

## Implementing Cisco Enterprise Wireless Networks

**Duration: 5 Days**    **Course Code: ENWLSI**    **Version: 2.0**    **Delivery Method: Company Event**

### Overview:

The Implementing Cisco Enterprise Wireless Networks course gives you the knowledge and skills needed to implement a secure wireless network infrastructure and troubleshoot any related issues. You'll learn how to implement and secure a wireless network infrastructure and use Cisco Identity Service Engine (ISE), Cisco Prime Infrastructure (PI), Cisco DNA Center, Cisco Spaces and Cisco Connect Mobile Experience to monitor and troubleshoot network issues.

The course provides hands-on labs to reinforce concepts including deploying Cisco Catalyst 9800 Wireless Controller Release IOS XE Bengaluru 17.6.3, Cisco Digital Network Architecture (DNA) Center Release 2.3.3, Cisco Prime Infrastructure Release 3.5, Cisco Spaces, Cisco CMX Release 10.5 and Cisco Identity Services Engine (ISE) Release 3.0.

This course also helps you prepare to take the Implementing Cisco Enterprise Wireless Networks (300-430 ENWLSI) exam, which is part of the CCNP Enterprise certification. Passing the exam will also provide you with the Cisco Certified Specialist - Enterprise Wireless Implementation certification.

### This course is worth 40 Continuing Education (CE) Credits

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

### Target Audience:

Individuals needing to understand how to implement, secure and troubleshoot a Cisco Enterprise Wireless Network.

### Objectives:

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| <ul style="list-style-type: none"> <li>■ <b>After completing this course you should be able to:</b></li> <li>■ Explain how to secure the wireless network infrastructure</li> <li>■ Describe how to monitor and troubleshoot a wireless network</li> <li>■ Explain how to monitor wireless networks with Cisco Prime Infrastructure</li> <li>■ Explain how to observe wireless network with Cisco DNA Center</li> <li>■ Implement 802.1x authentication</li> <li>■ Configure FlexConnect</li> <li>■ Implement guest access</li> </ul> | <ul style="list-style-type: none"> <li>■ Describe how to monitor and troubleshoot client connectivity</li> <li>■ Describe how to implement QoS in wireless networks</li> <li>■ Implement Cisco AVC in wireless networks</li> <li>■ Implement multicast services</li> <li>■ Explain the QoS troubleshooting process</li> <li>■ Describe how to deploy Cisco Spaces and Cisco CMX</li> <li>■ Explain how to implement location services</li> <li>■ Describe how to monitor a wireless network with Cisco Spaces and Cisco CMX</li> </ul> |
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### Prerequisites:

Attendees should meet the following prerequisites:

- Foundation level knowledge of networking and wireless networks
- CCNA - Implementing and Administering Cisco Solutions

### Testing and Certification

Recommended as preparation for the following exams:

- **300-430** - Implementing Cisco Enterprise Wireless Networks Exam

- WLFNDU - Understanding Cisco Wireless Foundations
  - ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies
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## Content:

### Secure the Wireless Network Infrastructure

- Device Administration
- Security Best Practices for Administrative Access to Cisco WLC
- TACACS+ Overview
- Cisco WLC Configuration for TACACS+
- Role-Based Access Control on Cisco ISE
- AP Configuration for Management
- 802.1X Authentication
- AP Configuration for 802.1X Authentication
- Cisco ISE Configuration for AP 802.1X Authentication

### Monitor and Troubleshoot Wireless Network

- Defining Network Troubleshooting Techniques
- Structured Troubleshooting Methodologies
- Troubleshooting Access Point Join Issues
- Troubleshooting CAPWAP Access Point Discovery Issues
- Troubleshooting CAPWAP Access Point DTLS Issues
- Troubleshooting CAPWAP Access Point Join Issues
- Tools for Troubleshooting Access Point Issues
- Monitoring Wireless Network for Rogue Devices
- Monitoring and Managing RF Interferers on Cisco WLC

### Monitor Wireless Networks with Cisco Prime Infrastructure

- Cisco WLC Configuration for Cisco Prime Infrastructure
- Add New Devices to Cisco Prime Infrastructure
- Add Access Points to Maps
- Monitor Wireless Clients
- Reports in Cisco Prime Infrastructure
- Enhanced Client Information with Cisco ISE
- Location Details with Cisco CMX
- Monitor Wireless Networks for Rogue Devices with Cisco Prime Infrastructure
- Monitor and Manage RF Interferers on Cisco Prime Infrastructure

### Monitor Wireless Network with Cisco DNA Center

- Adding Devices to Cisco DNA Center
- Adding Access Points to Maps
- Monitoring Wireless Clients
- Enhanced Client Information with Cisco ISE
- Location Details with Cisco Spaces or Cisco CMX
- Troubleshooting Access Point and WLC Issues with Cisco DNA Center Assurance
- Enhanced Network Insights with Cisco AI Network Analytics

### Implement Guest Access

- Guest Services in the Wireless Network
- Defining Guest Users
- Central Web Authentication
- Cisco WLC Configuration for Centralized Web Authentication
- Cisco ISE Configuration for Centralized Web Authentication
- BYOD Overview
- BYOD Device Onboarding
- Cisco ISE Configuration for BYOD

### Monitor and Troubleshoot Client Connectivity

- Troubleshooting Client Connectivity
- Troubleshooting Client Authentication Issues
- Troubleshooting Client Connectivity on Cisco WLC
- Tools for Troubleshooting Client Connectivity on Cisco WLC
- Issues That Affect Client Performance
- Wireless Coverage and Capacity
- Enhancing Client Performance
- Troubleshooting Client Throughput and Data Rate Issues

### Implement QoS in Wireless Network

- QoS in Wireless Networks
- Traffic Classification and Marking
- Congestion in the Wireless World
- IEEE 802.11 QoS Fundamentals
- Cisco WLC Configuration to Support Voice Traffic
- Wireless Utilization Optimization with Cisco Air Time Fairness
- Wireless Utilization Optimization with QoS Profiles
- Wireless Utilization Optimization with Cisco Fastlane

### Implement Cisco AVC in Wireless Network

- Application Visibility and Control
- Cisco AVC on Cisco WLC
- Cisco AVC Configuration on Cisco WLC

### Implement Multicast Services

- Multicast Services on Cisco WLC
- Multicast Forwarding on Cisco WLC
- Multicast Configuration on Cisco WLC
- Multicast DNS Service
- mDNS Configuration
- Cisco DNA Center Service for Bonjour
- Cisco Media Stream
- Cisco Media Stream Configuration

### Troubleshoot QoS

- QoS Issues in the Wireless Network

### Deploy Cisco Spaces and Cisco CMX

- Location Services Overview
- Location Services Design
- Deploying Cisco Spaces
- Integrating Cisco Spaces with Cisco DNA Center
- Deploying Cisco CMX
- Integrating Cisco CMX with Cisco Prime Infrastructure
- Integrating Cisco CMX with Cisco DNA Center
- Cisco Hyperlocation Overview
- Deploying Cisco Hyperlocation
- Configuring Cisco Hyperlocation

### Implement Location Services

- Detect and Locate Services in Cisco Spaces
- Prepare Maps for Location Services in Cisco DNA Center
- Detect and Locate Services on Cisco CMX
- Analytics Services in Cisco Spaces
- Analytics on Cisco CMX
- Presence Services on Cisco CMX
- Guest Services Implementation in Cisco Spaces
- Guest Services Configuration in Cisco Spaces
- Guest Services Implementation with Facebook on Cisco CMX

### Monitor Wireless Network with Cisco Spaces and Cisco CMX

- Monitoring and Detecting Wireless Clients with Cisco Spaces
- Monitoring and Detecting Wireless Clients with Cisco CMX
- Monitoring and Locating Rogue Devices and Interferers with Cisco Spaces
- Monitoring and Locating Rogue Devices and Interferers with Cisco CMX
- Running Analytics on Wireless Clients with Cisco Spaces
- Running Analytics on Wireless Clients with Cisco CMX
- Troubleshooting Location Accuracy

### Labs

- Discovery Lab 1: Lab Familiarization (Base Learning Lab)
- Discovery Lab 2: Configure Secure Management Access for WLCs and APs
- Discovery Lab 3: Capture a Successful AP Authentication
- Discovery Lab 4: Network Monitoring with Cisco Prime Infrastructure
- Discovery Lab 5: Add Network Devices to Cisco DNA Center
- Discovery Lab 6: Integrate Cisco DNA

- Reports in Cisco DNA Center
- Monitoring the Wireless Network for Rogue Devices with Cisco DNA Center
- Monitoring Radio Frequency Interferers on Cisco DNA Center

#### Implementing Cisco 802.1X Authentication

- IEEE 802.1X Overview
- AAA-Based Wireless Security on Cisco WLC
- AAA-Based Wireless Security on Cisco ISE
- WLAN for 802.1X on Cisco WLC
- Wireless Client for 802.1X Authentication
- AAA Override
- AAA Override on Cisco WLC
- AAA Override on Cisco ISE

#### Configure Cisco FlexConnect

- Cisco FlexConnect Overview
- Cisco FlexConnect Configuration on Cisco WLC
- Cisco FlexConnect Authentication Configuration
- Cisco FlexConnect Identity-Based Networking
- Split Tunneling Configuration for Cisco FlexConnect
- OfficeExtend Configuration

- QoS Verification and Troubleshooting on Cisco WLC
- Issue Identification with Cisco AVC
- Cisco AVC Data in Cisco DNA Center
- mDNS Verification and Troubleshooting on Cisco WLC
- Media Stream Verification and Troubleshooting on Cisco WLC

#### Center with External Resources

- Discovery Lab 7: Use Cisco DNA Center for Network Monitoring
- Discovery Lab 8: Use Cisco DNA Center Reports
- Discovery Lab 9: Configure Cisco WLC for AAA Services
- Discovery Lab 10: Configure Cisco ISE for AAA Services
- Discovery Lab 11: Configure AAA Services for Cisco FlexConnect
- Discovery Lab 12: Configure Cisco WLC for Guest Services
- Discovery Lab 13: Configure Cisco ISE for Guest Services
- Discovery Lab 14: Configure BYOD in the Wireless Network
- Discovery Lab 15: Capture a Successful Client Authentication Using Radioactive Trace
- Discovery Lab 16: Capture a Successful Client Authentication Using Cisco ISE
- Discovery Lab 17: Configure QoS in the Wireless Network for Voice and Video Services
- Discovery Lab 18: Configure Cisco AVC in the Wireless Network

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

[info@globalknowledge.co.uk](mailto:info@globalknowledge.co.uk)

[www.globalknowledge.com/en-gb/](http://www.globalknowledge.com/en-gb/)

Global Knowledge, Mulberry Business Park, Fishponds Road, Wokingham Berkshire RG41 2GY UK