5G Networks and Applications for Emerging Sectors Training Course



06 - 10 Dec 2026

Manama

4400 € (Per Person)

Ref: #NO4160_200778

Course Introduction / Overview:

This comprehensive training course provides a foundational understanding of 5G networks and their transformative applications across various emerging sectors. As the next generation of mobile technology, 5G is not just about faster speeds, it is about enabling a new era of connectivity for the Internet of Things (IoT), smart cities, and mission-critical applications. This course will demystify the core technologies of 5G, including network slicing, massive MIMO, and edge computing. Participants will learn how 5G's low latency and high reliability are poised to revolutionize industries like manufacturing, healthcare, and transportation. We will explore the business case for 5G deployment, the challenges of network security, and the opportunities for innovation in connected devices and services. Drawing from influential research and publications by academic authors like Dr. Erik Dahlman, whose work on 5G system design is highly regarded, this program at BIG BEN Training Center is designed to be both informative and forward-looking. The curriculum provides a holistic view of the 5G ecosystem, preparing professionals to understand its technical complexities and strategic implications. By the end of this course, you will be equipped to identify and leverage the opportunities that 5G presents for your organization and to contribute to the planning and implementation of future-ready network solutions.

Target Audience / This training course is suitable for:

- IT and network professionals.
- Engineers and technical managers in telecommunications.
- Strategic planners and business development managers.
- IoT and smart solutions architects.
- Government and public sector officials.
- Technology and innovation managers.
- Consultants in the tech and telecom sectors.

Target Sectors and Industries:

- Telecommunications and mobile service providers.
- Technology and software development.
- Manufacturing and logistics.
- Smart cities and public services.
- Healthcare and medical technology.
- Automotive and transportation.
- Government agencies and equivalents.

Target Organizations Departments:

- Technology and Engineering.
- Business Development.
- Product Management.
- Research and Development.
- Network Planning and Operations.
- IT Infrastructure.
- Innovation and Strategy.

Course Offerings:

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

- Explain the core technologies and architecture of 5G networks.
- Identify key applications of 5G in emerging sectors like IoT and smart cities.
- Understand the concepts of network slicing and edge computing.
- Evaluate the business case for 5G implementation and investment.
- Analyze the security and privacy challenges of 5G networks.
- Understand the role of 5G in industrial automation and remote operations.
- Contribute to strategic discussions about 5G deployment.

Course Methodology:

This training course at BIG BEN Training Center uses a dynamic and engaging methodology that blends theoretical knowledge with practical applications. The course includes instructor-led presentations, interactive discussions, and case studies that highlight the transformative impact of 5G in real-world scenarios. We will analyze how different industries are adopting 5G, examining the challenges they faced and the benefits they gained. Participants will engage in group exercises and brainstorming sessions to explore potential 5G applications and business models. The curriculum is designed to be highly interactive, encouraging questions and dialogue to ensure a deep understanding of complex concepts. This approach provides a comprehensive learning experience that not only explains the technology but also helps participants think strategically about how to leverage it for competitive advantage and business growth.

Course Agenda (Course Units):

Unit One: The Foundation of 5G Networks

- The evolution from 4G to 5G.
- Core architectural components of 5G.
- Key performance indicators (KPIs): speed, latency, and capacity.
- Radio frequency spectrum and its management.
- Massive MIMO and beamforming.
- The role of small cells.
- The business case for 5G.

Unit Two: Network Slicing and Edge Computing

- The concept of network slicing for specific applications.
- Designing virtual networks for different use cases.
- Introduction to edge computing.
- The relationship between 5G and edge computing.
- Latency requirements for critical applications.
- Monetizing network slicing.
- Case study: Network slicing for autonomous vehicles.

Unit Three: 5G Applications in Emerging Sectors

- Internet of Things (IoT) and massive IoT connectivity.
- Applications in smart cities and buildings.
- 5G in industrial automation and Industry 4.0.
- Remote surgery and medical applications.
- The role of 5G in augmented reality (AR) and virtual reality (VR).
- Connected transportation and logistics.
- Public safety and emergency services.

Unit Four: Security and Deployment Challenges

- Security vulnerabilities in 5G networks.
- Authentication and privacy concerns.
- Securing IoT devices on a 5G network.
- Compliance and regulatory considerations.
- Deployment challenges and costs.
- Spectrum auction and licensing.
- Global 5G network rollout trends.

Unit Five: The Future of 5G and Beyond

- The evolution of 5G toward 5G-Advanced.
- Introduction to 6G research and vision.
- The integration of AI and machine learning in 5G networks.
- The role of open RAN.
- Final project: Developing a 5G deployment strategy for specific business.
- The societal and economic impact of 5G.
- Future trends in mobile connectivity.

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 enables unprecedented levels of connectivity for critical infrastructure, how can policymakers and technologists ensure that security and resilience are prioritized over speed and convenience?

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

This course provides a unique and forward-looking perspective by focusing on the strategic applications of 5G rather than just the technical specifications. It connects the underlying technology to real-world business cases, showing how 5G is a key enabler for the future of various industries. Unlike general telecommunications courses, this curriculum specifically explores how 5G empowers emerging sectors like smart manufacturing, telemedicine, and connected cities. The program emphasizes a holistic understanding of the 5G ecosystem, including its business, security, and societal implications. This approach allows participants to move beyond technical knowledge. They can act as strategic advisors who can identify opportunities and navigate the complexities of 5G deployment. The course is designed for professionals who want to understand not just what 5G is, but what it can do, and how to harness its potential for their organization's growth.