
COURSE DESCRIPTION

COURSE TITLE

4G RF Planning and Optimization

COURSE NUMBER

PTFS 012

TARGET AUDIENCE

People who has an access to daily cellular telecommunication maintenance and operation activity

PREREQUISITES

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

COURSE DURATION

2 Days

COURSE OUTLINE

4G RF Planning & Optimization

This training presents difference between 2G, 3G and 4G, network architecture in LTE 4G and concept about OFDMA and SC-FDMA. In planning session it will explained about coverage and capacity planning depends on your LTE RF deployment criteria. In Optimization session it will presents about RF Configuration Parameters, Drivetest in LTE, Key Performance Indicator and Self Optimization Networks.

TRAINING SYLLABUS

4G RF Planning & Optimization

Day	Training Module	Syllabus	Objectives
Day 1	<p>Session 1 : Radio Cellular Technology</p> <p>Session 2 : OFDMA</p> <p>Session 3 : SC-FDMA</p> <p>Session 4 : Physical Channel in LTE</p>	<p>09.00-09.30 :</p> <ul style="list-style-type: none"> Opening Participant Introduction <p>09.30-10.00 :</p> <ul style="list-style-type: none"> Radio Cellular Technology Network Architecture Cellular Frequency Allocation <p>10.00-10.15 (Coffee Break)</p> <p>10.15-12.00 :</p> <ul style="list-style-type: none"> OFDM and OFDMA LTE Downlink OFDMA time-frequency multiplexing LTE Spectrum Flexibility LTE Frame Structure type 1 (FDD), downlink LTE Frame Structure type 2 (TDD) Quiz <p>12.00-13.00 (Lunch)</p> <p>13.00-14.30 :</p> <ul style="list-style-type: none"> Introduction to SC-FDMA and UL Frame Structure How to generate SC-FDMA? How does SC-FDMA signal look like? SC-FDMA Signal Generation SC-FDMA PAPR SC-FDMA Parameterization <p>14.30-15.00 :</p> <ul style="list-style-type: none"> MIMO Antenna Quiz <p>15.00-15.30 (Coffee Break)</p> <p>15.30 -17.00 :</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 DL Control Channel Dimensioning User Data Rate (PDSCH) Power Usage Quiz 	<ol style="list-style-type: none"> Participants were able to define the difference between 2G, 3G and 4G. Participants understand the network architecture in LTE 4G. Participants understand the concept of OFDMA and SC-FDMA. Participants understand to plan indoor RF solution for 4G LTE

Day	Training Module	Syllabus	Objectives
Day 2	<p>Session 5 : RF Configuration Parameters</p> <p>Session 6 : RF Operational Parameters</p> <p>Session 7 : Indoor Drivetest and Coverage Analysis</p> <p>Session 8 : KPI in LTE Network</p> <p>Session 9 : LTE Feature Performance</p>	<p>09.00-10.00 :</p> <ul style="list-style-type: none"> • PCI Planning • PRACH Planning <p>10.00-10.15 (Coffee Break)</p> <p>10.15-12.00 :</p> <ul style="list-style-type: none"> • Cell Search Parameter • Handover in LTE networks • Power Control Overview <p>12.00-13.00 (Lunch)</p> <p>13.00-14.00 :</p> <ul style="list-style-type: none"> • TD-LTE & FD-LTE • Reference Signal Received Power (RSRP) • Signal to Noise & Interference Ratio (SINR) <p>14.00 -15.00 :</p> <ul style="list-style-type: none"> • Accessibility • Retainability • Mobility <p>15.00-15.30 (Coffee Break)</p> <p>15.30 -16.30 :</p> <ul style="list-style-type: none"> • Beamforming • IRC • Comparison Static ICIC and Dynamic ICIC • Self Optimization Network : AMR • Self Optimization Network : CSFB 	<ol style="list-style-type: none"> 1. Participants understand the configuration of RF parameters on LTE network. 2. Participants understand Key Performance Indicators on LTE network. 3. Participants understand the features LTE network