6 MONTHS NETWORKING TRAINING

CURRICULUM

N+

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- Introduction to Datacomm and Networking
- Datacomm & Networking fundamentals
- OSI reference Model
- LAN fundamentals
- WAN fundamentals
- Network Devices
- Firewall & Application Gateways
- Designing & Implementing Structured Cabling
- Ethernet standards
- FDDI & token Ring Standards
- Digital Subscriber Line
- Deploying a Networking and security Measures
- LAN troubleshooting techniques and Tools
- TCP/IP Model
- IP Addressing

CCNA

» Ipv4 ADDRESSING

- IP address
- IP Addressing
- Version of IP Address
- Public
- Private IP Address
- Network Mask
- Role Network mask in IP Addressing
- Default Mask of Classful IP Address
- IP Address is combination of Network bits & Host bits
- Network ID or Network Address
- Broadcast ID or Broadcast Address
- No. of Network ID's & Valid IP Address in Class A , Class B , Class C
- Design & Implementation of Network Scenario with Classful Network

» IPV4 Saving Techniques

- Subnetting
- VLSM
- NAT

- Subnetting & its advantages
- How to proceed for Subnetting & VLSM
  - Design & Implementation of Network Scenario with Subnetted Network & VLSM
  - Network Address, Broadcast Address
  - First Valid IP address,
  - Last valid IP address,
  - Valid range of IP address,
  - Sub netmask,
  - Block size,
  - Next Network Address,

» Cisco Router Introduction Theory:

- Introduction to Cisco Router
- General port diagram of Cisco Routers
- Cable & Connection.
- Connectivity diagram of Cisco Routers with Network Devices
- Describe the boot process of Cisco IOS routers
  - POST
  - Booting Process of Routers
  - Boot preferences
  - Cisco IOS image(s)
- How to access Cisco Router Console
- Basic Management mode & Commands of Cisco Router

» IP ROUTING

Theory:

- Basic Routing Concept
- Routed & Routing Protocols
  - Types of Routing & Protocols.
  - Static Routing.
  - Static Route
- Default route
- Differentiate terms:
  - Next hop
  - AD
  - Metric
  - Destination NID
  - Route Codes
  - Outgoing Interface
- AD & Metrics of Different Routing Protocols

» LAB :

- Configure and verify Static Route
- Configure and verify Default Route

» DYNAMIC PROTOCOLS & DYNAMIC ROUTING

Theory:

- Types of dynamic protocols
- IGP vs EGP protocols
- Static vs. Dynamic
- Link state vs. Distance Vector

» OSPF (Open Shortest Path First)

Theory:

OSPF Terminology

Link-states Advertisement

Router ID & its selection.

Loopback Interface & Loopback Interface

- Hello Timer & Dead Timer
- Concept of Area in OSPF & its Advantages
- Backbone area
- Types of Area's in OSPF
- OSPF router interface Priority
- DR & BDR Concept
- Process ID
- Concept of Wild Card Mask
- ABR & ASBR
- Passive Interface
- AD & Metric

Neighbor adjacency components

OSPF router states

Discuss OSPF single & multi area

Type of Tables in OSPF

- Neighbor Table
- Topology Table
- Routing Table

» LAB:

- Configure and verify ospfv2 single area
- Configure and verify ospfv2 multi area
- Verify ospf metric calculation.
- Modify OSPF Parameter.

» Helpful Command use in LAB

- show ip interface brief
- show protocols
- show running-config
- show ip route
- show ip route connected
- show ip route ospf

» EIGRP (Enhanced Interior Gateway Routing Protocol)

Theory :

- Characteristics of EIGRP
- Feasible Distance / Feasible Successors /Administrative distance
- Feasibility condition
- Metric composition
- Router ID
- Auto summary & no auto summary
- Muticast address of eigrp
- Hello & Hold timer
- AD''s of eigrp
- Passive interface
- Wild card mask

- Types of eigrp tables.
  - Neighbor Table
  - Topology Table
  - Routing Table
- Neighbor adjacency Parameter
  - Hello
  - ASN
  - METRIC

» LAB:

- Configure and verify EIGRP
- Configure and verify Redistribution with non-eigrp
- Stop unwanted Traffic on LAN segment (using passive-interface.)
- Modify EIGRP Parameter.

» HelpfulCommand use in LAB

- show ip interface brief
- show protocols
- show running-config
- show ip route
- show ip route eigrp
- show ip eigrp neighbour
- show ip eigrp topology

» HOW TO MANAGE CISCO DEVICES
Theory :

- Cisco Discovery Protocol (CDP)
- Introduction
- How to enable & disable CDP on Router & Interface
- Password recovery procedure
- Backup & Up gradation of IOS
- Backup & Up gradation of Configuration File

» Describe following terms:

- Ping
- Traceroute
- Tracert
- Debug IP Packet
- Debug IP ICMP

» LAB:

- Verify CDP to find out information of directly connected Cisco devices
- Disable CDP on router and interface
- Modify CDP Timers.
- Configure and verify of Advance Telnet feature.
- Configure & Verify HOST Resolving.
- Backup of IOS File
- Backup of Configuration File.
- Restoring of IOS File
- Restoring of Configuration File.
- Cisco router Password recovery & Recovery of NVRM File.

» IP SERIVCES
DHCP

- DHCP Server (IOS Router)
- DHCP Client
- DHCP Pool
- Default Router

» Packet Filtering via ACL

- Describe the types, features, and applications of ACLs
- Standard
- Sequence numbers
- Editing
- Extended
- Numbered
- Log option
- Inbound & Outbound ACL
- Drawback of Standard & Extended ACL
- How to overcome Drawback of Standard &Extended ACL
- ACL Implementation Rules
- Identify the basic operation of NAT
- Purpose
- Pool
- Static (fixed – One Private IP need One Public IP)
- 1 to 1 (variable– One Private IP need One Public IP)
- Overloading (Group of Private IP Address need one Public IP)
- Source addressing (bi-directional)
- One way NAT (uni-directional)

» NTP

- NTP Server
- NTP Client

» ADVANCE TOPICS

- VRRP
- HSRP
- GLBP
- Concept of Syslog server

» LAB:

- Configure and verify Static (fixed) NAT.
- Configure and verify Static (with pool) NAT
- Configure and verify PAT (Overloading)
- Configure and verify Numbered Standard & Named Standard ACL
- Configure and verify Numbered Extended & Named Extended ACL.
- Configure and verify NTP Server and Client.
- configuring and verify router interfaces to use DHCP
- configuring and verify DHCP

» LAN Switching Technology

- Introduction of Cisco Switches
- Collision Domain & Broadcast Domain
- Bridges and Hubs
- Types of switching

» Bridge & its Function

- Forwarding
- Filtering
- Flooding

Formation of MAC Table or CAM Table

» VLAN & its Advantage

- Network segmentation
- Security
- Enhanced performance

How to creates VLAN

Types of VLAN membership

Access port & Access link

Trunk port & Trunk link

How to form trunk & its requirements

Trunking Protocols ISL & dot1q

Frame Forwarding Techniques in Switch

Inter-Vlan Routing

STP

» STP Convergence Components

- lowest Bridge ID
- lowest RPC
- lowest Sender BID
- lowest Sender Port ID

» STP Convergence Steps:

- Election of Root Bridge.
- Election of Root Port.
- Election of Designated Port

Spanning Tree Mode

Concept of Etherchannel

» LAB:

- Configure and verify initial switch configuration
- Verify CAM Table.
- Configure and verify VLANs
- Configure and verify trunking on Cisco switches
- Configure and verify interVLAN routing (Router on a stick)
- sub interfaces

» Network Device Security

Configure and verify network device security features such as

- Device password security
- Enable secret vs enable
- Transport
- Disable telnet
- SSH
- VTYs
- Physical security
- Service password

Configure and verify Switch Port Security features such as

Sticky MAC

MAC address limitation

Static / dynamic

» WAN Technologies

- WAN Connection types
- WAN Protocols
- Introduction of HDLC

» Introduction of PPP & its feature

- PPP sub Protocols
- PPP session establishment

PPP authentication methods

Understanding Frame-Relay Fundamentals

How to make Router as a FRAME_RELAY Switch

» Frame-Relay logical Topologies

- Hub & Spoke
- Full Mesh
- Partial Mesh

Virtual Private Network

Basic fundamentals of VPN

» LAB :

- Configure and verify a basic WAN serial connection
- Configure and verify a PPP connection between Cisco routers
- Configure and verify PPP Authentication
- Configure and verify Frame Relay on Cisco routers

» Ipv6

- Introduction of Ipv6
- Need of Ipv6

» Ipv6 addressing

- Link Local address
- Site local address
- Global Unicast Address
- Multicast Address
- eui 64
- autoconfiguration

» Ipv6 packet type

- Unicast
- Multicast
- Anycast

Ipv6 supporting protocols (RIPng, OSPFv3, EIGRPv6, MP-BGP)

» LAB :

- Configuring & Verify IPV6 Address
- Configure & verify OSPFv2

» OSI (Open System Interconnection) & TCP/IP

- Introduction to OSI or Layered Structure model

Data encapsulation & De-encapsulation Process

PDU form of Data at each layer

Role of OSI layers

- Application
- Presentation

- Session
- Transport
- Network
- Data link
- Physical

Introduction of Protocols & Network Devices per layer

OSI peer to peer communication diagram

OSI Vs TCP/IP

TCP/IP Layers

MCSA

» Installing and Configuring Windows Server 2012

At Course Completion

After completing this course, students will be able to:

- Install and Configure Windows Server 2012.
- Describe AD DS.
- Manage Active Directory objects.
- Automate Active Directory administration.
- Implement Ipv4.
- Implement Dynamic Host Configuration Protocol (DHCP).
- Implement Domain Name System (DNS).
- Implement Ipv6.
- Implement local storage.
- Share files and printers.
- Implement Group Policy.
- Use Group Policy Objects (GPOs) to secure Windows Servers.
- Implement server virtualization using Hyper-V.

Administering Windows Server 2012

CURRICULUM

EXAM CODE 411

» At Course Completion

After completing this course, students will be able to:

- Deploy and Maintain Server Images
- Configure and Troubleshoot DNS
- Maintain Active Directory Domain Services (AD DS).
- Manage User and Service Accounts
- Implement a Group Policy Infrastructure
- Manage User Desktops with Group Policy
- Configure and Troubleshoot Remote Access
- Install, Configure and Troubleshoot Network Policy Server (NPS) role
- Optimize File Services
- Configure Encryption and Advanced Auditing
- Monitor Windows Server 2012

Configuring Advanced Windows Server 2012 Services

EXAM CODE 412

CURRICULUM

At Course Completion

After completing this course, students will be able to:

- Implement advanced network services.
- Implement advanced file services.
- Implement Dynamic Access Control.
- Implement distributed Active Directory Domain Services (AD DS) deployments.
- Implement AD DS sites and replication.
- Implement Active Directory Certification Services (AD CS).
- Implement Active Directory Rights Management Services (AD RMS).
- Implement Active Directory Federation Services (AD FS).

EXCHANGE SERVER

Lesson 1:

- Introduction to Exchange Server
- Exchange Server Family Edition

Lesson 2:

- Hardware Requirement for Exchange Server 2013
- Introduction of Exchange Server

Lesson 3:

- Introduction to E-mail Clients MS outlook, Outlook Express & OWA
- Configuring E-mail Clients & Troubleshooting

Lesson 4:

- Recifients Types (48ER, 800npcontents, public folder)
- Create, Delete, Modify &MOove Recipients

Lesson 5:

- Resource Mailboxes
- Linked Mailboxes

Lesson 6:

- Mailbox Management
- Securing
- Maintenance

Lesson 7:

- Create, Delete & Move Mailbox Database
- Public Folders Implementation

Lesson 8:

- Address List
- GAL (Global Address List)
- New AddressList
- Office Address List (Address Book)

Lesson 9:

- Implement & Configuring Retention Policies

Lesson 10:

- Backup& Restore USER Mailboxes

Lesson 11:

- Configuring DAG (Database Availability group for Disaster recovery)

Lesson 12:

- Migration of Exchange Server Mailbox Database between two Forest