Strategic 5G Network Planning and Optimization Training Course



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Sharm El-Sheikh

4100 € (Per Person)

Ref: #TEL2290_266682

Course Introduction / Overview:

This training course is designed to equip telecom engineers, network planners, and RF professionals with the strategic and technical skills needed to design, deploy, and optimize 5G networks. The transition to 5G is more than a simple technology upgrade; it is a fundamental shift in network architecture that requires a deep understanding of new concepts like network slicing and massive MIMO. This program, offered by BIG BEN Training Center, provides a comprehensive framework for understanding the core principles of 5G network planning, from initial site selection and RF propagation to network performance management and operational efficiency. We will explore key concepts such as URLLC, mMTC, and eMBB services. The curriculum is informed by the academic work of authors like Holger Karl and Andreas Willig, whose book, Protocols and Architectures for Wireless Sensor Networks, provides a foundational and detailed understanding of the principles behind wireless network design. This course goes beyond a simple overview of technology to provide a deep understanding of how to implement real-world solutions that ensure network reliability, scalability, and performance. We prepare participants to be leaders who can build more agile and high-performing 5G networks.

Target Audience / This training course is suitable for:

- Network planners.
- RF engineers.
- Telecom engineers.
- Network architects.
- Technical project managers.
- Operations managers.
- IT professionals.
- Government agencies and equivalents.

Target Sectors and Industries:

- Telecommunications.
- Mobile Network Operators (MNOs).
- Internet Service Providers (ISPs).
- Cloud Service Providers.
- IoT and M2M.
- Utilities.
- Smart Cities.
- Government and public administration agencies.

Target Organizations Departments:

- Network Planning and Optimization.
- RF Engineering.
- Core Network.
- IT and Digital Transformation.
- Strategic Planning.
- Operations.
- Technical Services.
- Research and Development (R&D).

Course Offerings:

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

- Understand the 5G network architecture.
- Design a 5G radio network.
- Perform RF propagation analysis for new frequencies.
- Implement Massive MIMO and beamforming.
- Master network slicing for diverse services.
- Optimize network performance for URLLC and eMBB.
- Manage network security in a 5G environment.
- Plan for 5G deployment and network modernization.

Course Methodology:

This training course uses a highly practical and case-study driven methodology. The program is built on real-world examples of successful 5G network deployments and the challenges they faced. Participants will work in teams to design a 5G network plan for a specific city or industrial area, applying the tools and frameworks learned in the course. We will use interactive workshops to practice skills like traffic forecasting and RF coverage planning. The curriculum is designed to be a collaborative experience where participants can share their unique challenges and innovative solutions. Our trainers, with extensive experience in the field, will provide direct feedback and guidance throughout the course. BIG BEN Training Center is committed to providing a dynamic and practical learning environment, ensuring that participants leave with the skills and confidence to lead effective 5G planning and optimization initiatives.

Course Agenda (Course Units):

Unit One: 5G Network Architecture and Concepts

- Introduction to 5G technology.
- The 5G network architecture.
- New Radio (NR) and frequent bands.
- Core network vs. access network.
- Network slicing and its applications.
- Massive MIMO and beamforming.
- Use cases: eMBB, URLLC, mMTC.

Unit Two: 5G Radio Network Planning

- 5G propagation models.
- Site selection and cell planning.
- Traffic forecasting and capacity planning.
- Link budget analysis for mmWave and sub-6 GHz.
- Small cells and dense network deployment.
- Network sharing strategies.
- Inter-site distance considerations.

Unit Three: 5G Network Optimization

- Performance indicators and KPIs.
- Drive testing and RF optimization.
- Interference management.
- Mobility management.
- Throughput optimization.
- Power consumption reduction.
- Self-Organizing Networks (SON).

Unit Four: Network Slicing and Services

- The business case for network slicing.
- Implementing end-to-end network slicing.
- Service level agreements (SLAs).
- QoS management for different services.
- Edge computing integration.
- Security for network slices.
- Monetization models.

Unit Five: Strategic Deployment and the Future

- 5G deployment strategies.
- Fixed Wireless Access (FWA).
- Private 5G networks.
- The role of AI in network automation.
- Strategic leadership in 5G.
- Career pathways in 5G planning.
- The future of wireless 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:

How can a strategic approach to 5G network planning empower telecom professionals to move beyond simply building a network and become true architects of future business models and services?

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

This training course is unique because it provides a dedicated, strategic focus on 5G network planning and optimization. While other programs may cover general 5G concepts, our curriculum is designed to empower professionals with the specific skills needed to address the unique challenges of a 5G deployment, from RF propagation in new frequency bands to network slicing. The program is a hands-on experience, with exercises that directly simulate the challenges and decisions involved in a real-world network design or optimization scenario. We go beyond theoretical concepts to provide a clear, actionable roadmap for balancing the demands of new services with the imperative of delivering seamless and high-quality user experience. This course is for professionals who want to lead their organizations toward a more efficient, resilient, and future-proof network.