

Cellular IoT connectivity

A 2 day training course



Description

This course is designed to give the delegate a foundation in the technical requirements, solutions and benefits of deploying eMTC, NBLoT and reduced capabilities support with the 4G/5G environment.

With billions of IoT devices expected to be able to connect to the 5G ecosystem it is imperative to accommodate these new revenue streams into the business arena. Many adaptations have to be made to accommodate, low power, low mobility and low data transfer devices into an environment which is expecting high data throughput.



Key outcomes

By the end of the course delegates will be able to:

- ✓ Recognise the use case scenarios for NBLoT, eMTC and the use of Reduced Capabilities devices
- ✓ List the differences between the technologies
- ✓ Explain the unique requirements of RedCap
- ✓ Explain the unique requirements of NBLoT
- ✓ Explain the three options to deploy NBLoT
- ✓ Explain the control channels for NBLoT
- ✓ Describe the different messages required in an NBLoT air interface



Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning.



Details

Who will benefit?

Anyone working with IoT.

Prerequisites

Mobile communications demystified

Duration: 2 days

Customer rating:

New course

Generic training



Generic training complements product specific courses covering the complete picture of all relevant devices including the protocols "on the wire".

"Friendly environment with expert teaching that teaches the why before the how."

G.C. Fasthosts

Small class sizes



We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.

"Excellent course. The small class size was a great benefit..."

M.B. IBM

Hands On training



The majority of our courses use hands on sessions to reinforce the theory.

"Not many courses have practice added to it. Normally just the theoretical stuff is covered."

J.W. Vodafone

Our courseware



We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.

"Comprehensive materials that made the course easy to follow and will be used as a reference point."

V.B. Rockwell Collins

Customise your course



Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.

"I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on."

S.R. Qinetiq

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Course content

eMTC

Physical layer aspects, narrow bands, frequency band allocations, channel arrangements, new system information block type 1, new SIB type 1, CE modes A and B, describing differences between CE Mode A & B, no or small repetitions, power control methods in A & B, many repetitions in mode B, equivalent coverage enhancements, coverage enhancement (UEs in CE), TX power, repetition, cross subframe and cross PRB channel estimation, Multi-Subframe Frequency Hopping, redundancy version cycling, Power Spectral Density (PSD) boosting, system information, repetition of channels, MPDCCH - new DCIs, DCI 6.0B & 6.1B, cross-subframe scheduling, carrier aggregation with cross subframe scheduling, transmission modes, T0 to T9 modes.

NB-IoT

Physical operations options: Inband, Guardband, Standalone. What a NB-IoT device does not support, feature support lists, user plane versus control plane solution, RRC suspend and resume, user data over the signalling plane, Non-IP Data Delivery (NIDD), the SCEF, new NB channels UL/DL, N channels in the physical layer, new signals UL/DL, broadcasting of system information, BCCH additional IoT information, the Resource Unit - RU, transport block sizes DL, number of repetitions, network deployment modes, new random access, preamble repetitions, 1, 2, 4, 8, 16, 32, 64, 128, HARQ processes available in NB-IoT, C-eDRX / I-eDRX, connected mode eDRX, idle mode eDRX, Hyper System Frame Numbering H-SFN, requirement for an accurate clocking system, 10240 radio frames, mobility, link between mobility and battery life.

RedCap

Redcap (5G NR-Light): 5G NR to support IoT growth, evolution of Cellular IoT, how Redcap fits into 5G NR use cases, key redcap release in R17: HD-FDD, max bandwidth restrictions, lower modulation requirements and fewer branches. Establishing a new device class – 5G NR-Light – in 5G Standards.

What our customers say

"Absolutely brilliant, very knowledgeable and helpful trainer would recommend to teach anyone. Kept me interested 100% of the time which is very impressive as this does not happen often, if at all!"

O. B. Network Rail

"The best technical course I've been on!"

L. W. Fujitsu Telecoms Europe

"Very well thought out and structured course. Would recommend 100%. Lots of equipment, good quality."

A.R. Unipart

"Course content is interesting. Relevant to current systems and presented well."

S.S-T. Arqiva

