



AFRICAN ADVANCED LEVEL TELECOMMUNICATIONS INSTITUTE (AFRALTI)

TRAINING WORKSHOP OUTLINE

Title:	Advanced Mobile Technologies 4G/5G
Dates:	12th - 23rd Feb 2018
Duration:	10 days
Venue:	Nairobi, Kenya

Course Overview: This course covers the anatomy of 4G, LTE-Advanced which is the bridge between 4G and 5G, what 5G is, the 5G technology drivers that are shaping the 5G wireless standards and the market landscape of 5G. It also covers the major approaches to the 5G standards, the technologies that will play a major role in 5G, and the services and applications of 5G.

Target Audience: Engineers / Technicians /Network Designers & Planners / Design & Deployment Engineers/ Network Integration & Operations Engineers/Telecom Regulators

Pre-requisite/s: Basic knowledge of the current wireless and mobile communications systems and standards

Pain Points: Mobile network technology is moving at a relentless pace, and its being built around not one, but two industry juggernauts: Fourth-generation wireless and fifth-generation wireless. The assimilation of the Internet of Things (IoT) world into both 4G and 5G technologies makes this wireless labyrinth even harder to get around.

Value Proposition: The 5G wireless technology is based upon modified 4G, which at present is facing many problems to meet its performance goals. An ideal 5G wireless technology to accommodate the challenges and shortfalls of 4G deployments will be discussed.

Methodology: Presentation slides and videos

Workshop Objectives: To provide an understanding of advanced mobile technologies 4G/5G and how the 5G wireless technology helps to solve the problems of poor coverage, bad interconnectivity, poor quality of service and flexibility.

Workshop Learning Outcomes: Participants to this training will acquire an appreciation of the major paradigm shift involved in the evolution of 4G wireless to 5G

- Shortcomings of 4G that inspired 5G
- Define 5G wireless technology and how it differs from 4G
- List the technology drivers that are shaping the 5G standard
- Describe the major approaches being taken to the 5G standards
- Describe the business vision, market landscape, and major services and applications of 5G wireless

Workshop Contents/Topics:

- Introduction
 - Evolution from 1G to 5G
 - The anatomy of 4G
 - LTE-Advanced: The bridge between 4G and 5G
- Introduction to 5G Wireless
 - What is 5G
 - Why 5G?
 - How 5G will differ from 4G
 - 5G technical objectives
 - Major requirements for 5G RAN and Core
 - 5G services and applications
 - Roadmap to 5G
- The Business of 5G
 - 5G market landscape
 - Expectations and predictions
 - How 5G, M2M, and IoT tie together
 - 5G technology drivers: Major equipment vendor proposals
 - 5G technology drivers: Major operator perspective
- 5G Standards
 - 3GPP standards for 5G: Features and technical proposals
 - 5GPPP partnership
 - 5G Americas
 - Chinese alliance
 - IEEE approach
 - ETSI
 - ITU-T
 - LPWAN approach
 - European Union FP7
- 5G Technology Enablers
 - 3GPP LTE-A optional features for enabling 5G
 - Machine-to-Machine (M2M) communications
 - Device-to-Device (D2D) communications
 - System on Chip (SOC)
 - IoT and 5G
 - Cloud Radio Access Networks (C-RAN)
 - Li-Fi for 5G indoor

- LoRA alliance/LoRAWAN technology
 - Sigfox technology
 - Short-range wireless: Zigbee, Z-wave, Bluetooth
 - Software Defined Radio (SDR)
 - White space communications; cognitive radios
 - Mobile Ad-hoc Networks (MANET) for 5G smart sensors
 - mmWave (Millimeter Wave) approach
- Major Applications of 5G
 - Vehicle-to-Vehicle (V2V) communications
 - Wearable devices and smart personal body nets
 - The Li-Fi scenario of indoor 5G internet
 - The LPWAN cases
 - Smart cities, industry, and agriculture
 - Intelligent Transportation System (ITS)
 - e-Monitoring
 - Advanced (SCADA)
 - E-Health
 - Green technologies
- Wrap-up
 - Course Recap and Q/A
 - Evaluations

For more information, please contact us on

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