eogogicsinc

Course ID	Course Title
LTEPLAN	**3G LTE Planning Considerations**
Course Duration	
4 days	

Related Courses

- 3G LTE/SAE: Technology, Business, and Competitive Landscape (LTE-BIZ, 2 days)
- 3G LTE Air Interface Techniques (LTEAI, 3 days)
- 3G LTE Advanced System Techniques (LTE-ADV, 4 days)

Aimed At

This course is aimed at wireless network designers who have a good understanding of 3G LTE and wish to learn how to plan 3G LTE networks.

Group Size

5-25

Prerequisites

- 3G LTE/SAE: A Technology Overview (LTE-TECH, 3 days)
- 3G LTE Signalling & Functionality (LTESIG, 3 days)

The LTE overview is recommended, but not required.

Course in a Nutshell

Another one in our series of courses on 3G LTE, a term that describes the ongoing evolution of the UMTS system to 4G wireless, this course is focused on the important task of network planning.

In this course, we will undertake an in-depth study of the considerations related to the planning of LTE networks including idle mode behavior, channel conditions, and frequency planning models. The course includes case studies to help you thoroughly understand the capacity planning process.

Customize It!

- If you lack the necessary prerequisite knowledge of LTE, we can extend the course to five days to include the LTE basics needed to understand the planning issues.
- Would you like us to focus the course on the particular challenge, say capacity planning or frequency planning, now facing you? Let us know so we can emphasize the topics most relevant to your needs.
- If you are a core network engineer charged with expanding the transmission network to accommodate the LTE air interface capacity, we can focus on the considerations that go into the planning of MPBN.

Course Outline

- LTE/SAE Introduction

    - Evolution of cellular networks
    - 3GPP Releases (Release 99 to Release 8)
    - EPS (E-UTRAN and EPC) logical architecture
    - EPS interfaces
    - EPC (Evolved Packet Core) architecture
    - SAE/LTE interfaces

- Radio Interface Principles

    - Channel models
    - BPSK, QPSK, 16QAM, 64QAM
    - OFDM: Principles of operation
    - MIMO system
    - Radio interface techniques: Uplink/downlink
    - Channel structure
    - Exercises

- LTE Functionality

    - Idle mode functionality
    - PLMN selection
    - Cell selection process: Criteria, normal camping
    - Cell reselection evaluation process
    - System information
    - Paging: DRX for paging

- Physical Layer Procedures

    - Radio link monitoring
    - Downlink transmission
    - Power control: Timing adjustments
    - Link adaptation
    - Uplink transmission
    - Random access
    - Preample selection
    - Channel Quality Indication (CQI)
    - Precoding Matrix Indicator (PMI)
    - Rank Indicator (RI)

- LTE Cell Planning Principles

    - Frequency Planning
        - Channel Allocation
        - Basic schemes
        - Factional loading
        - Multiple reuse patterns
        - Reuse partitioning
    - Capacity considerations
        - Reviewing the theory
        - Capacity loss from interference

- Resource allocation principles
- Frequency-planned systems
- Reuse-1 with prioritization
- Soft frequency reuse
- Reuse partitioning
- Frequency planning and capacity parameters
- Spectrum utilization factor
- Examples and discussion
- Case studies

- Transmission Planning Issues

  - The IP necessity
  - How is transmission implemented
  - Total-IP solution: Mobile Packet Backbone Network MPBN
  - Planning considerations
  - Case studies

- Course Wrap-up: Recap and Discussion

How You Will Learn

- A wireless technologies subject matter expert/instructor will present this course in interactive lecture format.
- Along with the lecture, we will make good use of exercises, case studies, and interesting group activities to make the class more engaging and practical.
- If you already know something about the technology, we will build on that knowledge base.
- We'll compare and contrast what's familiar with what's new, making the new information easier to assimilate and apply.
- If your background is less technical, we will use examples and analogies to clarify the more complex topics.
- 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.

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