

# ***Industry Development Programme - Long Term Evolution (LTE) Technology***

**VENUE:** LTE Lab, Wireless Communication Centre,  
Faculty of Telecommunication,  
Universiti Teknologi Malaysia,  
Skudai, Johor

10<sup>th</sup> to 14<sup>th</sup> December 2012 (5-days)

*a collaboration programme between*



**SKMM Academy, Suruhanjaya Komunikasi dan Multimedia Malaysia**

*and*

**Wireless Communication Centre (WCC), Universiti Teknologi Malaysia**

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LTE Lab, WCC, UTM 10<sup>th</sup> to 14<sup>th</sup> December 2012

## **Programme Overview**

The LTE Technology training is conducted over a period of 5 days and delivered by Academics.

The programme will be held at the newly commissioned SKMM funded LTE Laboratory at the Wireless Communication Centre of Universiti Teknologi Malaysia in Skudai Johor.

The course is designed by academics and SKMM regulators with extensive knowledge in spectrum management. During the course, participants are introduced to the basic concepts and technical aspects of LTE and different factors that underpin future LTE Network deployments through theoretical and laboratory demonstrations.



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## **Who Should Attend**

The course caters to the needs of Engineers and Researchers related to LTE wireless communication technology and includes those involved in the design, test, sales, marketing, systems engineering and deployment

## **Course Objectives**

The course provides participants with a sound grounding and understanding on the basic concepts and technical aspects of LTE below:

- Basic concepts of LTE Air Interface
- Architectures – evolved LTE Radio network (E-UTRAN)
- LTE Radio Protocol Architecture
- Multiple Access and MIMO Technology used in LTE
- Different categories and capabilities of LTE UE
- Factors to consider in deploying LTE networks
- Understand LTE Technology through Laboratory demonstration

## **Participant Evaluation**

At the end of training participants are tested on their understanding of LTE. Those who have successfully passed the examination will be awarded a certificate.



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## Instructors' Biodata



**Prof. Dr. Tharek A. Rahman** is currently a professor in wireless communication at faculty of electrical engineering, Universiti Teknologi Malaysia. He obtained his BSc (Hons) (Electrical Engineering) from University of Strathclyde, UK , MSc in Communication Engineering from UMIST, Manchester, UK and PhD in Mobile Communication from University of Bristol, UK. He is the Director of Wireless Communication Centre (WCC), Faculty of Electrical Engineering, Universiti Teknologi Malaysia and currently conducting research related to 4G for mobile communications, satellite communications, antenna and propagation. He has also conducted various short courses related to mobile and satellite communication to the telecommunication industry and government agencies since 1988. Prof. Tharek has published more than 200 scientific papers in journals and conferences and obtained many national and international awards. He is also a consultant for many communication companies and an active member in several research academic entities. Prof. Tharek may be contacted [tharek@fke.utm.my](mailto:tharek@fke.utm.my).



**Dr. Bruce Chee Yen Leow** obtained his B.Eng. degree in Computer Engineering from Universiti Teknologi Malaysia (UTM) in 2007. Since July 2007, he has been an academic staff in the Faculty of Electrical Engineering, UTM. In 2011, he obtained a Ph.D. degree from Imperial College London. He is currently a senior lecturer in the faculty and a member of the Wireless Communication Centre (WCC), UTM. His research interest includes but not limited to wireless relaying, MIMO, linear precoding, multi-user networks, physical layer security, convex optimisation, communications theory and Long-Term Evolution. Dr. Bruce Leow may be contacted at [bruceleow@fke.utm.my](mailto:bruceleow@fke.utm.my).



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## Programme Agenda

### DAY 1

Time	Module/Activity
8.30am - 9.00am	Registration
9.00am - 9.20am	Opening Address
9.20am - 9.30am	Group Photo Session
9.30am - 10.00am	Pre-Assessment Test
10.00am - 10.30am	Topic 1 – Introduction
10.30am - 11.00am	Tea Break
11.00am - 1.00pm	Topic 2 – Background to LTE
1.00pm - 2.00pm	Lunch
2.00pm - 3.30pm	Topic 3 – LTE Network Architecture
3.30pm - 4.00pm	Tea Break
4.00pm - 5.30pm	Lab Session 1 – Introduction & Tour of LTE Lab Ecosystem

### DAY 2

Time	Module/Activity
8.30am - 10.30am	Topic 4 – LTE Air Interface
10.30am - 11.00am	Tea Break
11.00am - 1.00pm	Topic 4 – LTE Air Interface (continues)
1.00pm - 2.00pm	Lunch Break
2.00am - 3.30pm	Lab Session 2 – LTE Channel Signal Generation
3.30pm - 4.00pm	Tea Break
4.00pm - 5.30pm	Lab Session 3 – LTE Channel Signal Analysis

### DAY 3

Time	Module/Activity
8.30am - 10.30am	Topic 5 – LTE MIMO Antenna Systems
10.30am - 11.00am	Tea Break
11.00am - 1.00pm	Lab Session 4 – LTE device MIMO analysis
1.00pm - 2.00pm	Lunch Break
2.00pm - 3.30pm	Topic 6 – LTE Physical Layer Operation
3.30pm - 4.00pm	Tea Break
4.00pm - 5.30pm	Lab Session 5 – LTE Physical Layer Operation

### DAY 4

Time	Module/Activity
8.30am - 10.30am	Topic 7 – LTE Radio Protocol Operation
10.30am - 11.00am	Tea Break
11.00am - 1.00pm	Topic 8 – LTE Connection Life Cycle
1.00pm - 2.00pm	Lunch Break
2.00pm - 3.30pm	Lab Session 6 – LTE Connection Life Cycle Analysis
3.30pm - 4.00pm	Tea Break
4.00pm - 5.30pm	Lab Session 7 – LTE Application Analysis

### DAY 5

Time	Module/Activity
8.30am - 10.30am	Topic 9 – Introduction to LTE Advanced
10.30am - 11.00am	Tea Break
11.00am - 12.00pm	Conclusions, Summary and Q&A
12.00am - 12.30pm	Post Assessment Test
12.30pm - 1.00pm	Certificate Presentation
1.00pm	Programme Ends



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## Registration Form

Course Title:	Long Term Evolution (LTE) Technology
Dates:	10th to 14th December 2012
Venue:	LTE Lab, Wireless Communication Centre, Faculty of Telecommunication, Universiti Teknologi Malaysia, Skudai
Fees*:	RM1000

\*Fees do not include accommodation and travelling expenses and these are to be borne by participants.

### DELEGATE DETAILS

Name of Participant	Designation and Department	Organisation and Address
Email Address	Direct Line	Mobile Number
Signature and Company stamp	Date	

The closing date for registration is 4.00 pm 21<sup>st</sup> November 2012 For queries please contact us at the address below, send an email to [skmm.academy@cmc.gov.my](mailto:skmm.academy@cmc.gov.my) or call any of the following numbers:

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