COURSE OUTLINE

Course Code: HW-HCIA-DATC

Course Name: HCIA- Huawei Certified ICT Associate Datacom

DURATION	LEVEL	DELIVERY	TECHNOLOGY
10 Day(s)Associate	Associate	VILT/In Class	Huawei

Course Overview

This new 10-day course covers the following content: Routing and switching principles, basic WLAN principles, basic knowledge of network security, basic knowledge of network management and O&M, and basic knowledge of SDN and programming automation. The aim of this course is to train and certify engineers with the skills commonly used in the Datacom field.

Prerequisites

Before attending this course, delegates must:

- Be familiar with PC operations.
- Basic understanding of IT technologies and network knowledge

Target Audience

- Who wants to become Data Communication Engineers
- Who wants to obtain the HCIA-Datacom Certification.

Course Objectives

After completing the training, you will be able to:

- Understand the definition of data communication and the capability model of data communication engineers.
- Understand the network reference model and the entire data communication process.
- Be familiar with the VRP system and be able to perform basic operations.
- Understand IPv4 address protocol and related concepts.

- Understand the forwarding principles of Layer 3 devices such as routers and Layer 3 switches.
- Understand the concept of routing and use static route or OSPF to build a Layer 3 network.
- Understand basic Ethernet concepts and describe the functions and working principles of Layer 2 switching devices.
- Be familiar with common Ethernet protocols, such as VLAN, Spanning Tree Protocol, link aggregation and stacking.
- Configure ACLs and AAA to provide basic security solutions for the network.
- Be familiar with the NAT protocol and master the NAT configuration in different scenarios.
- Master the configuration of common services on enterprise networks, such as DHCP, FTP and Telnet.
- Understand basic WLAN concepts and complete basic configurations of small or medium-sized WLAN networks.
- Understand basic WAN concepts and WAN solutions such as MPLS and SR.
- Have general knowledge of basic concepts of enterprise network management.
- Be familiar with traditional network management and SDN-based network management solutions.
- Have a good command of IPv6 protocols and be able to build small-scale IPv6 networks.
- Have a good command of the campus network construction process. Be able to independently construct small-sized campus networks.
- Understand the basic concepts of SDN and programming automation and master the basics of Python.

Course Content

Module 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

Module 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

Module 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

Module: 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

Module 5: Network Services and Applications 5.1 Network Services and Applications

- Principles of TFTP, FTP, DHCP, and HTTP
- Configuration of FTP and DHCP

Module 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

Module 7: WAN Basics 7.1 WAN Technology Basics

- Basic WAN Concepts
- Common WAN Technologies
- Working Principles of PPP and PoE
- Configuring PPP and PoE
- Basic Concepts of MPLS/SR

Module 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

Module 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

Module 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.

Module 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

Exams and Certifications

HCIA-Datacom

Exam Code: H12-811
Exam Type: Written examination
Exam Format: Single-answer Question, Multiple-answer Question, True or false, Short Response Item, Drag and Drop Item
Time: 90min
Passing Score/Total Score: 600/1000

Notes and Annotations

Passing the HCIA-Datacom V1.0 certification will indicate that you are capable of planning, design, deployment, O&M, and optimization of small- and medium-sized campus networks

What is Next:

Choose from:

- HCIP-Datacom-Advanced Routing & Switching Technology
- HCIP-Datacom-Network Automation Developer
- HCIP-Datacom-SD-WAN Planning and Deployment
- HCIP-Datacom-Enterprise Network Solution Design
- HCIP-Datacom-WAN Planning and Deployment
- HCIP-Datacom-Carrier IP Bearer
- HCIP-Datacom-Carrier Cloud Bearer
- HCIP-Datacom-Campus Network Planning and Deployment
- HCIP-Data Center Network