

Wireless Communication Systems

London (UK)

8 - 19 September 2025

UK Traininig

PARTNER



Wireless Communication Systems

Code: GC28 From: 8 - 19 September 2025 City: London (UK) Fees: 8600 Pound

Introduction

This 10-day training course on Wireless Communication Systems is designed to provide a comprehensive understanding of the principles, technologies, and applications of wireless communication. The course will cover fundamental concepts, advanced techniques, and emerging trends in the field, equipping participants with the knowledge and skills required to excel in this dynamic area.

Objectives

- Understand the basics of wireless communication systems: Gain a solid foundation in the fundamental principles and components of wireless communication.
- Explore various wireless communication technologies: Learn about different types of wireless communication systems, including cellular networks, Wi-Fi, Bluetooth, and satellite communications.
- Analyze the performance of wireless systems: Study key performance metrics and techniques for evaluating and optimizing wireless communication systems.
- Examine advanced topics in wireless communication: Delve into topics such as modulation schemes, error correction, and multiple access techniques.
- Discuss the latest trends and developments: Stay updated on the latest innovations and future directions in wireless communication.

Course Outline

Day 1

Fundamentals of Wireless Communication

- Overview of Wireless Communication Systems
- Radio Wave Propagation
- Antennas and Their Characteristics
- Signal Transmission and Reception
- Wireless Communication Standards

Day 2



Cellular Networks

- Evolution of Cellular Networks 1G to 5G
- Cellular Network Architecture
- Frequency Reuse and Handoff Strategies
- Multiple Access Techniques FDMA, TDMA, CDMA, OFDMA
- LTE and 5G Technologies

Day 3

Wireless Local Area Networks WLAN

- Introduction to WLAN
- IEEE 802.11 Standards Wi-Fi
- WLAN Architecture and Components
- WLAN Security Protocols
- Performance Optimization in WLANs

Day 4

Bluetooth and Personal Area Networks PAN

- Overview of Bluetooth Technology
- Bluetooth Protocol Stack
- Bluetooth Security and Pairing
- Applications of Bluetooth
- Other PAN Technologies Zigbee, UWB

Day 5

Satellite Communication Systems

- Basics of Satellite Communication
- Types of Satellites GEO, MEO, LEO
- Satellite Communication Links
- Satellite Network Design
- Applications of Satellite Communication



Day 6:

Modulation and Coding Techniques

- Introduction to Modulation Techniques
- Digital Modulation Schemes ASK, FSK, PSK, QAM
- Error Detection and Correction
- Channel Coding Techniques
- Modulation and Coding Trade-offs

Day 7:

Multiple Antenna Techniques

- Introduction to MIMO Systems
- Diversity and Spatial Multiplexing
- Beamforming Techniques
- MIMO System Capacity
- Applications of MIMO in Wireless Communication

Day 8:

Mobile Ad Hoc Networks MANETs

- Fundamentals of MANETs
- Routing Protocols in MANETs
- Security Challenges in MANETs
- Performance Metrics for MANETs
- Applications of MANETs

Day 9:

Emerging Wireless Technologies



- Internet of Things IoT
- 5G and Beyond
- Cognitive Radio Networks
- Millimeter-Wave Communication
- Wireless Sensor Networks

Day 10:

Future Trends and Research Directions

- Advanced Topics in Wireless Communication
- Trends in Wireless Technology Development
- Challenges and Opportunities in Wireless Communication
- Future Research Directions
- Final Review and Q&A Session



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