

Course ID

5GTA

Course Duration

2 days

Related Courses

Course Title

5G Wireless: Technology and Applications for Business

- 5G Wireless: Technology (5GTUTE, 3 days)
- 4G LTE Evolution to 5G Wireless (5G1, 5 days)

Aimed At

Professionals and managers whose job requires an understanding of the evolving 5G technology and applications.

Prerequisites

Prior exposure to wireless technologies.

Course in a Nutshell

5G Wireless provides advanced spectral, signaling, and energy efficiency (“green” initiatives), higher data rates, improved capacity, reduced latency, and support of large-scale sensor networks to meet the requirements of the next generation mobile networks.

In this course, we will study the drivers, potential technologies, and major applications of 5G wireless, including Machine-to-Machine (M2M) communications and Internet of Things (IoT). Realistic examples and case studies for commercial and military clients are also included.

Since 5G is still evolving, the course content is automatically updated to synch with the state-of-the-art when it’s taught. It can also be adapted to your specific needs or interests.

Customize It!

- If your team lacks the necessary wireless background, the course can be extended to include it.
- For those interested in specific applications, such as M2M or IoT, the course can be extended to include a workshop on such topics.

Course Outline

- 5G Wireless: An Introduction
 - What is 5G
 - Why 5G?
 - Roadmap to 5G
 - End-to-end 5G ecosystem
 - Deployment timeline: Next several years
- 5G: A Technology Overview
 - 5G technical objectives
 - How 5G differs from 4G

- 5G requirements for RAN: Bandwidth, power, spectral efficiency, new technology adaptation, latency, signaling load, capacity, coverage, interference, mobility
- 5G requirements for Core: Network topology, cloud architectures, big data analytics
- 5G service platforms
- 5G Business Vision
 - 5G business landscape
 - Expectations and predictions
 - How 5G, M2M, and IoT tie together
 - 5G technology drivers: Major equipment vendors (Ericsson, Huawei, Nokia, Samsung, etc.) development status
 - 5G technology drivers: Major operator (Vodafone, Telia, Docomo, Verizon, AT&T, etc.) deployment status
- 5G Technology Enablers
 - 3GPP LTE-A optional features for enabling 5G
 - Machine-to-Machine (M2M) communications
 - Device-to-Device (D2D) communications
 - IoT and 5G
 - Cloud Radio Access Networks (C-RAN)
 - Li-Fi for 5G indoor
 - Comparison of LPWAN technologies
 - mmWave (Millimeter Wave) approach
 - Software Defined Radio (SDR)
- 5G Wireless Applications
 - Smart Cities
 - Smart Agriculture
 - Green Technologies
 - The LPWAN cases
 - Wearable devices and smart personal body nets
 - E-health over 5G
 - Vehicular (V2V) communication
 - Intelligent Transportation Systems (ITS)
 - Industrial smart meters: SCADA
 - e-monitoring

Case Studies and/or Applications in Depth

- Smart Cities
- Vehicle to Vehicle (V2V)
- Vehicle to Infrastructure (V2I)
- Li-Fi indoors (secure data transfer)

- E-health over 5G
 - Indoor sensor Cloud RAN planning proposal with Li-Fi sensor technology
 - (Military clients): Smart Military Bases, V2V adapted for the battlefield or military operations (e.g., military convoys), medical care on the battlefield
- Course Wrap-up: Recap and Discussion

DCN NZ-pMZ