

Course ID
5GTUTE
Course Duration
3-4 days

Course Title
5G RAN Training: Technology & Preliminary Planning

Related Courses

- 5G Wireless Training: Layers 1, 2, 3 (5G-TF1, 4-5 days)
- 5G Wireless: Technology and Applications (5GTA, 5 days)
- 4G LTE Evolution to 5G Wireless (5G1, 5 days)
- LTE / LTE-A Deep Dive: RAN and Core (LTE-DIVE, 4 days)

Aimed At

This *5G RAN Training: Technology & Preliminary Planning* workshop will benefit technical specialists, network planners, hardware/software designers, and others who need to understand the 5G wireless technology and planning issues in some depth.

Prerequisites

5G RAN Training: Technology & Preliminary Planning requires a basic knowledge of the current wireless and mobile communications systems and standards including LTE and LTE-A.

Course in a Nutshell

In this in-depth, three-day (four-day, including the optional topics) *5G RAN Training: Technology & Preliminary Planning* workshop, you will study the 5G RAN technologies and preliminary planning issues. The course is continually updated to synch with the state-of-the-art of technology, standards, and planning techniques.

Customize It!

We can tailor this *5G RAN Training: Technology & Preliminary Planning* workshop to include or exclude certain topics, to make it shorter or longer, or to make it more or less technical to suit your audience.

**Course
Outline**

- *5G RAN Technology and Preliminary Planning Training: 5G RAN Services Overview*
 - Machine-to-Machine (M2M) communications
 - Device-to-Device (D2D) communications
 - IoT and 5G
 - Cloud Radio Access Networks (C-RAN)
 - mmWave (Millimeter Wave) approach
- *5G RAN Training: Technology & Preliminary Planning: 5G RAN: Technology Contributions*
 - The available 5G spectrum
 - The propagation model for 2.5 GHz, 3.6 GHz, 5 GHz, 26 GHz and 60 GHz
 - LTE-TDD overview
 - LTE-LAA technology
 - 5G air interface overview
 - Interference Cancellation (IC): Mitigation features and algorithms
 - Modulation enhancements
 - Adaptive modulation and coding enhancements
 - Single frequency full duplex radio technologies
 - Beam-forming and massive MIMO technology
 - Heterogeneous Networks (Het-Nets)
 - Radio Resource Management (RRM) enhancements
 - Massive MIMO principles
- *5G RAN Training: Technology & Preliminary Planning: 5G Preliminary Planning*
 - 3GPP LTE-A optional features for enabling 5G
 - Smart cells: Small cell approach (available optional features)
 - Planning 5G coverage: Link budget analysis for mmWave
 - Planning LTE-A for 5G coverage: Link budget analysis up to 5GHz spectrum
 - Planning 5G capacity: Requirements for different services
 - Planning 5G throughput considerations
 - Planning Li-Fi parameters and channel modeling
 - NB-IoT technology air interface description (MAC and physical layer)
 - LTE-A and 5G planning for IoT coexistence: Capacity and coverage
 - Improving RACH accessibility for LTE-A, IoT and 5G

- (Optional) Li-Fi small cells indoor planning: Coverage and capacity considerations
- (Optional) 5G NB-IoT over satellite: Technical requirements and ITU recommendations
- (Optional) 5G NB-IoT over satellite: Parameter and planning configurations
- *5G RAN Training: Technology & Preliminary Planning: Wrap-up*

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