



# Class Outline

## Certified Wireless IoT Solutions Administrator (CWISA)



### Objectives

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- Understand Wireless Networking and Internet of Things (IoT) Technologies
- Comprehend Basic Radio Frequency Communications
- Identify Methods for Planning Wireless Solutions
- Describe Methodology of Implementing Wireless Solutions
- Determine Best Practices for Supporting Wireless Solutions

### Pre-Requisite Knowledge Advisory

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- Basic Understanding of Wireless Networking
- Basic Understanding of Cellular Telephony Communications
- Familiarity with Internet of Things (IoT)

### Exam

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- CWISA-101
- Proctor: PearsonVUE
- Renewal: 3 years

### Class Outline

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#### Module 1 – Introducing Wireless Technologies

- History of Wireless
- Introduction to Radio Waves, Frequencies, and the OSI Model
- Wireless Components: Cabling, PoE, and Hardware
- Lab Testing and Staging
- Documentation
- Security Advances

- Industry and Regulatory Organizations

## **Module 2 – Introducing Wireless Technologies, cont.**

- Introducing Wireless Network Types (WLANs, etc.)
- The Internet of Things (IoT)
- Client Architectures
- Types of Wireless Networks and Their Challenges

## **Module 3 – Planning Wireless Solutions**

- Requirements and Constraints
- Network Design Components
- Design Evaluation
- Project Management
- Standard Documentation

## **Module 4 – RF Communication**

- Electromagnetic Spectrum
- Frequency, Waves, Polarization, Gain and Loss
- Wave Behavior and Modulation
- Measurement
- RF Math

## **Module 5 – Hardware**

- Antennas and Antenna Systems
- Signal Transmission
- RF Connectors, Cables, and Accessories

## **Module 6 – Cellular Networks**

- History
- Architectures
- Service Types
- LTE Networks
- Frequencies

## **Module 7 – Short-Range, Low-Rate, and Low-Power Networks**

- Speed, Range, Power
- The IEEE 802.11 Standard
- Frequency Bands
- PHYs, BSS, ESS, etc.
- Channels
- 802.15.4
- Bluetooth, LoRa, Zigbee
- 6LoWPAN

## **Module 8 – Sensor Networks**

- Applications
- Measurement
- Sensor Types and Actuators
- Architectures
- Requirements and Constraints

## **Module 9 – The Internet of Things (IoT)**

- Definition
- History
- Vertical Markets
- Models
- Hardware
- Security
- Wireless and IoT

## **Module 10 – Securing Wireless Networks**

- CIA
- Data Protection
- Monitoring

## **Module 11 – Troubleshooting Wireless Networks**

- Validation
- Troubleshooting Methodology
- Spectrum Analysis
- Troubleshooting Specifics

## **Module 12 – Programming, Scripting, and Automation**

- APIs
- Languages
- Architectures
- Layers and Tiers
- Data Structures

