XCELERATE TRAINING INSTITUTE

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TELECOMMUNICATION

5G New Radio Access Technology

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
17 – 21 May 2027	Live online	Online (live)	€1,200
22 – 26 Nov 2027	Live online	Online (live)	€1,200
27 – 31 Dec 2027	Istanbul	Classroom	€4,800

Register or ask a question

Online: x8ti.com/course/5g-new-radio-access-technology/

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5G New Radio Access Technology

Introduction

This course by Xcelerate Training Institute provides a comprehensive overview of 5G technology, highlighting its advancements over previous generations. It explores the key features and benefits of 5G, including increased speed, expanded coverage, and improved capacity. The course focuses on the technical aspects of 5G, such as network architecture, radio access technologies, and core network functions.

Learning Objectives

Upon completion, participants will gain a solid understanding of 5G technology, its architecture, and key performance indicators. They will be able to evaluate the impact of 5G on network design and operations.

Training Methodology

The course combines theoretical knowledge with practical examples to provide a comprehensive learning experience. Participants will engage in interactive discussions, case studies, and hands-on activities to apply their knowledge.

Benefits for Your Organisation

Organizations investing in this course can expect improved network performance, enhanced customer experience, and the ability to explore new business opportunities enabled by 5G technology.

Benefits for You

Individuals will develop expertise in 5G technology, expanding their career opportunities in the telecommunications industry.

Who Should Attend

This course is designed for engineers and technical professionals involved in the planning, design, and operation of wireless networks.

Course Outline

Introduction to 5G NR

- 5G Vision and Goals: Understanding the key objectives and requirements of 5G
- Evolution from 4G: Comparison of 5G NR with previous generations
- Key Features and Benefits: Exploring the unique characteristics of 5G NR

5G NR Physical Layer

- OFDM: Orthogonal Frequency Division Multiplexing as the core modulation scheme
- Channel Coding: Error correction techniques for reliable transmission
- Multiple Access: Techniques such as TDMA, FDMA, and OFDMA for efficient resource allocation
- Beamforming: Enhancing spectral efficiency and coverage through beamforming techniques

- Massive MIMO: Large-scale antenna arrays for improved capacity and coverage

5G NR Radio Link Control (RLC) and Medium Access Control (MAC)

- RLC Functions: Segmentation, reassembly, and error handling
- MAC Functions: Resource allocation, scheduling, and power control
- Hybrid Automatic Repeat Request (HARQ): Improving reliability and throughput
- Scheduling Algorithms: Round robin, proportional fair, and opportunistic scheduling

5G NR Radio Resource Management (RRM)

- Cell Architecture: Single-cell, multi-cell, and distributed MIMO
- Power Control: Managing transmit power for efficient resource utilization
- Interference Management: Techniques to mitigate interference between cells
- Cell Selection and Handover: Ensuring seamless connectivity and quality of service

5G NR Network Architecture

- Evolved Packet Core (EPC): Overview of the core network components
- 5G Core Network (5GC): Key components and functionalities
- Network Slicing: Enabling customized network services for different applications
- Edge Computing: Bringing compute resources closer to the user for low-latency applications

5G NR Applications and Use Cases

- Enhanced Mobile Broadband (eMBB): Supporting high-speed data rates and massive connections
- Ultra-Reliable Low-Latency Communication (URLLC): Enabling critical applications with stringent reliability and latency requirements
- Massive Machine-Type Communications (mMTC): Supporting a large number of low-power devices
- Industry 4.0: Applications in manufacturing, logistics, and automation
- Internet of Things (IoT): Connecting a vast number of devices to the network

Advanced Topics in 5G NR

- Non-Orthogonal Multiple Access (NOMA): Improving spectral efficiency by serving multiple users on the same resource
- Full-Duplex Communication: Simultaneous transmission and reception on the same frequency
- Millimeter Wave (mmWave) Communications: Exploring the challenges and opportunities of high-frequency bands
- Terahertz (THz) Communications: Potential for future-generation wireless networks

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Registration Form

5G New Radio Access Technology

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

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