



CCIE Enterprise Wireless Overview

CCIE Enterprise Wireless is the highest level certificate in enterprise track. This course comes under expert level certification. Qualifying this exam and achieving certificate acknowledge your skills and knowledge with CCIE enterprise Wireless solution. For obtaining wireless certification you need to pass two exams: the core and concentration exam. It is one of the most upgraded and advanced certificate in Networking profession.

About the training

- **Study Material:-** Live lectures, Streaming Recorded Videos of Live Training, Online Lab Workbook, and Remote Virtual Lab access
- **Duration:-** 4 Months

Requirements

- CCIE aspirants are recommended to have 5+years of experience with designing, deploying, operating and optimizing enterprise wireless technologies and solutions.
- Basic knowledge of course content of CCIE Enterprise wireless

What you will learn

- Principles and characteristics of Radio Frequency
- Methodology of WLAN Security on how to access client devices
- WLAN architecture and IT infrastructure
- Implementing a centralized and converged wireless access network using WLAN controllers
- You will learn about how to Implement small and remote wireless networks using FlexConnect and autonomous
- Good understanding of WLAN maintenance and troubleshooting
- Knowledge and skills related to WLAN design

About Instructor

The trainer of the course has 14+ years experience of industrial training. He is master in wireless technology and has delivered vast and complex project on the same in many organization around the globe. In his experienced life, he has conveyed 80+ corporate and retail programs on several Cisco data and wireless products.

Course content

Qualifying Exam (ENCOR 350 – 401)

- Examining Cisco Enterprise Network Architecture
- Explain Cisco Switching Paths
- Explaining Campus LAN Connectivity
- Design Redundant Switched Topology
- Explaining Layer 2 Port Aggregation
- Understanding EIGRP
- Implementing OSPF
- Optimizing OSPF
- Exploring EBGP
- Implementing Network Redundancy
- Implementing NAT
- Overview of Virtualization Protocols and Techniques
- Explaining Virtual Private Networks and Interfaces
- Understanding Wireless Principles
- Examining Wireless Deployment Options
- Understanding Wireless Roaming and Location Services
- Examining Wireless AP Operation
- Understanding Wireless Client Authentication
- Troubleshooting Wireless Client Connectivity
- Introducing Multicast Protocols
- Introducing QoS
- Implementing Network Services
- Using Network Analysis Tools
- Implementing Infrastructure Security
- Implementing Secure Access Control
- Explaining Enterprise Network Security Architecture
- Explore Automation and Assurance Using Cisco DNA Center
- Examining the Cisco SD-Access Solution
- Explaining the Working Principles of the Cisco SD-WAN Solution
- Understanding the Basics of Python Programming
- Introducing Network Programmability Protocols
- Introducing APIs in Cisco DNA Center and vManage

Lab Exam For ENCOR 350 – 401

- Investigate the CAM
- Analyze Cisco Express Forwarding
- Troubleshoot VLAN and Trunk Issues
- Tuning Spanning Tree Protocol (STP) and designing Rapid Spanning Tree Protocol (RSTP)
- Configure Multiple Spanning Tree Protocol
- Troubleshoot EtherChannel
- Implement Multi-area OSPF

- Implement OSPF Tuning
- Apply OSPF Optimization
- Implement OSPFv3
- Configure and Verify Single-Homed EBGP
- Implementing Hot Standby Routing Protocol (HSRP)
- Design Virtual Router Redundancy Protocol (VRRP)
- Implement NAT
- Design and Verify Virtual Routing and Forwarding (VRF)
- Design and Verify a Generic Routing Encapsulation (GRE) Tunnel
- Design Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
- Configure Wireless Client Authentication in a Centralized Deployment
- Troubleshoot Wireless Client Connectivity Issues
- Configure Syslog
- Configure and Verify Flexible NetFlow
- Designing Cisco IOS Embedded Event Manager (EEM)
- Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
- Configure and Verify Cisco IP SLAs
- Configure Standard and Extended ACLs
- Configure Control Plane Policing
- Implement Local and Server-Based AAA
- Writing and Troubleshooting Python Scripts
- Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- Use NETCONF Via SSH
- Use RESTCONF with Cisco IOS XE Software

CCIE Enterprise Wireless Lab Exam

Radio frequency and Standards

- IEEE 802.11 standards and protocols
- RF Design / Site survey
 - Explain the tasks/goals for a preliminary site survey
 - Conduct the site survey
 - How to determine AP quantity, placement and antenna type
- Indoor and outdoor RF deployments
 - Coverage
 - Throughput
 - Voice
 - Location
 - Understanding High Density / Very High Density
- RF operational models
 - Understanding Radio resource management (Auto-RF, manual, hybrid, Flexible Radio Assignment, TPC and DCA, CHD)
 - Understanding Channel use (Co-channel, radar, non-WiFi interference, Dynamic Bandwidth Selection)
 - Power level, overlap
 - RF profiles
 - Data rates

- RX-SOP
- CleanAir and EDRRM
- Air Time Fairness (ATF)

Enterprise Wired Campus

- Layer 2 technologies to support wireless deployments
 - VLANs
 - STP
 - Etherchannel
 - CDP, LLDP
- Data/Control plane technologies to support a SD-Access wireless deployment
 - VXLAN and LISP
 - VRFs
- AP powering options
- IPv4 and IPv6 connectivity
 - Subnetting
 - Static and inter-VLAN routing
- Multicast on the switching infrastructure
 - PIM
 - Basic IGMP (including IGMP snooping)
 - MLD
- QoS on the switching infrastructure
 - MQC
 - MLS QoS
- Services to support a wireless deployment
 - DNS
 - DHCPv4 / DHCPv6
 - NTP, SNTP
 - SYSLOG
 - SNMP

Enterprise Wired Network

- WLC interfaces and ports
- Lightweight APs
 - AP modes
 - AP Logging
 - AP CLI troubleshooting
 - AP level configuration settings
 - WLC discovery and AP join process
 - AP join profile
- High availability, redundancy, and resilience
 - SSO
 - N+1, N+N
 - Patching and rolling upgrades for IOS-XE

- ISSU
- Wireless segmentation with profiles and groups
 - RF profiles
 - AP groups
 - Flex groups
 - Site tag
 - RF tag
 - Policy tag
- FlexConnect and Office Extend
- All controller deployment models
- Mesh
- WGB on IOS and on COS APs
- Controller Mobility
 - L2/L3 roaming
 - Multicast optimization
 - Mobility group scaling
 - Inter-OS controller mobility
 - Mobility anchoring
 - Mobility encryption

Wireless Security and Identify Management

- Secure management access and control plane
 - Device administration with TACACS+/RADIUS
 - CPU ACLs
 - Management via wireless and dynamic interface
 - Password policies
 - AP authorization
- Identity management
 - Basic PKI for dot1X and WebAuth
 - Internal and external identity sources
 - Identity PSK
- Wireless security and Network access policies
 - Client authentication and authorization
 - Client profiling and provisioning
 - RADIUS attributes
 - CoA
 - ACLs
 - L2/L3 security
 - Certificates
 - Local policies
- Guest management
 - Local web authentication
 - Central web authentication
 - Basic sponsor policy

- Access Point switchport authentication
 - MAB
 - 802.1X
 - NEAT
 - Switchport macros
- TrustSec for SD-Access Wireless
 - SGTs
 - SGACLs
- Intrusion detection and prevention features
 - Rogue policies
 - MFP
 - Standards and custom signatures
 - Client exclusion policies
 - Switchport tracing

Wireless business application and services

- QoS policies
 - QoS profiles
 - EDCA
 - WMM
 - Bi-Directional Rate Limiting
 - Admission control
 - QoS maps
 - FastLane
- AVC and netflow
- Client roaming optimization
 - Band Select
 - Load Balancing
 - 802.11r and Adaptive Fast Transition
 - 802.11k/v
- Wireless Multicast
 - Multicast modes in the controllers
 - Multicast snooping
 - Multicast direct
 - Multicast VLAN
- DNS
 - DNS proxy
 - Service discovery
 - Service filtering

Automation, Analytics and Assurance

- Prime Infrastructure
 - Basic operations
 - Create and deploy templates
 - Operate maps
 - Import infrastructure devices

- Audits
- Client troubleshooting
- Notification receivers
- Reports
- Monitoring policies
- Prime Infrastructure jobs
- WLAN Security management
- Configure rogue management
- Manage alarms and events
- Cisco CMX/DNA Spaces
 - Management access
 - Network services
 - Analytics & Metrics
 - Location
 - Profiles
 - Engage
 - Operational Insights
 - API calls using python scripts
- Cisco DNA Center
 - Wireless Automation
 - Assurance
 - SD Access

Note: ***Most of the course topics are covered with hands-on lab exercises and others are theoretical

Thank You
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