

Introduction to 5G and 5G Private Networks (1 day)

This course is designed to provide an accessible introduction to 5G, and private networks based on 5G. The course is suitable for councils, government and public sector organisations, and non-technical managers in industry and commerce (amongst others!).

During the course, you will learn the fundamentals of 5G technology, 5G private networks and shared spectrum. Aspects such as 5G standardisation and spectrum regulations will be explained, along with an overview of how 5G private networks are structured, installed, and managed. A series of case studies will be presented, illustrating candidate applications and real-world examples of successfully deployed networks.

Syllabus

Introduction to 5G

- The demand for connectivity
- Review of wireless technologies
- 5G compared to the previous G's!
- 5G standardisation

Radio Frequency (RF) Spectrum

- RF spectrum properties and usage
- Spectrum regulation
- Fixed allocation versus shared spectrum models
- Bands of interest for 5G

Shared Spectrum

- Shared spectrum overview and motivations
- Case study: UK shared spectrum under Ofcom
- Spectrum monitoring, databases, and overlays
- Future opportunities in shared spectrum

5G Private Networks

- Private versus public networks
- 5G private network structure
- 5G private network components
- Example applications and networks

5G Network Design and Deployment

- Radio Access Network (RAN) overview
- Performance and capacity metrics
- Practical network installation considerations
- Management and maintenance

Attributes and Applications

- Enhanced mobile broadband (eMBB)
- Ultra-reliable, low latency communications (URLLC)
- Massive machine type communications (mMTC)
- New applications enabled by 5G

Case Studies

- Design and deployment of a private 5G network
- 5G rural connectivity
- 5G broadcast and events
- 5G for industry 4.0

Outlook

- Pros and cons of private 5G networks
- Outlook for enabling technology
- The future (What about 6G?)
- Course review and wrap-up

Note: Opportunities for Q & A will be integrated into the course.

Delivery Arrangements

This course can be delivered on-site at your organisation's premises (or at another location by arrangement), or online.

The normal course duration is 1 day. This can be split into two half-days (for online mode only), if desired. We are happy to discuss extended versions if you would like more detail on any particular topic(s).

Participants will each receive a copy of the course materials in printed and electronic format, to take away.