Huawei Certified ICT Associate-Datacom (HCIA-Datacom)

Training Content :

1. Data Communication and Network Basics

1.1 Data Communication Network Basics

☐   **Basic Concepts of Data Communication**

☐   **Data Transfer Process**

☐   **Network Devices and Basic Functions**

☐   **Network Type and Topology Type**

☐   **Network Engineering**

☐   **Network Engineers**

1.2 Network Reference Model

☐   **What is Data and Data Transfer**

☐   **Common Standard Protocols**

☐   **Layered Model Concept**

☐   **Application Layer and Related Protocols**

☐   **Transport Layer and Related Protocols**

☐   **Network Layer and Related Protocols**

☐   **Data link Layer and Related Protocols**

☐   **Physical Layer and Related Protocols**

☐   **Data Transfer, Encapsulation and Decapsulation**

1.3 Huawei VRP Basics

☐   **Common Network Devices**

☐   **VRP Basics**

☐   **CLI Command Views**

☐   **Basic Commands and Function Keys of the CLI**

2. Constructing an Interconnected IP Network

2.1 Network Layer Protocol and IP Addressing

☐ **Network Layer Protocol**

☐ **Concept, Classification, and Special IP Addresses of IPv4**

☐ **IP Network and IP Subnet Calculation**

☐ **IP Network Address Planning**

2.2 IP Routing Basics

☐ **Basic Working Principles of Routers**

☐ **Routing Table Concepts**

☐ **Routing and Forwarding Features**

☐ **Static Route Configuration**

2.3 OSPF Basics

☐ **Basic Features of OSPF**

☐ **OSPF Application Scenarios**

☐ **Working Principle of OSPF**

☐ **Basic OSPF configurations**

3. Constructing an Ethernet Switching Network

3.1 Ethernet Switching Basics

☐ **Basic Concepts of Ethernet**

☐ **Concept of MAC Address**

☐ **Working Process and Principles of Layer 2 Switches**

☐ **Composition and Formation of a MAC Address Table**

3.2 VLAN Principles and Configuration

☐ **Background of VLAN**

☐ **Basic Concepts and Principles of VLAN**

☐ **VLAN Data Communication Process on a Layer 2 Network**

☐ **Basic VLAN Configuration**

3.3 Spanning Tree Protocol

- **Background of STP**
- **Basic Concepts and Working Principles of STP**
- **Basic Concepts of RSTP and Improvements Compared with STP**
- **Basic STP Configuration**
- **Other Layer 2 Loop Elimination Technologies**

3.4 Ethernet Link Aggregation and Switch Stacking

- **Basic Concepts of Link Aggregation**
- **Working Principles of Manual Link Aggregation**
- **Working Principles and Features of Link Aggregation in LACP Mode**
- **Basic Concepts of iStack and CSS**

3.5 Implements Communication Between VLANs.

- **Working Principles of Sub-interfaces**
- **Working Mechanism of Layer 3 Switches**
- **Sub-interface Configuration**
- **VLANIF Configuration**

4. Network Security and Network Access Basics

4.1 ACL Principles and Configuration

- **Basic Principles and Functions of ACLs**
- **Basic Structure and Matching Order of ACL Rules**
- **Usage of Wildcard mask**
- **Basic ACL Configuration**

4.2 AAA Principles and Configuration

- **Basic Principles and Application Scenarios of AAA**
- **Basic Configuration of the Local AAA**

4.3 NAT Basics

☐ **Background of NAT**

☐ **NAT Classification and Technical Principles**

☐ **NAT Configuration in Different Scenarios**

5. Network Services and Applications

5.1 Network Services and Applications

☐ **Principles of TFTP, FTP, DHCP, and HTTP**

☐ **Configuration of FTP and DHCP**

6. WLAN Basics

6.1 WLAN Overview

☐ **Basic Concepts of WLAN and History of 802.11 Protocol suite**

☐ **WLAN devices**

☐ **WLAN Networking Mode**

☐ **WLAN Working Process**

☐ **Basic WLAN Configuration**

7. WAN Basics

7.1 WAN Technology Basics

☐ **Basic WAN Concepts**

☐ **Common WAN Technologies**

☐ **Working Principles of PPP and PPPoE**

☐ **Configuring PPP and PPPoE**

☐ **Basic Concepts of MPLS/SR**

8. Network Management and O&M

8.1 Network Management and O&M

☐ **Basic Concepts of the NMS and O&M**

☐ **Common NMS and O&M Methods and Tools**

☐ **Working Principle of SNMP**

☐ **SDN-based NMS and O&M Solution**

9. IPv6 Basics

9.1 IPv6 Basics

- **Comparison Between IPv6 and IPv4**

- **Basic Concepts of IPv6**

- **Format and Principle of the IPv6 Packet Header**

- **IPv6 Address Format and Address Type**

- **IPv6 Address Configuration Method and Procedure**

- **Static and Dynamic IPv6 Address Configuration**

- **IPv6 Static Route Configuration**

10. SDN and Automation Basics

10.1 SDN and NFV Basics

- **Basic SDN Concepts**

- **Huawei SDN Products and Solutions**

- **Basic NFV Concepts**

- **Huawei NFV Products and Solutions**

10.2 Network Programming and Automation

- **Traditional Network O&M Status Analysis**

- **Implementation of Network Automation**

- **Programming Language**

- **Python Coding Specifications**

- **Implement Basic Automatic O&M Using Python telnetlib.**

11. Typical Campus Network Architectures and Practices

11.1 Typical Networking Architecture and Cases

- **Campus Network Architecture**

- **Campus Network Lifecycle**

- **Campus Network Construction Cases**

- **Campus Network Construction Practice**