Wi-Fi Technology

From Theory to Practice

COURSE DESCRIPTION

This one-day course delivers a practical understanding of modern Wi-Fi technologies, from wireless fundamentals to enterprise network design and troubleshooting. Participants will learn how Wi-Fi has evolved from Wi-Fi 5 to Wi-Fi 8, understand spectrum and regulatory considerations, and gain the practical knowledge required to design, deploy and maintain high-performance wireless networks in residential, business and large enterprise environments.

The course gives teams a common technical foundation for planning, deploying and supporting Wi-Fi infrastructure across the organisation.

WHO SHOULD ATTEND?

ICT engineers, technicians, radio amateurs, academics, telecommunication regulators, and personnel with a basic knowledge of telecommunication technologies.

COURSE OBJECTIVES

By the end of this course participants will be able to:

- Explain the principles of Wi-Fi technology, the key features of each Wi-Fi generation from Wi-Fi 6 to Wi-Fi 8, and the regulations governing unlicensed use
- Operate and troubleshoot consumer Wi-Fi networks
- Explain enterprise Wi-Fi network deployment, key considerations and troubleshooting in enterprise networks
- Explain how Wi-Fi complements mobile, satellite and cable technologies to provide connectivity

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SOME COURSE BENEFITS

- Plan and design Wi-Fi networks for residential, business and large enterprise environments
- Troubleshoot common Wi-Fi network issues such as interference, coverage blind spots and poor throughput
- Plan IT roadmaps for organisations

FORMAT

1 day, interactive classroom-based or live online via Zoom.

Maximum attendees: 12 per course.

CONTENT

Morning

- The basics of wireless communication
- Wi-Fi technology principles and evolution
- Spectrum, Wi-Fi channels and regulations
- From Wi-Fi 5 to Wi-Fi 8: key features and enhancements in each generation of Wi-Fi
  - MU-MIMO
  - BSS-Colouring
  - OFDMA
  - Automated Frequency Coordination
  - Pre-amble Puncturing
  - Multiple Link Operation
  - Seamless Roaming
  - Multiple-AP Coordination

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Afternoon

- Wi-Fi network design and troubleshooting
  - Consumer Wi-Fi network
  - Mesh Wi-Fi network
  - Enterprise network design considerations
  - Common Wi-Fi issues and troubleshooting
  - Wi-Fi technology opportunities and limitations for enterprise
- Wi-Fi Security
- The complementary role of Wi-Fi, cellular, satellite and fibre in connectivity
  - Wi-Fi offload to cellular
  - Operator's Passpoint Wi-Fi
  - Wi-Fi Calling
  - Open Roaming Wi-Fi

Assessment (Optional for in-house courses)

- Instructor led interactive quizzes
- Multiple choice written test

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