

# 3 Day LTE Signaling Protocols (3GPP)

## LTE Network Architecture and Signaling Protocols based on 3GPP

LTE is the most promising upcoming 4G technology for enabling 1Gbps on mobile broadband. This course explains the fundamentals, working principles and enabling features of LTE network architecture and signaling protocols as defined by 3GPP. The principles involved are compatible across multiple vendor platforms.

### Course Outline

#### Day 1

##### LTE Network Fundamentals

- A brief history of mobile network evolution
- Characteristics of mobile network
- LTE Network Architecture
- Overview of LTE signaling protocols

##### LTE Network Elements and Hardware

- Nodes and their roles
- Hardware features and functions

#### Day 2

##### Transport Layer

- Transport Network overview
- IP applied in Transport Network
- Quality of Service applied in Transport Network

##### Signaling Protocols in Transport Layer

- Headers and overhead of data packets
- TCP, UDP, MTP3, IP packets, Ethernet frames, Physical Layer

#### Day 3

##### Radio Layer Modulations and Coding

- OFDMA in the downlink
- SC-FDMA in the uplink
- QPSK, 16 QAM, 64 QAM Modulation techniques
- Multiple Input Multiple Output

##### Signaling Protocols in Radio Network Layer

- Radio Resource Control Layer
- Radio Link Control Layer
- Medium Access Control Layer



### Public Training Session



*"very clear and interactive"*  
*"with simple language and analogy"*  
*"visual method because instructor used figures to explain"*

**Date:** 10 - 12 October 2012 (Wed - Fri)

**Time:** 0900 - 1700

**Venue:** Details as follows

Redang Ballroom, 1st Floor, Main Club House  
Bukit Jalil Golf & Country Resort  
Jalan Jalil Perkasa 3, Bukit Jalil  
57000 Kuala Lumpur, Malaysia

Register by 7 September 2012 to enjoy early bird discount.  
Certificate will be awarded to participants who complete the training.  
Lunch, refreshments and training handout provided and included.  
Transportation and accommodation not included.

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## About Go Training

Go Training applies effective pedagogical methodologies that demonstrate case studies and hands-on practical skills, in addition to explaining clearly how things work in principle. Every course that we conduct is delivered by a subject matter expert who holds the academic qualification and working experience in that specialization. On the days when they are not teaching, our trainers work on consultancy projects and technical deliveries. Their work has received numerous recognition and awards in the industry. Our team of trainers has collectively published more than 100 international journal and conference papers, and 2 technical text books. Some have also been invited as keynote speakers at numerous international conferences, and as principal consultants for various industries.

## About the Instructor

**Ms Chan Ai Sin** graduated from Multimedia University, Malaysia with B.Eng (Hons) and majored in telecommunications. She has devoted 10 years of her career to the telecommunications profession, having worked on fixed line, 3G and 4G mobile communication technologies, and contributed to major network rollout projects which lasted months or year long.



Ms Chan played a crucial role in the rollout of T-Mobile 3G network in USA and China Unicom 3G network in China, getting her hands on configuring these networks, which are the top of the widest coverage and highest density networks in the world. Previously an Ericsson certified Experienced Learning Architect, she has conducted over 100 sessions of trainings to mobile network engineers, covering WCDMA, HSPA as well as LTE. The engineers who attended her trainings had gone on to be responsible for the roll out, operation and maintenance of major mobile networks in more than 10 countries. She had started working on LTE as early as 2008, before most countries in the world had started to launch trial implementation on LTE technology.

Ms Chan applies a unique way of explaining abstract and complicated network concepts in the simplest analogy that anyone can relate to, enabling participants to grasp the most important technical principles effectively during her short training duration. Her training sessions have always been received with critical acclaim, rendering her one of the most sought after instructors in 3G and 4G mobile communication.



Multi-vendor LTE technology based on 3GPP

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