Course ID
5GTUTE
Course Duration
1 day

Course Title
5G Wireless: A Fast-Paced Tutorial

Course Type

Private Class

Related Courses

- 5G Wireless: State-of-the-art of Research, Policy, and Standards (5GCOMP, 4 days)
- 5G Wireless: Federal and Defense Applications and Implications (5GSEC, 1 day)
- 4G Technologies & Services: For All Audiences (W-4G, half day)
- 4G Enablers - OFDM and MIMO: For Technical Audiences (W-ENB, half day)
- Principles of OFDM and MIMO (3 day(s), OM)
- LTE Explained: For All Audiences (W-LTE1, half day)
- LTE Technology: For Technical Audiences (W-LTE2, 2 half days)
- WiMAX Explained: For All Audiences (W-WMX1, half day)
- WiMAX Technology: For Technical Audiences (W-WMX2, 2 half days)
- LTE: Technology, Business, and Competitive Landscape (2 day(s), LTE-BIZ)
- LTE: A Comprehensive Tutorial (LTE-CT, 3 days)
- LTE: A Comprehensive Three Day Course (LTE-C3DC, 3 days)
- WIMAX: A Comprehensive Three Day Course (WIMAX-C3DC, 3 days)

Aimed At

This course is aimed at those with background in wireless communications who wish to stay abreast with the evolving technologies and standards of 5G wireless.

Group Size

5-25

Prerequisites

Those wishing to take this course should have a basic knowledge of the current wireless communications systems and standards.

Course in a Nutshell

While 4G wireless networks will continue to evolve and be deployed for some time to come, the researchers, hardware and software designers, defense and homeland security experts, public safety and law enforcement, spectrum regulators, and others are already hard at work defining the contours and understanding the implications of the next generation of wireless technologies.

In this exciting, fast-paced, one-day course, you will be introduced to the key technologies that are shaping the 5G wireless standards, including software-defined radio, cognitive radio, and Dynamic Spectrum Access (DSA). This course is taught by a 5G researcher actively involved in pushing the state-of-the-art and is continually updated to reflect the evolving technology landscape. You will go away from the course having acquired an appreciation of the major paradigm shift involved in the evolution of 4G wireless to 5G.

Customize It!   We can customize the content and tech level of this course at no additional cost to meet the varying needs of audiences such as business and technology planners and strategists, engineers, managers and executives, defense and homeland security personnel, spectrum regulators, and others trying to understand what 5G wireless is and what it means for their profession. For those working in the defense and homeland security sectors, customization can potentially include the inclusion of restricted content, subject to availability of suitable classroom facilities and approval from the cognizant federal authority.

Learn How To
- Characterize the core 4G technologies
- Define Dynamic Spectrum Access (DSA) and its impact on the evolution of 4G to 5G
- Describe the emerging standards for 5G wireless

Course Outline

- Review of Core 4G Wireless Technologies
  - History of Wireless Technologies: 1G, 2G, 3G
  - 4G Wireless Technologies
    - OFDM and OFDMA
    - MIMO
  - 4G Wireless Standards
    - WiMAX
    - 4G Long Term Evolution (LTE)
    - IP Multimedia Subsystem (IMS)
    - Applications: SIP and VOIP

- Core 5G Wireless Technologies
  - Software-Defined Radio
  - Cognitive Radio
  - Dynamic Spectrum Access (DSA)

- 5G Wireless Standards
  - DSA modes for WiFi and WiMAX
  - P1900.1
  - IEEE 802.22
  - Whitespace and WhiteFi
  - Wireless Innovation Forum

- Wrap-up
  - Course Recap and Q/A
  - Evaluations

How You Will Learn	• A researcher who is at the forefront of the development of 5G wireless technologies will present this course in interactive lecture format.
	• Along with the lecture, we will use discussion and group activities to enrich the instruction and convey the key points.
	• If you already know something about the evolving 5G technologies, we will build on that foundation. We'll compare and contrast what's familiar with what's new, making the new ideas easier to learn as well as more relevant.
	• If your background is less technical, we will use meaningful and ingenious examples and analogies to simplify the complex subject matter.
	• You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.

Revised   *Sept 8, 2011*