MPIRICAL

Innovating Telecoms Training

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Very informative, instructor was engaging and knowledgeable!

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▶ Watch our course intro video.

Introduction to Wi-Fi

Course Description

Over the past twenty years, Wi-Fi has played an ever more critical role in the way we communicate; be that surfing the web, sending emails, messaging or making calls. This introduction course explores how Wi-Fi actually works in terms of the latest 802.11n (Wi-Fi 4), 802.11ac (Wi-Fi 5) and 802.11ax (Wi-Fi 6) standards, including the associated certification programs from the Wi-Fi Alliance. The course then moves on to discuss several methods of determining a device's location, before addressing Wi-Fi Security. Finally, Wi-Fi Calling is explored in terms of supporting seamless connectivity between Wi-Fi and the 4G cellular networks.

This course has no prerequisites.

½ **day**
(LiveOnsite, LiveOnline)

3 **hours learning**
(OnlineAnytime)

3 **CPD Learning Credits**

Level: 1 (Beginner)

This course will contain the following sections:

1. Introduction to Wi-Fi

Topic areas covered include:

- What is Wi-Fi?
    - The IEEE 802.11 Standards:
        - 802.11a/b/g/n/ac/ax.
        - 802.11ad/ah.
    - The Wi-Fi Alliance Programmes.

- Wi-Fi Network Architecture:
    - The Building Blocks of a Wi-Fi Network.
    - Basic Service Sets and Extended Service Sets.
    - Using Mesh Technology to Extend Coverage.

- Finding and Joining a Wi-Fi Network:
    - Wi-Fi Frames.
    - Wi-Fi Addressing.
    - Finding a Wi-Fi Network:
        - Scanning for Wi-Fi.
        - Probing for Wi-Fi.
    - Joining a Wi-Fi Network:
        - Authentication.
        - Association.

- Sending and Receiving Data over Wi-Fi:
    - OFDM and OFDMA.
    - Beam Steering and MU-MIMO.
    - Modulation and Increasing Data Throughput.
    - Uplink and Downlink Data Transfer:
        - 802.11a/b/g/n.
        - 802.11ac/ax.

- Wi-Fi Location Services:
    - Tracking a Wi-Fi Station:
        - Randomly Assigned MAC Addresses.
    - Wi-Fi Positioning System.
    - Wi-Fi Location.

- Wi-Fi Security:
    - Wi-Fi Security Principles.
    - Wi-Fi Protected Access 1, 2 and 3.
    - WPA3 and Wi-Fi Easy Connect.

- Wi-Fi Calling and Seamless Mobility:
    - 4G and Wi-Fi Calling.
    - Wi-Fi Passpoint and Hotspot 2.0.

1/2 day (LiveOnsite, LiveOnline)

3 hours learning (OnlineAnytime)

3 CPD Learning Credits

LiveOnsite, LiveOnline, OnlineAnytime

Managed Learning Services

As part of our managed learning service we can offer you and your organisation a full range of services including:

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- Bespoke content and courseware development.
- Product specific training packages, including product updates.
- Dedicated trainers to understand your products and training requirements.
- Managed training delivery services – administrative aspects including scheduling and liaison.
- Customizable learning management system.
- Traditional classroom, virtual classroom or video based online learning options.

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