5G and ORAN Training: Architecting Open Radio Networks

19 – 23 April 2027
Barcelona (Spain)



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Introduction

The telecommunications industry is undergoing a major transformation driven by the rapid adoption of 5G networks and the rise of Open Radio Access Networks ORAN. These innovations are redefining how modern networks are designed, deployed, and managed—enabling greater flexibility, scalability, and innovation across digital ecosystems.

This course provides a comprehensive and practical approach to understanding both 5G architecture and ORAN technologies, combining essential theoretical knowledge with hands-on application. Rather than focusing solely on concepts, the program emphasizes real-world implementation—empowering participants to translate technical knowledge into effective, actionable solutions.

Over five intensive days, participants will explore the full lifecycle of ORAN networks, including architecture, interfaces, deployment strategies, performance optimization, and future trends. By the end of the course, they will have the confidence and expertise to contribute effectively to next-generation network projects.

Course Objectives

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

- Understand the architecture and key components of 5G networks
- Master ORAN principles, interfaces, and reference models
- Design and deploy ORAN-based network solutions
- Develop and implement xApps and rApps for performance enhancement
- Apply Artificial Intelligence AI and Machine Learning ML in network optimization
- Monitor, analyze, and improve network performance

Course Outlines

Day 1: Introduction to 5G & ORAN

- Overview of 5G architecture and its evolution
- Transition from traditional Radio Access Networks RAN to Open RAN
- Introduction to the ORAN ecosystem and industry landscape
- Benefits and strategic importance of ORAN technologies



Day 2: ORAN Architecture & Interfaces

- Detailed exploration of ORAN reference architecture
- Key components: O-RU, O-DU, O-CU
- Open fronthaul interfaces and communication protocols
- Role of the RAN Intelligent Controller RIC

Day 3: ORAN Deployment & Integration

- Virtualization and cloud-native network principles
- Network slicing in ORAN environments
- Integration with 5G core networks
- Security considerations and deployment strategies

Day 4: Implementation & Optimization

- Development and deployment of xApps and rApps
- Applying AI and ML for intelligent network optimization
- Performance monitoring and analytics
- Troubleshooting and resolving network issues

Day 5: Advanced Topics & Future Trends

- ORAN testing and certification processes
- Emerging use cases and real-world applications
- Introduction to 6G technologies and future trends
- Capstone project: ORAN network design and presentation

Why Attend this Course: Wins & Losses!

- Gain a strong, practical understanding of 5G and ORAN technologies
- Develop hands-on skills in designing and deploying modern radio networks
- Learn how to optimize network performance using AI and automation
- Build expertise in xApps and rApps development
- Strengthen both technical and strategic capabilities aligned with industry needs

Conclusion

This course offers a forward-looking and practical pathway to mastering 5G and ORAN technologies, going beyond theory to focus on real-world application and hands-on experience.

By the end of the program, participants will not only understand how modern radio networks operate but will also be able to design, implement, and optimize them effectively. This positions them to play a vital role in shaping the future of telecommunications and contributing to successful digital transformation initiatives within their organizations.

