAccess
* Validating the DirectAccess deployment

**Lab : Deploying an advanced DirectAccess solution*** Preparing the environment for DirectAccess
* Implementing the advanced DirectAccess infrastructure
* Validating the DirectAccess deployment

After completing this module, students will be able to:* Explain DirectAccess and how it works.
* Implement DirectAccess by using the Getting Started Wizard.
* Implement and manage an advanced DirectAccess infrastructure.

**Module 8: Implementing VPNs**This module explains how to implement and manage remote access in Windows Server 2016 by using VPNs.**Lessons*** Planning VPNs
* Implementing VPNs

**Lab : Implementing a VPN*** Implementing a VPN
* Validating VPN deployment

**Lab : Troubleshooting VPN access*** Troubleshooting VPN access

After completing this module, students will be able to:* Plan for VPNs.
* Implement VPNs.

**Module 9: Implementing networking for branch offices**This module explains how to implement network services for branch offices.**Lessons*** Networking features and considerations for branch offices
* Implementing Distributed File System (DFS) for branch offices
* Implementing BranchCache for branch offices

**Lab : Implementing DFS for branch offices*** Implementing DFS
* Validating the deployment

**Lab : Implementing BranchCache*** Implementing BranchCache
* Validating the deployment

After completing this module, students will be able to:* Describe the networking features and considerations for branch offices.
* Implement DFS for branch offices.
* Implement BranchCache for branch offices.

**Module 10: Configuring advanced networking features**This module explains how to implement an advanced networking infrastructure.**Lessons*** Overview of high performance networking features
* Configuring advanced Hyper-V networking features

**Lab : Configuring advanced Hyper-V networking features*** Creating and using Microsoft Hyper-V virtual switches
* Configuring and using the advanced features of a virtual switch

After completing this module, students will be able to:* Describe high performance networking features.
* Configure advanced Hyper-V networking features.

**Module 11: Implementing software defined networking**This module explains how to implement software defined networking.**Lessons*** Overview of software defined networking
* Implementing network virtualization
* Implementing Network Controller

**Lab : Implementing Network Controller*** Deploying Network Controller
* Configuring network services with Network Controller
* Managing and monitoring with Network Controller

After completing this module, students will be able to:* Describe software defined networking.
* Implement network virtualization.
* Implement Network Controller.
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| **Course Outline****Module 1: Installing and configuring DCs**This module describes features of AD DS and how to install domain controllers (DCs). It also covers the considerations for deploying DCs.**Lessons*** Overview of AD DS
* Overview of AD DS DCs
* Deploying DCs

**Lab : Deploying and administering AD DS*** Deploying AD DS
* Deploying a DC by performing DC cloning
* Administering AD DS by using Active Directory Administrative Center

After completing this module, students will be able to:* Describe AD DS and its main components.
* Describe the purpose of DCs and the roles that a DC can hold.
* Describe the considerations for deploying DCs.

**Module 2: Managing objects in AD DS**This module describes how to use various techniques to manage objects in AD DS. This includes creating and configuring user, group, and computer objects.**Lessons*** Managing user accounts
* Managing groups in AD DS
* Managing computer accounts
* Using Windows PowerShell for AD DS administration
* Implementing and managing organizational units

**Lab : Deploying and administering AD DS*** Creating and configuring user accounts in AD DS
* Creating and configuring groups in AD DS
* Managing computer objects in AD DS

**Lab : Administering AD DS*** Delegating administration for a branch office
* Creating user accounts and groups by using Windows PowerShell

After completing this module, students will be able to:* Describe and perform various techniques to manage user accounts.
* Manage groups in AD DS.
* Manage computers in AD DS.
* Use Windows PowerShell to manage AD DS more efficiently.
* Delegate permission to perform AD DS administration.

**Module 3: Advanced AD DS infrastructure management**This module describes how to plan and implement an AD DS deployment that includes multiple domains and forests. The module provides an overview of the components in an advanced AD DS deployment, the process of implementing a distributed AD DS environment, and the procedure for configuring AD DS trusts.**Lessons*** Overview of advanced AD DS deployments
* Deploying a distributed AD DS environment
* Configuring AD DS trusts

**Lab : Domain and trust management in AD DS*** Implementing child domains in AD DS
* Implementing forest trusts

After completing this module, students will be able to:* Describe the components of an advanced AD DS deployment.
* Implement a distributed AD DS environment.
* Configure AD DS trusts.

**Module 4: Implementing and administering AD DS sites and replication**This module describes how to plan and implement an AD DS deployment that includes multiple locations. The module explains how replication works in a Windows Server 2016 AD DS environment.**Lessons*** Overview of AD DS replication
* Configuring AD DS sites
* Configuring and monitoring AD DS replication

**Lab : Managing and implementing AD DS sites and replication*** Modifying the default site
* Creating additional sites and subnets
* Configuring AD DS replication
* Monitoring and troubleshooting AD DS replication

After completing this module, students will be able to:* Describe how replication works in a Windows Server 2012 AD DS environment.
* Configure AD DS sites to optimize AD DS network traffic.
* Configure and monitor AD DS replication.

**Module 5: Implementing Group Policy**This module describes how to implement a GPO infrastructure. The module provides an overview of the components and technologies that compose the Group Policy framework.**Lessons*** Introducing Group Policy
* Implementing and administering GPOs
* Group Policy scope and Group Policy processing
* Troubleshooting the application of GPOs

**Lab : Implementing a Group Policy infrastructure*** Creating and configuring GPOs
* Managing GPO scope

**Lab : Troubleshooting a Group Policy infrastructure*** Verify GPO application
* Troubleshooting GPOs

After completing this module, students will be able to:* Describe the components and technologies that compose the Group Policy framework.
* Configure and understand a variety of policy setting types.
* Scope GPOs by using links, security groups, Windows Management Instrumentation (WMI) filters, loopback processing, and preference targeting.

Troubleshoot the application of GPOs.**Module 6: Managing user settings with GPOs**This module describes how to configure Group Policy settings and Group Policy preferences. This includes implementing administrative templates, configuring folder redirection and scripts, and configuring Group Policy preferences.**Lessons*** Implementing administrative templates
* Configuring Folder Redirection and scripts
* Configuring Group Policy preferences

**Lab : Managing user settings with GPOs*** Using administrative templates to manage user settings
* Implement settings by using Group Policy preferences
* Configuring Folder Redirection
* Planning Group Policy (optional)

After completing this module, students will be able to:* Describe administrative templates.
* Configure Folder Redirection and scripts.
* Configure GPO preferences.

**Module 7: Securing AD DS**This module describes how to configure domain controller security, account security, password security, and Group Managed Service Accounts (gMSA).**Lessons*** Securing domain controllers
* Implementing account security
* Audit authentication
* Configuring managed service accounts (MSAs)

**Lab : Securing AD DS*** Implementing security policies for accounts and passwords
* Implementing administrative security policies
* Deploying and configuring a read-only domain controller (RODC)
* Creating and associating a gMSA

After completing this module, students will be able to:* Secure domain controllers.
* Implement password and lockout policies.
* Configure authentication auditing and examine the resulting audit log.
* Configure gMSAs.

**Module 8: Deploying and managing AD CS**This module describes how to implement an AD CS deployment. This includes deploying, administering, and troubleshooting CAs.**Lessons*** Deploying CAs
* Administering CAs
* Troubleshooting and maintaining CAs

**Lab : Deploying and configuring a two-tier CA hierarchy*** Deploying an offline root CA
* Deploying an enterprise subordinate CA

After completing this module, students will be able to:* Plan and implement an AD CS CA infrastructure.
* Administer CAs.
* Troubleshoot and maintain CAs.

**Module 9: Deploying and managing certificates**This module describes how to deploy and manage certificates in an AD DS environment. This involves deploying and managing certificate templates, managing certificate revocation and recovery, using certificates in a business environment, and implementing smart cards.**Lessons*** Deploying and managing certificate templates
* Managing certificate deployment, revocation, and recovery
* Using certificates in a business environment
* Implementing and managing smart cards

**Lab : Deploying certificates*** Configuring certificate templates
* Enrolling and using certificates
* Configuring and implementing key recovery

After completing this module, students will be able to:* Plan and implement a certificate template deployment by using an AD CS CA.
* Describe and perform certificate enrollment, revocation, and recovery.
* Describe and use certificates in business environments.
* Describe how to use certificates with smart cards.

**Module 10: Implementing and administering AD FS**This module describes AD FS and how to configure AD FS in a single-organization scenario and in a partner-organization scenario.**Lessons*** Overview of AD FS
* AD FS requirements and planning
* Deploying and configuring AD FS
* Overview of Web Application Proxy

**Lab : Implementing AD FS*** Configuring AD FS prerequisites
* Installing and configuring AD FS
* Configuring AD FS for a single organization
* Configuring AD FS for federated business partners

After completing this module, students will be able to:* Describe identity federation business scenarios and how AD FS can address them.
* Configure AD FS prerequisites and plan AD FS services.
* Implement AD FS to enable single sign-on (SSO) in various scenarios.
* Describe Web Application Proxy.

**Module 11: Implementing and administering AD RMS**This module describes how to implement an AD RMS deployment. The module provides an overview of AD RMS, explains how to deploy and manage an AD RMS infrastructure, and explains how to configure AD RMS content protection.**Lessons*** Overview of AD RMS
* Deploying and managing an AD RMS infrastructure
* Configuring AD RMS content protection

**Lab : Implementing an AD RMS infrastructure*** Installing and configuring AD RMS
* Configuring AD RMS templates
* Using AD RMS on clients

After completing this module, students will be able to:* Describe AD RMS and how it can help protect content.
* Deploy and manage an AD RMS infrastructure.
* Configure content protection by using AD RMS.

**Module 12: Implementing AD DS synchronization with Azure AD**This module describes how to plan and configure directory syncing between Microsoft Azure Active Directory (Azure AD) and on-premises AD DS. The modules describes various sync scenarios, such as Azure AD sync, AD FS and Azure AD, and Azure AD Connect.**Lessons*** Planning and preparing for directory synchronization
* Implementing directory synchronization by using Azure AD Connect
* Managing identities with directory synchronization

**Lab : Configuring directory synchronization*** Preparing for directory synchronization
* Configuring directory synchronization
* Managing Active Directory users and groups

After completing this module, students will be able to:* Plan and prepare for the deployment of directory synchronization.
* Configure directory synchronization by using Azure AD Connect.
* Manage identities after deploying directory synchronization.

**Module 13: Monitoring, managing, and recovering AD DS**This module describes how to monitor, manage, and maintain AD DS to help achieve high availability of AD DS.**Lessons*** Monitoring AD DS
* Managing the AD DS database
* Recovering AD DS objects

**Lab : Recovering objects in AD DS*** Backing up and restoring AD DS
* Recovering objects in AD DS

After completing this module, students will be able to:* Monitor AD DS.
* Manage the AD DS database.
* Perform AD DS backup and restore operations, and to recover deleted objects from AD DS.
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