Advanced 5G Deployment and Digital Connectivity Training Course



14 - 18 Dec 2026

Cairo

3700 € (Per Person)

Ref: #DT4704_273117

Course Introduction / Overview:

The fifth-generation wireless technology, or 5G, represents a paradigm shift in digital connectivity, promising to reshape industries and societies. This course provides a comprehensive exploration of 5G deployment and the strategic imperatives of building robust digital ecosystems. It moves beyond theoretical concepts to offer practical, actionable insights into network architecture, spectrum management, and the rollout of 5G services. As detailed by experts like Dr. Afif Osseiran in works such as "5G Mobile and Wireless Communications Technology," the transition to 5G involves complex technical, economic, and regulatory challenges. This program, offered by BIG BEN Training Center, is meticulously designed to equip professionals with the knowledge to navigate these complexities. Participants will delve into core technologies like network slicing, edge computing, and Open RAN, understanding their role in enabling transformative use cases from smart cities and autonomous vehicles to the Industrial Internet of Things (IIoT). The curriculum integrates technical deep dives with strategic planning frameworks, ensuring that attendees can not only understand 5G technology but also lead its successful implementation, driving digital transformation and fostering innovation within their organizations and communities. This is the definitive guide to mastering the future of digital connectivity.

Target Audience / This training course is suitable for:

- Telecommunications Engineers and Technicians.
- Network Architects and Planners.
- IT Managers and Directors.
- Government Regulators and Policy Makers.
- Urban Planners and Smart City Project Managers.
- Technology Strategists and Consultants.
- Product Managers developing 5G-enabled services.
- Research and Development Professionals.
- Infrastructure Investment Analysts.

Target Sectors and Industries:

- Telecommunications and Mobile Network Operators.
- Information Technology and Services.
- Government and Public Sector Agencies.
- Manufacturing and Industrial Automation (Industry 4.0).
- Healthcare and Telemedicine.
- Transportation and Automotive (V2X).
- Energy and Utilities.
- Media and Entertainment.
- Logistics and Supply Chain Management.

Target Organizations Departments:

- Network Operations and Engineering.
- Information Technology (IT) and Infrastructure.
- Strategic Planning and Business Development.
- Research and Development (R&D).
- Regulatory Affairs and Compliance.
- Product Management and Marketing.
- Corporate Strategy and Innovation.
- Smart City and Urban Development Units.

Course Offerings:

By the end of this course, the participants will have able to:

- Analyze the fundamental principles and architecture of 5G networks.
- Develop effective strategies for 5G spectrum planning and management.
- Evaluate different 5G deployment models, including NSA and SA.
- Design and implement network slicing for diverse service requirements.
- Assess the role of edge computing and cloud integration in 5G ecosystems.
- Identify and mitigate security threats specific to 5G infrastructure.
- Formulate digital connectivity strategies for vertical industries like healthcare and manufacturing.
- Navigate the policy and regulatory landscape governing 5G deployment.
- Plan for the integration of IoT and massive machine-type communications.
- Create a strategic roadmap for organizational digital transformation powered by 5G.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and highly practical, ensuring participants gain both theoretical knowledge and hands-on skills. This course blends expert-led presentations with dynamic group discussions, allowing for a deep exploration of 5G deployment challenges and solutions. A cornerstone of our approach is the extensive use of real-world case studies, examining successful and challenging 5G rollouts from across the globe. Participants will engage in collaborative workshops to design digital connectivity strategies and solve complex network planning scenarios. Interactive sessions will cover technical simulations of network slicing and resource allocation, providing a tangible understanding of core 5G concepts. The learning environment encourages active participation, with continuous feedback from instructors who are seasoned industry professionals. This blended learning approach ensures that participants not only grasp the technical intricacies of 5G but also develop the strategic thinking necessary to lead digital transformation initiatives within their organizations. The focus is on translating knowledge into actionable strategies and measurable outcomes.

Course Agenda (Course Units):

Unit One: Foundations of 5G and the Digital Revolution

- Introduction to 5G and its key capabilities.
- Evolution from 1G to 5G and the limitations of previous generations.
- Understanding the 5G ecosystem and key stakeholders.
- IMT-2020 requirements and performance targets.
- Core concepts of enhanced Mobile Broadband (eMBB), URLLC, and mMTC.
- The economic and social impact of pervasive digital connectivity.
- Global 5G adoption trends and market analysis.

Unit Two: 5G Network Architecture and Core Technologies

- 5G New Radio (NR) and advanced antenna systems (Massive MIMO).
- The 5G Core Network (5GC) and its Service-Based Architecture (SBA).
- Deployment models: Non-Standalone (NSA) vs. Standalone (SA).
- Network Function Virtualization (NFV) and Software-Defined Networking (SDN).
- The principles and application of Network Slicing.
- Multi-access Edge Computing (MEC) for low-latency applications.
- Understanding Open RAN (O-RAN) and its strategic implications.

Unit Three: Spectrum Management and Strategic Deployment

- Overview of 5G spectrum bands (low, mid, and high-band).
- Challenges and strategies for spectrum acquisition and clearing.
- Radio network planning and optimization for 5G.
- Site acquisition, cell densification, and small cell deployment.
- Fixed Wireless Access (FWA) as a key 5G use case.
- Developing a phased 5G rollout and migration strategy.
- Financial modeling and ROI analysis for 5G investments.

Unit Four: Enabling 5G Use Cases and Industry Verticals

- The Internet of Things (IoT) and massive connectivity.
- Smart cities: infrastructure, mobility, and public services.
- Industry 4.0: smart factories, automation, and private networks.
- Connected vehicles and Vehicle-to-Everything (V2X) communication.
- Transforming healthcare with telemedicine, remote surgery, and monitoring.
- Augmented Reality (AR) and Virtual Reality (VR) applications.
- Developing a vertical-specific value proposition for 5G services.

Unit Five: Security, Regulation, and the Future of Connectivity

- End-to-end security architecture for 5G networks.
- Identifying and mitigating new security threats and vulnerabilities.
- The role of policy and regulation in accelerating 5G deployment.
- Addressing challenges of digital inclusion and the digital divide.
- The importance of public-private partnerships in building digital infrastructure.
- Sustainability and energy efficiency in 5G networks.
- Emerging trends and the roadmap towards 6G.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As 5G facilitates unprecedented data collection and connectivity, how can societies balance the drive for technological progress with the ethical imperatives of privacy and digital equity?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by offering a holistic, multi-dimensional perspective on 5G that transcends purely technical training. While many programs focus solely on the engineering aspects of network deployment, this curriculum integrates technology, strategy, policy, and business acumen. It is designed for leaders who need to understand not just the 'how' but the 'why' and 'what's next' in the digital connectivity landscape. We place a strong emphasis on strategic decision-making, using case studies that explore the complex trade-offs in spectrum management, investment, and vertical market entry. The content moves beyond buzzwords to provide a deep, critical analysis of concepts like Open RAN and network slicing, evaluating their real-world business and operational impacts. Furthermore, the course dedicates significant time to the non-technical yet critical domains of regulatory navigation, security governance, and the societal implications of 5G. This strategic foresight, combined with practical deployment knowledge, equips participants not merely to implement a network, but to lead a comprehensive digital transformation that is secure, profitable, and socially responsible.