TRENDS Academy
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HCIA-WLAN

Duration: 10 Days

Prerequisites:

- A general familiarity with PC operation system
- A basic understanding of computer technology
- HCIA certification or similar knowledge

Course Objectives:

On completion of this program, the participants will be able to:

- Describe what WLAN is
- Describe the development process of WLAN technology
- List typical application scenarios of WLAN technology
- Describe the functions and roles of WLAN standards organizations
- Describe the related basic knowledge of RF
- List working principle and specific property of RF
- Describe the working frequency band of WLAN and the basic concepts of channel
- Describe the rules of the working frequency band and channel in each country
- List other technologies related to WLAN
- Describe the latest Huawei product information
- List the application scenarios of Huawei product
- Describe the power supply mode of Huawei product
- Configure Huawei VRP basic command
- Configure AC basic attributes
- Upgrade the software of AC and AP
- Describe the basic concepts of 802.11
- Outline the basic topology structure of WLAN
- List Huawei WDS network mode
- Describe mesh network mode
- Describe the basic knowledge of 802.11
- List the advantages of 802.11n
- Describe the basic concepts of 802.11 physical layer
- Describe spread spectrum technology of 802.11
- Describe DSSS technology
- Describe OFDM technology
- Differentiate Fat AP and Fit AP technology
- Describe CAPWAP tunnel protocol
- Outline the general network mode of WLAN
- Differentiate the forwarding modes of WLAN
- Differentiate different applications of VLAN in WLAN service
- Describe WLAN business configuration processes of Huawei AC6605
- Configure the basic attributes of AC

- Describe the basic features of Huawei product
- List the key features of Huawei product
- Describe the basic concepts of roaming
- Outline the basic principles of roaming
- List the application scenarios of roaming
- Describe security threat of WLAN
- Describe the related concepts of WIDS and WIPS
- Describe the related concepts of AAA
- Outline the WLAN authenticated encryption techniques
- Configure Huawei WLAN security-profile
- Describe the frame format of 802.11
- Differentiate three frame types and functions of 802.11
- Describe 802.11 media access control mechanism
- Analyze media access process of WLAN
- Describe the definition and functions of antenna
- Describe the main performance indicates of antenna
- List some common passive device
- List the basic process of the WLAN network planning
- List basic interference factors of WLAN
- Describe the basic load-balancing ways of WLAN
- List the typical application scenarios of WLAN
- Describe the network planning processes of WLAN
- Point out some typical scenarios of WLAN network planning ways
- Describe the functional features of Huawei WLAN planning tool
- Use Huawei WLAN tool to plan basic WLAN network
- List some functions of eSight
- Configure WLAN service
- Configure the basic information of AC
- Configure AP online
- Configure AP-profile
- Configure radio-profile
- Configure service-set
- Configure AP region
- Configure AP binding profile
- Perform daily maintenance operation tasks of WLAN service
- Describe WLAN commonly used fault troubleshooting
- Describe WLAN common diagnostic commands and tools
- Describe the cause of some common failures of WLAN
- Use troubleshooting tools and troubleshoot some common failures
- Know the general process for rectifying AP online faults
- Understand possible causes for STA association failures

Intended Audience:

- Those who hope to become a network associate of WLAN
- Those who hope to obtain HCIA-WLAN V2.0 certificate

Course Outline:

1. **Huawei WLAN Product Introduction**

   - Huawei WLAN equipment solution introduction
   - Huawei WLAN equipment application
   - Huawei WLAN equipment power supply mode introduction

2. **The basic operation of the AC**

   - Use hype terminal to connect equipment
   - Modify the Device Name
   - Configuring the console user interface
   - Configuring the VTY user interface
   - Checking the configuration
   - Reboot the device

3. **WLAN Networking Introduction**

   - WLAN Network Mode
   - Forward mode introduction
   - The application of VLAN in WLAN

4. **CAPWAP Fundamentals**

   - AP technology introduction
   - CAPWAP tunnel introduction

5. **WLAN RF Principles Introduction**

   - WLAN RF basics
   - WLAN RF principles
   - WLAN RF characteristics

6. **VRP Introduction and Basic Configuration**

   - Introduce the Huawei VRP
   - Configuring basic AC attributes
   - AC and AP software upgrade

7. **802.11 Media Access Control**

   - 11 media access control Mechanism
   - WLAN media access process

8. **WLAN Frequency Bands**

   - Frequency and channel introduction
   - 4GHz bands
   - 5GHz bands
   - Other technology

9. **WLAN Standards Bodies**

   - State Radio Regulation of China
   - FCC
   - ETSI
   - IEEE
   - Wi-Fi
   - IETF
   - WAPI

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10. **WLAN Access Security and Configuration Introduction**

- WLAN authentication technology
- WLAN encryption technology
- WLAN access security policy

11. **WLAN Planning Scheme and Typical Cases Introduction**

- WLAN typical application scenario
- WLAN planning flow
- Indoor AP typical cases
- Indoor distributed AP typical cases
- Outdoor AP typical cases

12. **Antenna**

- Antenna concept introduction
- Antenna basics
- Antenna parameters introduction
- Other device introduction

13. **eSight Function and Wizard Configuration Introduction**

- eSight introduction
- Configure WLAN business by wizard

14. **WLAN Layer 3 Network Configuration**

- Configure data forward-mode
- Configure AC and AP to be connected
- VLAN planning and allocate in Network
- Make the APs gone online
- Configure WLAN-ESS interfaces
- Configure Radio, security-profile, traffic-profile and service-set
- Configure VAPs and deliver configuration to the Aps

15. **Huawei WLAN Planner**

- Huawei WLAN planner basic function
- Plan Huawei WLAN

16. **802.11 Protocol Introduction**

- 11a/b/g protocol introduction
- 11n protocol introduction
- 11AC protocol introduction

17. **WLAN Security Introduction**

- WLAN Security threat introduction
- WIDS/WIPS introduction
- AAA introduction

18. **WLAN Basic Network Planning Introduction**

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- The basic flow of WLAN planning
- WLAN signal interference introduction
- Huawei load balancing technology

19. **Huawei WLAN Product Features Introduction**

- The basic characteristics of Huawei WLAN product
- The key characteristics of Huawei WLAN product

20. **WLAN Routine Maintenance Through eSight**

- Network Monitoring Network Maintenance

21. **802.11 Physical Layer Technology**

- 11 physical layer basics
- 11 physical layer technology Introduction

22. **802.11 MAC Layer Introduction**

- 11 frames
- Data frames
- Control frames
- Management frames

23. **WLAN Troubleshooting**

- Troubleshooting methods introduction
- Common diagnostic commands and Tools Introduction
- WLAN common troubleshooting

24. **WLAN Troubleshooting Cases**

- Analysis on APs' Failure to Go Online
- Analysis on STA Association Failure

25. **WLAN Historical Overview**

- Introduction to wireless networks
- What is WLAN
- WLAN development
- WLAN applications

26. **WLAN Roaming**

- Roaming concept introduction
- Roaming basic principle Introduction
- Roaming application scenarios

27. **WLAN Topologies Introduction**

- Basic elements of IEEE 802.11
- WLAN topologies introduction

28. **WLAN Network Configuration**

- WLAN configuration roadmap

29. **WLAN Access Security Configure**

- Configure AC6605 access security
- Configure a RADIUS server template
- Configure WPA authentication
- Configure WPA2 authentication
- Configure different Encryption

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