



# Global Institute of Cyber Security & Ethical Hacking



(GICSEH Data Securities Pvt. Ltd.)

## Diploma in Networking Infrastructure & Cloud Administration 2020

A+ CompTIA Training

MANAGEN

FIED COMP

- N+ CompTIA Training & Certification
- CCNA 200-301 Cisco Certified Network Associate
- MCSA Server 2016 Windows Administration
- RHCSA RHCE Linux 8.0 Administration
- AZ 104 Azure Cloud & Administration
- AWS Amazon Web Services Cloud
- CCNP Enterprise Cisco Certified Network Professional
- CCIE Enterprise & Infrastructure
- Server 2016 Security & Administration
- Advance Cloud Administration
- MCSE Server 2016 Server
- Interview Preparation & Global Exam Preparation
- Live Project, Industrial Training & Job Placement

For More Information Can Call or WhatsApp on +918800955639

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# Syllabus or Outline: -

# A+ Training Course Syllabus

#### A+ Course Content

#### **Introduction to Computers**

- A Brief History of Computers
- Desktop Computer System Components and Their Functions
- Software and Firmware
- Numbering Systems

#### Setting Up a Personal Computer

- Install Video Output Devices
- Install PS/2 Devices
- Install Parallel Devices
- Install Serial Devices
- Install Game and Sound Devices
- Install USB Devices
- Install FireWire Devices
- Connect Wireless Devices

#### Installing or Removing Internal Hardware

- Establish an ESD
- free Work Area
- Install or Remove Adapter Cards
- Install a Network Adapter and Cable
- Install or Remove IDE Drives
- Install or Remove Internal SCSI Drives
- Install External SCSI Devices
- RAID

#### **Upgrading System Components**

- Add Memory
- Upgrade the CPU
- Add a CPU
- Upgrade the System BIOS
- Upgrade the Power Supply
- Upgrade the System Board
- Decide When to Upgrade

#### **Supporting Portable Computing Devices**

- Connect External Peripherals to a Portable Computer
- Install or Remove Portable Computing Device Drives
- Install or Remove PCMCIA Cards
- Install or Remove Mini-PCI Cards
- Install or Add Memory to a Portable Computing Device
- Connect PDAs to Computers

#### **Performing Preventative Maintenance**

- Hard Disk Maintenance
- Perform Printer Maintenance
- Use a UPS
- Clean Peripheral Components
- Clean Internal System Components
- Dispose of Computer Equipment

#### **Troubleshooting Device Problems**

- Correct Monitor Problems
- Correct Input Device Problems
- Correct Adapter Card and PC Card Problems
- Correct Hard Drive Problems
- Correct Internal Removable Media Drive Problems
- Correct CD or DVD Drive Problems
- Correct Printer Problems

#### **Troubleshooting System Problems**

- Correct Network Connection Problems
- Correct Modem Problems
- Correct Power Problems
- Correct Boot Problems
- Correct Memory Problems
- Correct System Board Problems
- Correct Portable System Problems
- Diagnose System Problems

# N+ Training Course Content

#### **Basic Network Theory**

- Network Definitions
- Network Models
- Connectivity
- Network Addressing
- Signaling Concepts

#### **Network Connectivity**

- The Data Package
- Establishing a Connection
- Reliable Delivery
- Network Connectivity
- Noise Control
- Building Codes
- Connection Devices

#### **Advanced Network Theory**

• The OSI Model

- Ethernet
- Network Resources
- Token Ring/IEEE 802.5
- FDDI
- Wireless Networking

#### Common Network Protocols

- Families of Protocols
- NetBEUI
- Bridges and Switches
- The TCP/IP Protocol
- Building a TCP/IP Network
- The TCP/IP Suite

#### **TCP/IP Services**

- Dynamic Host Configuration Protocol
- DNS Name Resolution
- NetBIOS Support
- SNMP
- TCP/IP Utilities
- Upper Layer Services: FTP

#### **Alternate Network Protocols**

- Introduction to IPX/SPX
- AppleTalk
- Introduction to Apple Open Transport
- Introduction to IPv6

#### Network LAN Infrastructure

Implement LAN Protocols on a Network

- IP Routing
- IP Routing Tables
- Router Discovery Protocols
- Data Movement in a Routed Network
- Virtual LANs (VLANs)

#### Network WAN Infrastructure

- The WAN Environment
- WAN Transmission Technologies
- WAN Connectivity Devices
- Voice Over Data Services

#### Remote Networking

- Remote Networking
- Remote Access Protocols
- VPN Technologies

#### **Network Security**

• Introduction to Network Security

- Virus Protection
- Local Security
- Network Access
- Internet Security

#### Disaster Recovery

- The Need for Disaster Recovery
- Disaster Recovery Plan
- Data Backups
- Fault Tolerance

## CCNA 200-301 Syllabus –

- Identify the components of a computer network and describe their basic characteristics
- Understand the model of host-to-host communication
- Describe the features and functions of the Cisco Internetwork Operating System (IOS®) software
- Describe LANs and the role of switches within LANs
- Describe Ethernet as the network access layer of TCP/IP and describe the operation of switches
- Install a switch and perform the initial configuration
- Describe the TCP/IP Internet layer, IPv4, its addressing scheme, and subnetting
- Describe the TCP/IP Transport layer and Application layer
- Explore functions of routing
- Implement basic configuration on a Cisco router
- Explain host-to-host communications across switches and routers
- Identify and resolve common switched network issues and common problems associated with IPv4 addressing
- Describe IPv6 main features and addresses, and configure and verify basic IPv6 connectivity
- Describe the operation, benefits, and limitations of static routing
- Describe, implement, and verify Virtual Local Area Networks (VLANs) and trunks

- Describe the application and configuration of inter-VLAN routing
- Explain the basics of dynamic routing protocols and describe components and terms of Open Shortest Path First (OSPF)
- Explain how Spanning Tree Protocol (STP) and Rapid Spanning Tree Protocol (RSTP) work
- Configure link aggregation using EtherChannel
- Describe the purpose of Layer 3 redundancy protocols
- Describe basic WAN and VPN concepts
- Describe the operation of Access Control Lists (ACLs) and their applications in the network
- Configure Internet access using Dynamic Host Configuration Protocol (DHCP) clients and explain and configure Network Address Translation (NAT) on Cisco routers
- Describe basic Quality of Service (QoS) concepts
- Describe the concepts of wireless networks, which types of wireless networks can be built, and how to use Wireless LAN Controllers (WLCs)
- Describe network and device architectures and introduce virtualization
- Introduce the concept of network programmability and Software-Defined Networking (SDN) and describe smart network management solutions such as Cisco DNA Center<sup>™</sup>, Software-Defined Access (SD-Access), and Software-Defined Wide Area Network (SD-WAN)
- Configure basic IOS system monitoring tools
- Describe the management of Cisco devices
- Describe the current security threat landscape
- Describe threat defense technologies
- Implement a basic security configuration of the device management plane
- Implement basic steps to harden network devices
- Get Started with Cisco Command-Line Interface (CLI)
- Observe How a Switch Operates

- Perform Basic Switch Configuration
- Implement the Initial Switch Configuration
- Inspect TCP/IP Applications
- Configure an Interface on a Cisco Router
- Configure and Verify Layer 2 Discovery Protocols
- Implement an Initial Router Configuration
- Configure Default Gateway
- Explore Packet Forwarding
- Troubleshoot Switch Media and Port Issues
- Troubleshoot Port Duplex Issues
- Configure Basic IPv6 Connectivity
- Configure and Verify IPv4 Static Routes
- Configure IPv6 Static Routes
- Implement IPv4 Static Routing
- Implement IPv6 Static Routing
- Configure VLAN and Trunk
- Troubleshoot VLANs and Trunk
- Configure a Router on a Stick
- Implement Multiple VLANs and Basic Routing Between the VLANs
- Configure and Verify Single-Area OSPF
- Configure and Verify EtherChannel
- Improve Redundant Switched Topologies with EtherChannel
- Configure and Verify IPv4 ACLs
- Implement Numbered and Named IPv4 ACLs
- Configure a Provider-Assigned IPv4 Address

- Configure Static NAT
- Configure Dynamic NAT and Port Address Translation (PAT)
- Implement PAT
- Log into the WLC
- Monitor the WLC
- Configure a Dynamic (VLAN) Interface
- Configure a DHCP Scope
- Configure a WLAN
- Define a Remote Access Dial-In User Service (RADIUS) Server
- Explore Management Options
- Explore the Cisco DNA<sup>™</sup> Center
- Configure and Verify NTP
- Configure System Message Logging
- Create the Cisco IOS Image Backup
- Upgrade Cisco IOS Image
- Configure WLAN Using Wi-Fi Protected Access 2 (WPA2) Pre-Shared Key (PSK) Using the GUI
- Secure Console and Remote Access
- Enable and Limit Remote Access Connectivity
- Secure Device Administrative Access
- Configure and Verify Port Security
- Implement Device Hardening

# CCNP Enterprise Syllabus –

- Illustrate the hierarchical network design model and architecture using the access, distribution, and core layers
- Compare and contrast the various hardware and software switching mechanisms and operation, while defining the Ternary Content Addressable Memory (TCAM) and Content Addressable Memory (CAM), along with process switching, fast switching, and Cisco Express Forwarding concepts
- Troubleshoot Layer 2 connectivity using VLANs and trunking
- Implementation of redundant switched networks using Spanning Tree Protocol
- Troubleshooting link aggregation using Etherchannel
- Describe the features, metrics, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP)
- Implementation and optimization of Open Shortest Path First (OSPF)v2 and OSPFv3, including adjacencies, packet types, and areas, summarization, and route filtering for IPv4 and IPv6
- Implementing External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking
- Implementing network redundancy using protocols including Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)
- Implementing internet connectivity within Enterprise using static and dynamic Network Address Translation (NAT)
- Describe the virtualization technology of servers, switches, and the various network devices and components
- Implementing overlay technologies such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), VPN, and Location Identifier Separation Protocol (LISP)
- Describe the components and concepts of wireless networking including Radio Frequency (RF) and antenna characteristics, and define the specific wireless standards

- Describe the various wireless deployment models available, include autonomous Access Point (AP) deployments and cloud-based designs within the centralized Cisco Wireless LAN Controller (WLC) architecture
- Describe wireless roaming and location services
- Describe how APs communicate with WLCs to obtain software, configurations, and centralized management
- Configure and verify Extensible Authentication Protocol (EAP), WebAuth, and Pre-shared Key (PSK) wireless client authentication on a WLC
- Troubleshoot wireless client connectivity issues using various available tools
- Troubleshooting Enterprise networks using services such as Network Time Protocol (NTP), Simple Network Management Protocol (SNMP), Cisco Internetwork Operating System (Cisco IOS®) IP Service Level Agreements (SLAs), NetFlow, and Cisco IOS Embedded Event Manager
- Explain the use of available network analysis and troubleshooting tools, which include show and debug commands, as well as best practices in troubleshooting
- Configure secure administrative access for Cisco IOS devices using the Command-Line Interface (CLI) access, Role-Based Access Control (RBAC), Access Control List (ACL), and Secure Shell (SSH), and explore device hardening concepts to secure devices from less secure applications, such as Telnet and HTTP
- Implement scalable administration using Authentication, Authorization, and Accounting (AAA) and the local database, while exploring the features and benefits
- Describe the enterprise network security architecture, including the purpose and function of VPNs, content security, logging, endpoint security, personal firewalls, and other security features
- Explain the purpose, function, features, and workflow of Cisco DNA Center™ Assurance for Intent-Based Networking, for network visibility, proactive monitoring, and application experience

- Describe the components and features of the Cisco SD-Access solution, including the nodes, fabric control plane, and data plane, while illustrating the purpose and function of the Virtual Extensible LAN (VXLAN) gateways
- Define the components and features of Cisco SD-WAN solutions, including the orchestration plane, management plane, control plane, and data plane
- Describe the concepts, purpose, and features of multicast protocols, including Internet Group Management Protocol (IGMP) v2/v3, Protocol-Independent Multicast (PIM) dense mode/sparse mode, and rendezvous points
- Describe the concepts and features of Quality of Service (QoS), and describe the need within the enterprise network
- Explain basic Python components and conditionals with script writing and analysis
- Describe network programmability protocols such as Network Configuration Protocol (NETCONF) and RESTCONF
- Describe APIs in Cisco DNA Center and vManage

Knowledge and skills you should have before attending this course:

- Implementation of Enterprise LAN networks
- Basic understanding of Enterprise routing and wireless connectivity
- Basic understanding of Python scripting
- Examining Cisco Enterprise Network Architecture
- Understanding Cisco Switching Paths
- Implementing Campus LAN Connectivity
- Building Redundant Switched Topology
- Implementing Layer 2 Port Aggregation
- Understanding EIGRP
- Implementing OSPF
- Optimizing OSPF
- Exploring EBGP

- Implementing Network Redundancy
- Implementing NAT
- Introducing Virtualization Protocols and Techniques
- Understanding Virtual Private Networks and Interfaces
- Understanding Wireless Principles
- Examining Wireless Deployment Options
- Understanding Wireless Roaming and Location Services
- Examining Wireless AP Operation
- Understanding Wireless Client Authentication
- Troubleshooting Wireless Client Connectivity
- Introducing Multicast Protocols
- Introducing QoS
- Implementing Network Services
- Using Network Analysis Tools
- Implementing Infrastructure Security
- Implementing Secure Access Control
- Understanding Enterprise Network Security Architecture
- Exploring Automation and Assurance Using Cisco DNA Center
- Examining the Cisco SD-Access Solution
- Understanding the Working Principles of the Cisco SD-WAN Solution
- Understanding the Basics of Python Programming
- Introducing Network Programmability Protocols
- Introducing APIs in Cisco DNA Center and vManage
- Investigate the CAM
- Analyze Cisco Express Forwarding
- Troubleshoot VLAN and Trunk Issues

- Tuning Spanning Tree Protocol (STP) and Configuring Rapid Spanning Tree Protocol (RSTP)
- Configure Multiple Spanning Tree Protocol
- Troubleshoot EtherChannel
- Implement Multi-area OSPF
- Implement OSPF Tuning
- Apply OSPF Optimization
- Implement OSPFv3
- Configure and Verify Single-Homed EBGP
- Implementing Hot Standby Routing Protocol (HSRP)
- Configure Virtual Router Redundancy Protocol (VRRP)
- Implement NAT
- Configure and Verify Virtual Routing and Forwarding (VRF)
- Configure and Verify a Generic Routing Encapsulation (GRE) Tunnel
- Configure Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
- Configure Wireless Client Authentication in a Centralized Deployment
- Troubleshoot Wireless Client Connectivity Issues
- Configure Syslog
- Configure and Verify Flexible NetFlow
- Configuring Cisco IOS Embedded Event Manager (EEM)
- Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
- Configure and Verify Cisco IP SLAs
- Configure Standard and Extended ACLs
- Configure Control Plane Policing
- Implement Local and Server-Based AAA

- Writing and Troubleshooting Python Scripts
- Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- Use NETCONF Via SSH
- Use RESTCONF with Cisco IOS XE Software

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- Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- Use NETCONF Via SSH
- Use RESTCONF with Cisco IOS XE Software

# MCSA 2016 Server –

MCSA: Windows Server 2016 # 70-740: Installation, Storage, and Compute with Windows Server 2016 # 70-741: Networking with Windows Server 2016 # 70-742: Identity with Windows Server 2016

## NEED TO LEARN

- # Implement and manage Storage Spaces and Data Deduplication
- # Install and configure Microsoft Hyper-V
- # Deploy, configure, and manage Windows and Hyper-V containers
- # High avaiPracticalility and disaster recovery technologies in Windows Server 2016
- # Plan, create, and manage a failover cluster
- # Implement failover clustering for Hyper-V virtual machines
- # Implement Domain Name System (DNS)
- # Implement and manage IP address management (IPAM)
- # Plan for remote access
- # Implement DirectAccess
- # Implement virtual private networks (VPNs)
- # Implement networking for branch offices
- # Implement AD DS in complex environments
- # Implement AD DS sites, and configure and manage replication
- # Implement and manage Group Policy Objects (GPOs)
- # Manage user settings by using GPOs
- # Secure AD DS and user accounts
- # Implement and manage a certificate authority (CA) hierarchy with AD CS
- # Deploy and manage certificates
- # Implement and administer AD FS

# Exam 70-740: Installation, Storage, and Compute with Windows Server 2016

- # Practical 1: Installing and Configuring Nano Server
- # Practical 2: Configuring Local Storage
- # Practical 3: Planning and Configuring Storage Technologies and Components
- # Practical 4: Implementing Storage Spaces
- # Practical 5: Implementing Data Deduplication
- # Practical 6: Installing and Configuring Hyper-V
- # Practical 7: Installing and Configuring Containers
- # Practical 8: Planning and Implementing a High AvaiPracticalility and Disaster Recovery Solution
- # Practical 9: Implementing a Failover Cluster
- # Practical 10: Managing a Failover Cluster
- # Practical 11: Implementing Failover Clustering with Hyper-V
- # Practical 12: Implementing an NLB Cluster
- # Practical 13: Using MDT to Deploy Windows Server 2016
- # Practical 14: Implementing WSUS and Deploying Updates
- # Practical 15: Monitoring and Troubleshooting Windows Server 2016

#### Exam 70-741: Networking with Windows Server 2016

- # Practical 1: Planning an IPv4 Network
- # Practical 2: Implementing and Troubleshooting an IPv4 network
- # Practical 3: Implementing DHCP
- # Practical 4: Configuring and Evaluating IPv6 Transition Technologies
- # Practical 5: Planning and Implementing Name Resolution by Using DNS
- # Practical 6: Integrating DNS with Active Directory
- # Practical 7: Configuring Advanced DNS Settings
- # Practical 8: Implementing IPAM
- # Practical 9: Implementing Web Application Proxy
- # Practical 10: Implementing DirectAccess by Using the Getting Started Wizard
- # Practical 11: Deploying an Advanced DirectAccess Solution
- # Practical 12: Implementing a VPN
- # Practical 13: Implementing DFS for Branch Offices
- # Practical 14: Implementing BranchCache
- # Practical 15: Configuring Advanced Hyper-V Networking Features
- # Practical 16: Deploying Network Controller

#### Exam 70-742: Identity with Windows Server 2016

- # Practical 1: Deploying and Administering AD DS
- # Practical 2: Managing AD DS objects
- # Practical 3: Administering AD DS
- # Practical 4: Domain and Trust Management in AD DS
- # Practical 5: Implementing AD DS Sites and Replication
- # Practical 6: Implementing a Group Policy Infrastructure
- # Practical 7: Troubleshooting a Group Policy Infrastructure
- # Practical 8: Managing User Settings with GPOs

# Practical 9: Securing AD DS

- # Practical 10: Deploying and Configuring a Two-Tier CA Hierarchy
- # Practical 11: Deploying and Using Certificates
- # Practical 12: Implementing AD FS
- # Practical 13: Implementing an AD RMS Infrastructure
- # Practical 14: Configuring Directory Synchronization
- # Practical 15: Recovering Objects in AD DS

## RHCSA RHCE Linux 8.0 Syllabus -

==>Distribution of content in RHEL 8

- # Installation
- # Repositories
- # Application Streams

==>New features

- # The web console
- # Installer and image creation
- # Kernel
- # Software management
- # Infrastructure services
- # Shells and command-line tools
- # Dynamic programming languages, web and database servers
- # Desktop
- # Hardware enablement
- # Identity Management
- # Compilers and development tools
- # File systems and storage
- # High availability and clusters
- # Networking
- # Security
- # Virtualization
- # Supportability
- ==>Bug fixes
- # Desktop
- # Graphics infrastructures
- # Identity Management
- # Compilers and development tools
- # File systems and storage
- # High availability and clusters
- # Networking
- # Security
- # Subscription management
- # Virtualization
- ==>Technology previews
- # Kernel
- # Graphics infrastructures
- # Hardware enablement

- # Identity Management
- # File systems and storage
- # High availability and clusters
- # Networking
- # Virtualization

==>Deprecated functionality

- # Installer and image creation
- # File systems and storage
- # Networking
- # Security
- # Virtualization
- # Deprecated packages

#### ==>Known issues

- # The web console
- # Installer and image creation
- # Kernel
- # Software management
- # Infrastructure services
- # Shells and command-line tools
- # Dynamic programming languages, web and database servers
- # Desktop
- # Graphics infrastructures
- # Hardware enablement
- # Identity Management
- # Compilers and development tools
- # File systems and storage
- # Networking
- # Security
- # Subscription management
- # Virtualization
- # Supportability

==>Notable changes to containers

==> Internationalization

- # Red Hat Enterprise Linux 8 International Languages
- # Notable changes to internationalization in RHEL 8

==>List of tickets by component

• # Acknowledgements

### Az – 104 Syllabus –

- # Day 1 (Azure Active Directory)
- # Day 2 (Azure Administration)
- # Day 3 (Azure Storage)
- # Day 4 (Azure Virtual Machines)
- # Day 5 (Creating Virtual Machines)
- # Day 6 (Data Protection)

- # Day 7 (Data Services)
- # Day 8 (Governance and Compliance)
- # Day 9 (Network Traffic Management
- # Day 10 (Securing Identities)
- # Day 11 (Virtual Networking
- # Day 12 (Access Management for Cloud Resources)
- # Day 13 (Azure DNS)
- # Day 14 (Azure Resource Manager)
- # Day 15 (Azure Tips, Tricks, and Tools)
- # Day 16 (Azure Virtual Networks)
- # Day 17 (Configuring Availability and Extensibility)
- # Day 18 (Configuring Virtual Machines)
- # Day 19 (Connecting Virtual Networks)
- # Day 20 (Deploying Virtual Machine Images)
- # Day 21 (Implementing and Managing Hybrid Identities)
- # Day 22 (Log Analytics)
- # Day 23 (Managing and Monitoring Virtual Machines)
- # Day 24 (Managing Azure Active Directory)
- # Day 25 (Managing Azure Active Directory Objects)
- # Day 26 (Managing Azure Subscriptions)
- # Day 27 (Monitoring and Diagnostics)
- # Day 28 (Monitoring Storage)
- # Day 29 (Overview of Azure Machines)
- # Day 30 (Overview of Azure Storage)
- # Day 31 (Securing and Managing Storage)
- # Day 32 (Securing Virtual Network Resources)
- # Day 33 (Storage Services)
- # Day 34 (Storing and Accessing Data)