HURBAD
Institute of Technology

CCNA 200-301

STUDY PLAN

USBUUCA 1AAD

Build A Physical and Virtual Lab

1. Cisco Switch Models
2. Cisco Router Models
3. Device Memory and Common Modules
4. Building a CCNA Lab Environment
5. Downloading and Installing Packet Tracer
6. Create a Simple Network Using Packet Tracer
7. Getting Physical Network in Packet Tracer
8. Replicating a Physical Rack
9. Installing a Basic GNS3 System
10. Install GNS3 on VMware Workstation
11. Add IOU, L2 and L3 Images in GNS3
12. Building Basic Network Topology in GNS3
13. Eve-NG Introduction
14. Install VMware Workstation On Windows 10
15. EVE NG Installation
16. Building Labs Inside EVE-NG
17. Build a Physical Cisco Lab Environment

Explain the Role and Function of Network Components

1. Primary Function of a Switch
2. Primary Wireless Access Point Functions
3. Primary Function of a Router
4. Endpoints and Servers
5. Next-generation Firewalls and IPS

Describe Characteristics of Network Topology Architectures

1. Two-Tier Architecture
2. Three-Tier Architecture
3. Spine-Leaf Architecture
4. WAN Architecture
5. SOHO Architecture
6. On-Premise vs Cloud Architecture
7. Building a Network Architecture

Compare TCP to UDP

1. Two Models OSI and TCPIP Models
2. Application Layers
3. Transport Layer
4. Network Layer
5. Data Link and Physical Layer
6. How TCP Starts a Session
7. TCP Windowing
8. TCP Ends a Session
9. UDP Communication

Compare Physical Interface and Cabling Types

1. Copper Cable
2. Fiber Optic Cable
3. Connections (Ethernet shared media and point-to-point)
4. Concept of PoE

Identify Interface and Cable Issues (Collisions, Errors, Mismatch Duplex, and/or Speed)

1. Collision and Broadcast Domains
2. Common Copper and Fiber Physical Issues
3. Cisco Device Interface Status
4. Examining Speed and Duplex Mismatches

Create A Base Configuration for Cisco Devices

1. Configuring a Console Connection in Windows
2. Cisco Router Password Recovery
3. Cisco IOS Navigation Commands
4. Cisco IOS Configuration Modes
5. Configuring Device Hostname and Banner
6. Configuring Console line, VTY line, and Enable Secret
7. Configuring IP Addresses and Enabling Interfaces

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Verify IP Parameters for Client OS (Windows, Mac OS, Linux)

1. Configuring and Verify Windows Network Access
2. Configuring and Verify Ubuntu Linux Network Access
3. Configuring and Verify MacOS Network Access

Explain Virtualization Fundamentals

1. Virtualization Architecture
2. Virtual Machine Concepts
3. Cloud Architecture

Describe Switching Concepts

1. Connecting Devices to a Switch
2. Switches Learning MAC Addresses
3. How the Switches Learning MAC Addresses

IPv4 & IPv6 Addressing

1. The Fundamentals of IP, Mask, and Gateway
2. The Classes of Addresses from A to E
3. Public and Private Address Ranges
4. Convert Decimal to Binary and Back
5. Understanding Subnetting
6. Class C Subnet Example
7. Class B Subnet Example
8. Class A Subnet Example
9. Fundamentals of IP Version 6
10. How IPv6 Works in an Internetwork
11. Lab 01: Configure, Verify, and Troubleshoot IPv4 Addresses
12. Lab 02: Configure, Verify, and Troubleshoot IPv6 Addresses
13. Lab 03: IPv6 Address Autoconfiguration

Describe Wireless Principles

1. RF Overview
2. Wireless LAN Topologies
3. Other Wireless Topologies
4. AP Architectures
5. Wireless Security Protocols
6. Demo - Downloading and Installing Packet Tracer
7. Demo - Building Wireless Network

8. Demo - WLC Configuration via a Graphical Interface
9. Demo - Wireless LAN Controller Settings

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LAN Switching Technologies

1. Basic Switching Concepts
2. Lab 04: Cisco Switch Configuration
3. VLAN and Trunking Concepts
4. Lab 05: Configuring Standard VLANs on Catalyst Switches
5. Lab 06: Configuring VLANs and Trunking
6. Spanning Tree Protocol (IEEE 802.1D)
7. Lab 07: PVST+ Configuration
8. Lab 08: EtherChannel Concept and Configuration
9. Lab 09: CDP & LLDP Concept and Configuration

Routing Technologies

1. Basic Routing Concepts
2. Lab 10: Router on a Stick Configuration and Verification
3. Lab 11: Inter-VLAN Routing Concepts
4. Lab 12: Configuring Static Routing and Default Static Routes
5. Lab 13: Configuring IPv6 Static Routes & Default Routes
6. Open Shortest Path First (OSPF) Concept
7. Lab 14: Single-Area OSPF Configuration

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IP Services

1. Network Address Translation Concept
2. Lab 15 - Configuring NAT Static and NAT Overload
3. Quality of Service (QoS) Concept
4. First Hop Redundancy Protocol Concept
5. Lab 16 - HSRP Concepts and Configuration
6. Lab 17 - DHCP Concepts and Configuration
7. VPN Technology
8. VPN Encryption Algorithms
9. Device Monitoring, Management, and Maintenance

Security Fundamentals

1. Security Concepts
2. Authentication Technologies
3. Common Network Attacks
4. Access Control List (ACLs) Concept
5. Lab 18 - Configuring and Applying Standard Numbered and Named ACLs
6. Lab 19 - Configuring and Applying Extended Numbered and Named ACLs Inbound
7. Layer 2 Security Features Concept
8. Lab 20 - Configuring Layer 2 Security Features

Network Automation

1. Software-Defined Networking
2. Cisco DNA Center
3. Cisco Software-Defined Access (SDA)

4. Network Automation: Data Formats
5. Network Automation: Configuration Management Tools

Exam Preparation

1. Demo - How to Building Physical Lab
2. Sida loo diyaariyo imtixaanka CCNA da
3. Sida la iskaga Diiwaangaliyo Imtixaanka CCNA da