4G, 5G & Wi-Fi Technologies for Telecommunication 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 modern mobile technologies such as 4G, 5G, fixed 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

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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

Assessment (Optional for in-house courses)

- Instructor led interactive quizzes
- Multiple choice written test

Delivered in association with

SPECTRUM LAB

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