Deploying and Implementing Modern Small Cell Networks Training Course



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Sharm El-Sheikh

4100 € (Per Person)

Ref: #TEL5303_252941

Course Introduction / Overview:

This training course is designed to equip telecom engineers, network planners, and IT professionals with the strategic and technical skills needed to design and implement small cell networks. As wireless networks face the challenge of ever-increasing data traffic, small cells are becoming a critical component for enhancing capacity and coverage. This program, offered by BIG BEN Training Center, provides a comprehensive framework for understanding small cell technology, deployment strategies, and the network integration required for successful implementation. We will explore key concepts such as network densification, interference management, and backhaul options. The curriculum is informed by the academic work of authors like Ajay R. Mishra, whose book, Advanced Cellular Network Planning and Optimization: 2G/3G/4G/5G Evolution, provides a foundational understanding of the role small cells play in the broader network evolution. This course goes beyond a simple overview of technology to provide a deep understanding of how to implement real-world solutions that address some of the most pressing network performance challenges. We prepare participants to be leaders who can build more efficient and high-performing networks.

Target Audience / This training course is suitable for:

- Wireless network engineers.
- RF and network planning professionals.
- Telecommunications technicians.
- IT administrators.
- Field engineers.
- System architects.
- Public policy and government officials.
- Government agencies and equivalents.

Target Sectors and Industries:

- Telecommunications.
- IT and Managed Services.
- Mobile Network Operators (MNOs).
- Internet Service Providers (ISPs).
- Real estate and venue management.
- Smart City initiatives.
- Consulting.
- Defense.

Target Organizations Departments:

- Network Planning and Optimization.
- Network Engineering.
- Radio Access Network (RAN) Operations.
- IT Infrastructure.
- Field Operations.
- Strategic Planning.
- Technical Services.
- Research and Development (R&D).

Course Offerings:

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

- Understand the different types of small cell technology.
- Design a small cell network for specific use cases.
- Evaluate and select backhaul options.
- Manage network interference and handover.
- Plan and execute a small cell deployment.
- Integrate small cells with existing macro networks.
- Optimize network performance in dense areas.
- Navigate regulatory and site acquisition challenges.

Course Methodology:

This training course uses a highly practical and case-study driven methodology. The program is built on real-world examples of successful small cell deployments and the challenges they faced. Participants will work in teams to design a small cell network for a specific venue or smart city scenario, applying the tools and frameworks learned in the course. We will use interactive workshops to practice skills like RF planning and link budget analysis. 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 small cell network initiatives.

Course Agenda (Course Units):

Unit One: Foundations of Small Cell Networks

- The need for network densification.
- Small cell vs. macro cell networks.
- Types of small cells: femtocells, picocells, microcells.
- Small cell architecture and components.
- Use cases for small cells.
- Economics and business drivers.
- Case studies of small cell deployments.

Unit Two: Planning and Site Acquisition

- Network planning for small cells.
- RF propagation and coverage analysis.
- Site selection and site acquisition.
- Navigating regulatory requirements.
- Power and backhaul planning.
- Physical security for small cell sites.
- Deployment models.

Unit Three: Backhaul and Core Network Integration

- Backhaul technologies for small cells.
- Fiber, microwave, and copper options.
- Core network integration principles.
- Managing traffic offloading.
- Handover between small cells and macro cells.
- Quality of Service (QoS) management.
- Network slicing concepts.

Unit Four: Installation, Optimization, and Maintenance

- Installation best practices.
- Network commissioning and testing.
- Interference management and mitigation.
- Network optimization techniques.
- Performance monitoring and troubleshooting.
- Remote management of small cells.
- Routine maintenance procedures.

Unit Five: The Future of Small Cells and 5G

- Small cells in the 5G network.
- Massive MIMO and beamforming.
- IoT and small cells.
- Strategic planning for future networks.
- Leadership in network innovation.
- Career pathways in telecom engineering.
- The future of network densification.

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 small cell networks transform the user experience by moving from a focus on general coverage to delivering highly localized, high-speed connectivity for specific needs and applications?

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

This training course is unique because it provides a dedicated, strategic focus on the practical design and implementation of small cell networks. While other programs may cover telecom theory, our curriculum is designed to empower professionals with the specific skills needed to plan, deploy, and manage real-world small cell infrastructure. The program is a hands-on experience, with exercises that directly simulate the challenges and decisions involved in a small cell deployment. We go beyond theoretical concepts to provide a clear, actionable roadmap for balancing business needs with the imperative of delivering seamless user experience. This course is for professionals who want to lead their organizations toward a more efficient, high-performing, and future-proof network.