Mobile & Wi-Fi Networks for technical professionals

COURSE DESCRIPTION:

This course is designed for technical professionals wanting to develop their knowledge of modern mobile communication technologies. The two days course covers mobile technology evolution and key features in 4G/5G, wireless broadband and Wi-Fi. The course will enhance the technical capability for your day-to-day work or your research program.

WHO SHOULD ATTEND:

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

COURSE OBJECTIVES:

- To understand physics of radio spectrum and its legislation in New Zealand
- To understand evolution of mobile technology and key features in each generation
- To understand the cellular and Wi-Fi network deployment, as well as elements in the mobile network
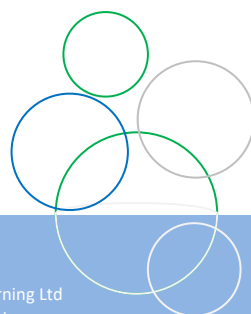
SOME COURSE BENEFITS:

- Be able to design a mobile network at high-level or an enterprise Wi-Fi network
- Be able to troubleshoot common issues in the mobile network such as interference, blind coverage, poor performance etc.
- Be able to plan a technology roadmap for organisations

FORMAT:

2-days, interactive classroom based or live online via Zoom

Maximum attendees 12 per course

CONTENT:

Day 1
Morning

- The language & jargon surrounding radio frequency
- Radio spectrum physics and legislation framework
- RF Basic
- Standards and regulations
- NZ mobile broadband development and government initiatives

Afternoon

- Evolution of mobile technology
- Network deployment
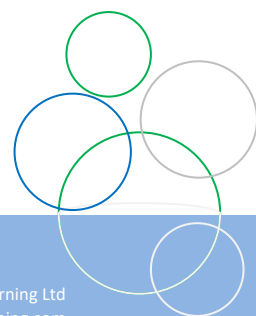- Mobile network architecture (Core, Access, Backhaul)
- Network sharing

Day 2
Morning

- Core network
  - Function block
  - Network Slicing
  - VoLTE, VoNR(5G)

- Access network
  - Network deployment
  - Antenna and base stations
  - Fixed wireless access
  - RAN technologies (TDD/FDD, beamforming, MIMO, carrier aggregation)

Afternoon

- Wi-Fi technology overview
- Wi-Fi deployment and troubleshooting
  - Mesh Wi-Fi deployment
  - Enterprise Wi-Fi networks
  - Wi-Fi calling
- Wi-Fi 6 technologies
  - MU-MIMO
  - BSS-Colouring
  - Target Wake Time
  - OFDMA
- Wi-Fi 6E Enhancement (Spectrum, neighbour discovery)
- Wi-Fi 7 features
- OpenRoaming

Assessment (Optional for in-house courses)

- Instructor led interactive quizzes
- Multiple choice written test

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