
TRAINING DESCRIPTION

TRAINING TITLE

RAN 3gpp & non 3gpp Radio Technology (GSM, WCDMA, LTE, Wifi, WiMAX etc)

TRAINING NUMBER

PTFS - Indosat 004/2016

TARGET AUDIENCE

Network Engineer, Technical Staff, CTO

PREREQUISITES

Students attending this class must have fundamental electrical and telecommunication knowledge and one year on-the-job cellular telecommunication experience.

TRAINING DURATION

2 Days

TRAINING OUTLINE

This training will give understanding to the participant about radio network technologies including the air interfaces of UMTS/WCDMA, GSM and LTE as defined by 3gpp, as well as other non-3gpp radio networks including wifi/802.11, WiMAX/802.16.

TRAINING OBJECTIVES

At the end of this workshop, participant will be able to:

- Able to explain the terminology related to 3gpp & non 3gpp radio technologies.
- Able to identify the involved radio technologies in 3gpp & non 3gpp
- Able to explain the basic concept of 3gpp & non 3gpp radio technologies (i.e fundamentals of radio interface TDMA, CDMA, OFDMA and etc, interface names).
- Able to explain and identify 3gpp & non 3gpp radio technologies in terms of system features, performance, configurations and structures (i.e able to distinguish frame structure, radio channel types, radio techniques used and etc).
- Able to highlight comparisons and differences between technologies
- Able to explain the types and application of 3gpp/non 3gpp technologies in the context of indosat

TRAINING METHODS

Class Lecturing, discussion, simulation and practice

SUBJECT COVERED

RAN 3gpp & non 3gpp Radio Technology (GSM, WCDMA, LTE, Wifi, WiMAX etc)

Day	Training Module	Syllabus	Objectives
Day 1	<p>Session 1 : Radio Access Network</p> <p>Session 2 : 2G Session</p> <p>Session 3 : 3G Session</p> <p>Session 4 : 4G Session</p>	<p>08.30-09.30 :</p> <ul style="list-style-type: none"> • Opening • Pre Test • Participant Introduction <p>09.30-11.00 :</p> <ul style="list-style-type: none"> • 2G/3G/4G Architecture & Hardware • 2G/3G/4G Frequency Allocation • 2G/3G/4G Channel (Logical, Transport and Physical Channel) • Multiple Access in 2G/3G/4G • Modulation in 2G/3G/4G • Call Flow (terminating and originating) for voice, SMS and data <p>11.00-11.15 (Coffee Break)</p> <p>11.15-12.00 :</p> <ul style="list-style-type: none"> • GSM Technology • GPRS • EDGE <p>12.00-13.00 (Lunch)</p> <p>13.00-14.30 :</p> <ul style="list-style-type: none"> • WCDMA Technology • Spreading Code & Scrambling Code • HSDPA <p>15.00-15.30 (Coffee Break)</p> <p>15.30 -16.30 :</p> <ul style="list-style-type: none"> • LTE TDD and LTE FDD • OFDMA • SC-FDMA • MIMO 	<ol style="list-style-type: none"> 1. Participants understand differences between 2G/3G/4G Architecture & Hardware. 2. Participants understand differences frequency allocation in 2G/3G/4G. 3. Participants understand differences between 2G/3G/4G Channel (Logical, Transport and Physical Channel). 4. Participants understand differences Multiple Access and Modulation in 2G/3G/4G.

Day	Training Module	Syllabus	Objectives
Day 2	<p>Session 5 : Physical Channel in LTE</p> <p>Session 6 : Wifi/802.11</p>	<p>09.30-10.00 :</p> <ul style="list-style-type: none"> • LTE Radio Channel <ul style="list-style-type: none"> ○ LTE Logical Channel ○ LTE Transport Channel ○ LTE Physical Channel <p>10.00-10.15 (Coffee Break)</p> <p>10.15-12.00 :</p> <ul style="list-style-type: none"> • DL Control Channel Dimensioning • User Data Rate (PDSCH) • Power Usage • Quiz <p>12.00-13.00 (Lunch)</p> <p>13.00-14.30 :</p> <ul style="list-style-type: none"> • Why Channels 1, 6, and 11? • Adjacent and Co-Channel Congestion • Understanding RSSI <p>15.00-15.30 (Coffee Break)</p> <p>15.30 -16.30 :</p> <ul style="list-style-type: none"> • Dead Spots and Slow Zones • WiFi Security Basics • Designing Wifi offload 	<ol style="list-style-type: none"> 1. Participants understand physical channel in LTE. 2. Participants understand channels, adjacent and co channel congestion, RSSI, Dead Spots, Slow Zones and security in Wifi/802.11 3. Participants able to design wifi offload in Indosat network

NOTES

This Course Description is subject to change due to product design changes and individual attendee needs and experience.