

## 70-740: Installation, Storage, and Compute with Windows Server 2019

### Course Overview

This course provides students with the knowledge and skills to install Windows servers in host and computer environments, implement local and enterprise storage solutions, implement Hyper-V virtualization, implement Windows containers, implement high availability, and maintain and monitor server environments.

#### Course Introduction

6m Course

Introduction

#### Chapter 01 - Installing Windows Servers in Host and Computer Environments

3h 4m

Topic A: Determining Windows Server 2016 Installation

Installing Windows Server 2016

Introduction to Windows Server 2016

Windows Server Editions

Hardware Requirements

Hardware Considerations

Installation Options

Options for Managing Servers

Windows PowerShell

Windows PowerShell Basics Demo -

Using Windows PowerShell What's New

Since 2008?

What's New in Windows Server 2016

Topic B: Installing Windows Server 2016 Core and Nano Editions

Planning for Installation

Planning for Nano Server

Understanding Nano Server Roles

Installing Nano Server Roles

Planning for Server Core

Server Core vs. Nano Server

Nano Server Installation

Installation Steps

Alternative Steps to Install Nano Server

Demo - Performing Nano Server Installation

Managing and Configuring Nano

Demo - Configuring Nano Server

Installing Server Core



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Demo - Installing Windows Server 2016  
Demo - Configure the Local Installation  
Upgrades vs. Migrations  
Choosing In-Place Upgrades  
Choosing to Migrate  
Installation and Migration Tools  
Choosing an Activation Model  
Activation Methods  
Topic C: Managing Windows Installations with Windows PowerShell  
Post Installation Tasks  
Topic D: Create, Manage, and Maintain Windows Images to Deploy  
Creating and Managing Deployment Images  
File-Based Imaging  
Windows Image File Format  
Types of Images  
Image-Based Installation Tools  
Creating Install Images  
Considerations for Image Creation  
Windows ADK for Windows 10  
Basic Deployment Process  
Windows Deployment Services  
WDS Components  
Microsoft Deployment Toolkit 2013  
Chapter 01 Review

## **Chapter 02 - Implementing Local and Enterprise Storage Solutions**

3h 29m

Topic A: Managing Disks and Volumes in Windows Server 2016  
Managing Disks and Volumes  
Partition Table Formats  
Disk Types  
Required Disk Volumes  
File Systems  
Resilient File System  
Demo - Working with File Systems  
Virtual Hard Disks  
Managing Virtual Hard Disks  
Selecting Physical Disk Types  
Working with Disk Volumes  
Volume Management Tools  
Demo - Managing Volumes  
Understanding RAID  
Hardware vs. Software RAID



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## RAID Types

### Topic B: Implementing and Managing Storage Spaces

#### Implementing and Managing Storage Spaces

#### Requirements for Storage Spaces

#### Storage Space Features

#### Demo - Configuring Storage Spaces Changes to Storage Spaces

#### Storage Space Usage Scenarios

#### Storage Spaces Direct Deployment Scenarios

#### Managing Storage Spaces

#### Using Windows PowerShell with Storage Spaces

#### Managing Disk Failure with Storage Spaces

#### Monitoring Storage Spaces

### Topic C: Configuring Data Deduplication

#### Overview of Data Deduplication

#### Enhancements in Windows Server 2016

#### Data Deduplication Requirements

#### Data Deduplication Components

#### Data Deduplication Process

#### Planning Data Deduplication

#### Data Deduplication Usage Scenarios

#### Demo - Installing and Configuring Data Deduplication

#### Monitoring and Maintaining Data Deduplication

### Topic D: Understanding Various Types of Storage

#### Overview of Storage Solutions

#### Direct Attached Storage

#### Network Attached Storage

#### Storage Area Networks

#### Comparing Storage Solutions

#### Comparing Storage Technology

### Topic E: Fibre Channel, iSCSI, and Fibre Channel over Ethernet

#### Fibre Channel

#### Fibre Channel Layouts Fibre

#### Channel Considerations

#### iSCSI iSCSI Target Server

#### iSCSI Initiator

### Considerations for Implementing iSCSI Topic F:

#### Understanding iSNS, DCB, and MPIO iSNS

#### iSNS Functions and Installation

#### Data Center Bridging

#### MPIO

### Topic G: Configuring File and Folder Sharing in Windows Server 2016



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Configuring Sharing in Windows Server 2016  
Server Message Block  
Configuring SMB Shares  
Demo - Configuring SMB Shares  
Network File System  
Configuring NFS Shares  
Chapter 02 Review

### **Chapter 03 - Implementing Hyper-V Virtualization**

1h 41m

Topic A: Installing Hyper-V Virtualization  
Introducing Hyper-V  
New Host Features in Windows Server 2016  
New VM Features in Windows Server 2016  
Introducing Windows Server Containers  
Hyper-V Prerequisites  
Nested Virtualization  
Demo - Installing the Hyper-V Role  
Topic B: Configuring Storage and Networking on Hyper-V Hosts  
Using Virtual Hard Disks in Hyper-V  
Virtual Hard Formats  
Virtual Hard Disk Types  
Considerations for Virtual Hard Disks  
Fibre Channel in Hyper-V  
Choosing Storage for Virtual Machines  
Demo - Managing Storage in Hyper-V  
Hyper-V Networks  
Demo - Creating a Virtual Switch  
Considerations for Hyper-V Networks  
New Features in Windows Server 2016  
Topic C: Configuring and Managing Virtual Machines  
Overview of Virtual Machines  
Configuration Versions  
Generation Versions  
Demo - Creating Virtual Machines  
Virtual Machine Settings  
New Options in Windows Server 2016  
Shielded Virtual Machines  
Best Practices for Virtual Machines  
Overview of Virtual Machine Management  
Managing Virtual Machine States  
Working with Checkpoints  
Importing and Exporting VMs



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Windows PowerShell Direct  
Chapter 03 Review

**Chapter 04 - Implementing Windows Containers**

39m

Topic A: Understanding Windows Server and Hyper-V Containers

Overview of Windows Server Containers

Concepts and Definitions

Windows Server Containers

Overview of Hyper-V Containers

Benefits of Hyper-V Containers

Usage Scenarios

Installation Requirements

Topic B: Deploying Windows Server and Hyper-V Containers

Deploying Windows Server Containers

Deploying Hyper-V Containers

Managing Containers

Demo - Installing the Containers Feature

Topic C: Using Docker to Install, Configure, and Manage Containers

Overview of Docker

Support for Docker in Windows

Docker Terminology

Docker Toolbox

Docker Solutions

Management of Docker

Overview of Docker Hub

Docker with Microsoft Azure

Chapter 04 Review

**Chapter 05 - Implementing High Availability**

3h 34m

Topic A: Overview of High Availability and Disaster Recovery

Understanding High Availability

Continuous Availability

Business Continuity

Business Continuity Strategies

Developing Disaster Recovery Plans

Service Level Agreements

Highly Available Networking

Highly Available Storage

High Availability for Virtual Machines

Understanding Live Migration

Live Migration Process



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Hyper-V Replica  
Planning for Hyper-V Replica  
Implementing Hyper-V Replica  
Overview of Windows Backup  
Demo - Installing and Configuring Windows Server Backup  
Overview of Failover Clustering  
High Availability through Failover Clustering  
Failover Clustering Terminology  
Clustering Types and Categories  
Topic B: Implementing Network Load Balancing  
Understanding NLB  
NLB Operation  
NLB Features in Windows Server 2016  
NLB Deployment Requirements  
Demo - Deploying NLB  
NLB Configuration Options  
NLB Host Parameters  
Network Considerations for NLB  
Planning NLB Implementation  
Topic C: Planning and Configuring Failover Clustering  
The Importance of Planning  
Application Considerations  
Storage Considerations  
Storage Requirements  
Hardware Requirements  
Network Requirements  
Demo - Verifying NIC Capabilities  
Additional Planning Considerations  
Introducing Quorum  
Dynamic Quorum  
Testing the Configuration  
Creation Process  
Demo - Creating a Failover Cluster  
Cluster Roles  
Common Cluster Management Tasks  
Cluster Properties  
Failover and Failback Configuration  
Storage Configuration  
Network Configuration  
Configuring Quorum Options  
Demo - Configuring the Quorum  
Topic D: Maintaining a Failover Cluster



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Overview of Maintaining Failover Clusters  
Monitoring Failover Clusters  
Backup and Restore  
Troubleshooting Failover Clusters  
Managing Cluster Communication  
Cluster Aware Updating (CAU)  
Topic E: Troubleshooting Failover Clustering  
Troubleshooting Communication  
Troubleshooting Cluster Name Objects  
Quorum Issues  
Using Event Viewer  
Using Windows PowerShell  
Topic F: Integrating Failover Clustering and Hyper-V High Availability Options  
Host Clustering Overview  
Failover Clustering for Hyper-V in Windows Server 2016  
Hyper-V Cluster Components  
Hyper-V Failover Cluster Prerequisites  
Implementation Process  
Cluster Shared Volumes  
Configuring a Shared Virtual Hard Disk  
Scale Out File Server (SOFS)  
SOFS Requirements  
Topic G: Configuring Site Availability  
Stretch Clustering  
Prerequisites for Stretch Clustering  
Types of Replication  
Overview of Storage Replica  
Quorum Modes for Stretch Clusters  
Chapter 05 Review

**Chapter 06 - Maintaining and Monitoring Server Environments**

1h 35m

Topic A: Windows Server Update Services  
Overview of WSUS  
Deployment Options  
Server Requirements  
Configuring Clients  
Administering WSUS  
Approving Updates  
Demo - Installing and Configuring WSUS  
Topic B: Windows PowerShell Desired State Configuration (DSC)  
Overview of PowerShell DSC  
Requirements for PowerShell DSC  
Implementing PowerShell DSC



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Topic C: Windows Server 2016 Monitoring Tools

Overview of Monitoring Tools

Using Task Manager

Demo - Using Task Manager

Performance Monitor

Demo - Using Performance Monitor

Monitoring Resources and Reliability

Event Viewer

Demo - Using Event Viewer

Monitoring with Server Manager

Chapter 06 Review

Course Closure

**Total Duration: 14h 9m**



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