



Customer Training Catalog Training Programs WCDMA Product Technical Training



HUAWEI
HUAWEI Learning Service
2015



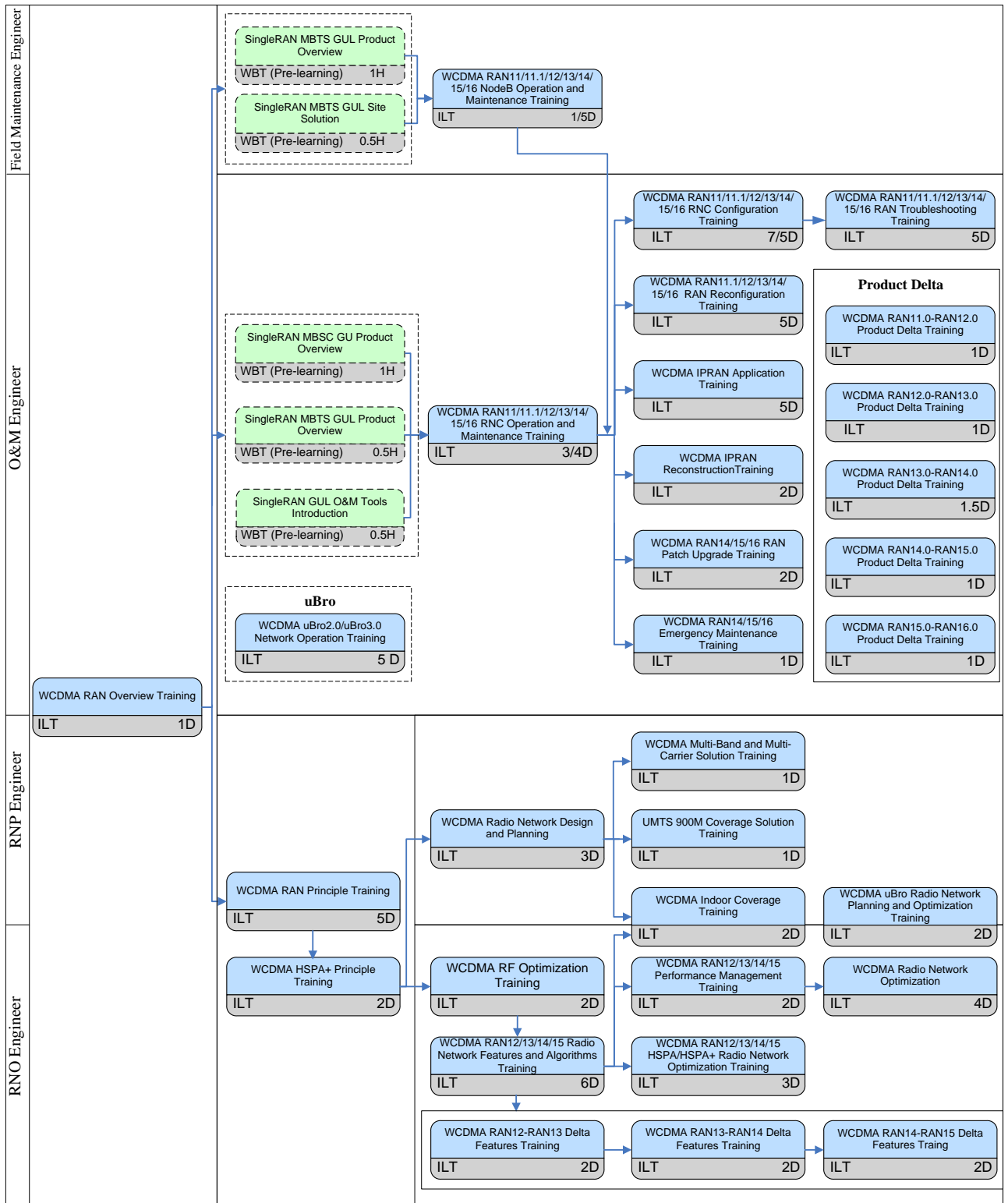
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1 Training Path



2 Training Programs

WCDMA Product Technical Training Training Programs are designed as follows:

Training Programs	Level	Duration (working days)	Training Location	Class Size
Principle				
WCDMA RAN Overview Training	II	1		6 ~ 12
WCDMA RAN Principle Training	III	5		6 ~ 12
WCDMA HSPA+ Principle Training	III	2		6 ~ 12
RNP and RNO				
WCDMA Radio Network Design and Planning Training	III	2		6 ~ 12
WCDMA Multi-Band and Multi-Carrier Solution Training	IV	1		6 ~ 12
UMTS 900M Coverage Solution Training	IV	1		6 ~ 12
WCDMA Indoor Coverage Training	III	2		6 ~ 12
WCDMA RF Optimization Training	III	2		6 ~ 12
WCDMA RAN12 Radio Network Features and Algorithms Training	III	5		6 ~ 12
WCDMA RAN13 Radio Network Features and Algorithms Training	III	6		6 ~ 12
WCDMA RAN14 Radio Network Features and Algorithms Training	III	6		6 ~ 12
WCDMA RAN15 Radio Network Features and Algorithms Training	III	6		6 ~ 12
WCDMA RAN12 Performance Management Training	IV	2		6 ~ 12
WCDMA RAN13 Performance Management Training	IV	2		6 ~ 12
WCDMA RAN14 Performance Management Training	IV	2		6 ~ 12
WCDMA RAN15 Performance Management Training	IV	2		6 ~ 12
WCDMA Radio Network Optimization	IV	4		6 ~ 12
WCDMA RAN12 HSPA/HSPA+ Radio Network Optimization Training	IV	3		6 ~ 12
WCDMA RAN13 HSPA/HSPA+ Radio Network Optimization Training	IV	3		6 ~ 12
WCDMA RAN14 HSPA/HSPA+ Radio Network Optimization Training	IV	3		6 ~ 12

WCDMA RAN15 HSPA/HSPA+ Radio Network Optimization Training	IV	3		6 ~ 12
WCDMA RAN12-RAN13 Delta Features Training	IV	2		6 ~ 12
WCDMA RAN13-RAN14 Delta Features Training	IV	2		6 ~ 12
WCDMA RAN14-RAN15 Delta Features Training	IV	2		6 ~ 12
WCDMA uBro Radio Network Planning and Optimization Training	IV	2		6 ~ 12
WCDMA Product				
WCDMA RAN11 NodeB Training	II	5		6 ~ 12
WCDMA RAN11 RNC Operation Training	II	3		6 ~ 12
WCDMA RAN11 RNC Configuration Training	II	7		6 ~ 12
WCDMA RAN11 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN11.1 NodeB Training	II	5		6 ~ 12
WCDMA RAN11.1 RNC Operation Training	II	3		6 ~ 12
WCDMA RAN11.1 RNC Configuration Training	II	7		6 ~ 12
WCDMA RAN11.1 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN11.1 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN12.0 NodeB Training	II	5		6 ~ 12
WCDMA RAN12.0 RNC Operation Training	II	3		6 ~ 12
WCDMA RAN12.0 RNC Configuration Training	II	7		6 ~ 12
WCDMA RAN12.0 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN12.0 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN11.0-RAN12.0 Product Delta Training	III	1		6 ~ 12
WCDMA uBro2.0 Network Operation Training	II	5		6 ~ 12
WCDMA RAN13.0 NodeB Training	II	5		6 ~ 12
WCDMA RAN13.0 RNC Operation Training	II	4		6 ~ 12
WCDMA RAN13.0 RNC Configuration Training	II	7		6 ~ 12
WCDMA RAN13.0 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN13.0 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN12.0-RAN13.0 Product Delta Training	III	1		6 ~ 12

WCDMA uBro3.0 Network Operation Training	II	5		6 ~ 12
WCDMA RAN14.0 NodeB Training	II	5		6 ~ 12
WCDMA RAN14.0 RNC Operation Training	II	4		6 ~ 12
WCDMA RAN14.0 RNC Configuration Training	II	7		6 ~ 12
WCDMA RAN14.0 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN14.0 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN13.0-RAN14.0 Product Delta Training	III	1.5		6 ~ 12
WCDMA RAN14.0 RAN Upgrade Training	III	2		6 ~ 12
WCDMA RAN14.0 Emergency Maintenance Training	III	1		6 ~ 12
WCDMA IPRAN Application Training	III	5		6 ~ 12
WCDMA IPRAN Reconstruction Training	III	2		6 ~ 12
WCDMA RAN15.0 BSC6900/6910 Operation and Maintenance Training	II	4		6 ~ 12
WCDMA RAN15.0 BSC6900/6910 Configuration Training	II	7		6 ~ 12
WCDMA RAN15.0 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN15.0 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN14.0-RAN15.0 Product Delta Training	III	1.5		6 ~ 12
WCDMA RAN15.0 RAN Patch Upgrade Training	III	2		6 ~ 12
WCDMA RAN15.0 Emergency Maintenance Training	III	1		6 ~ 12
WCDMA RAN15.0 NodeB Operation and Maintenance Training	II	5		6 ~ 12
WCDMA RAN16.0 BSC6900/6910 Operation and Maintenance Training	II	4		6 ~ 12
WCDMA RAN16.0 BSC6900/6910 Configuration Training	II	7		6 ~ 12
WCDMA RAN16.0 RAN Reconfiguration Training	III	5		6 ~ 12
WCDMA RAN16.0 RAN Troubleshooting Training	III	5		6 ~ 12
WCDMA RAN15.0-RAN16.0 Product Delta Training	III	1.5		6 ~ 12
WCDMA RAN16.0 RAN Patch Upgrade Training	III	2		6 ~ 12
WCDMA RAN16.0 Emergency Maintenance Training	III	1		6 ~ 12
WCDMA RAN16.0 NodeB Operation and Maintenance Training	II	5		6 ~ 12

WBT				
BSC6900 V900R013 WCDMA Product Description(WBT)	I	1 h		No limit
WCDMA BSC6900 Operation and Maintenance(WBT)	II	0.5 h		No limit
WCDMA BSC6900 V900R013 Initial Data Configuration Based on CME(WBT)	II	1 h		No limit
3900 Series WCDMA NodeB V100R004 Product Description(WBT)	I	1 h		No limit
WCDMA BTS3900 V100R004 Operation and Maintenance(WBT)	II	0.5 h		No limit
MBTS 3900 V100R004 WCDMA Initial Data Configuration(WBT)	II	0.5 h		No limit
WCDMA RAN14.0 New Features Overview(WBT)	II	1 h		No limit

2.1 Principle Training Programs

2.1.1 WCDMA RAN Overview Training

Training Path

WCDMA RAN Overview		
OWA00	Lecture	1d

Target Audience

All Technical People

Prerequisites

- Basic knowledge of mobile communications

Objectives

On completion of this program, the participants will be able to:

- Outline the development of 3G
- Describe the architecture of WCDMA system
- Describe the key features and technologies of

WCDMA

- Describe the voice coding of WCDMA
- Outline the channel coding of WCDMA
- Describe the spreading code of different services in WCDMA system
- Describe the scrambling code of WCDMA
- Describe the modulation methods used in WCDMA system
- Explain the usage of transmit diversity and RAKE receiver in WCDMA system
- Describe the concept of Soft Handover

Duration

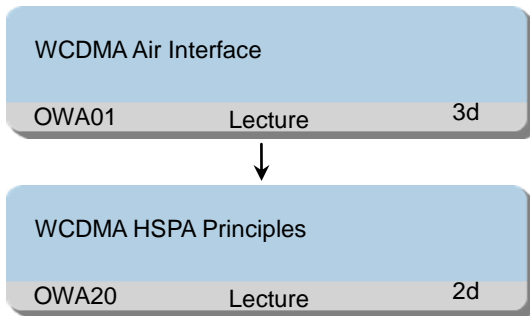
1 working day

Class Size

Min 6, Max 12

2.1.2 WCDMA RAN Principle Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training

Objectives

On completion of this program, the participants will be able to:

- Describe the WCDMA radio interface protocol architecture

- Describe the WCDMA RAN channel structure
- Outline WCDMA RAN physical layer procedures
- Describe the WCDMA RAN signaling procedures: paging, call process, handover, etc
- Describe the UTRAN basic RRM methods (power control, handover, load control, etc)
- Describe WCDMA and HSDPA evolution
- Describe HSDPA key technologies
- Describe HSDPA physical channels
- Describe HSDPA Network and UE protocol stack architecture
- Describe WCDMA and HSUPA evolution
- Describe HSUPA key technologies
- Describe HSUPA physical channels
- Describe HSUPA Network and UE protocol stack architecture

Duration

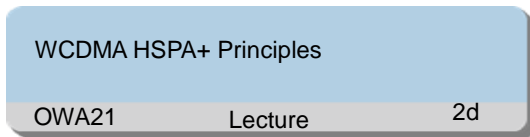
5 working days

Class Size

Min 6, Max 12

2.1.3 WCDMA HSPA+ Principle Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training

Objectives

On completion of this program, the participants will be able to:

- Describe HSPA+ evolution and standards

- Describe HSPA+ key technologies realized in RAN11, such as DL 64QAM, DL MIMO, E-FACH, etc.
- Describe HSPA+ key technologies realized in RAN12, such as DC-HSDPA, MIMO + DL 64QAM, UL 16QAM, etc
- Describe HSPA+ key technologies realized in RAN13, such as DC-HSDPA+MIMO, E-DPCCH Boosting, E-RACH, etc.
- Describe HSPA+ key technologies realized in RAN14, such as DC-HSUPA, etc.
- Describe HSPA+ key technologies realized in RAN15, such as DB-HSDPA, Flexible DC DB-HSDPA, 4C-HSDPA, etc.

Duration

2 working days

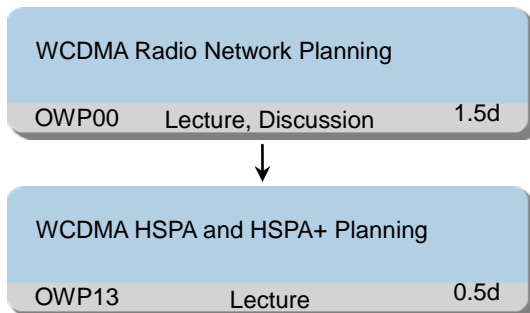
Class Size

Min 6, Max 12

2.2 RNP and RNO Training Programs

2.2.1 WCDMA Radio Network Design and Planning Training

Training Path



Target Audience

Network Deployment Engineers
System Technicians
System Engineers

Prerequisites

- WCDMA RAN Overview Training
- WCDMA RAN Principle Training
- WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe the principle of radio network planning
- Explain the difference between WCDMA and GSM radio network planning

- Explain the principle of WCDMA coverage planning
- Describe the traffic model of WCDMA
- Analyze the WCDMA uplink and downlink radio capacity
- Analyze the WCDMA CE capacity
- Describe Paging Area Planning
- Describe Scrambling Code Planning
- Describe Neighbor Cell Planning
- Describe HSDPA dimensioning principle, including link budget, capacity dimensioning, channel element dimensioning
- Describe HSUPA dimensioning principle, including link budget, capacity dimensioning, channel element dimensioning
- Describe impacts of HSPA+ features on dimensioning, including DL 64QAM, MIMO, CPC, DC-HSDPA, 64QAM+MIMO, UL16QAM, DC-MIMO, DC-HSUPA, etc

Duration

2 working days

Class Size

Min 6, Max 12

2.2.2 WCDMA Multi-Band and Multi-Carrier Solution Training

Training Path

WCDMA Multi-Band and Multi-Carrier Solution		
OWP20	Lecture	1d

Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN11/12/13/14 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe the policies of multi-band and multi-carrier
- Describe the application scenarios of the multi-band and multi-carrier solution
- Describe the main solutions in various scenarios

Duration

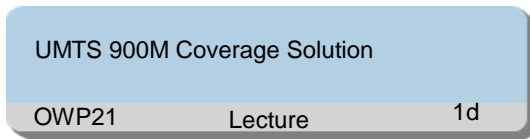
1 working day

Class Size

Min 6, Max 12

2.2.3 UMTS 900M Coverage Solution Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN11/12/13/14 Radio Network Features
and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe the application scenarios of the UMTS 900M coverage solution
- Describe UMTS 900M Refarming Solution
- Describe UMTS 900M Deployment
- Describe UMTS 900M Application Cases

Duration

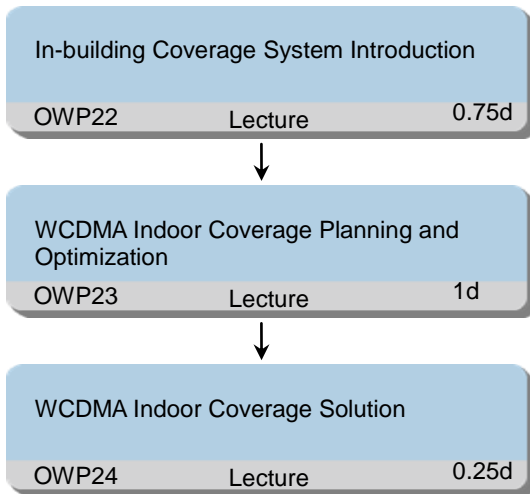
1 working day

Class Size

Min 6, Max 12

2.2.4 WCDMA Indoor Coverage Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN11/12/13/14 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe the structure of indoor coverage
- Describe the functions of common components for indoor coverage
- Describe the functions of repeaters
- Describe the method of WCDMA indoor coverage planning
- Describe the method of WCDMA indoor coverage optimization
- Describe the method of indoor and outdoor inter-operation
- Describe the stadium coverage solution
- Describe the metro coverage solution
- Describe the airport coverage solution
- Describe the resident location coverage solution
- Describe the commercial building coverage solution
- Describe the campus coverage solution

Duration

2 working days

Class Size

Min 6, Max 12

2.2.5 WCDMA RF Optimization Training

Training Path

WCDMA Radio Network Tuning		
OWO00	Lecture, Discussion	2d

Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe WCDMA Radio Network Optimization Flow
- Describe the steps of single site verification
- Describe how to do single site verification
- Describe how to solve the ordinary problems in single site verification
- Describe how to solve the neighbor list related problems in RF optimization

Duration

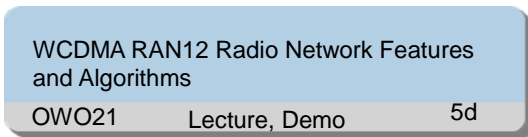
2 working days

Class Size

Min 6, Max 12

2.2.6 WCDMA RAN12 Radio Network Features and Algorithms Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe WCDMA RAN12 Idle Mode Behaviors (including cell selection and reselection, paging, access etc) and list the main parameters
- Describe WCDMA RAN12 open loop power

control algorithm and list the main parameters

- Describe WCDMA RAN12 closed loop power control algorithm and list the main parameters
- Describe WCDMA RAN12 intra-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN12 inter-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN12 inter-RAT handover algorithm and list the main parameters
- Describe WCDMA RAN12 admission control algorithms and list the main parameters
- Describe WCDMA RAN12 load control algorithms and list the main parameters

Duration

5 working days

Class Size

Min 6, Max 12

2.2.7 WCDMA RAN13 Radio Network Features and Algorithms Training

Training Path

WCDMA RAN13 Radio Network Features and Algorithms

OWO22

Lecture, Demo

6d

Target Audience

Optimization Engineers

System Technicians

System Engineers

Prerequisites

WCDMA RAN Overview Training

WCDMA RAN Principle Training

WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe WCDMA RAN13 Idle Mode Behaviors (including cell selection and reselection, paging, access etc) and list the main parameters
- Describe WCDMA RAN13 open loop power control algorithm and list the main parameters

- Describe WCDMA RAN13 closed loop power control algorithm and list the main parameters
- Describe WCDMA RAN13 intra-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN13 inter-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN13 inter-RAT handover algorithm and list the main parameters
- Describe WCDMA RAN13 Service-Based PS Redirection from UMTS to LTE
- Describe WCDMA RAN13 admission control algorithms and list the main parameters
- Describe WCDMA RAN13 load control algorithms and list the main parameters

Duration

6 working days

Class Size

Min 6, Max 12

2.2.8 WCDMA RAN14 Radio Network Features and Algorithms Training

Training Path

WCDMA RAN14 Radio Network Features and Algorithms

OWO23

Lecture, Demo

6d

Target Audience

Optimization Engineers

System Technicians

System Engineers

Prerequisites

WCDMA RAN Overview Training

WCDMA RAN Principle Training

WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe WCDMA RAN14 Idle Mode Behaviors (including cell selection and reselection, paging, access etc) and list the main parameters
- Describe WCDMA RAN14 open loop power control algorithm and list the main parameters

- Describe WCDMA RAN14 closed loop power control algorithm and list the main parameters
- Describe WCDMA RAN14 intra-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN14 inter-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN14 inter-RAT handover algorithm and list the main parameters
- Describe WCDMA RAN14 Service-based UMTS-to-LTE PS Redirection and Handover
- Describe WCDMA RAN14 admission control algorithms and list the main parameters
- Describe WCDMA RAN14 load control algorithms and list the main parameters

Duration

6 working days

Class Size

Min 6, Max 12

2.2.9 WCDMA RAN15 Radio Network Features and Algorithms Training

Training Path

WCDMA RAN15 Radio Network Features and Algorithms		
OWO24	Lecture, Demo	6d

Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training

Objectives

On completion of this program, the participants will be able to:

- Describe WCDMA RAN15 Idle Mode Behaviors (including cell selection and reselection, paging, access etc) and list the main parameters
- Describe WCDMA RAN15 open loop power control algorithm and list the main parameters

- Describe WCDMA RAN15 closed loop power control algorithm and list the main parameters
- Describe WCDMA RAN15 intra-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN15 inter-frequency handover algorithm and list the main parameters
- Describe WCDMA RAN15 inter-RAT handover algorithm and list the main parameters
- Describe WCDMA RAN15 UMTS-to-LTE PS Redirection and Handover algorithm and list the main parameters
- Describe WCDMA RAN15 admission control algorithms and list the main parameters
- Describe WCDMA RAN15 load control algorithms and list the main parameters

Duration

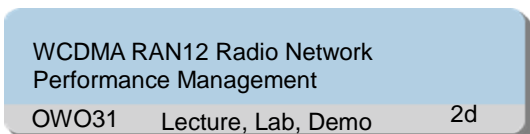
6 working days

Class Size

Min 6, Max 12

2.2.10 WCDMA RAN12 Performance Management Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN12 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Master the concept related to Performance

Management

- Master how to collect counters and KPIs with M2000
- Describe WCDMA RAN12 access KPI and relative counters
- Describe WCDMA RAN12 call drop KPI and relative counters
- Describe WCDMA RAN12 mobility KPI and relative counters
- Describe WCDMA RAN12 traffic KPI and relative counters
- Describe WCDMA RAN12 cell algorithm KPI and relative counters, such as load control, DCCC

Duration

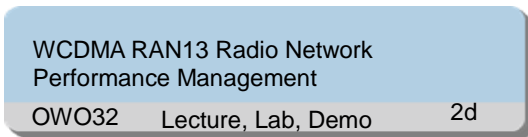
2 working days

Class Size

Min 6, Max 12

2.2.11 WCDMA RAN13 Performance Management Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN13 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Master the concept related to Performance

Management

- Master how to collect counters and KPIs with M2000
- Describe WCDMA RAN13 access KPI and relative counters
- Describe WCDMA RAN13 call drop KPI and relative counters
- Describe WCDMA RAN13 mobility KPI and relative counters
- Describe WCDMA RAN13 traffic KPI and relative counters
- Describe WCDMA RAN12 cell algorithm KPI and relative counters, such as load control, DCCC

Duration

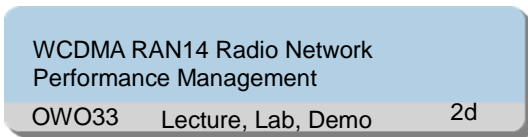
2 working days

Class Size

Min 6, Max 12

2.2.12 WCDMA RAN14 Performance Management Training

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN14 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Master the concept related to Performance

Management

- Master how to collect counters and KPIs with M2000
- Describe WCDMA RAN14 access KPI and relative counters
- Describe WCDMA RAN14 call drop KPI and relative counters
- Describe WCDMA RAN14 mobility KPI and relative counters
- Describe WCDMA RAN14 traffic KPI and relative counters
- Describe WCDMA RAN14 cell algorithm KPI and relative counters, such as load control, DCCC

Duration

2 working days

Class Size

Min 6, Max 12

2.2.13 WCDMA RAN15 Performance Management Training

Training Path

WCDMA RAN15 Radio Network Performance Management		
OWO34	Lecture, Lab, Demo	2d

Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN15 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Master the concept related to Performance

Management

- Master how to collect counters and KPIs with M2000
- Describe WCDMA RAN15 access KPI and relative counters
- Describe WCDMA RAN15 call drop KPI and relative counters
- Describe WCDMA RAN15 mobility KPI and relative counters
- Describe WCDMA RAN15 traffic KPI and relative counters
- Describe WCDMA RAN15 cell algorithm KPI and relative counters, such as load control, DCCC

Duration

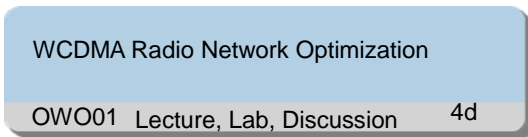
2 working days

Class Size

Min 6, Max 12

2.2.14 WCDMA Radio Network Optimization

Training Path



Target Audience

Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN12/13/14/15 Radio Network
Features and Algorithms Training
WCDMA RAN12/13/14/15 Performance
Management Training

Objectives

On completion of this program, the participants will be able to:

- List the main items of RNC trace and monitoring

- Execute signaling trace and real-time monitoring and collect data
- Describe the signaling of type procedures
- Describe how to analyze coverage problem and solve it
- Describe how to improve coverage capability
- Locate the resource of interference
- Describe how to solve interference problem
- Evaluate the network access performance
- Locate and solve common access problems
- Evaluate the network paging performance
- Locate and solve paging problem
- Evaluate the network handover performance
- Locate and solve handover problem
- Evaluate the network retention performance
- Locate and solve call drop problem

Duration

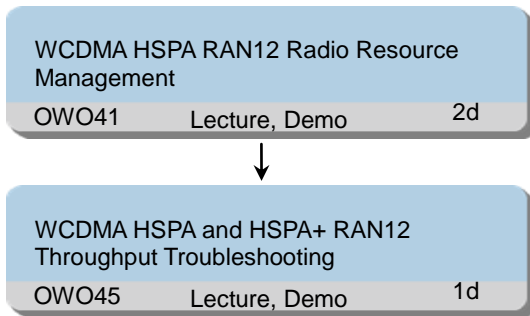
4 working days

Class Size

Min 6, Max 12

2.2.15 WCDMA RAN12 HSPA/HSPA+ Radio Network Optimization Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN12 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe HSDPA RAN12 Radio Resource Algorithm (RRM) such as channel type mapping, code resource allocation, power allocation, HSDPA mobility management, scheduling, etc.
- Describe HSUPA RAN12 Radio Resource Algorithm (RRM) such as channel type mapping, DCCC, power allocation, HSUPA mobility management, scheduling, etc.
- Describe the troubleshooting process for HSDPA throughput problems
- Describe the troubleshooting process for HSUPA throughput problems
- Describe the troubleshooting process for HSPA+ throughput problems

Duration

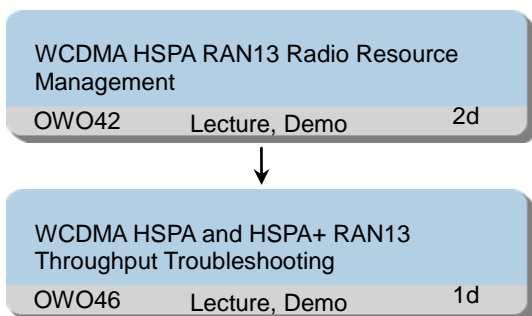
3 working days

Class Size

Min 6, Max 12

2.2.16 WCDMA RAN13 HSPA/HSPA+ Radio Network Optimization Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN13 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe HSDPA RAN13 Radio Resource Algorithm (RRM) such as channel type mapping, code resource allocation, power allocation, HSDPA mobility management, scheduling, etc.
- Describe HSUPA RAN13 Radio Resource Algorithm (RRM) such as channel type mapping, DCCC, power allocation, HSUPA mobility management, scheduling, etc.
- Describe the troubleshooting process for HSDPA throughput problems
- Describe the troubleshooting process for HSUPA throughput problems
- Describe the troubleshooting process for HSPA+ throughput problems

Duration

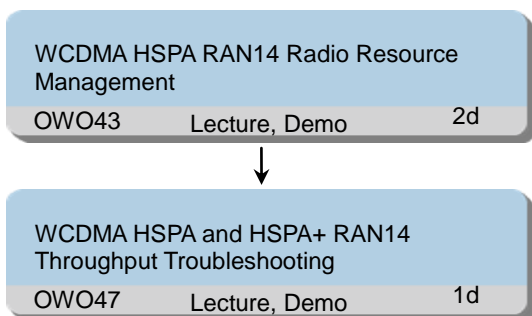
3 working days

Class Size

Min 6, Max 12

2.2.17 WCDMA RAN14 HSPA/HSPA+ Radio Network Optimization Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN14 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe HSDPA RAN14 Radio Resource Algorithm (RRM) such as channel type mapping, code resource allocation, power allocation, HSDPA mobility management, scheduling, etc.
- Describe HSUPA RAN14 Radio Resource Algorithm (RRM) such as channel type mapping, DCCC, power allocation, HSUPA mobility management, scheduling, etc.
- Describe the troubleshooting process for HSDPA throughput problems
- Describe the troubleshooting process for HSUPA throughput problems
- Describe the troubleshooting process for HSPA+ throughput problems

Duration

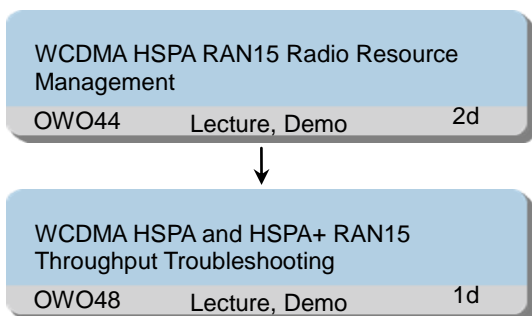
3 working days

Class Size

Min 6, Max 12

2.2.18 WCDMA RAN15 HSPA/HSPA+ Radio Network Optimization Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN15 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Describe HSDPA RAN15 Radio Resource Algorithm (RRM) such as channel type mapping, code resource allocation, power allocation, HSDPA mobility management, scheduling, etc.
- Describe HSUPA RAN15 Radio Resource Algorithm (RRM) such as channel type mapping, DCCC, power allocation, HSUPA mobility management, scheduling, etc.
- Describe the troubleshooting process for HSDPA throughput problems
- Describe the troubleshooting process for HSUPA throughput problems
- Describe the troubleshooting process for HSPA+ throughput problems

Duration

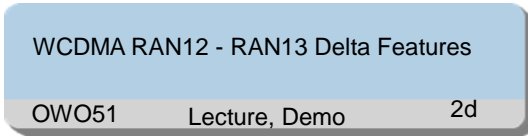
3 working days

Class Size

Min 6, Max 12

2.2.19 WCDMA RAN12-RAN13 Delta Features Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN13 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Outline the important new features realized in RAN13 version
- Describe WCDMA RAN13 DC-HSDPA+MIMO Feature
- Describe WCDMA RAN13 Traffic-Based Activation and Deactivation of Secondary Carrier in DC-HSDPA Feature
- Describe WCDMA RAN13 Enhanced Uplink CELL FACH Feature

- Describe WCDMA RAN13 E-DPCCH Boosting Feature
- Describe WCDMA RAN13 Enhanced Fast Dormancy Feature
- Describe WCDMA RAN13 P2P Downloading Rate Control during Busy Hour Feature
- Describe WCDMA RAN13 Web Page Access Acceleration Feature
- Describe WCDMA RAN13 Optimization of R99 and HSUPA Users Fairness Feature
- Describe WCDMA RAN13 Anti-Interference Scheduling for HSUPA Feature
- Describe WCDMA RAN13 Multi-Carrier Switch off Based on QoS Feature
- Describe WCDMA RAN13 HSUPA Coverage Enhancement at UE Power Limitation Feature
- Describe WCDMA RAN13 Adaptive Configuration of Data Channel Power Offset for HSUPA Feature
- Describe WCDMA RAN13 Dual-Threshold Scheduling with HSUPA Interference Cancellation Feature
- Describe WCDMA RAN13 GU 2.0MHZ Central Frequency Spacing(U3.8MHZ) Feature

Duration

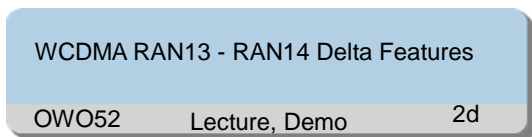
2 working days

Class Size

Min 6, Max 12

2.2.20 WCDMA RAN13-RAN14 Delta Features Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN14 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Outline the important new features realized in RAN14 version
- Describe WCDMA RAN14 Multi Sector Solution Feature
- Describe WCDMA RAN14 HSPA+ DC-HSUPA Feature
- Describe WCDMA RAN14 Voice Service Experience Improvement for Weak Reception UEs Feature
- Describe WCDMA RAN14 Service-Based PS Handover from UMTS to LTE Feature

- Describe WCDMA RAN14 Layered Paging in URA_PCH Feature
- Describe WCDMA RAN14 Control Channel Parallel Interference Cancellation Phase2 Feature
- Describe WCDMA RAN14 Dynamical HSDPA CQI Feedback Period Feature
- Describe WCDMA RAN14 Adaptive Adjustment of HSUPA Small Target Retransmissions Feature
- Describe WCDMA RAN14 Intelligent Access Class Control Feature
- Describe WCDMA RAN14 Dynamic Target ROT Adjustment Feature
- Describe WCDMA RAN14 Inter-Frequency Load Balance Based on Configurable Load Threshold Feature
- Describe WCDMA RAN14 Inter-frequency Load Handover based CE Congestion Feature
- Describe WCDMA RAN14 CE Overbooking Feature
- Describe WCDMA RAN14 Load-based Uplink Target BLER Configuration Feature
- Describe WCDMA RAN14 HSDPA Scheduling Based on UE Location Feature

Duration

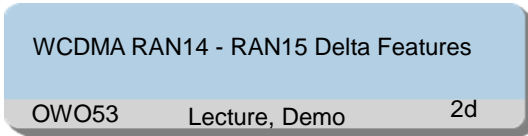
2 working days

Class Size

Min 6, Max 12

2.2.21 WCDMA RAN14-RAN15 Delta Features Training

Training Path



Target Audience

Network Deployment Engineers
Optimization Engineers
System Technicians
System Engineers

Prerequisites

WCDMA RAN Overview Training
WCDMA RAN Principle Training
WCDMA HSPA+ Principles Training
WCDMA RAN15 Radio Network Features and Algorithms Training

Objectives

On completion of this program, the participants will be able to:

- Outline the important new features realized in RAN15 version
- Describe WCDMA RAN15 HSPA+ DB-HSDPA Feature
- Describe WCDMA RAN15 HSPA+ Flexible DC DB-HSDPA Feature
- Describe WCDMA RAN15 HSPA+ 4C-HSDPA Feature
- Describe WCDMA RAN15 Turbo Interference Cancellation Feature
- Describe WCDMA RAN15 HSUPA Time

Division Scheduling Feature

- Describe WCDMA RAN15 Load Based Dynamic Adjustment of PCPICH Power Feature
- Describe WCDMA RAN15 DL DPCH Maximum Power Restriction Feature
- Describe WCDMA RAN15 DL DPCH Pilot Power Adjustment Feature
- Describe WCDMA RAN15 Platinum User Prioritizing Feature
- Describe WCDMA RAN15 Differentiated Service Based on Resource Reservation Feature
- Describe WCDMA RAN15 Layered Paging in Idle Mode Feature
- Describe WCDMA RAN15 HSUPA Scheduling Based on UE Location Feature
- Describe WCDMA RAN15 UMTS-to-LTE Fast Return Feature
- Describe WCDMA RAN15 Macro and Micro Co-carrier Uplink Interference Control Feature
- Describe WCDMA RAN15 Multiband Direct Retry Based on UE Location Feature
- Describe WCDMA RAN15 Narrowband Interference Suppression Feature

Duration

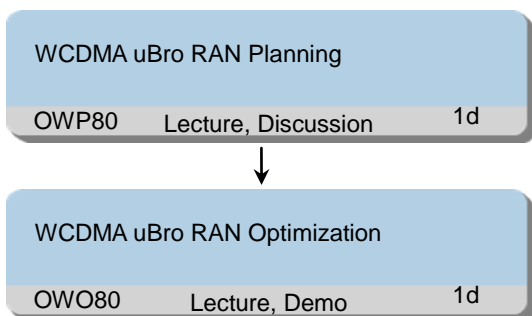
2 working days

Class Size

Min 6, Max 12

2.2.22 WCDMA uBro Radio Network Planning and Optimization Training

Training Path



Target Audience

uBro Optimization Engineers
uBro Technicians
System Technicians
System Engineers

Prerequisites

Basic knowledge of mobile communications
OWA00 WCDMA RAN Overview
OWA01 WCDMA Air Interface

Objectives

On completion of this program, the participants will be able to:

- Describe the applications scenario of Huawei AP products
- Describe the basic planning of Femto network such as PLMN planning, LAC/RAC/SAC planning, frequency planning, scrambling code planning and etc.
- Describe the camp and handover policy in Femto network
- Describe the deployment of the typical case
- Describe interference test cases for typical networking scenarios
- Describe interference mitigation methods for typical networking scenarios

Duration

2 working days

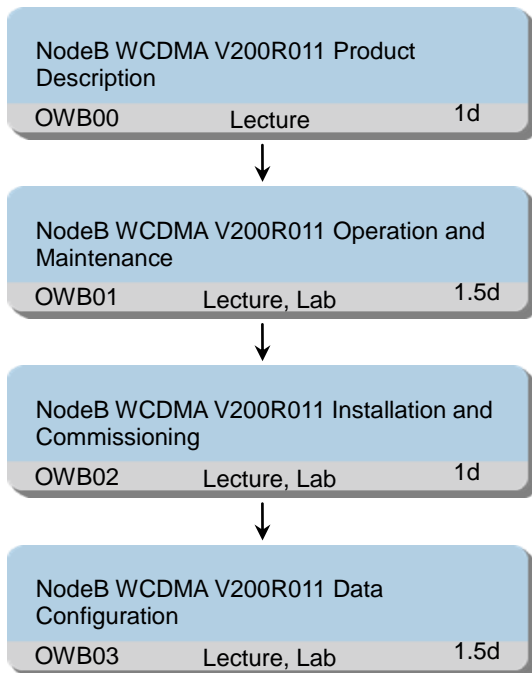
Class Size

Min 6, Max 12

2.3 WCDMA Product Training Programs

2.3.1 WCDMA RAN11 NodeB Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of DBS3900
- Detail the functions of different subsystems and boards of DBS3900
- Describe the typical hardware configurations of DBS3900
- Describe the hardware structure of BTS3900

- Detail the functions of different subsystems and boards of BTS3900
- Describe the cables connection of BTS3900
- Describe the expansion and networking of BTS3900
- Explain the architecture of hardware and software components of NodeB operation and maintenance system
- Get to know how to use NodeB operation and maintenance tool - LMT
- Perform corrective and preventive maintenance on NodeB
- Manage alarms and faults handling
- Manage data, for example: backuping system data, executing MML commands
- Manage equipment, for example: checking board status and versions
- Manage tracing message, for example: creating a tracing task, checking tracing result, saving result
- Manage real-time monitoring, for example: creating a monitoring task, checking and saving monitoring result
- Outline the main operation and maintenance tasks for one day, one week and one month
- Install LMT software
- Describe the procedure of NodeB commissioning
- Check the compatibility of NodeB software version
- Load NodeB software and configuration file
- Verify local cell status
- Measure RTWP
- Monitor output power
- Outline the user interface of CME configuration tool
- Illustrate the data configuration procedure

- Explain key parameters in each step during data configuration procedure
- Implement the data configuration with template file
- Perform initial data configuration and dynamic modification

Duration

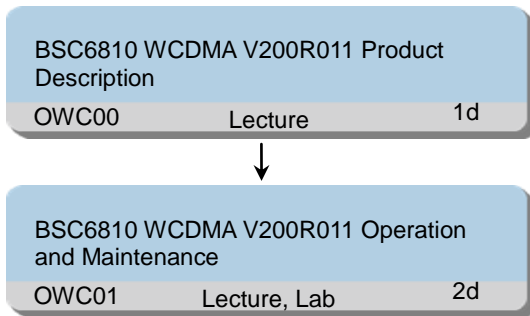
5 working days

Class Size

Min 6, Max 12

2.3.2 WCDMA RAN11 RNC Operation Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the RNC system functions, structures and key characteristics
- Describe the functions, indicators, ports and working mode of each board
- Explain the types and application situations of different fibers and cables
- Describe the signal processing flows of radio and terrestrial interfaces in RNC system
- Explain the typical RAN networking types and each networking type's characters
- Explain the RNC system hardware

configuration rules, and calculate the numbers and types of boards in a typical network

- Explain the architecture of RAN Operation and Maintenance system, hardware and software components of the system
- Perform corrective and preventive maintenance on RNC
- Manage BAM server, for example: checking its running status and version
- Get to know how to use RNC operation and maintenance tool - LMT
- Manage authorities of users
- Manage alarms and faults handling
- Manage equipment, for example: checking board status and version
- Manage data, for example: backing up system data, executing MML commands
- Manage Logs, for example: querying logs, saving logs
- Manage tracing message, for example: creating a tracing task, checking tracing result, saving result
- Manage real-time monitoring, for example: creating a monitoring task, checking and saving monitoring result
- Outline the main operation and maintenance tasks for one day, one week and one month

Duration

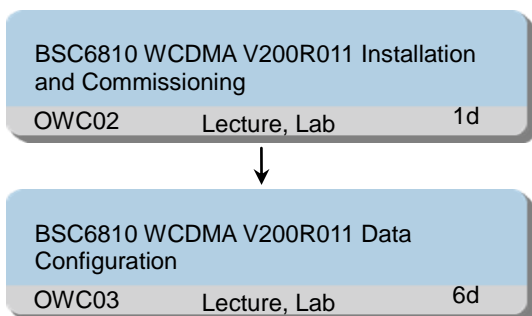
3 working days

Class Size

Min 6, Max 12

2.3.3 WCDMA RAN11 RNC Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN11 RNC Operation
Training

Objectives

On completion of this program, the participants will be able to:

- Describe the structure of RNC operation and maintenance subsystem
- Install BAM software

- Install LMT software
- Describe the procedure of RNC Commissioning.
- Load RNC host software and data file
- Verify RNC interfaces and services
- Integrate RNC to M2000
- Describe the RNC data configuration method and procedure
- Compile transport network data files, including global data, equipment data and lub, lu, lur interfaces data
- Compile the radio network data files for cells
- Explain the configuration procedure for HSDPA services
- Generate the initial data configuration file with LMT software or CME software
- Check the data configuration files integrity and validity
- Load the data configuration file to RNC

Duration

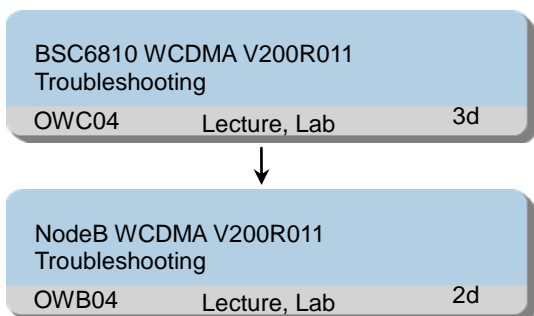
7 working days

Class Size

Min 6, Max 12

2.3.4 WCDMA RAN11 RAN Troubleshooting Training

Training Path



Target Audience

- Field engineer
- System engineer
- Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN11 RNC Configuration Training
 - WCDMA RAN11 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Overview UTRAN Network
- Explain Basic Concepts about UTRAN
- Describe system information broadcast signaling procedure

- Describe paging signaling procedure
- Describe call process signaling procedure
- Describe handover signaling procedure
- Describe RAN troubleshooting process
- Handling Transport Faults
- Handling O/M Faults
- Handling Interface Faults
- Handling Service Faults
- Handling Abnormal RTWP
- Handling Abnormal Downlink Power
- Handling Failure to Deliver the License of the NodeB Through M2000
- Handling Failure to Install the LMT
- Handling Failure to Establish Cells
- Handling High Frequency Deviation (E1) of Clock
- Handling Intermittent Interruption of CPRI Link
- Handling Sleeping Cell

Duration

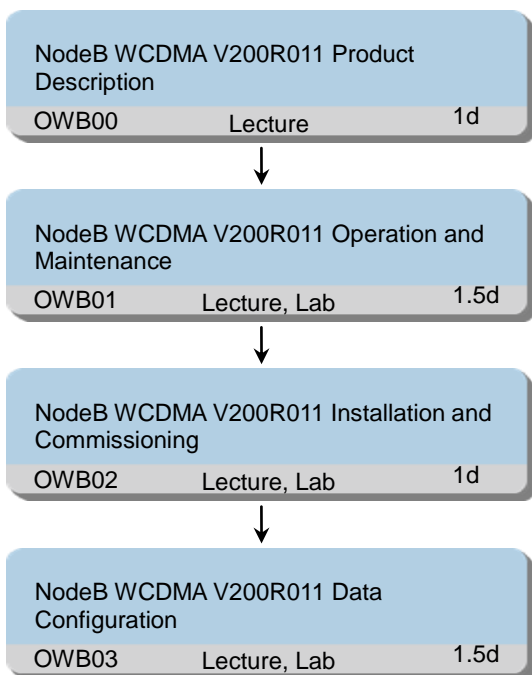
5 working days

Class Size

Min 6, Max 12

2.3.5 WCDMA RAN11.1 NodeB Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of DBS3900
- Detail the functions of different subsystems and boards of DBS3900
- Describe the typical hardware configurations of DBS3900
- Describe the hardware structure of BTS3900
- Detail the functions of different subsystems and boards of BTS3900
- Describe the cables connection of BTS3900
- Describe the expansion and networking of

BTS3900

- Explain the architecture of hardware and software components of NodeB operation and maintenance system
- Get to know how to use NodeB operation and maintenance tool - LMT
- Perform corrective and preventive maintenance on NodeB
- Manage alarms and faults handling
- Manage data, for example: backing up system data, executing MML commands
- Manage equipment, for example: checking board status and versions
- Manage tracing message, for example: creating a tracing task, checking tracing result, saving result
- Manage real-time monitoring, for example: creating a monitoring task, checking and saving monitoring result
- Outline the main operation and maintenance tasks for one day, one week and one month
- Install LMT software
- Describe the procedure of NodeB commissioning
- Check the compatibility of NodeB software version
- Load NodeB software and configuration file
- Verify local cell status
- Measure RTWP
- Monitor output power
- Outline the user interface of CME configuration tool
- Illustrate the data configuration procedure
- Explain key parameters in each step during data configuration procedure
- Implement the data configuration with template file
- Perform initial data configuration and dynamic modification

Duration

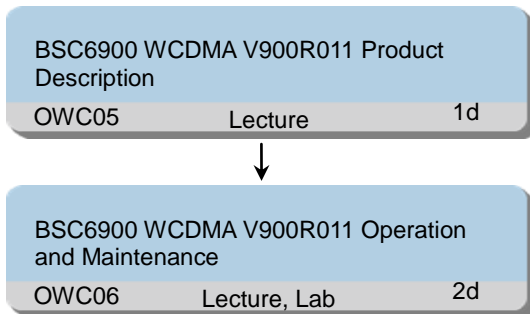
5 working days

Class Size

Min 6, Max 12

2.3.6 WCDMA RAN11.1 RNC Operation Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- Detail the structure of operation and maintenance subsystem
- Perform the RNC routine operation
- Perform the RNC routine maintenance

Duration

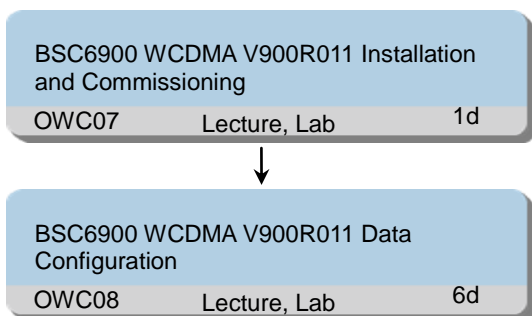
3 working days

Class Size

Min 6, Max 12

2.3.7 WCDMA RAN11.1 RNC Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN11.1 RNC Operation
Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning
- Complete BSC6900 application software installation
- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

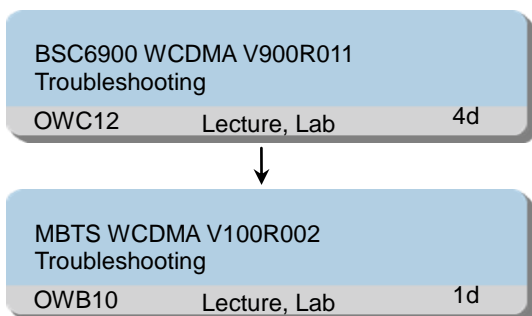
7 working days

Class Size

Min 6, Max 12

2.3.8 WCDMA RAN11.1 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN11.1 RNC Configuration Training
WCDMA RAN11.1 NodeB Training

Objectives

On completion of this program, the participants will

be able to:

- Describe RAN troubleshooting process
- Handling Transmission Faults
- Handling Equipments Faults
- Handling O/M Faults
- Handling Basic Service Faults
- Handling NodeB Abnormal RTWP
- Handling Abnormal Downlink Power
- Handling Failure to Deliver the License of the NodeB Through M2000
- Handling Failure to Establish Cells
- Handling Intermittent Interruption of CPRI Link
- Handling Sleeping Cell

Duration

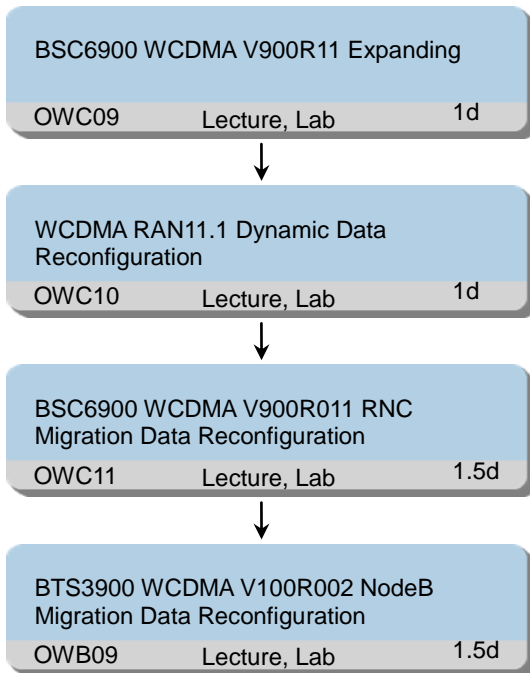
5 working days

Class Size

Min 6, Max 12

2.3.9 WCDMA RAN11.1 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN11.1 RNC Configuration Training
WCDMA RAN11.1 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the

RNC capacity

- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
 - Describe the procedure of the RNC migration data reconfiguration
 - Perform the RNC migration data reconfiguration
 - Upon completion of this course, you will be able to:
 - Detail the scenarios of NodeB migration data reconfiguration
 - Detail the procedure of NodeB migration data reconfiguration
 - Perform the NodeB migration data reconfiguration

Duration

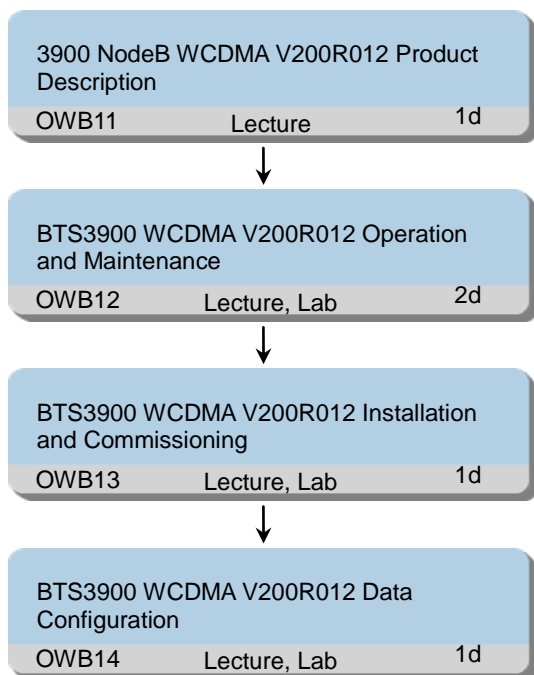
5 working days

Class Size

Min 6, Max 12

2.3.10 WCDMA RAN12.0 NodeB Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure and application scenario of NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB
- Describe the structure of operation and maintenance system
- Detail routine operation of NodeB
- Detail routine maintenance of NodeB
- Detail the scenarios of NodeB commissioning
- Perform NodeB Remote commissioning
- Perform NodeB Local commissioning
- Outline NodeB data configuration procedure based on CME
- Complete NodeB data configuration

Duration

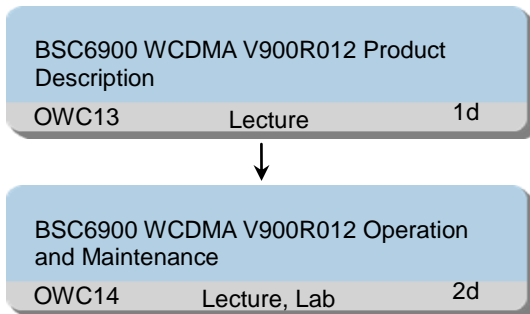
5 working days

Class Size

Min 6, Max 12

2.3.11 WCDMA RAN12.0 RNC Operation Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- Detail the structure of operation and maintenance subsystem
- Perform the RNC routine operation
- Perform the RNC routine maintenance

Duration

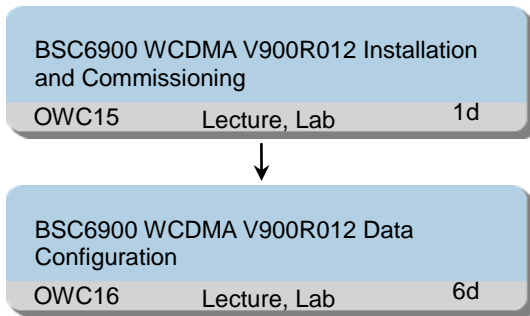
3 working days

Class Size

Min 6, Max 12

2.3.12 WCDMA RAN12.0 RNC Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN12 RNC Operation
Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning
- Complete BSC6900 application software installation
- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

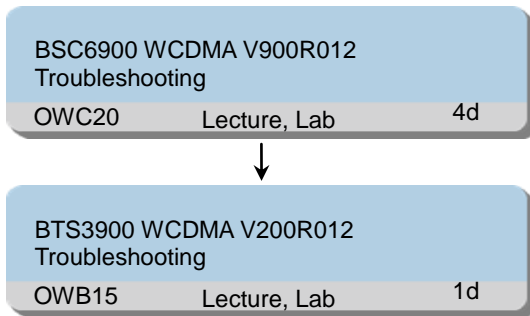
7 working days

Class Size

Min 6, Max 12

2.3.13 WCDMA RAN12.0 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN12 RNC Configuration Training
WCDMA RAN12 NodeB Training

Objectives

On completion of this program, the participants will

be able to:

- Describe RAN troubleshooting process
- Handling Transmission Faults
- Handling Equipments Faults
- Handling O/M Faults
- Handling Basic Service Faults
- Handling NodeB Abnormal RTWP
- Handling Abnormal Downlink Power
- Handling Hardware Faults
- Handling Failure to Deliver the License of the NodeB Through M2000
- Handling Failure to Establish Cells
- Handling Sleeping Cell
- Handling OMCH Fault

Duration

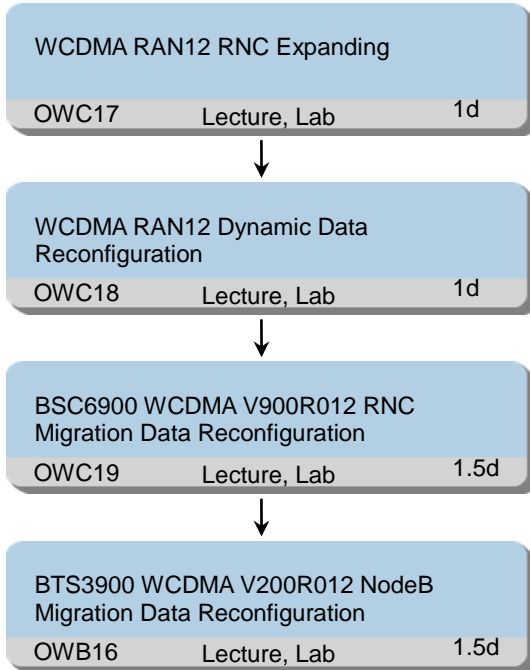
5 working days

Class Size

Min 6, Max 12

2.3.14 WCDMA RAN12.0 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN12 RNC Configuration Training
WCDMA RAN12 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the

RNC capacity

- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
 - Describe the procedure of the RNC migration data reconfiguration
 - Perform the RNC migration data reconfiguration
 - Upon completion of this course, you will be able to:
 - Detail the scenarios of NodeB migration data reconfiguration
 - Detail the procedure of NodeB migration data reconfiguration
 - Perform the NodeB migration data reconfiguration

Duration

5 working days

Class Size

Min 6, Max 12

2.3.15 WCDMA RAN11.0-RAN12.0 Product Delta Training

Training Path

WCDMA RAN11 - RAN12 Delta Training		
OWC21	Lecture	1d

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN11 RNC Configuration Training
WCDMA RAN11 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware
- Describe some important new features
- Describe some new O/M functions
- Understand the values and benefit of the features

Duration

1 working day

Class Size

Min 6, Max 12

2.3.16 WCDMA uBro2.0 Network Operation Training

Training Path

WCDMA uBro2.0 RAN Operation Maintenance		
OWF00	Lecture, Lab	5d

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of UMTS network principle

Objectives

On completion of this program, the participants will be able to:

- Describe interface and network architecture for WCDMA system uBro solution.
- Describe the basic principles for WCDMA system.
- Introduce the network architecture and structure of uBro solution.
- Describe the AP basic functions and interfaces.
- Describe the types of AP and hardware structure.
- Describe the accessing way and procedure of AP.
- Perform the AP commissioning and data configuration.
- Introduce the IPCLK1000 working principle and features.
- Describe the IPCLK1000 network structure.
- Describe the IPCLK1000 hardware structure.

- Perform the IPCLK1000 routine operation and maintenance, commissioning and data configuration.
- Introduce the AHR basic functions and interfaces.
- Describe the AHR network architecture.
- Describe the AHR hardware structure and typical configuration.
- Describe the AHR software structure and functions.
- Describe the AHR client routine operation and maintenance functions.
- Introduce the APM basic functions and interfaces.
- Describe the APM network architecture.
- Describe the APM hardware structure and typical configuration.
- Describe the APM software structure and functions.
- Perform the APM routine operation and maintenance on AP with client.
- Introduce M2000 basic functions.
- Describe the M2000 system architecture and functions.
- Introduce the M2000 network for uBro solution.
- Perform M2000 routine operation and maintenance on AP with client.

Duration

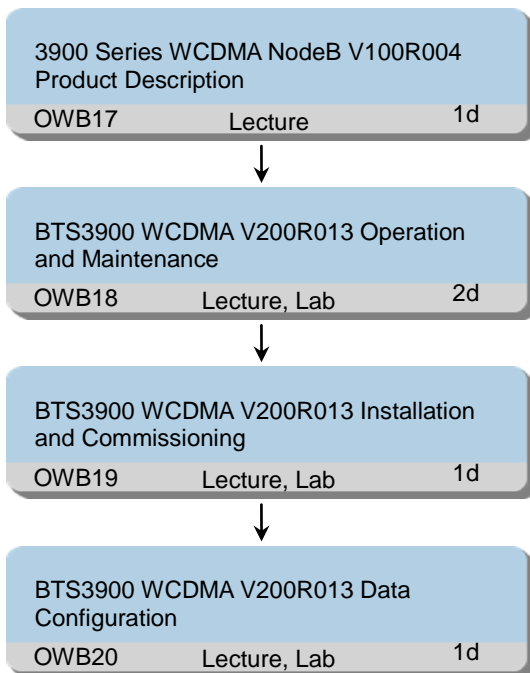
5 working days

Class Size

Min 6, Max 12

2.3.17 WCDMA RAN13.0 NodeB Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA
wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of 3900 series NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB
- Describe the structure of operation and maintenance system
- Detail routine operation of NodeB
- Detail routine maintenance of NodeB
- Detail the scenarios of NodeB commissioning
- Perform NodeB Remote commissioning
- Perform NodeB Local commissioning
- Outline MBTS data configuration procedure based on CME
- Complete MBTS data configuration

Duration

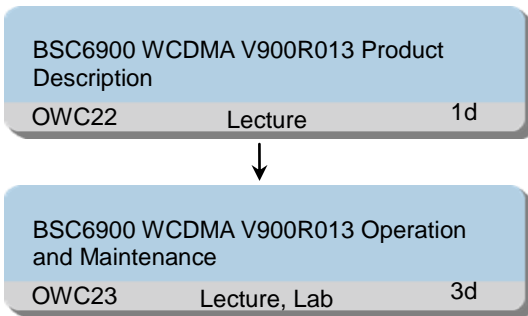
5 working days

Class Size

Min 6, Max 12

2.3.18 WCDMA RAN13.0 RNC Operation Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- master board replacement procedure
- replace the faulty board correctly and ensure RNC work normally.

- Set the alarm collection template, and collect the alarm by the template.
- Set the KPI collection template, and collect the KPI by the template.
- Collect the counters of board and link load by m2000, check the RNC load according to the specific threshold.
- Collect the counters of SPU subsystem by m2000
- check the SPU subsystem performance.
- master the transmission detection methods and their operation
- detect the transmission performance and connectivity by the transmission methods.
- master the signaling tracing operation, collect the interface and link signaling message.
- master the procedure of handling the TOPN alarms
- handle the common alarms according to the procedures.
- master the procedure of Backing Up and Restoring Data
- perform the restoration of data correctly when OMU board is damaged, OMU database collapses, or the OMU upgrade fails.

Duration

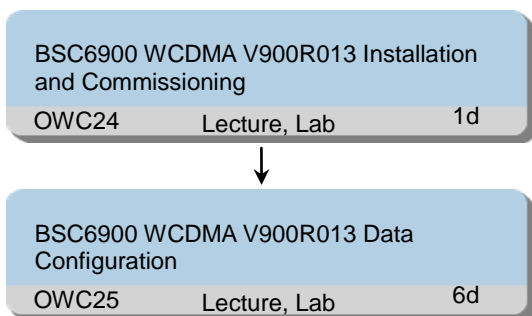
4 working days

Class Size

Min 6, Max 12

2.3.19 WCDMA RAN13.0 RNC Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN13 RNC Operation
Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning
- Complete BSC6900 application software installation
- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

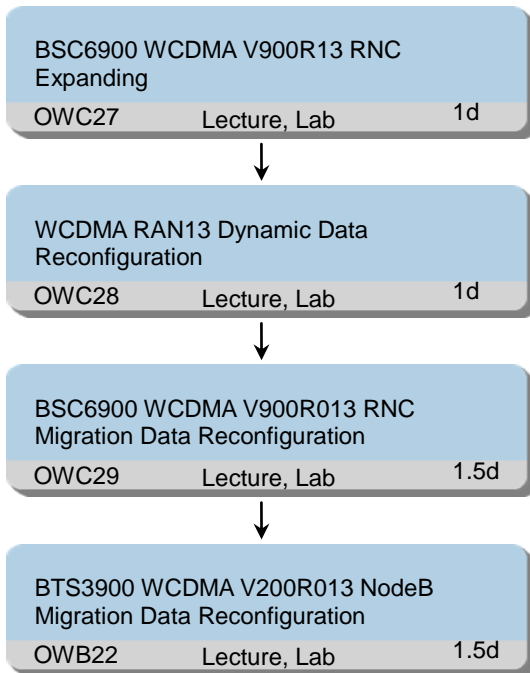
7 working days

Class Size

Min 6, Max 12

2.3.20 WCDMA RAN13.0 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the

RNC capacity

- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
- Describe the procedure of the RNC migration data reconfiguration
- Perform the RNC migration data reconfiguration
- Upon completion of this course, you will be able to:
 - Detail the scenarios of NodeB migration data reconfiguration
 - Detail the procedure of NodeB migration data reconfiguration
- Perform the NodeB migration data reconfiguration

Duration

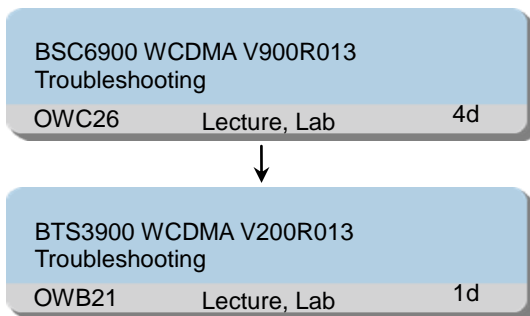
5 working days

Class Size

Min 6, Max 12

2.3.21 WCDMA RAN13.0 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will

be able to:

- Describe RAN troubleshooting process
- Handling Transmission Faults
- Handling Equipments Faults
- Handling O/M Faults
- Handling Basic Service Faults
- Handling NodeB Abnormal RTWP
- Handling Abnormal Downlink Power
- Handling Hardware Faults
- Handling Failure to Deliver the License of the NodeB Through M2000
- Handling Failure to Establish Cells
- Handling Sleeping Cell
- Handling OMCH Fault

Duration

5 working days

Class Size

Min 6, Max 12

2.3.22 WCDMA RAN12.0-RAN13.0 Product Delta Training

Training Path

WCDMA RAN12 - RAN13 Delta Training		
OWC30	Lecture	1d

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN12 RNC Configuration Training
WCDMA RAN12 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware
- Describe some important new features
- Describe some new O/M functions
- Understand the values and benefit of the features

Duration

1 working day

Class Size

Min 6, Max 12

2.3.23 WCDMA uBro3.0 Network Operation Training

Training Path

WCDMA uBro3.0 RAN Operation Maintenance		
OWF01	Lecture, Lab	5d

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of UMTS network principle

Objectives

On completion of this program, the participants will be able to:

- Describe interface and network architecture for WCDMA system uBro solution.
- Describe the basic principles for WCDMA system.
- Introduce the network architecture and structure of uBro solution.
- Describe the AP basic functions and interfaces.
- Describe the types of AP and hardware structure.
- Describe the accessing way and procedure of AP.
- Perform the AP commissioning and data configuration.
- Introduce the IPCLK1000 working principle and features.
- Describe the IPCLK1000 network structure.
- Describe the IPCLK1000 hardware structure.

- Perform the IPCLK1000 routine operation and maintenance, commissioning and data configuration.
- Introduce the AHR basic functions and interfaces.
- Describe the AHR network architecture.
- Describe the AHR hardware structure and typical configuration.
- Describe the AHR software structure and functions.
- Describe the AHR client routine operation and maintenance functions.
- Introduce the APM basic functions and interfaces.
- Describe the APM network architecture.
- Describe the APM hardware structure and typical configuration.
- Describe the APM software structure and functions.
- Perform the APM routine operation and maintenance on AP with client.
- Introduce M2000 basic functions.
- Describe the M2000 system architecture and functions.
- Introduce the M2000 network for uBro solution.
- Perform M2000 routine operation and maintenance on AP with client.

Duration

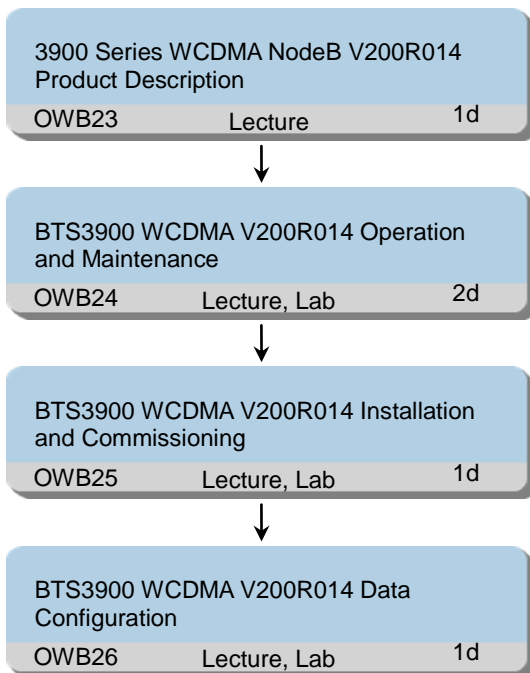
5 working days

Class Size

Min 6, Max 12

2.3.24 WCDMA RAN14.0 NodeB Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of 3900 series NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB
- Describe the structure of operation and maintenance system
- Detail routine operation of NodeB
- Detail routine maintenance of NodeB
- Detail the scenarios of NodeB commissioning
- Perform NodeB Remote commissioning
- Perform NodeB Local commissioning
- Outline NodeB data configuration procedure based on CME
- Complete NodeB data configuration

Duration

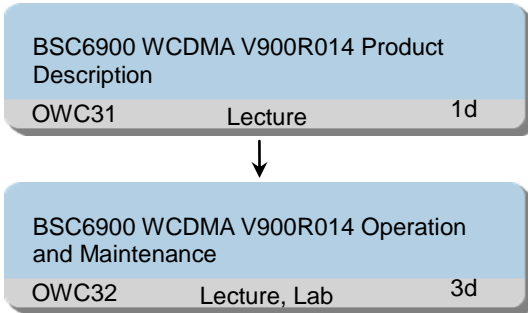
5 working days

Class Size

Min 6, Max 12

2.3.25 WCDMA RAN14.0 RNC Operation Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- master board replacement procedure
- replace the faulty board correctly and ensure RNC work normally.

- Set the alarm collection template, and collect the alarm by the template.
- Set the KPI collection template, and collect the KPI by the template.
- Collect the counters of board and link load by m2000, check the RNC load according to the specific threshold.
- Collect the counters of SPU subsystem by m2000
- check the SPU subsystem performance.
- master the transmission detection methods and their operation
- detect the transmission performance and connectivity by the transmission methods.
- master the signaling tracing operation, collect the interface and link signaling message.
- master the procedure of handling the TOPN alarms
- handle the common alarms according to the procedures.
- master the procedure of Backing Up and Restoring Data
- Perform the restoration of data correctly when OMU board is damaged, OMU database collapses, or the OMU upgrade fails.

Duration

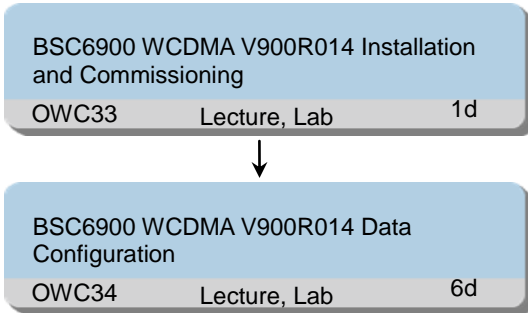
4 working days

Class Size

Min 6, Max 12

2.3.26 WCDMA RAN14.0 RNC Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN13 RNC Operation
Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning
- Complete BSC6900 application software installation
- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

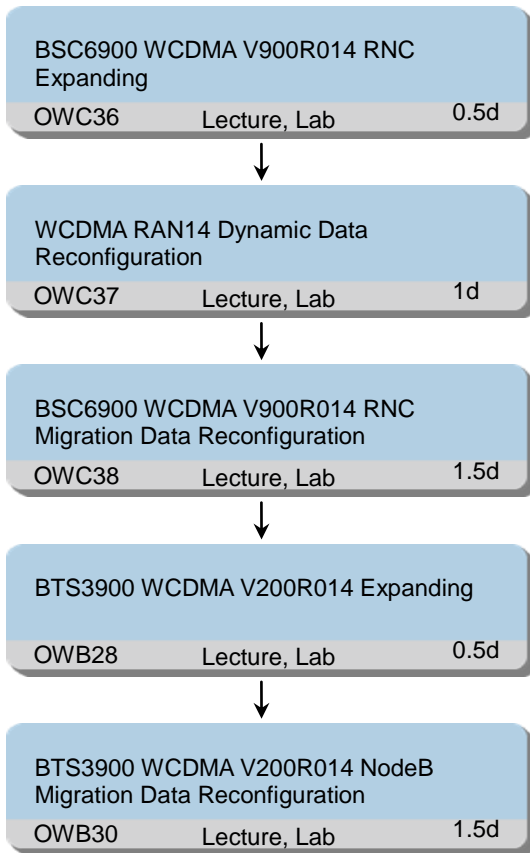
7 working days

Class Size

Min 6, Max 12

2.3.27 WCDMA RAN14.0 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the RNC capacity
- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
- Describe the procedure of the RNC migration data reconfiguration
- Perform the RNC migration data reconfiguration
- Perform how to add WBBP Board
- Perform how to add RF Unit
- Upon completion of this course, you will be able to:
 - Detail the scenarios of NodeB migration data reconfiguration
 - Detail the procedure of NodeB migration data reconfiguration
- Perform the NodeB migration data reconfiguration

Duration

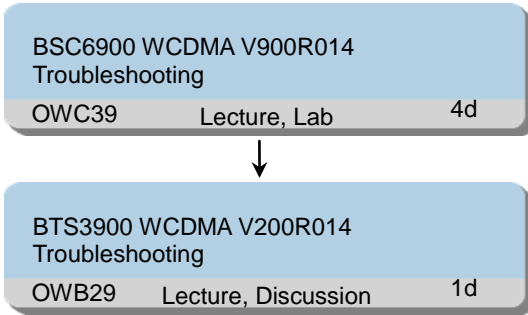
5 working days

Class Size

Min 6, Max 12

2.3.28 WCDMA RAN14.0 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe RAN troubleshooting process
- Handling Transmission Faults
- Handling Equipments Faults
- Handling O/M Faults
- Handling Basic Service Faults
- Handling NodeB Abnormal RTWP
- Handling Abnormal Downlink Power
- Handling Failure to Deliver the License of the NodeB Through M2000
- Handling Failure to Install the NodeB LMT
- Handling High Frequency Deviation (E1) of Clock
- Handling Intermittent Interruption of CPRI Link
- Handling Sleeping Cell

Duration

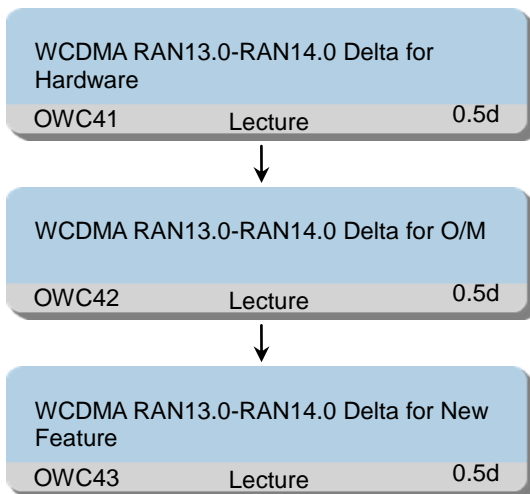
5 working days

Class Size

Min 6, Max 12

2.3.29 WCDMA RAN13.0-RAN14.0 Product Delta Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware and the functions
- Describe some new O/M functions
- Describe some important new features
- Understand the values and benefit of the features

Duration

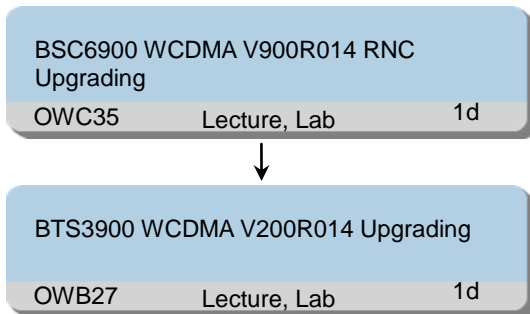
1.5 working days

Class Size

Min 6, Max 12

2.3.30 WCDMA RAN14.0 RAN Upgrade Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900 WCDMA RAN14.0 RNC Operation
Training
WCDMA RAN14.0 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the upgrade procedure
- Describe the preparations before upgrade
- Perform how to upgrade the RNC
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade.
- Describe the upgrade procedure
- Describe the upgrade of NodeB
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

Duration

2 working days

Class Size

Min 6, Max 12

2.3.31 WCDMA RAN14.0 Emergency Maintenance Training

Training Path

WCDMA RAN14.0 Emergency Maintenance		
OWC40	Lecture	1d

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe Brief Guide to troubleshoot emergency fault
- Collect fault information for troubleshooting
- Grasp some typical emergency faults troubleshooting
- Master basic skills for heavy traffic precaution
- Understand preparations for heavy traffic precaution
- Master parameter adjustment of heavy traffic precaution
- Deal with typical heavy traffic caused fault

Duration

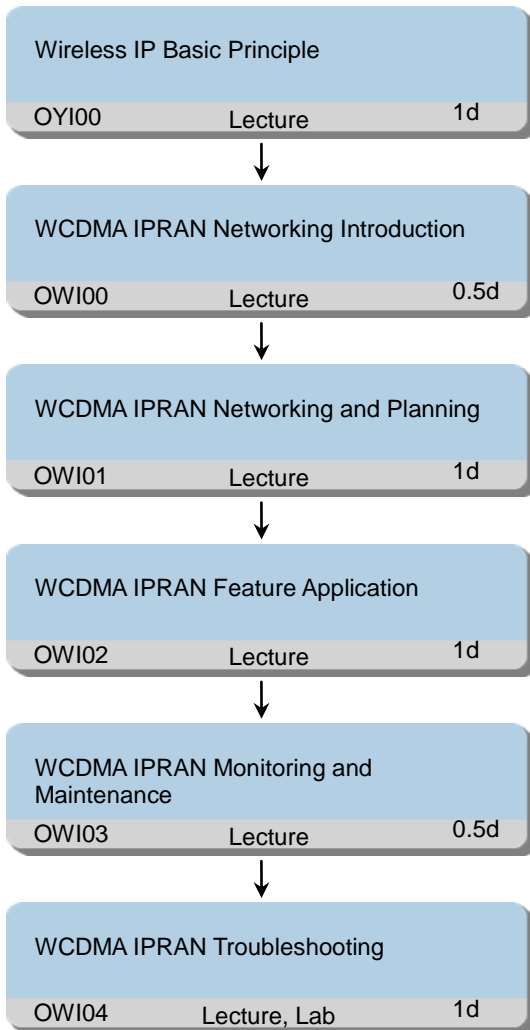
1 working day

Class Size

Min 6, Max 12

2.3.32 WCDMA IPRAN Application Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN13 RNC Configuration Training
WCDMA RAN13 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Learn about IP protocol release specifications and common RFC standards

- Learn about common IP RAN concepts such as the MSTP and PTN
- Understand the TCP/IP protocol structure, and learn common technologies such as the VLAN and DSCP
- Learn the protocol stack composition on IP RAN interfaces
- Learn the IP components, and understand the data exchange process
- Be familiar with common IP RAN devices and maintenance applications
- Learn about differences among the IP, ATM, and TDM technologies, and problems caused by IP-based networking
- Learn about the evolution of IP RANs
- Understand IP RAN concepts and advantages
- Understand changes in IP RAN networking
- Learn about feature requirements for IP RAN networking
- Learn the detail of IP RAN MSTP networking Solution
- Learn the detail of IP RAN PTN networking Solution
- Understand differences between the layer 2 networking and layer 3 networking
- Learn about the basic IP RAN resource planning.
- Learn principles of IP address allocation and internal limitation of the RAN equipment.
- Plan and configure the IP addresses for interface boards.
- Learn principles of planning VLAN and how to process VLAN tags.
- Understand data transmission between the protocol layer and the RAN equipment.
- Understand the IP RAN reliability-ensuring implementation mechanism
- Understand the principles and application of the reliability detection mechanism
- Know how to configure IP RAN reliability-ensuring parameters

- Learn about the differences in reliability guarantee in different networking scenarios
- Master the application schemes of the reliability-ensuring mechanism in different scenarios
- Learn the concept of IP Quality of Service (QoS)
- Learn about radio services' QoS requirements for IP RANs
- Understand the QoS implementation at each layer from the perspective of transmission protocols
- Learn the QoS configuration and application in IP RANs
- Describe the procedures of implementing QoS in IP RAN end to end (E2E) services
- Describe the requirements of the IP RAN for clock synchronization
- Know the differences between clock synchronization and phase synchronization
- Learn about the typical IP RAN clock solution
- Describe the architecture of an IP RAN clock network
- Learn about the differences between IP RAN clock networking applications
- Understand changes in maintenance modes

due to introduction of the IP radio access network (RAN)

- Learn the active monitoring scheme and implementation process for the IP RAN transmission
- Learn detailed parameter configuration for IP RAN fault detect
- Monitor IP RAN transmission links, analyze and locate the faults
- Understand theories for IP active detection
- Learn procedures for detecting IP faults
- Learn methods for locating IP faults
- Learn about packet capturing tool for IP RANs
- Understand the IP transmission processing
- Understand typical IP transmission troubleshooting cases
- Understand fault isolation in case of emergencies in IP transmission mode
- Understand how to analyze typical IP transmission troubleshooting cases

Duration

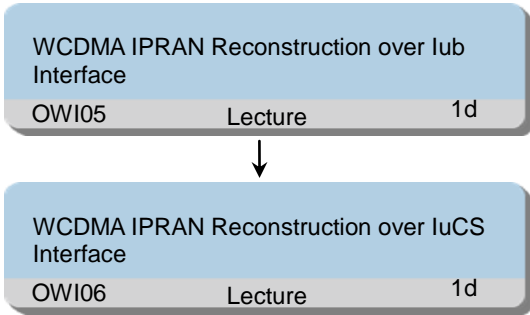
5 working days

Class Size

Min 6, Max 12

2.3.33 WCDMA IPRAN Reconstruction Training

Training Path



Target Audience

- Field engineer
- System engineer
- Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN RNC Configuration Training
 - WCDMA RAN NodeB Training

Objectives

On completion of this program, the participants will

be able to:

- Describe the background of IPRAN Reconstruction
- Understand IPRAN basic knowledge about RNC
- Understand IUB IPRAN Reconstruction policy
- Describe and perform IPRAN Reconstruction scenarios, such as ATM to IP, ATM to dual-stack, dual-stack to IP over Iub interface
- Describe the background of IPRAN Reconstruction
- Understand IPRAN basic knowledge about RNC
- Understand IPRAN networking policy
- Understand the procedure of Reconstruction in Iu-CS interface from ATM to IP

Duration

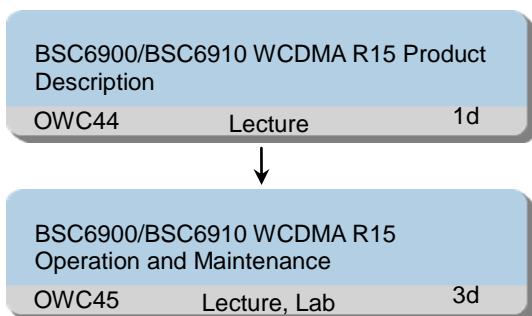
2 working days

Class Size

Min 6, Max 12

2.3.34 WCDMA RAN15.0 BSC6900/6910 Operation and Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- master board replacement procedure
- replace the faulty board correctly and ensure RNC work normally.

- Set the alarm collection template, and collect the alarm by the template.
- Set the KPI collection template, and collect the KPI by the template.
- Collect the counters of board and link load by m2000, check the RNC load according to the specific threshold.
- Collect the counters of SPU subsystem by m2000
- Check the SPU subsystem performance.
- master the transmission detection methods and their operation
- Detect the transmission performance and connectivity by the transmission methods.
- Master the signaling tracing operation, collect the interface and link signaling message.
- master the procedure of handling the TOPN alarms
- Handle the common alarms according to the procedures.
- master the procedure of Backing Up and Restoring Data
- Perform the restoration of data correctly when OMU board is damaged, OMU database collapses, or the OMU upgrade fails.

Duration

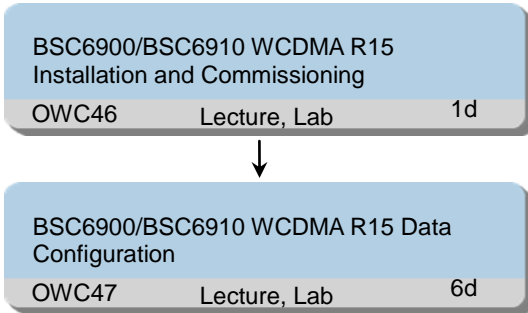
4 working days

Class Size

Min 6, Max 12

2.3.35 WCDMA RAN15.0 BSC6900/6910 Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900/BSC6910 WCDMA RAN15 RNC
Operation Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning
- Complete BSC6900 application software installation
- Detail the Procedure of BSC6900/BSC6910 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

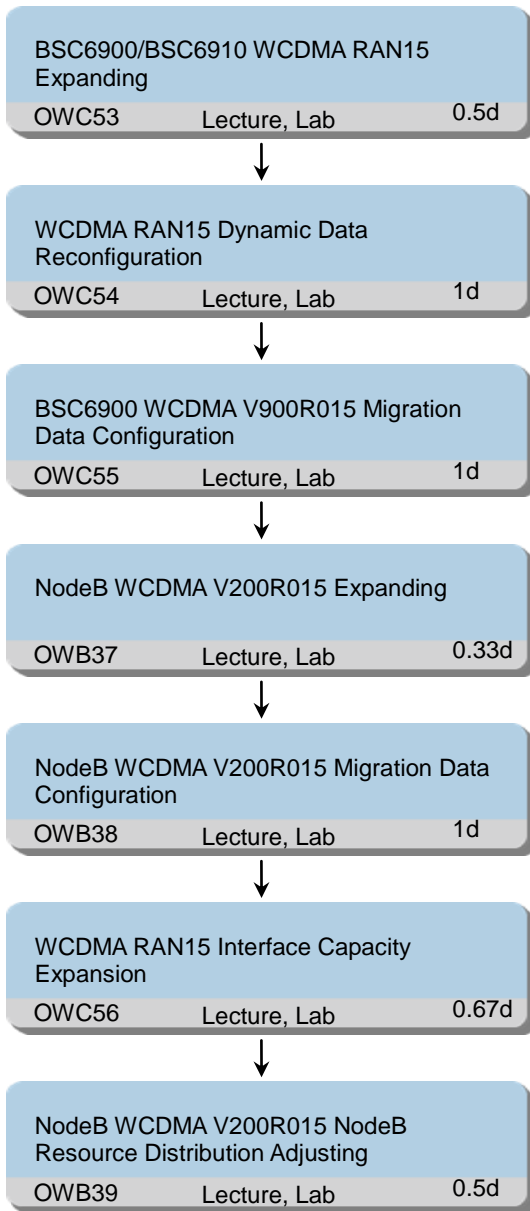
7 working days

Class Size

Min 6, Max 12

2.3.36 WCDMA RAN15.0 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN15 RNC Configuration Training
WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the RNC capacity
- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
- Describe the procedure of the RNC migration data reconfiguration
- Perform the RNC migration data reconfiguration
- Perform how to add WBBP Board
- Perform how to add RF Unit
- Upon completion of this course, you will be able to:
 - Detail the scenarios of NodeB migration data reconfiguration
 - Detail the procedure of NodeB migration data reconfiguration
- Perform the NodeB migration data reconfiguration
- Upon completion of this course, you will be able to:
 - Detail the scenarios of Interface Capacity Expansion
 - Detail the procedure of Interface Capacity Expansion
- Perform the Iub/Iur/Iu Capacity Expansion in different transmission Mode
- Upon completion of this course, you will be

able to:

- Detail the scenarios of NodeB Resource Distribution Adjustment
- Detail the procedure of NodeB Resource Distribution Adjustment
- Perform the NodeB/cell/NCP/CCP Resource Distribution Adjustment

Duration

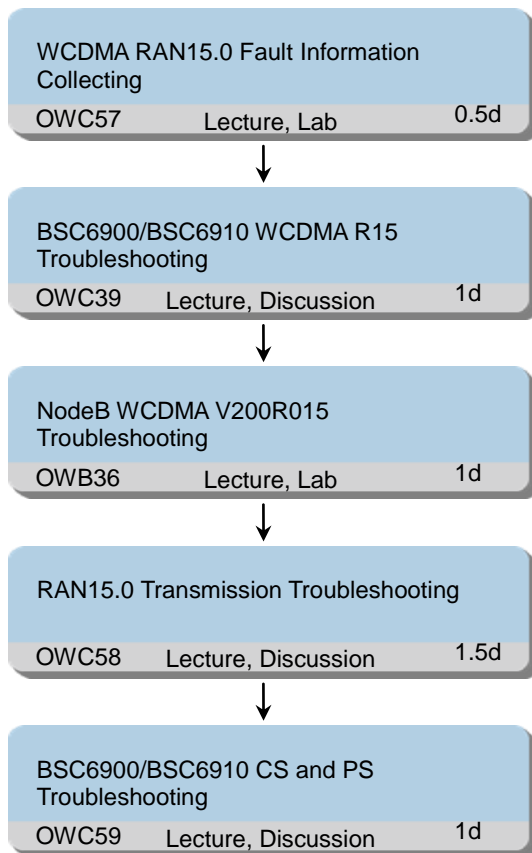
5 working days

Class Size

Min 6, Max 12

2.3.37 WCDMA RAN15.0 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN15 RNC Configuration Training
WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the OMU Maintenance and Operation
- Know how to collect the fault information for different faults
-
- Know how to handle RNC equipment-related faults
- Know how to handle NodeB-related faults
- Know how to handle ATM Transmission Faults
- Know how to handle IP Transmission Faults
-
- Describe the CS and PS Fault Troubleshooting flow
- Know how to handle CS and PS faults

Duration

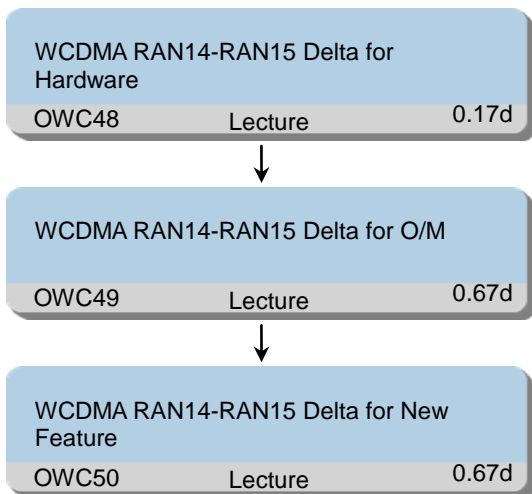
5 working days

Class Size

Min 6, Max 12

2.3.38 WCDMA RAN14.0-RAN15.0 Product Delta Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN15 RNC Configuration Training
WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware and the functions
- Describe new O/M functions
- Describe important new features
- Understand the values and benefit of the features

Duration

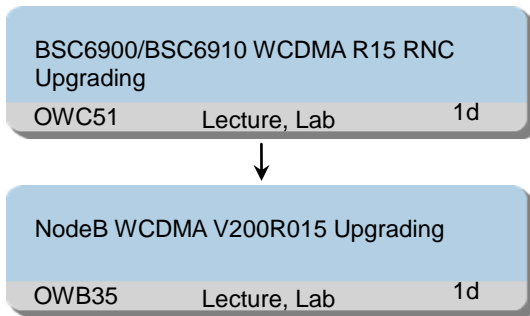
1.5 working days

Class Size

Min 6, Max 12

2.3.39 WCDMA RAN15.0 RAN Patch Upgrade Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following program(s):
BSC6900/BSC6910 WCDMA RAN15 RNC
Operation Training
WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the upgrade procedure
- Describe the preparations before upgrade
- Perform how to upgrade the RNC
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade.
- Describe the upgrade procedure
- Perform the upgrade of NodeB
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

Duration

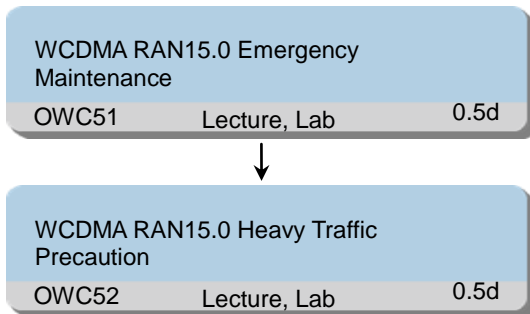
2 working days

Class Size

Min 6, Max 12

2.3.40 WCDMA RAN15.0 Emergency Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Successful completion of the following courses:
WCDMA RAN15 RNC Configuration Training
WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe Brief Guide to troubleshoot emergency fault
- Collect fault information for troubleshooting

- Grasp some typical emergency faults troubleshooting
- Master basic skills for heavy traffic precaution
- Understand preparations for heavy traffic precaution
- Master parameter adjustment of heavy traffic precaution
- Deal with typical heavy traffic caused fault
- Describe Brief Guide to troubleshoot emergency fault
- Collect fault information for troubleshooting
- Grasp some typical emergency faults troubleshooting
- Master basic skills for heavy traffic precaution
- Understand preparations for heavy traffic precaution
- Master parameter adjustment of heavy traffic precaution
- Deal with typical heavy traffic caused fault

Duration

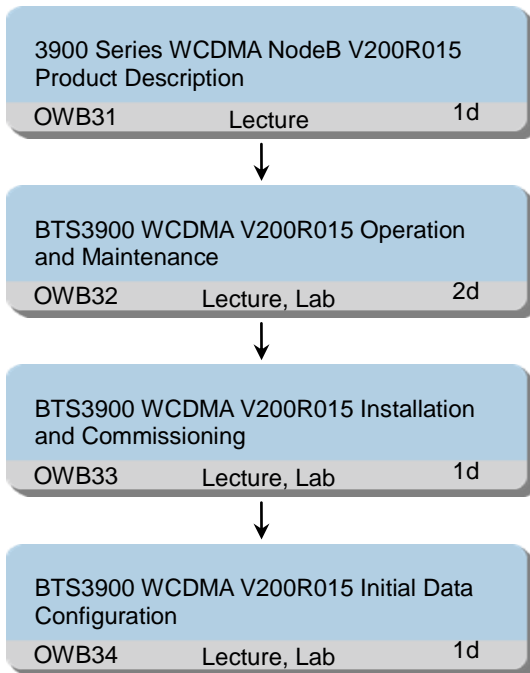
1 working day

Class Size

Min 6, Max 12

2.3.41 WCDMA RAN15.0 NodeB Operation and Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of 3900 series NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB
- Grasp the hardware structure of MBTS
- Grasp the BTS local maintenance
- Maintain site on local terminal
- Execute the tasks of field maintenance
- Describe the structure of operation and maintenance system
- Grasp alarm operation by M2000
- Perform MBTS Device maintenance
- Grasp the operation of Transport connectivity and performance Test

- Grasp check of Transport Link
- Perform operation of Carrier Resource CELL
- Grasp the operation of MBTS Tracing Management
- Grasp the operation of MBTS Monitoring Management
- Perform Right, log and License Management
- Understand the MBTS installation procedure
- Detail the scenarios of NodeB commissioning
- Understand the process of Automatic OMCH Establishment
- Understand the Procedure based on different scenarios
- Perform NodeB commissioning based on M2000 (PnP)
- Perform NodeB commissioning based on USB+M2000
- Perform NodeB commissioning based on LMT+M2000
- Understand CME process
- Outline NodeB data configuration procedure based on CME
- Perform single NodeB data configuration
- Perform NodeBs data configuration in batch

Duration

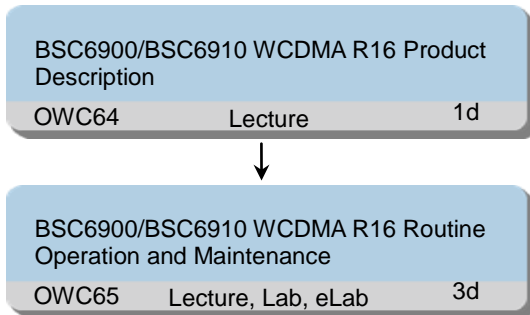
5 working days

Class Size

Min 6, Max 12

2.3.42 WCDMA RAN16.0 BSC6900/6910 Operation and Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- Detail the signal flows in BSC6900
- List the typical hardware configuration of BSC6900
- Master board replacement procedure
- Replace the faulty board correctly and ensure RNC work normally.

- Set the alarm collection template, and collect the alarm by the template.
- Set the KPI collection template, and collect the KPI by the template.
- Collect the counters of board and link load by U2000, check the RNC load according to the specific threshold.
- Collect the counters of SPU subsystem by U2000
- Check the SPU subsystem performance.
- master the transmission detection methods and their operation
- Detect the transmission performance and connectivity by the transmission methods.
- Master the signaling tracing operation, collect the interface and link signaling message.
- master the procedure of handling the TOPN alarms
- Handle the common alarms according to the procedures.
- master the procedure of Backing Up and Restoring Data
- Perform the restoration of data correctly when OMU board is damaged, OMU database collapses, or the OMU upgrade fails.

Duration

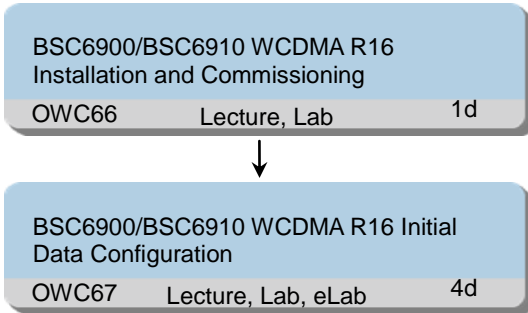
4 working days

Class Size

Min 6, max 12

2.3.43 WCDMA RAN16.0 BSC6900/6910 Configuration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Successful completion of the following program(s):
- BSC6900/BSC6910 WCDMA RAN16 RNC Operation Training

Objectives

On completion of this program, the participants will be able to:

- Describe BSC6900/BSC6910 commissioning procedure
- Outline OMU software functions
- Complete BSC6900/BSC6910 commissioning
- Complete BSC6900/BSC6910 application software installation
- Detail the Procedure of BSC6900/BSC6910 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME and LMT
- Complete RNC data configuration based on CME and LMT

Duration

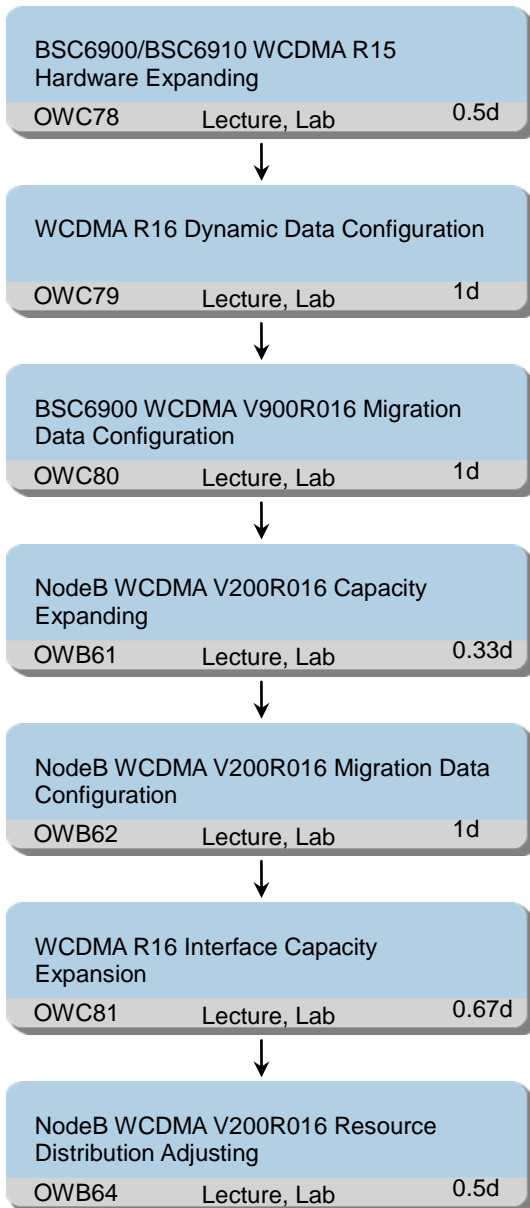
5 working days

Class Size

Min 6, max 12

2.3.44 WCDMA RAN16.0 RAN Reconfiguration Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN16 RNC Configuration Training
- WCDMA RAN16 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the procedure of expanding the RNC capacity
- Perform how to add an RNC board
- Perform how to add an EPS
- Upon completion of this course, you will be able to:
 - Perform how to Increase Frequencies on the UMTS Network
 - Perform how to Reconfigure the Parameters of Physical NodeBs
 - Perform how to Reconfigure the Data of Cells and Neighboring Cells in Batches
 - Perform how to Reconfigure Cell Algorithm Parameters
- Describe the procedure of the RNC migration data reconfiguration
- Perform the RNC migration data reconfiguration
- Perform how to add WBBP Board
- Perform how to add RF Unit
- Detail the scenarios of NodeB migration data reconfiguration
- Detail the procedure of NodeB migration data reconfiguration
- Perform the NodeB migration data reconfiguration
- Upon completion of this course, you will be able to:
 - Detail the scenarios of Interface Capacity Expansion
 - Detail the procedure of Interface Capacity Expansion
- Perform the lub/lur/lu Capacity Expansion in different transmission Mode

Duration

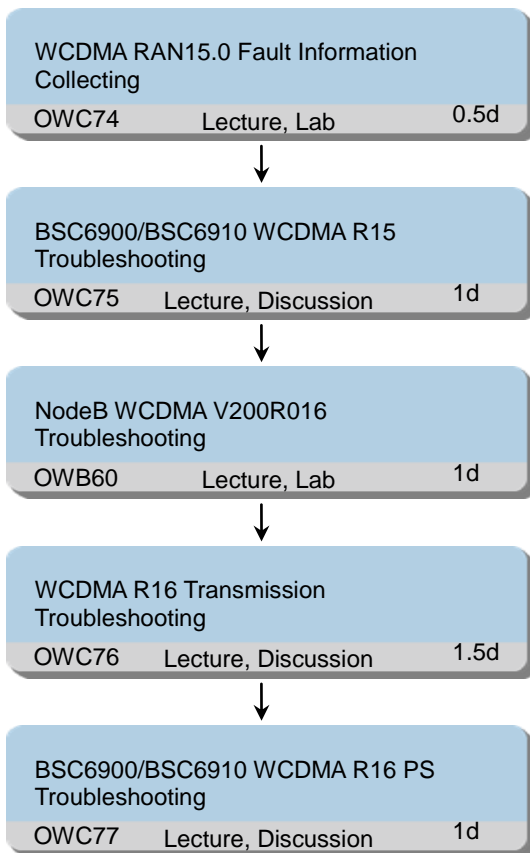
5 working days

Class Size

Min 6, max 12

2.3.45 WCDMA RAN16.0 RAN Troubleshooting Training

Training Path



Target Audience

Field engineer

System engineer

Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN16 RNC Configuration Training
- WCDMA RAN16 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the OMU Maintenance and Operation
- Know how to collect the fault information for different faults
- Know how to handle RNC equipment-related faults
- Know how to handle NodeB-related faults
- Know how to handle ATM Transmission Faults
- Know how to handle IP Transmission Faults
- Describe the PS Fault Troubleshooting flow
- Know how to handle PS faults

Duration

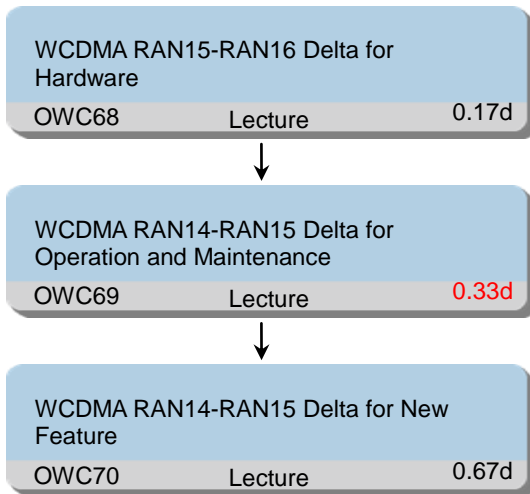
5 working days

Class Size

Min 6, max 12

2.3.46 WCDMA RAN15.0-RAN16.0 Product Delta Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN16 RNC Configuration Training
- WCDMA RAN16 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware and the functions
- Describe new O/M functions
- Describe important new features
- Understand the values and benefit of the features

Duration

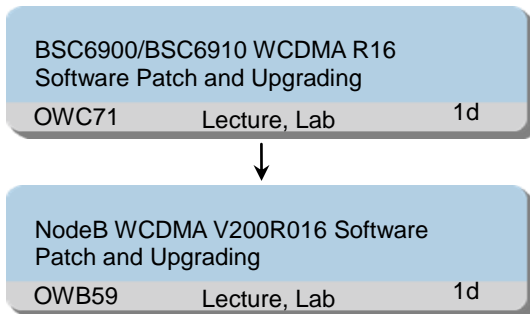
1.16666666666667 working days

Class Size

Min 6, max 12

2.3.47 WCDMA RAN16.0 RAN Patch Upgrade Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Successful completion of the following program(s):
- BSC6900/BSC6910 WCDMA RAN16 RNC Operation Training
- WCDMA RAN16 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe the upgrade procedure
- Describe the preparations before upgrade
- Perform how to upgrade the RNC
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade.
- Describe the upgrade procedure
- Perform the upgrade of NodeB
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

Duration

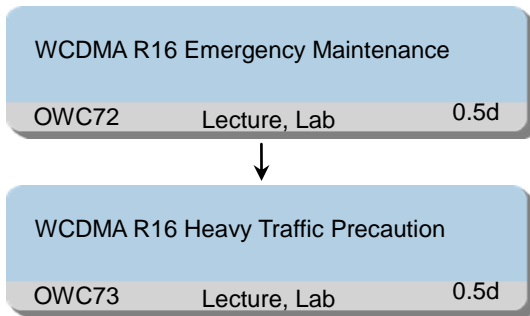
2 working days

Class Size

Min 6, max 12

2.3.48 WCDMA RAN16.0 Emergency Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Successful completion of the following courses:
- WCDMA RAN15 RNC Configuration Training
- WCDMA RAN15 NodeB Training

Objectives

On completion of this program, the participants will be able to:

- Describe Brief Guide to troubleshoot emergency fault
- Collect fault information for troubleshooting

- Grasp some typical emergency faults troubleshooting
- Master basic skills for heavy traffic precaution
- Understand preparations for heavy traffic precaution
- Master parameter adjustment of heavy traffic precaution
- Deal with typical heavy traffic caused fault
- Describe Brief Guide to troubleshoot emergency fault
- Collect fault information for troubleshooting
- Grasp some typical emergency faults troubleshooting
- Master basic skills for heavy traffic precaution
- Understand preparations for heavy traffic precaution
- Master parameter adjustment of heavy traffic precaution
- Deal with typical heavy traffic caused fault

Duration

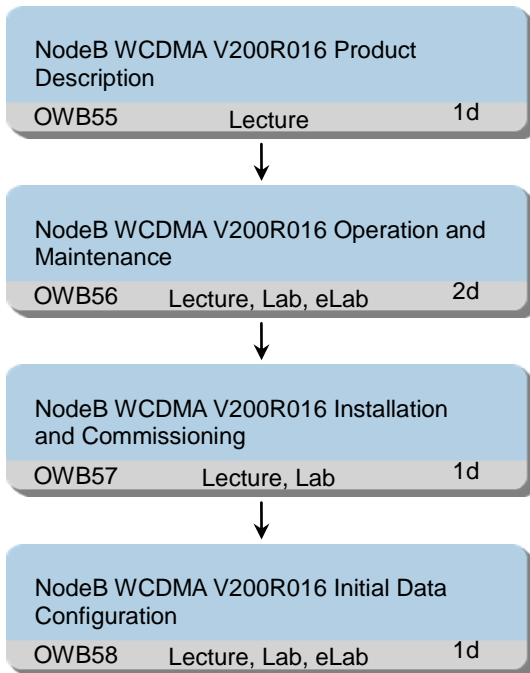
1 working day

Class Size

Min 6, max 12

2.3.49 WCDMA RAN16.0 NodeB Operation and Maintenance Training

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of 3900 series NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB
- Grasp the hardware structure of MBTS
- Grasp the BTS local maintenance
- Maintain site on local terminal

- Execute the tasks of field maintenance
- Describe the structure of operation and maintenance system
- Grasp alarm operation by U2000
- Perform MBTS Device maintenance
- Grasp the operation of Transport connectivity and performance Test
- Grasp check of Transport Link
- Perform operation of Carrier Resource CELL
- Grasp the operation of MBTS Tracing Management
- Grasp the operation of MBTS Monitoring Management
- Perform Right, log and License Management
- Understand the MBTS installation procedure
- Detail the scenarios of NodeB commissioning
- Understand the process of Automatic OMCH Establishment
- Understand the Procedure based on different scenarios
- Perform NodeB commissioning based on U2000 (PnP)
- Perform NodeB commissioning based on USB+U2000
- Perform NodeB commissioning based on LMT+U2000
- Understand CME process
- Outline NodeB data configuration procedure based on CME
- Perform single NodeB data configuration
- Perform NodeBs data configuration in batch

Duration

5 working days

Class Size

Min 6, max 12

2.4 WBT Training Programs

2.4.1 BSC6900 V900R013 WCDMA Product Description(WBT)

Training Path

BSC6900 V900R013 WCDMA Product Description(WBT)		
OWC60	WBT	1h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the features and capacity of BSC6900
- Detail the system structure of BSC6900
- Detail the functions of the components of BSC6900
- List the typical hardware configuration of BSC6900

Duration

1 hour

Class Size

No limit

2.4.2 WCDMA BSC6900 Operation and Maintenance(WBT)

Training Path

WCDMA BSC6900 Operation and Maintenance (WBT)		
OWC61	WBT	0.5h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Detail the structure of operation and maintenance subsystem
- Perform the RNC routine operation
- Perform the RNC routine maintenance

Duration

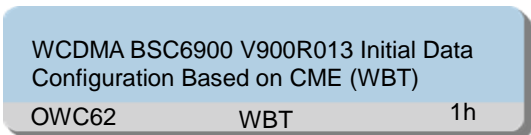
0.5 hour

Class Size

No limit

2.4.3 WCDMA BSC6900 V900R013 Initial Data Configuration Based on CME(WBT)

Training Path



Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Master how to use the CME on Data Configuration
- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline RNC data configuration procedure based on CME

Duration

1 hour

Class Size

No limit

2.4.4 3900 Series WCDMA NodeB V100R004 Product Description(WBT)

Training Path

3900 Series WCDMA NodeB V100R004 Product Description (WBT)		
OWB54	WBT	1h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA
wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the hardware structure of 3900 series NodeB
- Detail the functions of different subsystems and boards of NodeB
- Describe the cables connection of NodeB
- Describe the expansion and networking of NodeB

Duration

1 hour

Class Size

No limit

2.4.5 WCDMA BTS3900 V100R004 Operation and Maintenance(WBT)

Training Path

WCDMA BTS3900 V100R004 Operation and Maintenance (WBT)		
OWB55	WBT	0.5h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe the structure of operation and maintenance system
- Detail routine operation of NodeB
- Detail routine maintenance of NodeB

Duration

0.5 hour

Class Size

No limit

2.4.6 MBTS 3900 V100R004 WCDMA Initial Data Configuration(WBT)

Training Path

MBTS 3900 V100R004 WCDMA Initial Data Configuration(WBT)		
OWB56	WBT	0.5h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Outline MBTS data configuration procedure based on CME
- Complete MBTS data configuration

Duration

0.5 hour

Class Size

No limit

2.4.7 WCDMA RAN14.0 New Features Overview(WBT)

Training Path

WCDMA RAN14.0 New Features Overview (WBT)		
OWC63	WBT	1h

Target Audience

Field engineer
System engineer
Site maintainer

Prerequisites

Basic knowledge of mobile communications
At least 1 year working experience in WCDMA wireless network operation and maintenance

Objectives

On completion of this program, the participants will be able to:

- Describe New hardware and the functions
- Describe some new O/M functions
- Describe some important new features
- Understand the values and benefit of the features

Duration

1 hour

Class Size

No limit