



## **Diploma in I.T Infrastructure With Datacenter With**

### **Who can do?**

- Fresh University Graduates and like to pursue a career in Server and Network Administration.
- Already working and interested to switch over to field in Networking, Server Administration & Data Center Administration.
- Already working in a Server/Networking position and like to excel in terms of better position and compensation.
- Already working in a Server/Network Position in Companies and want to get the certification in International market.

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**Invest in  
People the  
only Asset  
that Appreciates**

**Program is  
offered by**

**3D EDUCATORS  
22 Years of  
Excellence in  
Training &  
Development  
INT**



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### Course Objective:

This training program is designed and developed by certified and experienced Consultants. The program is completely based on IT Infrastructure, where Networks, Operating System of windows 2012 and its all Major Features shall be covered. The Most important thing of this program is that the candidate is fully equipped with the latest operating systems and its features of Windows 2012 and able to give the Examination of Microsoft MCSA. Further the program also covers the CISCO devices and trained you to give the paper of CCNA. The further features of the programs are to understand the Standards of DATACENTER and Oracle Database Main features and Functions. After Completing of this DIPLOMA, the participant can be able to deploy any datacenter in professional manner with respect to Operating System, Networks and also be able to give the examinations of MICROSOFT and CISCO and easily pass.



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## Table of Content

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# Diploma in I.T Infrastructure Training Program Details

## Inauguration

The Training Program will be inaugurated by a senior member of 3D EDUCATORS

## Program Structure

No of classes per week	<b>01 Class</b>
Duration of each class	<b>2 – Hour</b>
Duration of Course	<b>6 Months</b>

## Other Learning Activities

Classroom Assignment	<b>6</b>
Presentations by Trainees	<b>1</b>

## About the Program Instructor

The “Diploma in IT Infrastructure Datacenter & Oracle Database” Program has been designed and will be conducted the Senior Network Administrator who has Eighteen year experience in the field Computer Networking, Designing and Its Administration.

The trainers are high end consultants, where MSc, MBA, MS, M.Phil., PHD in their disciplines.

Further Trainers who are conducting this program have the following positions in the different organization:

CCIE, CCNP, CCNA  
Telecom Engineers  
CISCO Engineers

At present, faculty is working as head of Information Technology and handling TIER 4 datacenter and also involved in training and development for last eighteen years.

## In Affiliation with







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# Program Syllabus

## BASIC NETWORKING

- Introduction to computer networks
- History of computer network
- Types & classification of computer network
  - LAN
  - MAN
  - WAN
  - CAN
- Introduction to Network Technology & Type of Network Topology
  - Bus Topology
  - Ring Topology
  - Star Topology
- Introduction to Communication & Type of Communication
  - Synchronous & Asynchronous Communication
- Introduction to Communication Medium
  - Coaxial Cable (Thick & Thin Net)
  - Twisted Pair Cable (UTP & STP)
  - Fiber Optic Cable
- Introduction to Transferring Modes
  - Simplex
  - Half Duplex
  - Full Duplex
- Modes of Transmission
  - Analog Transmission
  - Digital Transmission

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- Cabling Microsoft & Cisco Standard
  - Straight Cable
  - Cross Cable
  - Rollover Cable
  
- Introduction to Network Equipment's
  - Hubs
  - Switches
  - Bridges
  - Routers
  
- OSI Reference Model
  - Application Layer
  - Presentation Layer
  - Session Layer
  - Transport Layer
  - Network Layer
  - Data Link Layer
  - Physical Layer
  
- Connection Less & Connection Oriented Protocol
  - How Network Layers Communicate
  
- Introduction to Microsoft Windows Operating System Family
  - The Microsoft Windows Family History
  - The Microsoft Server 2012 Family
  - The Microsoft Server 2008 Family
  - The Microsoft Server 2003 Family
  - Logging on to Windows 2003
  - Installing and Configuration Administrative Tools



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### MCSA COURSE CONTENTS

- Identify the steps to install and configure servers
- Identify the steps to install and administer Active Directory
- Identify the steps to configure Hyper-V
- Identify the steps to deploy and configure core network services
- Identify the steps to create and manage group policy

### Installing and Configuring Windows Server 2022 Installing and Configuring Windows Server 2022 Module 1

#### Course Introduction

- Instructor Introduction
- Course Overview
- Prerequisites
- Certification Overview2

### Installing and Configuring Windows Server 2022 Module 2 Best Course Practices

- Lab Setup
- Building Your Own Environment
- Presentation Types
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 3 Windows Server 2022 Installation

- Available Editions
- Requirements
- Server Manager Overview
- Best Practice Analyzer
- Installing Server 2022



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- Performing a Windows Server 2022 Installation
- Windows Server 2022 Standard Configurations
- Server Manager Roles
- Remote Management Configuration
- Installation Review
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 4 Windows Server 2022 CORE

- Introduction to Windows Server 2022 CORE
- Minimum Server Interface
- Server Core Management
- CORE Roles
- Installation Options
- Installing and Configuring Server CORE
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 5 Windows Server 2022 Server Manager

- Dashboard Overview
- Servers
- Roles and Features
- Server Manager Creation and Configuration
- Server Manager Toolbar
- Local Server Management
- Configuring Server Manager Toolbar
- Chapter Review



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## Installing and Configuring Windows Server 2022 Module 6 Server Manager PowerShell

- Server Core Management Tools
- Windows PowerShell ISE Tool3

## Installing and Configuring Windows Server 2022 Module 7 PowerShell 101 Basics

- What is PowerShell
- Remoting
- Commands Cmdlets
- Server Administration
- Remote Server Administration
- PowerShell ISE
- Scripting
- More PowerShell Features
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 8 Windows Server 2022 Network DHCP

- Networking
- Network Components
- TCP/IPDHCP
- DHCP
- Installation
- IP and DHCP Tools
- DHCP Configuration
- Chapter Review



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### Installing and Configuring Windows Server 2022 Module 9 Windows Server 2022 Network Configuration IPv4

- IPv4 Basics
- IPv4 Addressing
- IPv4 Sub netting
- Network Adapter Settings
- Network Settings through the GUI
- Network Settings from a Command Line
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 10 Windows Server 2022 Network Configuration IPv6

- IPv6 Basics
- IPv6 Addressing
- IPv6 Simplification and Equivalents
- IPv6 Network Configuration
- Transition Technologies
- Configuring ISATAP
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 11 Windows Server 2022 Network DNS

- DNS Basics
- Zone Records and Types
- Records
- Name Resolution
- DNS Installation and Configuration
- DNS Query
- DNS Tools
- Working with DNS Tools
- Chapter Review



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### Installing and Configuring Windows Server 2022 Module 12 Windows Server 2022 Hyper-V

- Basic Overview of Virtualization
- What is Server Virtualization?
- Desktop Virtualization
- Presentation Virtualization
- Application Virtualization
- USV Virtualization
- Cloud Computing
- System Requirements
- Installing the Hyper-V Role
- Installing Hyper-V
- Configuring Hyper-V
- Managing Virtual Networks
- Configuration Settings In Hyper-V
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 13 Windows Server 2022 Active Directory Domain Services

- Active Directory Accounts
- Active Directory Administration
- Creating Active Directory User Account
- Active Directory Templates
- Creating a Template
- Command Line Tools
- PowerShell Scripting
- Adding Users and Groups In PowerShell
- Chapter Review



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### Installing and Configuring Windows Server 2022 Module 14 Windows Server 2022 AD Objects and Groups

- Groups
- Group Scope
- Default Groups
- Creating Groups
- AD DS Permissions
- AD DS Delegation
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 15 Windows Server 2022 Local Storage

- Active Directory Accounts
- Storage Basics
- Drive Types
- Volumes5
- File System
- Creating Mounts and Links
- Chapter Review

### Installing and Configuring Windows Server 2022 Module 16 Windows Server 2022 Storage Spaces

- Storage Spaces
- High Available Virtual Disk
- Advanced Configuration
- Advanced Storage Space Management
- Working with Storage Space
- Chapter Review



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## Installing and Configuring Windows Server 2022 Module 17 Windows Server 2022 Files Folders Shadow Copy

- NTFS Permissions
- File/Folder Permissions
- File/Folder Rights
- Effective Permissions
- File/Folder Creation and Configuration
- Shadow Copies
- Creating and Restoring Shadow Copies
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 18 Windows Server 2022 Group Policy Object Basics

- Defining GPO
- GPO History
- Practical Application
- GPO Settings
- GPO Types
- GPO Overview
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 19 Windows Server 2022 GPO Central Store

- Storage of GPO
- Central Store
- Administrative Templates
- Multiple Local GPO
- Policy vs. Preference
- Managed vs. Unmanaged
- Creating a Central Store
- Chapter Review

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## Installing and Configuring Windows Server 2022 Module 20 Windows Server 2022 GPO Starter

- Building GPOs
- Available Settings6
- Export/Import
- Delegation
- Creating GPOs and Using a Starter GPO
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 21 Windows Server 2022 GPO Secure

- Security 101
- Types
- Security Template
- Rights
- Monitor
- Implementing Server Security
- Auditing File System Access
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 22 Windows Server 2022 GPO Application and Firewall

- Application Restrictions
- Software Restriction Policy
- AppLocker
- Creating AppLocker Rules
- Windows Firewall
- Windows Firewall Advanced Security
- Chapter Review

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## Installing and Configuring Windows Server 2022 Module 23 Windows Server 2022 Printing

- Network Printing
- Enhanced Point and Print
- V3 and V4 Drivers
- Printer Security
- Printer Pooling
- Branch Office Direct
- Installing and Configuring Printer Services
- Chapter Review

## Installing and Configuring Windows Server 2022 Module 24 Certification Preparation Review

- Microsoft Website Exam Overview
- Instant Expert
- Microsoft Official Curriculum
- Study Recommendation and Exam Preparation
- Chapter Review7



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## Microsoft 70-411 Administering Windows Server 2022

### Administering Windows Server 2022 Module 1 Course Introduction

- Instructor Introduction
- Course Overview
- Microsoft Exam Information
- Prerequisites
- Certification Overview

### Administering Windows Server 2022 Module 2 Windows Server 2022 Course Components

- Making the Best of the Course
- Lab Setup
- Building Your Own Environment
- Presentation Types
- Chapter Review

### Administering Windows Server 2022 Module 3 Windows Server 2022 Active Directory Domain Services

- Domain Controller
- Virtual Domain Controller
- Deploying and Configuring
- Read Only Domain Controller (RODC)
- Installing RODC
- Chapter Review



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## Administering Windows Server 2022 Module 4 Windows Server 2022 AD DS and DB Management

- Active Directory
- DS Administrative Center
- DS with PowerShell
- AD DS Database
- DC States
- Using Ntdsutil
- Recycle Bin
- Using Active Directory Recycle Bin
- Chapter Review

## Administering Windows Server 2022 Module 5 Windows Server 2022 AD DS Account Creation

- User Accounts
- CSVDE Account Creation
- Command Line LDIFDE
- Command Line PowerShell
- Chapter Review8

## Administering Windows Server 2022 Module 6 Windows Server 2022 AD DS Account Management

- User Account Settings and Policies
- Password Policy
- Lockout Settings
- Password Policy and Account Lockout Settings
- Managing Service Accounts
- Managing Service Accounts Demonstration
- Chapter Review



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### Administering Windows Server 2022 Module 7 Windows Server 2022 Group Policy Object Creation

- Defining GPO
- Practical GPO Application
- GPO Types
- GPO Domain
- Implementing Group Policy
- Chapter Review

### Administering Windows Server 2022 Module 8 Windows Server 2022 GPO Management

- Administrative Templates
- .adm Files
- Central Store
- Folder Redirection
- Scripts
- Using Scripts and Folder Redirection
- Chapter Review

### Administering Windows Server 2022 Module 9 Windows Server 2022 GPO Software

- Basic Software Deployment
- Microsoft Installer
- Deployment Methods
- Upgrades
- Managing Software with GPO
- Chapter Review



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### Administering Windows Server 2022 Module 10 Windows Server 2022 GPO Processing

- Basic Process
- Process Order
- Inheritance and/or Precedence
- Windows Management Instrumentation (WMI) Filters
- Slow Link No Link
- GPO Processing
- Chapter Review9

### Administering Windows Server 2022 Module 11 Windows Server 2022 Data Fields

- Files
- File Server Resource Manager (FSRM)
- File Tasks
- FSRM Configuration
- Chapter Review

### Administering Windows Server 2022 Module 12 Windows Server 2022 Distributed File System

- File Sharing with DFS
- DFS Namespace
- DFS Replication
- Installing DFS
- Chapter Review

### Administering Windows Server 2022 Module 13 Windows Server 2022 Security and Encryption

- Encrypting File System Basics
- EFS Process
- EFS Recovery
- Advanced Auditing
- EFS and Auditing Demonstration
- Chapter Review



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### Administering Windows Server 2022 Module 14 Windows Server 2022 Domain Name System

- DNS Overview
- Installing and Managing DNS
- Resource Records
- Zone Types
- Zone Transfers
- Creating Zones and Zone Transfers
- DNS Management and Troubleshooting
- Monitoring and Troubleshooting

### Administering Windows Server 2022 Module 15 Windows Server 2022 Access and Authentication

- Network Access
- Authentication vs. Authorization
- Network Policy and Access Roles
- Creating a Network Access Role
- Network Policy
- Policy Processing and Configuration
- Network Policy Configuration
- Chapter Review10

### Administering Windows Server 2022 Module 16 Windows Server 2022 VPN and Direct Access

- Virtual Private Network
- Tunnel Protocols
- Authentication Methods
- Connection Manager Administration KIT
- Configuring a VPN Server
- Configuring a VPN Client
- Direct Access VS VPN
- DA Components
- Configuring Direct Access
- Chapter Review





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### Administering Windows Server 2022 Module 17 Windows Server 2022 Network Policy Server

- NPS Overview
- Radius Server
- Radius Proxy
- Network Access Protection
- Connection Request
- Authentication
- Monitoring
- Installing, Configuring and Troubleshooting NPS
- Chapter Review

### Administering Windows Server 2022 Module 18 Windows Server 2022 Network Access Protection

- NAP Overview
- Usage
- NAP Components
- NAP Policing
- System Health
- Remediation
- NAP Monitoring
- Implementing NAP
- Chapter Review

### Administering Windows Server 2022 Module 19 Windows Server 2022 Windows Server Update Services

- WSUS Overview
- WSUS Process
- Deployment Components
- WSUS Management
- WSUS Installation and Configuration
- Chapter Review



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### Administering Windows Server 2022 Module 20 Windows Server 2022 Windows Deployment Services

- WDS Overview
- WDS Components
- WDS Installation
- WDS Deployment
- WDS Administration
- Installing and Configuring WDS
- Chapter Review

### Administering Windows Server 2022 Module 21 Windows Server 2022 Monitoring

- Performance Monitor
- Task Manager
- Resource Monitor
- Event Viewer
- Monitoring Tools
- Chapter Review

### Administering Windows Server 2022 Module 22 Program Review

- Certification Overview
- Study Recommendations
- Exam Preparation
- Course Closing

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## Configuring Advanced Windows Server 2022 Services

### Configuring Advanced Windows Server 2022 Services Module 1

#### Course Introduction

- Instructor Introduction
- Course Overview
- What You Should Know
- Certification Overview
- Microsoft Learning Quote and Certification Audience

### Configuring Advanced Windows Server 2022 Services Module 2 Windows Server 2022 Course Specifics

- Lab Setup
- Lab Layout
- Demonstration and Presentation Types

### Configuring Advanced Windows Server 2022 Services Module 3 Windows Server 2022 Active Directory Domain Services

- Domain Tree
- Domain Forest
- Single Domain
- Multiple Domains
- Functional Level
- Upgrade Migrate
- Installing a Domain Controller
- Chapter Review12



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### Configuring Advanced Windows Server 2022 Services Module 4 Windows Server 2022 ADDS Domains and Forests

- Trust Relationships
- External Trust
- Forest Trust
- Realm Trust
- Shortcut Trust
- Authentication
- SID Filtering
- Name Suffix Routing
- Creating a Child Domain and Building a Trust

### Configuring Advanced Windows Server 2022 Services Module 5 Windows Server 2022 ADDS Sites

- Active Directory Sites
- Implementing ADD
- SRV Records
- Locating Local DC
- ISTG
- Active Directory Site Setup

### Configuring Advanced Windows Server 2022 Services Module 6 Windows Server 2022 ADDS Replication

- AD Parts
- Types of Replication
- Conflicts
- Sysvol
- Site Topology and Site Links
- Group Membership Caching
- Tools
- Site Replication





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### Configuring Advanced Windows Server 2022 Services Module 7 Windows Server 2022 Networking DNS

- DNS Administration
- Management
- Queries
- Global Name Zone
- DNS Security
- DNS Advanced Configuration

### Configuring Advanced Windows Server 2022 Services Module 8 Networking DHCP

- DHCP Basics
- Address Request
- Play Nice with DNS
- Scopes
- DHCP IPv613
- Name Protection
- DHCP Failover
- DHCP Advanced Configuration

### Configuring Advanced Windows Server 2022 Services Module 9 Networking IPAM

- IPAM Basics
- Reason to Use IPAM
- Components
- Requirements
- Security
- Management and Monitoring
- IPAM Installation and Configuration



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### Configuring Advanced Windows Server 2022 Services Module 10 Data: Advanced File

- File and Storage Basics
- File Server Resource Manager
- File Classification
- New Options
- File Classification Configuration
- Enabling Data Reduplication

### Configuring Advanced Windows Server 2022 Services Module 11 Windows Server 2022: Dynamic Access Control

- DAC Basics
- New vs Old
- Central Access Policy
- Implementing DAC
- Deploying DAC
- Implementation of Dynamic Access Control

### Configuring Advanced Windows Server 2022 Services Module 12 Windows Server 2022 Data: Storage

- Storage Basics
- iSCSI Parts
- iSCSI Security
- Branch Cache
- Configuring SCSI and iSCSI Storage
- Configuring Branch Cache

### Configuring Advanced Windows Server 2022 Services Module 13 Business Continuity: Backups

- Backup Basics
- Server Backup
- Online Backup
- Recovery
- Data Protection Manager
- Implementing a Windows Server Backup<sup>14</sup>



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### Configuring Advanced Windows Server 2022 Services Module 14 Operating System Deployment

- Task Sequence Creation
- Task Sequence Deployment
- implementing an In-place Upgrade

### Configuring Advanced Windows Server 2022 Services Module 15 High Availability Network Load Balancing

- Network Load Balancing Basics
- NLB Functionality
- NLB New Features
- NLB Deployment
- Additional NLB Configuration
- Planning for NLB
- Securing NLB
- NLB Cluster Setup
- Configuring NLB Cluster
- Host Availability

### Configuring Advanced Windows Server 2022 Services Module 16 High Availability Failover Clustering

- High Availability Basics
- HA New Features
- HA Components
- Features CSV
- Quorum (Modes)
- Failover Clustering
- Cluster Deployment Requirements
- Failover Cluster Setup and Configuration
- HA File Server Setup and Configuration
- Cluster Aware Updating



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### Configuring Advanced Windows Server 2022 Services Module 17 HA Hypervisor and VM

- HA Basics with Hyper-V
- Failover Clustering with Hyper-V
- New Features
- Migration
- SCCM
- Best Practices
- HV Replica
- Virtual Machine Cluster Setup
- Failover Cluster Configuration for Hyper-V

### Configuring Advanced Windows Server 2022 Services Module 18 Access and Identity: Certificates

- Public Key Infrastructure Basics
- Components PKI Solution15
- AD CS New Features
- Certificate Templates
- Enrollment Types
- Certificate Revocation List
- Key Recovery
- Building a Root CA
- Deploying and Configuring an Enterprise Subordinate CA
- Managing Certificate Templates
- Certificate Revocation

### Configuring Advanced Windows Server 2022 Services Module 19 Active Directory Federation Services

- AD FS Services
- Web Security Components
- AD FS New Features
- SSO
- Deployment
- Claims





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- AD FS Setup and Configuration
- Installing AD FS Role
- Installing AD FS for a Single Organization
- Configuring AD Claims Provider Trust

### Configuring Advanced Windows Server 2022 Services Module 20 Active Directory Rights Management

- AD RMS Basics
- RMS Usage
- AD RMS Components
- Certificates/Licenses
- AD RMS Process
- AD RMS Deployment
- Rights Policy Templates
- Creating a Super User Group and Service Group
- Installing and Configuring AD RMS
- Build and Deploy a Policy Template
- Implementing RMS Trust Policies
- Anonymous Access Setup
- Creating a Rights Protected Document

### Configuring Advanced Windows Server 2022 Services Module 21 Course Review

- Course Review
- Certification Overview
- Exam Preparation



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### THE PATH TO CCNA CERTIFICATION:

#### CCNA TRAINING

The Introduction to Cisco Networking Technologies (INTRO) and the Interconnecting Cisco Networking Devices (ICND) courses prepare candidates for the CCNA certification. Candidates may choose to take a single CCNA exam (640-802) to pass or they may pursue the two-exam approach by taking the INTRO (640-822) exam and ICND (640-816) to complete the certifications

#### **Required Exam(s) Recommended Training**

200-301 CCNA Interconnecting Cisco Networking Devices Part 1 (ICND1)  
Interconnecting Cisco Networking Devices Part 2 (ICND2)

#### **CCNA**

The CCNA certification (Cisco Certified Network Associate) indicates a foundation in and apprentice knowledge of networking. CCNA certified professionals can install, configure and operate LAN, WAN, and dial access services.



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### Describe how a network works

- Describe the purpose and function of various network and devices
- Select the components required to meet a network specification
- Use the OSI and TCP/IP models and their associated protocols to explain how data flows in a network
- Describe common networked applications including web applications
- Describe the purpose and basic operation of the protocols in the OSI and TCP models
- Describe the impact of applications (Voice Over IP and Video Over IP) on a network
- Interpret network diagrams
- Determine the path between two hosts across a network
- Describe the components required for network and Internet communications
- Identify and correct common network problems at layers 1, 2, 3 and 7 using a layered model approach
- Differentiate between LAN/WAN operation and features

### Configure, verify and troubleshoot a switch with VLANs and interswitch communications

- Explain the technology and media access control method for Ethernet networks
- Explain network segmentation and basic traffic management concepts
- Explain basic switching concepts and the operation of Cisco switches
- Perform and verify initial switch configuration tasks including remote access management
- Verify network status and switch operation using basic utilities (including: ping, traceroute, telnet, SSH, arp, ipconfig), SHOW & DEBUG commands
- Identify, prescribe, and resolve common switched network media issues, configuration issues, auto negotiation, and switch hardware failures
- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing



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- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation
- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network.
- Implement basic switch security (including: port security, trunk access, management vlan other than vlan1, etc.)
- Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts

### Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network.

#### • Describe the operation and benefits of using private and public IP addressing

- Explain the operation and benefits of using DHCP and DNS
- Configure, verify and troubleshoot DHCP and DNS operation on a router.(including: CLI/SDM)
- Implement static and dynamic addressing services for hosts in a LAN environment
- Calculate and apply an addressing scheme including VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4 (including: protocols, dual stack, tunneling, etc).
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations





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### Configure, verify, and troubleshoot basic router operation and routing on Cisco device

- Describe basic routing concepts (including: packet forwarding, router lookup process)
- Describe the operation of Cisco routers (including: router bootup process, POST, router components)
- Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts
- Configure, verify, and troubleshoot RIPv2
- Access and utilize the router to set basic parameters.(including: CLI/SDM)
- Connect, configure, and verify operation status of a device interface
- Verify device configuration and network connectivity using ping, traceroute, telnet, SSH or other utilities
- Perform and verify routing configuration tasks for a static or default route given specific routing requirements
- Manage IOS configuration files. (Including: save, edit, upgrade, restore)
- Manage Cisco IOS.
- Compare and contrast methods of routing and routing protocols
- Configure, verify, and troubleshoot OSPF
- Configure, verify, and troubleshoot EIGRP
- Verify network connectivity (including: using ping, traceroute, and telnet or SSH)
- Troubleshoot routing issues
- Verify router hardware and software operation using SHOW & DEBUG commands.
- Implement basic router security

### Explain and select the appropriate administrative tasks required for a WLA

- Describe standards associated with wireless media (including: IEEE WI-FI Alliance, ITU/FCC)
- Identify and describe the purpose of the components in a small wireless network. (Including: SSID, BSS, ESS)
- Identify the basic parameters to configure on a wireless network to ensure that devices connect to the correct access point

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- Compare and contrast wireless security features and capabilities of WPA security (including: open, WEP, WPA-1/2)
- Identify common issues with implementing wireless networks. (Including: Interface, misconfiguration)

## Identify security threats to a network and describe general methods to mitigate those threats

- Describe today's increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats
- Explain general methods to mitigate common security threats to network devices, hosts, and applications
- Describe the functions of common security appliances and applications
- Describe security recommended practices including initial steps to secure network devices

## Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network.

- Describe the purpose and types of ACLs
- Configure and apply ACLs based on network filtering requirements.(including: CLI/SDM)
- Configure and apply an ACLs to limit telnet and SSH access to the router using (including: SDM/CLI)
- Verify and monitor ACLs in a network environment
- Troubleshoot ACL issues
- Explain the basic operation of NAT
- Configure NAT for given network requirements using (including: CLI/SDM)
- Troubleshoot NAT issues



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### Implement and verify WAN links

- Describe different methods for connecting to a WAN
- Configure and verify a basic WAN serial connection
- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)

### DATACENTER KEY WORKS

- Importance of power in a data center
- Key terms
- Basic power concepts
- Common power problems
- Components of a power protection system
- UPS technology
- UPS batteries
- Generators
- Static Transfer Switches
- PDU
- Circuit breakers
- Power distribution in the rack
- Power consumption in the data center
- Improving data center efficiency
- Raise Flooring Concepts
- Cabling Concepts
- Structured Cabling
- Cable Tray Laying Concepts
- Cooling and Humidity Handling



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## DATABASE IMPLEMENTATION & MAINTENANCE

- Architecture
- Installing the Oracle Database Software
- Creating an Oracle Database
- Managing the Oracle Instance
- Managing Database Storage Structures

### Exploring the Oracle Database Architecture

- Explain the Memory Structures
- Describe the Process Structures
- Overview of Storage Structures

### Preparing the Database Environment

- Identify the tools for Administering an Oracle Database
- Plan an Oracle Database installation
- Install the Oracle software by using Oracle Universal Installer (OUI)

### Creating an Oracle Database

- Create a database by using the Database Configuration Assistant (DBCA)

### Managing the Oracle Instance

- Setting database initialization parameters
- Describe the stages of database startup and shutdown
- Using alert log and trace files
- Using data dictionary and dynamic performance views





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### Configuring the Oracle Network Environment

- Configure and Manage the Oracle Network
- Using the Oracle Shared Server architecture

### Managing Database Storage Structures

- Overview of tablespace and data files
- Create and manage tablespaces

### Managing Routine Backups

- Hot Backups
- Cold Backups
- Incremental Backups
- Restoring Backups



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## Terms & Conditions

### WITHDRAWAL FROM THE DIPLOMA/CERTIFICATION

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A disciplinary action, leading to rustication, will be taken against students whose conduct is found objectionable at any time during the course of study. Reference will be made to 3D Educators code of conduct.

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The performance of students is evaluated through continuous observation of a student's performance in the Diploma – class participation, submission of assignments, quizzes and exercises.



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The student will be examined through three hourly exams conducted at the midterm and a final exam at the end of the program. Total marks for passing the Diploma will be 60 out of a total of 100.

Students who do not meet the attendance or any other eligibility criteria will not be allowed to appear in the final examination.

The following grading plan will be applicable for the Diploma:

<b>A</b>	<b>87 - 100</b>
<b>B+</b>	<b>81 -86</b>
<b>B</b>	<b>72 - 80</b>
<b>C+</b>	<b>66 - 71</b>
<b>C</b>	<b>60 - 65</b>
<b>F</b>	<b>below 60</b>



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# CERTIFICATE

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Dr. Muhammad Allama Iqbal  
*Has Successfully Completed the 32-Hours Training of the*  
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