Telecoms & Tech Academy

RADIO PLANNING AND OPTIMISATION ENGINEERS BOOT CAMP

Format:
Classroom

Duration:
5 Days

KNect365
Learning

an informa business

COURSE SUMMARY

HIGHLIGHTS

- **Highly focused engineering training from the experts - bringing radio planning engineers fully up to date on latest techniques**

- **Includes technical implementation updates from Informa's extensive research team**

- **Trainers and programme directors that are technical experts, industry experienced, and highly accomplished training professionals**

- **Competency development that meets specific needs of planners & technical managers**

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"The course was very insightful and the lessons learnt from the course will be very relevant to the telecoms industry

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COURSE SUMMARY

This programme develops the knowledge and competencies required for the efficient planning and optimisation of modern cellular radio networks in both single and complex multi-RAT (Radio access Technology) environments. It covers topics ranging from the major principles and techniques that underpin modern cellular radio planning through to the latest radio technologies and the techniques required for the efficient planning and optimisation of advanced radio networks based on advanced modulation schemes and changing customer requirements.

The programme is designed specifically for those working as radio planning engineers or technical managers. It focuses squarely on the issues affecting professionals in these and related roles and delivers the knowledge and competencies needed to plan radio networks as effectively as possible.

We review current planning and optimisation techniques in order to set the context for in-depth discussion and evaluation of advanced techniques and options currently seen in the industry. The focus is on effectively planning for the increasingly complex mix of radio technologies, spectrum usage, and network strategies that operators are adopting in order to efficiently deliver high speed multi-media access to the customer - including capacity issues, HSPA / HASPA +, LTE, Femtocells, WiFi Offload, and a range of usage scenarios. Cost per Megabyte is fully analysed.

Radio planning and optimisation professionals will finish the programme much better equipped to plan efficient radio networks in an increasingly complex and diverse environment.

OUTCOMES & COMPETENCY DEVELOPMENT

Participants will develop or be able to:
- Better plan an efficient radio network in an increasingly complex radio environment - making best use of spectrum and available radio technology to fully meet the needs of the organisation and to evaluate and minimise the cost per Megabyte
- Contribute much more effectively to decisions and discussions centred around radio planning and optimisation - increasing their own value to the department and the organisation
- Evaluate more rigorously the different scenarios and planning options for alternative and emerging radio technologies, systems and strategies
- Fully understand the planning requirements and likely technology scenarios of future radio networks, including the drivers for radio technology integration and the solutions required
- Plan and optimise networks in a more informed manner, helping to de-risk investment choices whilst delivering the required capacity and coverage
- A solid foundation of knowledge and competencies, enabling innovative thinking and building confidence
- Make decisions on technology implementation and procurement that are commercially viable, minimise risk, and in line with the strategy of the organization

Book online
telecomstechacademy.com

Book over the phone
+44 (0)20 7017 4144

Book via email
training@telecomstechacademy.com

COURSE CONTENTS

THE RADIO ENVIRONMENT

Radio Principles
Modulation Techniques
Advanced Modulation
Multiple Access Schemes
    FDMA/TDMA
    CDMA & W-CDMA
    OFDMA
FDD and TDD Issues

SPECTRUM

Spectrum Usage
    Propagation Characteristics
    Availability & Licensing
    Power Issues
    Best Use Scenarios
Frequencies and Planning Implications

CELLULAR PLANNING TECHNIQUES

The Planning Process
Cellular Planning Techniques – Review
Link Budgets
Coverage, Capacity and Quality
Planning Tools
Planning Inputs - a changing world
Planning Outputs
Optimisation Techniques
    The Process
    The Output
Optimisation Tools
Drive Testing
    Effective Use of Drive Tests
    Best Practice
    Using the Data

DIMENSIONING THE RADIO NETWORK

Dimensioning the Radio Network for Voice
Dimensioning the Radio Network for IP-based services
The Backhaul Requirements
Connecting the Base Stations
The changing user requirements

ANTENNA TECHNIQUES

Antenna Basics
Antenna Gain
Antennas in the Link Budget
Maximising Coverage
Tilt
Diversity - Space / Time / Polarisation
Sectorisation
Interference Mitigation
Antenna Optimisation
Advanced Antenna Techniques
Beam-Forming
MIMO Techniques
    MIMO Scenarios
    Capacity and Coverage
    MIMO in Use

PRACTICAL AND BEST PRACTICE PLANNING FOR 2G SYSTEMS

Planning for FDMA Systems
    Link Budgets
    Coverage
    Capacity
    Quality
2G Best Practice Examples and Case Studies
    GSM
    GPRS
    EDGE
Optimisation Techniques
    Options and Parameters
    Practical Optimisation and Best Practice
Antenna Techniques & Planning for 2G

MINIMISING COSTS, MAXIMISING

Efficiency
Choosing the right vendor
Cost per megabyte – Evaluating from a Cost Perspective
Infrastructure Sharing
Future Technologies
On-going Planning Scenarios
Pulling it all together

PRACTICAL AND BEST PRACTICE PLANNING FOR LTE

Planning for OFDMA Systems
    Link Budgets
    Coverage
    Capacity
    Quality
Best Practice, Examples and Case Studies
    LTE
    LTE Advanced
Optimisation Techniques
    Options and Parameters
    Practical Optimisation and Best Practice
Antenna Techniques & Planning for LTE
MIMO in LTE and LTE Advanced
    MIMO Scenarios and Use in LTE
    MIMO and Capacity in LTE
    MIMO and Coverage in LTE

INDOOR PLANNING

Indoor Planning Principles
Indoor Link Budgets
Power Issues
Best Practice Indoor Planning Solutions

PRACTICAL AND BEST PRACTICE PLANNING FOR 3G SYSTEMS

Planning for W-CDMA Systems
    Link Budgets
    Coverage
    Capacity
    Quality
3G Best Practice, Examples and Case Studies
    W-CDMA
    HSPA and HSPA+
Optimisation Techniques
    Options and Parameters
    Practical Optimisation and Best Practice
Antenna Techniques & Planning for 3G
MIMO and HSPA+

COURSE CONTENTS

MULTI-RADIO ACCESS TECHNOLOGY NETWORKS

Multi-Radio Access Technology Networks
Combined 2G / 3G Network
Adding LTE to the Network
Adding WiFi
Full Multi-RAT Access Network Planning
        Coverage, Capacity, Quality
Controlling Interference and Interference Mitigation (Different Scenarios)
WiMAX Planning
        WiMAX Radio Features and Requirements
        WiMAX Deployment Scenarios
        WiMAX Planning – Coverage, Capacity, Quality
        Co-existing with WiMAX

HIGH CAPACITY, OFF-LOADING, AND HETEROGENEOUS NETWORKS

Small Cells
        Planning Small Cells in the Existing Network
        Frequency Planning
Capacity and Quality
Heterogeneous Networks
        Frequency Planning
        LTE Advanced Het-Net Features
Femto-Cells
        Frequency Issues
        Femto-cell Planning Considerations
WiFi Offload
        WiFi as Complimentary Technology
        WiFi Planning Considerations
        Practical WiFi Planning
        Best Practice
The Indoor High-capacity Environment
Backhaul Considerations

OUR TRAINING SERVICES

TELECOMS & TECH ACADEMY STRUCTURE

Our training programmes are delivered worldwide as part of the training and development plans of many operators, vendors, and service providers. The programmes cover a wide range of competency development requirements.

To ensure we meet the training needs of the industry as effectively as possible, we operate three schools:

School of Telecoms Management
Business training tailored to the telecoms industry, ranging from the intensive 5-day Telecoms Mini MBA to specialist leadership and marketing training.

School of Advanced Communication Technologies
Covering a multitude of technologies, these courses range from overviews aimed at nontechnical staff to in-depth engineering training.

Distance Leaning
Our comprehensive suite of Distance Learning programmes provide an excellent opportunity to expand knowledge and build confidence.

OUR TRAINERS

We only use trainers and programme directors that satisfy the following three criteria:

- Experts in their field
- High level of Industry Experience
- Expert facilitators and training professionals.

All our trainers have undergone a rigorous election process and are subject to continuous monitoring and evaluation. Each trainer is accredited for specific courses or topic areas. Whether engineers or business experts, all our trainers are required to continue their own development within their specialist areas, and to broaden their Industry view of trends, best practice and technology.

This is achieved by our on-going work with many tier 1 operators and vendors, and by full exposure to Ovum research and KNect 365 TMT worldwide events.

UNIVERSITY ACCREDITATION

Some of our programmes have been accredited by the University of Derby Corporate; a UK-based university highly acclaimed in the area of employer engagement. They are at the forefront of the drive to integrate highly focused industry -led training with the academic rigor and quality control of university-based education. Our comprehensive Advanced Telecoms Management Series have been accredited Post-Graduate Level, with our extensive suite of Distance Learning at Undergraduate Level)

We would be happy to discuss extending accreditation to tailored ATMS or programmes based on our Distance Learning modules. Although accreditation is specific to these programmes, the work we do with the University of Derby enable us to develop and apply best practice across our portfolio.

CUSTOMISED IN-HOUSE TRAINING

Telecoms & Tech Academy has worked with countless companies to deliver customised training programmes. We take time to understand your requirements, you'll work with our specialist training team to ensure that we deliver your perfect training programme for your business.

A customised training programme from Telecoms & Tech Academy ensures you get a course that precisely matches your organisation's needs, presented by a first-rate training organisation, with access to all the latest industry research and analysis.

WHY CHOOSE IN-HOUSE TRAINING FROM TELECOMS & TECH ACADEMY?

- Content can be customised to focus on the issues you want – work with us to develop the training course to match the exact needs.
- Unique industry research – from Ovum's team of industry leading analysts
- Expert trainers – our team of versatile trainers have the knowledge and experience to deliver a highly effective learning experience
- The most efficient way to train your staff – at the time and location to minimise disruption
- Flexible delivery options – with a range of instructor led, distance learning and virtual classroom formats available you can build a blended solution to maximise training effectiveness over the long term
- Pre and post course assessment – can be included in programmes to measure competencies and check on the required progress.

Contact us to discuss how we can build your perfect programme.

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