

CWISA Wireless IoT Solutions Administrator

A 4 day training course



Description

This CWISA course covers wireless technologies with reference to IoT. It examines from an IoT perspective how wireless works, and is an excellent introduction to IoT for the wireless engineer. Topics range from wireless technologies, RF, to mobile networks, IoT, and security.



Key outcomes

By the end of the course delegates will be able to:

- ✓ Describe wireless networking and IoT technologies.
- ✓ Explain basic RF communications.
- ✓ Plan wireless solutions.
- ✓ Describe how to implement wireless solutions.
- ✓ Use best practices in implementing wireless solutions.



Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning.



Details

Who will benefit?

Anyone working with IoT technologies.

Prerequisites

RF fundamentals.

Duration: 4 days

Customer rating: New course

Generic training



Generic training complements product specific courses covering the complete picture of all relevant devices including the protocols "on the wire".

"Friendly environment with expert teaching that teaches the why before the how."

G.C. Fasthosts

Small class sizes



We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.

"Excellent course. The small class size was a great benefit..."

M.B. IBM

Hands On training



The majority of our courses use hands on sessions to reinforce the theory.

"Not many courses have practice added to it. Normally just the theoretical stuff is covered."

J.W. Vodafone

Our courseware



We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.

"Comprehensive materials that made the course easy to follow and will be used as a reference point."

V.B. Rockwell Collins

Customise your course



Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.

"I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on."

S.R. Qinetiq

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Course content

Introduction to wireless technologies

History of wireless, radio waves and frequencies, wireless technologies and related components, common components of wireless solutions, LAN networking requirements, Network security, Implementing wireless solutions, staging, documentation, security updates, Industry organizations, IEEE, compatibility and certification groups.

Wireless network use cases

Wireless BANs, Wireless PANs, Wireless LANs, Wireless MANs, Wireless WANs, Wireless sensor networks, New network driver—Internet of Things, IoT for industry (IIoT), IoT for connected vehicles, Residential environments, Retail, Education (K-12), Higher education, Agriculture, Smart cities / Public access, Health care, Office buildings, Hospitality, Industry, Stadiums, arenas, and large public venues.

Planning wireless solutions

Identifying use cases and applications, common wireless requirements and constraints, performing a wireless system design, selecting and evaluating design parameters.

RF communications

RF wave characteristics, RF propagation behaviours, RF signal metrics, fundamentals of wireless modulation. other wireless carriers, common frequency bands.

Radio frequency hardware

Hardware levels, basic RF hardware components (circuit board level), RF link types (use category). RF device types.

Mobile communications networks

Mobile networks, LTE, 5G, Use cases.

Short-range, low-rate, and low-power networks

RF and speed, RF and range, RF and power, 802.11, 802.15.4, Bluetooth, LoRa (Long range) / LoRaWAN, ZigBee, 6LoWPAN, NB-IoT and LTE-M.

Wireless sensor networks

What is a Wireless Sensor Network (WSN)? WSN applications, Sensors and actuators, WSN architectures, Planning a WSN.

Internet of Things (IoT)

Internet of Things (IoT) defined, IoT history and its definition revisited, one more comment on the definition of IoT, IoT verticals, Oil & Gas, IoT structure/ architecture basics, IoT connected objects.

Securing wireless networks

Confidentiality, integrity and availability, Privacy, non-repudiation, authenticity & safety, Importance of authentication in wireless networks, Key cryptographic technologies & concepts, Authentication methods, Authorisation, OAuth 2.0 authorisation framework, monitoring.

Troubleshooting wireless solutions

Proper solutions design, designing and implementing wireless solutions, basic installation procedures, general configuration considerations, troubleshooting and remediation, troubleshoot common problems in wireless solutions.

Programming, scripting and automation

What is an API? categories of APIs, common API communication methods, choosing a language, why are we integrating systems? Application & integration architectures. Data structures & types, XML, YAML, API types.

