



Thank you! Looking forward to other detailed sessions on 5G in the future.



Watch our course intro video.



5G Massive MIMO and Beamforming

Course Description

This short course is designed to introduce the main concepts behind 5G Massive MIMO and beamforming. This will be considered on a high-level basis, with focus on beam creation, as well as key aspects such as the 5G NR (New Radio) SSB (Synchronization Signal Block) location. Finally, Beam Management in 5G is briefly described, including the concept of Beam Sweeping in 5G NR.

Prerequisites: Introduction to 5G

1/2 day
(LiveOnsite,
LiveOnline)

3 hours
learning
(OnlineAnytime)

3

CPD Learning
Credits



Level: 2
(Intermediate)

This course will contain the following sections:

1. 5G Massive MIMO and Beamforming

Topic areas covered include:

- Massive MIMO and Multi-Antennas:
 - Multi-Antennas Features.
 - Requirement for Massive MIMO.
- MIMO in 5G:
 - Summary of Transmission Path in 5G NR.
 - MIMO Spatial Multiplexing.
 - SU-MIMO vs MU-MIMO.
- Beamforming (Massive MIMO):
 - Spatial Multiplexing vs Beamforming.
 - Creating a Beam.
 - Null Forming.
- Massive MIMO Antennas:
 - Antenna Elements and Subarrays.
 - Grid of Beams.
 - MIMO in a Handset.
- NR Beam Management:
 - Beam Management Terminology.
 - Beam Sweeping.
- SSB Location:
 - Synchronization Signal Block.
 - SS Burst and Burst Set.
 - SS Block Locations.
 - Beam Measurement, Determination and Reporting.
- Beam Management Reference Signals:
 - Reference Signals.
 - Single and Multiple CSI-RS.
 - Transmission Based on SRS.
 - Transmission Configuration and Quasi Co-Location.
- Transmission and Ports in NR:
 - Downlink Transmission.
 - Uplink Transmission.
 - Antenna Ports.



**Watch a Sample
Video Online**

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(OnlineAnytime)

3

**CPD Learning
Credits**

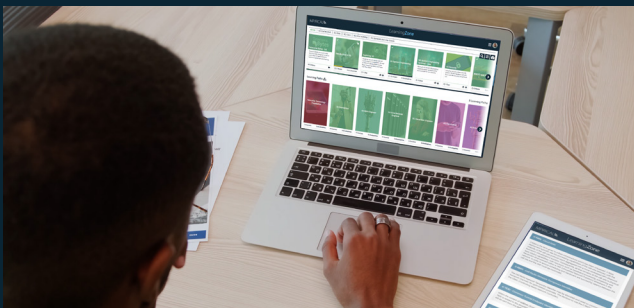


**LiveOnsite, LiveOnline,
OnlineAnytime**

our unique learning experience platform.

- **Empirical courses and quizzes**
- **Technology and learning blogs**
- **Virtual network application, NetX**

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A truly **unique network visualisation tool** and network diagram for applied learning. This interactive learning tool is a game changer for getting under the skin of your network.

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