



# **Customer Training Catalog Training Programs SingleRAN Product Technical Training**



**HUAWEI**  
**HUAWEI Learning Service**  
**2015**



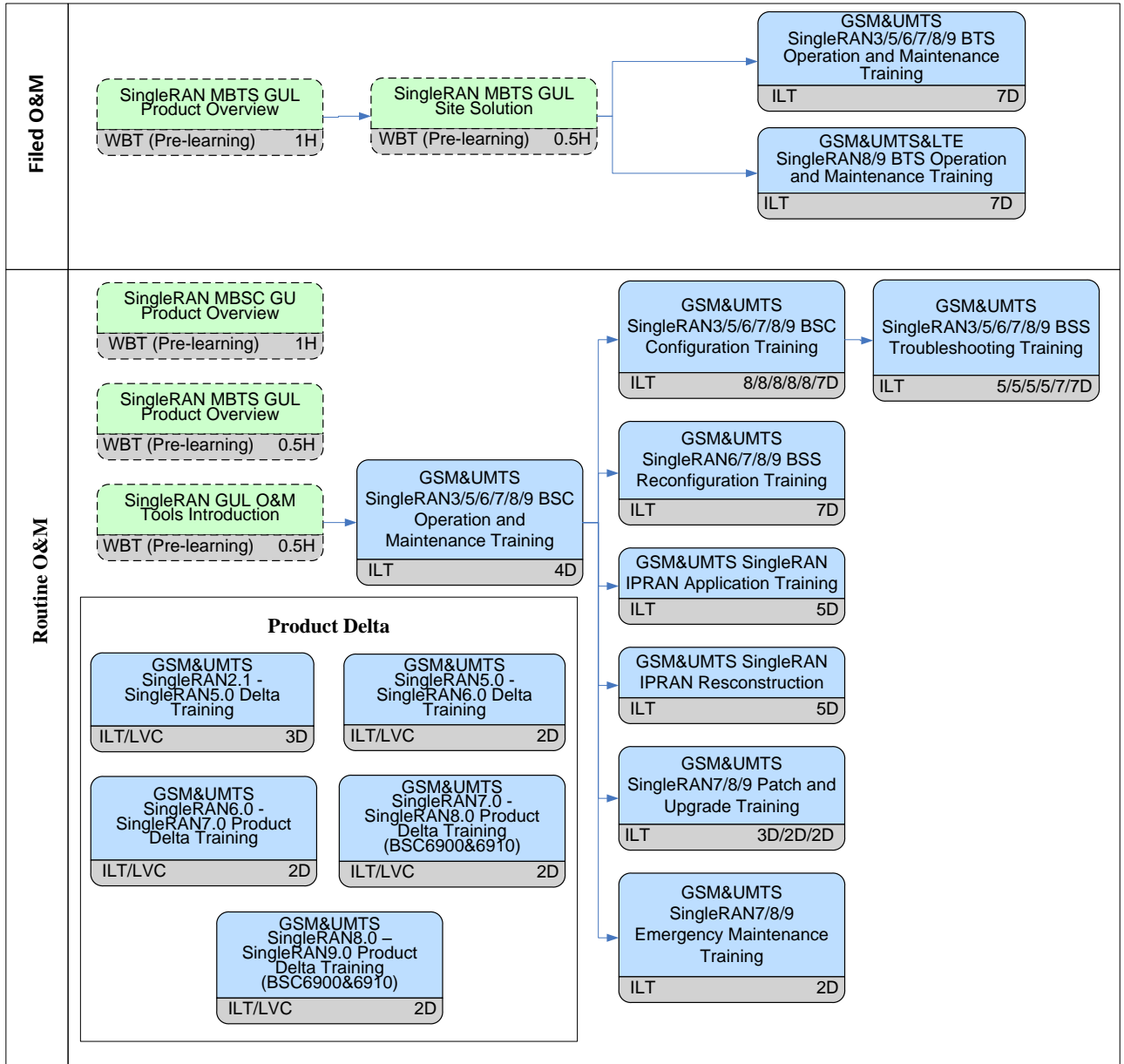
# CONTENTS

- 1 Training Path..... 4
  - 1.1 SingleRAN Training Path..... 4
  - 1.2 WBT Training Path ..... 4
- 2 Training Programs ..... 4
  - 2.1 SingleRAN Training Programs ..... 8
    - 2.1.1 GSM/UMTS SingleRAN3.0 BTS Operation and Maintenance Training ..... 8
    - 2.1.2 GSM/UMTS SingleRAN3.0 BSC Operation and Maintenance Training ..... 9
    - 2.1.3 GSM/UMTS SingleRAN3.0 BSC Configuration Training..... 10
    - 2.1.4 GSM/UMTS SingleRAN3.0 BSS Troubleshooting Training..... 11
    - 2.1.5 GSM/UMTS SingleRAN5.0 BTS Operation and Maintenance Training ..... 12
    - 2.1.6 GSM/UMTS SingleRAN5.0 BSC Operation and Maintenance Training ..... 13
    - 2.1.7 GSM/UMTS SingleRAN5.0 BSC Configuration Training..... 14
    - 2.1.8 GSM/UMTS SingleRAN5.0 BSS Troubleshooting Training ..... 15
    - 2.1.9 GSM/UMTS SingleRAN2.1 - SingleRAN5.0 Delta Training ..... 16
    - 2.1.10 GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training ..... 17
    - 2.1.11 GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training ..... 18
    - 2.1.12 GSM/UMTS SingleRAN6.0 BSC Configuration Training..... 19
    - 2.1.13 GSM/UMTS SingleRAN6.0 BSS Reconfiguration Training ..... 20
    - 2.1.14 GSM/UMTS SingleRAN6.0 BSS Troubleshooting Training..... 21
    - 2.1.15 GSM/UMTS SingleRAN5.0 - SingleRAN6.0 Delta Training ..... 22
    - 2.1.16 GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training ..... 23
    - 2.1.17 GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training ..... 24
    - 2.1.18 GSM/UMTS SingleRAN7.0 BSC Configuration Training..... 25
    - 2.1.19 GSM/UMTS SingleRAN7.0 BSS Reconfiguration Training ..... 26
    - 2.1.20 GSM/UMTS SingleRAN7.0 BSS Troubleshooting Training..... 28
    - 2.1.21 GSM/UMTS SingleRAN6.0 - SingleRAN7.0 Product Delta Training ..... 29
    - 2.1.22 GSM/UMTS SingleRAN7.0 Upgrade Training..... 30
    - 2.1.23 GSM/UMTS SingleRAN7.0 Emergency Maintenance Training..... 31
    - 2.1.24 GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training ..... 32
    - 2.1.25 GSM/UMTS/LTE SingleRAN8.0 BTS Operation and Maintenance Training ..... 33
    - 2.1.26 GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training (BSC6900/6910) ..... 34
    - 2.1.27 GSM/UMTS SingleRAN8.0 BSC Configuration Training (BSC6900/6910) ..... 35
    - 2.1.28 GSM/UMTS SingleRAN8.0 BSS Troubleshooting Training (BSC6900/6910) ..... 36
    - 2.1.29 GSM/UMTS SingleRAN8.0 BSS Reconfiguration Training (BSC6900/6910)..... 38
    - 2.1.30 GSM/UMTS SingleRAN7.0 - SingleRAN8.0 Product Delta Training (BSC6900/6910) ..... 40
    - 2.1.31 GSM/UMTS SingleRAN8.0 Patch and Upgrade Training (BSC6900/6910) ..... 41
    - 2.1.32 GSM/UMTS SingleRAN8.0 Emergency Maintenance Training (BSC6900/6910) ..... 42
    - 2.1.33 GSM/UMTS SingleRAN IPRAN Application Training ..... 43
    - 2.1.34 GSM/UMTS SingleRAN IPRAN Reconstruction ..... 45
    - 2.1.35 GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training ..... 46



- 2.1.36 GSM/UMTS/LTE SingleRAN9.0 BTS Operation and Maintenance Training ..... 47
- 2.1.37 GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training (BSC6900/6910) ..... 48
- 2.1.38 GSM/UMTS SingleRAN9.0 BSC Configuration Training (BSC6900/6910) ..... 49
- 2.1.39 GSM/UMTS SingleRAN9.0 BSS Troubleshooting Training (BSC6900/6910) ..... 50
- 2.1.40 GSM/UMTS SingleRAN9.0 BSS Reconfiguration Training (BSC6900/6910)..... 52
- 2.1.41 GSM/UMTS SingleRAN8.0 - SingleRAN9.0 Product Delta Training (BSC6900/6910) ..... 54
- 2.1.42 GSM/UMTS SingleRAN9.0 Patch and Upgrade Training (BSC6900/6910) ..... 55
- 2.1.43 GSM/UMTS SingleRAN9.0 Emergency Maintenance Training (BSC6900/6910) ..... 56
- 2.2 WBT Training Programs ..... 57
  - 2.2.1 BSC6900 GU V900R013 Product Description (WBT)..... 57
  - 2.2.2 MBTS GU V100R004 Product Description (WBT) ..... 58
  - 2.2.3 BSC6900 GU V900R013 Operation and Maintenance(WBT)..... 59
  - 2.2.4 SingleRAN MBTS GUL Product Overview (WBT)..... 60
  - 2.2.5 SingleRAN MBSC GU Product Overview (WBT) ..... 61
  - 2.2.6 SingleRAN GUL OM Tools Introduction(WBT) ..... 62
  - 2.2.7 SingleRAN MBTS GUL Site Solution(WBT)..... 63

# 1 Training Path



The dashed block indicates optional module

## 1.1 SingleRAN Training Path

## 1.2 WBT Training Path

## 2 Training Programs

SingleRAN Product Technical Training Programs are designed as follows:

Training Programs	Level	Duration (working days)	Training Location	Class Size
<b>SingleRAN</b>				
GSM/UMTS SingleRAN3.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN3.0 BSC Operation and Maintenance Training	II	4		6 ~ 12
GSM/UMTS SingleRAN3.0 BSC Configuration Training	II	8		6 ~ 12
GSM/UMTS SingleRAN3.0 BSS Troubleshooting Training	III	5		6 ~ 12
GSM/UMTS SingleRAN5.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN5.0 BSC Operation and Maintenance Training	II	4		6 ~ 12
GSM/UMTS SingleRAN5.0 BSC Configuration Training	II	8		6 ~ 12
GSM/UMTS SingleRAN5.0 BSS Troubleshooting Training	III	5		6 ~ 12
GSM/UMTS SingleRAN2.1 - SingleRAN5.0 Delta Training	III	3		6 ~ 12
GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training	II	4		6 ~ 12
GSM/UMTS SingleRAN6.0 BSC Configuration Training	II	8		6 ~ 12
GSM/UMTS SingleRAN6.0 BSS Reconfiguration Training	III	7		6 ~ 12
GSM/UMTS SingleRAN6.0 BSS Troubleshooting Training	III	5		6 ~ 12
GSM/UMTS SingleRAN5.0 - SingleRAN6.0 Delta Training	III	2		6 ~ 12
GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training	II	4		6 ~ 12
GSM/UMTS SingleRAN7.0 BSC Configuration Training	II	8		6 ~ 12
GSM/UMTS SingleRAN7.0 BSS Reconfiguration Training	III	7		6 ~ 12
GSM/UMTS SingleRAN7.0 BSS Troubleshooting Training	III	5		6 ~ 12

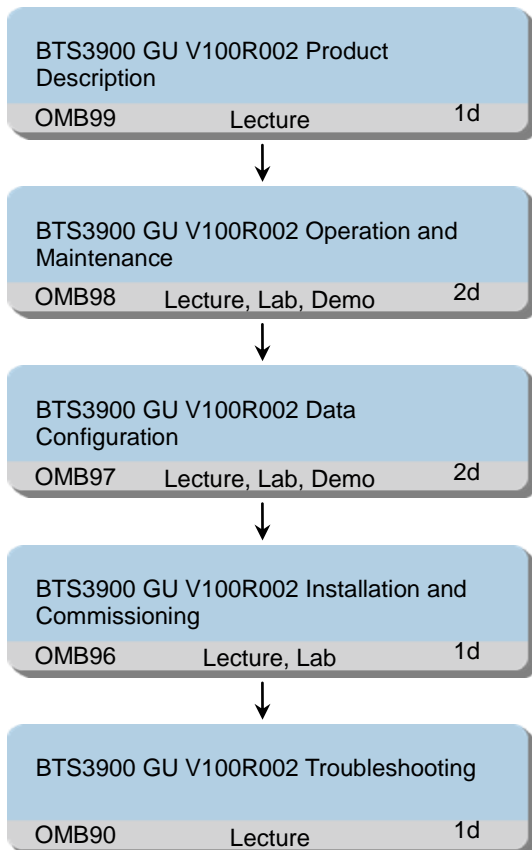
GSM/UMTS SingleRAN6.0 - SingleRAN7.0 Product Delta Training	III	2		6 ~ 12
GSM/UMTS SingleRAN7.0 Upgrade Training	III	3		6 ~ 12
GSM/UMTS SingleRAN7.0 Emergency Maintenance Training	III	2		6 ~ 12
GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS/LTE SingleRAN8.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training (BSC6900/6910)	II	4		6 ~ 12
GSM/UMTS SingleRAN8.0 BSC Configuration Training (BSC6900/6910)	II	8		6 ~ 12
GSM/UMTS SingleRAN8.0 BSS Troubleshooting Training (BSC6900/6910)	III	7		6 ~ 12
GSM/UMTS SingleRAN8.0 BSS Reconfiguration Training (BSC6900/6910)	III	7		6 ~ 12
GSM/UMTS SingleRAN7.0 - SingleRAN8.0 Product Delta Training (BSC6900/6910)	III	2		6 ~ 12
GSM/UMTS SingleRAN8.0 Patch and Upgrade Training (BSC6900/6910)	III	2		6 ~ 12
GSM/UMTS SingleRAN8.0 Emergency Maintenance Training (BSC6900/6910)	III	2		6 ~ 12
GSM/UMTS SingleRAN IPRAN Application Training	III	5		6 ~ 12
GSM/UMTS SingleRAN IPRAN Reconstruction	III	5		6 ~ 12
GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS/LTE SingleRAN9.0 BTS Operation and Maintenance Training	II	7		6 ~ 12
GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training (BSC6900/6910)	II	4		6 ~ 12
GSM/UMTS SingleRAN9.0 BSC Configuration Training (BSC6900/6910)	II	7		6 ~ 12
GSM/UMTS SingleRAN9.0 BSS Troubleshooting Training (BSC6900/6910)	III	7		6 ~ 12
GSM/UMTS SingleRAN9.0 BSS Reconfiguration Training	III	7		6 ~ 12

(BSC6900/6910)				
GSM/UMTS SingleRAN8.0 - SingleRAN9.0 Product Delta Training (BSC6900/6910)	III	2		6 ~ 12
GSM/UMTS SingleRAN9.0 Patch and Upgrade Training (BSC6900/6910)	III	2		6 ~ 12
GSM/UMTS SingleRAN9.0 Emergency Maintenance Training (BSC6900/6910)	III	2		6 ~ 12
<b>WBT</b>				
BSC6900 GU V900R013 Product Description (WBT)	II	1 h		No limit
MBTS GU V100R004 Product Description (WBT)	II	1 h		No limit
BSC6900 GU V900R013 Operation and Maintenance(WBT)	II	1 h		No limit
SingleRAN MBTS GUL Product Overview (WBT)	II	1 h		No limit
SingleRAN MBSC GU Product Overview (WBT)	II	1 h		No limit
SingleRAN GUL OM Tools Introduction(WBT)	II	1 h		No limit
SingleRAN MBTS GUL Site Solution(WBT)	II	1 h		No limit

## 2.1 SingleRAN Training Programs

### 2.1.1 GSM/UMTS SingleRAN3.0 BTS Operation and Maintenance Training

#### Training Path



#### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

#### Prerequisites

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

#### Objectives

On completion of this program, the participants will

be able to:

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline MBTS data configuration procedure based on CME
- Complete MBTS data configuration
- Outline MBTS Cascading data configuration principle
- Complete MBTS Cascading data configuration
- Detail the scenarios of multi-mode base station commissioning
- Perform multi-mode base station Remote commissioning
- Perform multi-mode base station Local commissioning
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

#### Duration

7 working days

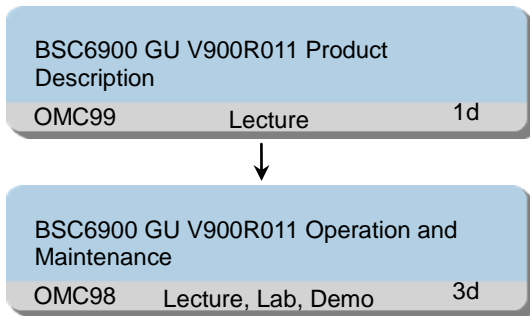
#### Class Size

Min 6, Max 12



## 2.1.2 GSM/UMTS SingleRAN3.0 BSC Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS 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 BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

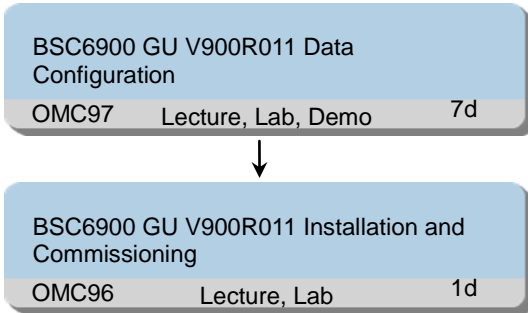
4 working days

### Class Size

Min 6, Max 12

## 2.1.3 GSM/UMTS SingleRAN3.0 BSC Configuration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM/UMTS wireless network operation and maintenance  
 Successful completion of the following Training(s):  
 GSM/UMTS SingleRAN3.0 BSC Operation and Maintenance Training

### Objectives

On completion of this program, the participants will

be able to:

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

### Duration

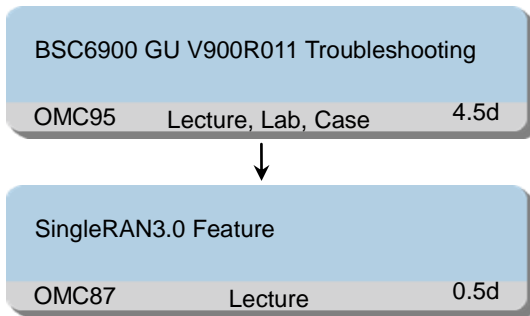
8 working days

### Class Size

Min 6, Max 12

## 2.1.4 GSM/UMTS SingleRAN3.0 BSS Troubleshooting Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS wireless network operation and maintenance  
Successful completion of the following Training(s):  
GSM/UMTS SingleRAN3.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN3.0 BSC Operation and Maintenance Training  
GSM/UMTS SingleRAN3.0 BSC Configuration

### Training

#### Objectives

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

- Master SingleRAN feature: Co-TRM and Co-RRM algorithm and parameters.
- Grasp BSC6900 common fault disposal method
- Understand general procedure of fault judgment and location
- Master the way to prevent BSC6900 fault
- Analyze and handle some typical cases
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

#### Duration

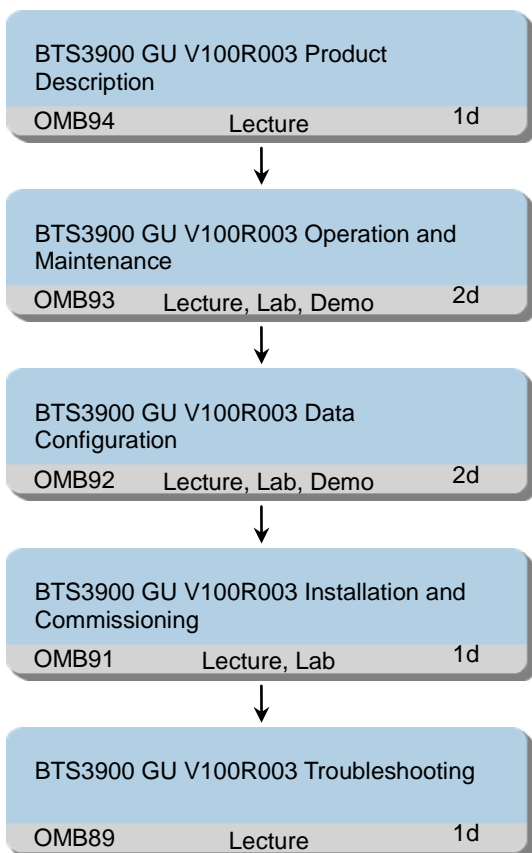
5 working days

#### Class Size

Min 6, Max 12

## 2.1.5 GSM/UMTS SingleRAN5.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

On completion of this program, the participants will

be able to:

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

### Duration

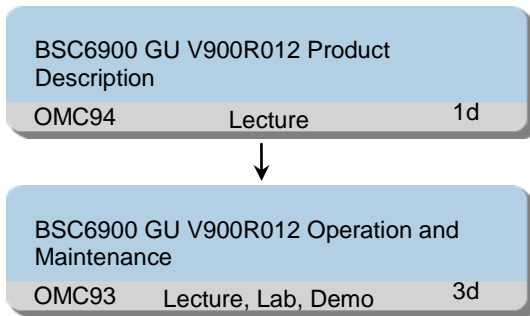
7 working days

### Class Size

Min 6, Max 12

## 2.1.6 GSM/UMTS SingleRAN5.0 BSC Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS 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 BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

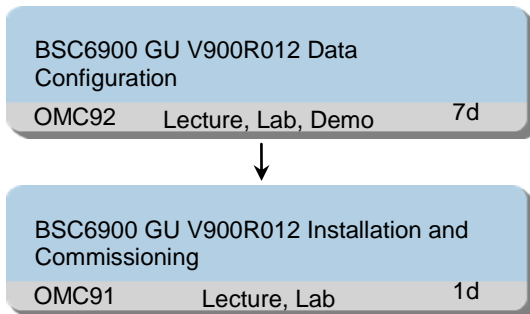
4 working days

### Class Size

Min 6, Max 12

## 2.1.7 GSM/UMTS SingleRAN5.0 BSC Configuration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS wireless network operation and maintenance  
Successful completion of the following Training(s):  
GSM/UMTS SingleRAN5.0 BSC Operation and Maintenance Training

### Objectives

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

- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline MBSC data configuration procedure based on CME
- Complete MBSC data configuration
- Export and activate the configuration data
- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning

### Duration

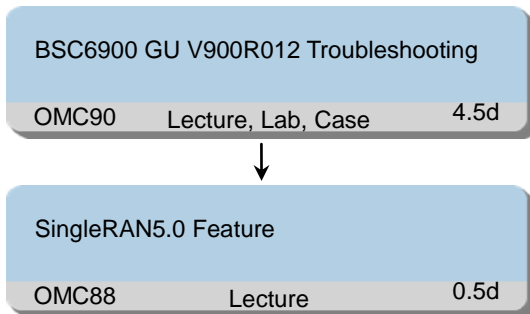
8 working days

### Class Size

Min 6, Max 12

## 2.1.8 GSM/UMTS SingleRAN5.0 BSS Troubleshooting Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS wireless network operation and maintenance  
Successful completion of the following Training(s):  
GSM/UMTS SingleRAN5.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN5.0 BSC Operation and Maintenance Training  
GSM/UMTS SingleRAN5.0 BSC Configuration

### Training

#### Objectives

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

- Master SingleRAN feature: Co-TRM and Co-RRM algorithm and parameters.
- Grasp BSC6900 common fault disposal method
- Understand general procedure of fault judgment and location
- Master the way to prevent BSC6900 fault
- Analyze and handle some typical cases
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

#### Duration

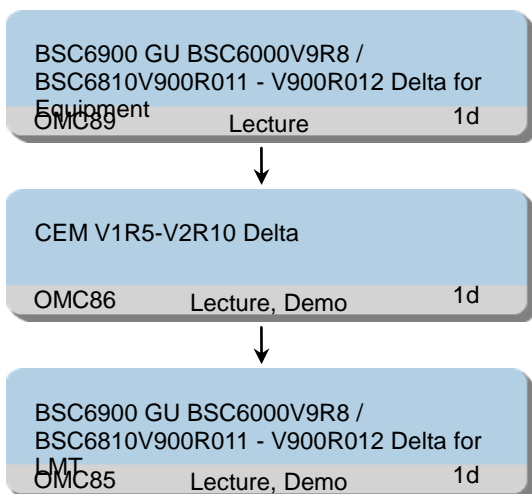
5 working days

#### Class Size

Min 6, Max 12

## 2.1.9 GSM/UMTS SingleRAN2.1 - SingleRAN5.0 Delta Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM  
BSC6000 or UMTS BSC6810 wireless network  
operation and maintenance

### Objectives

On completion of this program, the participants will

be able to:

- Describe BSC6900 Evolution
- Outline New Hardware of BSC6900
- Master the different O/M methods of BSC6900
- Describe the features of Web LMT
- Outline the different concepts between GSM/UMTS LMT and Web LMT
- Outline the different OM functions between GSM/UMTS LMT and Web LMT
- Outline the changing of some MML commands
- Describe Changes and advantage of CME V2R10
- Outline Concept of the Current Area, Planned Area of CME
- Outline CME GUI configuration interface Enhancement
- Know about new functions of the CME V200R010

### Duration

3 working days

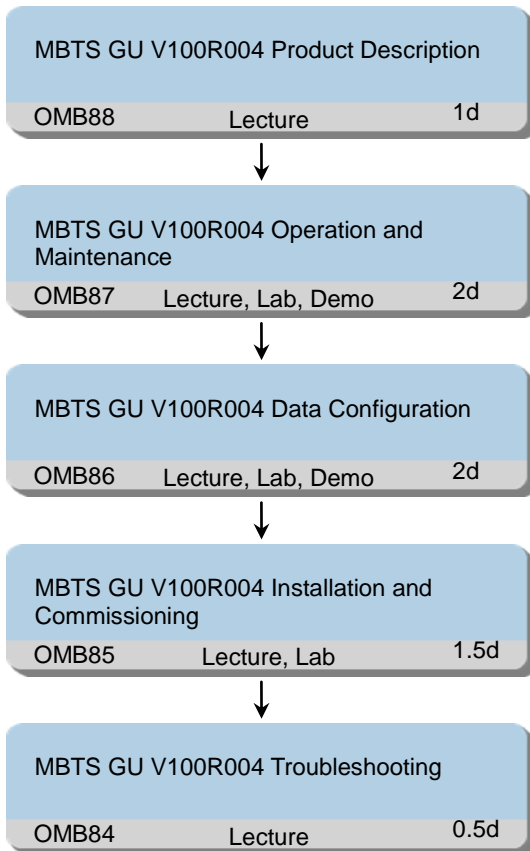
### Class Size

Min 6, Max 12



## 2.1.10 GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

### Duration

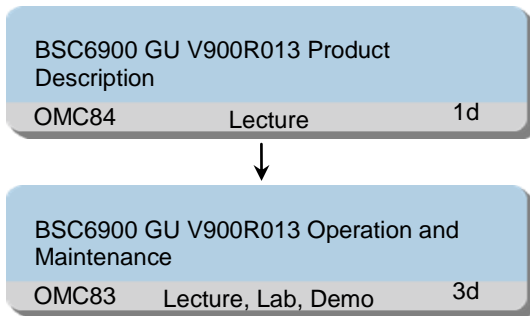
7 working days

### Class Size

Min 6, Max 12

## 2.1.11 GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM/UMTS 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 BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

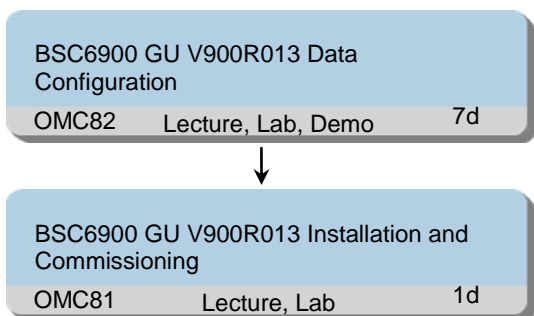
4 working days

### Class Size

Min 6, Max 12

## 2.1.12 GSM/UMTS SingleRAN6.0 BSC Configuration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training

### Objectives

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

- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline MBSC data configuration procedure based on CME
- Complete MBSC data configuration
- Export and activate the configuration data
- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning

### Duration

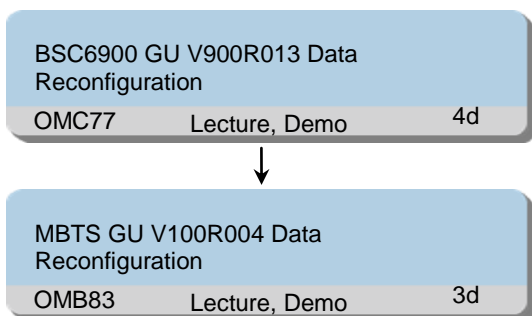
8 working days

### Class Size

Min 6, Max 12

## 2.1.13 GSM/UMTS SingleRAN6.0 BSS Reconfiguration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN6.0 BSC Configuration Training

### Objectives

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

- Describe the procedure of adjusting the BSC
- Describe the modification of OPC and DPC
- Perform the way to adding/removing subracks and boards

- Expand the transmission resource in A, GB and Abis interface.
- Reconfiguring the Transmission Mode on A, Gb and Abis interface.
- Adjust the cell processing in DPU board
- 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
- Perform the RNC migration reconfiguration
- Describe the procedure of MBTS dynamic data adjustment
- Adjust the Global/Device/Transmission Data
- Adjust the Cells/TRXs/Channels Data
- Adjust the BTS Data
- Repairment BTSs
- Detail the scenarios of NodeB migration
- Detail the procedure of NodeB migration
- Perform the NodeB migration

### Duration

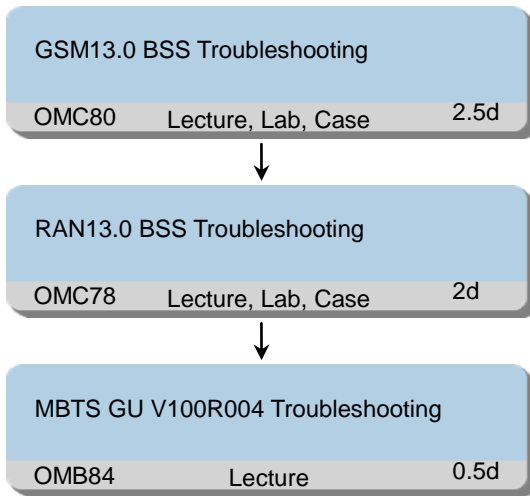
7 working days

### Class Size

Min 6, Max 12

## 2.1.14 GSM/UMTS SingleRAN6.0 BSS Troubleshooting Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
 Successful completion of the following program(s):  
 GSM/UMTS SingleRAN6.0 BTS Operation and Maintenance Training  
 GSM/UMTS SingleRAN6.0 BSC Operation and Maintenance Training  
 GSM/UMTS SingleRAN6.0 BSC Configuration Training

### Objectives

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

- Grasp BSC6900 common fault disposal method
- Understand general procedure of fault judgment and location
- Master the way to prevent BSC6900 fault
- Analyze and handle some typical cases
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault
- Grasp BSC6900 common fault disposal method
- Understand general procedure of fault judgment and location
- Master the way to prevent BSC6900 fault
- Analyze and handle some typical cases
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

### Duration

5 working days

### Class Size

Min 6, Max 12

## 2.1.15 GSM/UMTS SingleRAN5.0 - SingleRAN6.0 Delta Training

### Training Path

BSC6900 GU V900R012 - V900R013 Delta		
OMC79	Lecture	2d

### Target Audience

BSS Field Technicians, Operation and  
Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS  
wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN5.0 BTS Operation and  
Maintenance Training  
GSM/UMTS SingleRAN5.0 BSC Operation and

Maintenance Training

GSM/UMTS SingleRAN5.0 BSC Configuration  
Training

### Objectives

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

- Describe BSC6900 Evolution
- Outline New Hardware of BSC6900
- Master the different O/M methods of  
BSC6900

### Duration

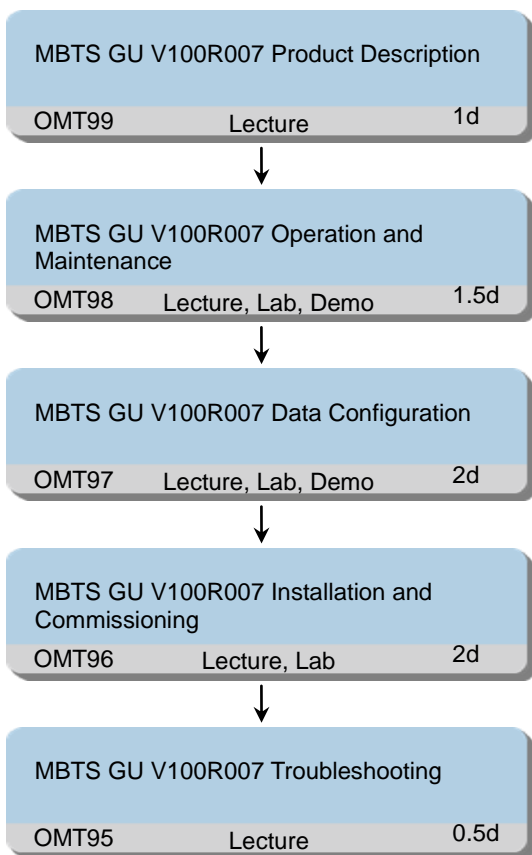
2 working days

### Class Size

Min 6, Max 12

## 2.1.16 GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Know how to find the fault in BTS
- Know the common fault types
- Grasp BTS fault disposal method
- Know how to prevent the fault

### Duration

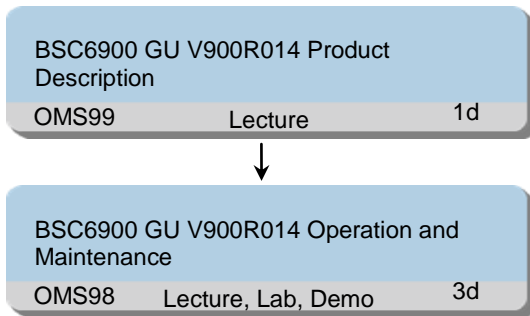
7 working days

### Class Size

Min 6, Max 12

## 2.1.17 GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS 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 BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

4 working days

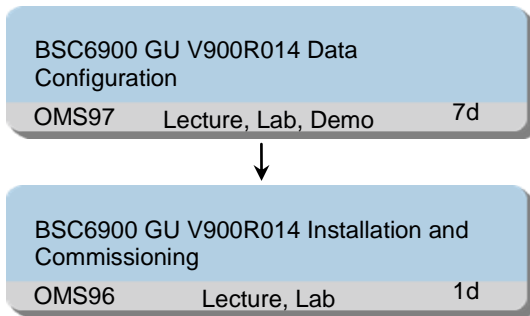
### Class Size

Min 6, Max 12



## 2.1.18 GSM/UMTS SingleRAN7.0 BSC Configuration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline MBSC data configuration procedure based on CME
- Complete MBSC data configuration
- Export and activate the configuration data
- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning

### Duration

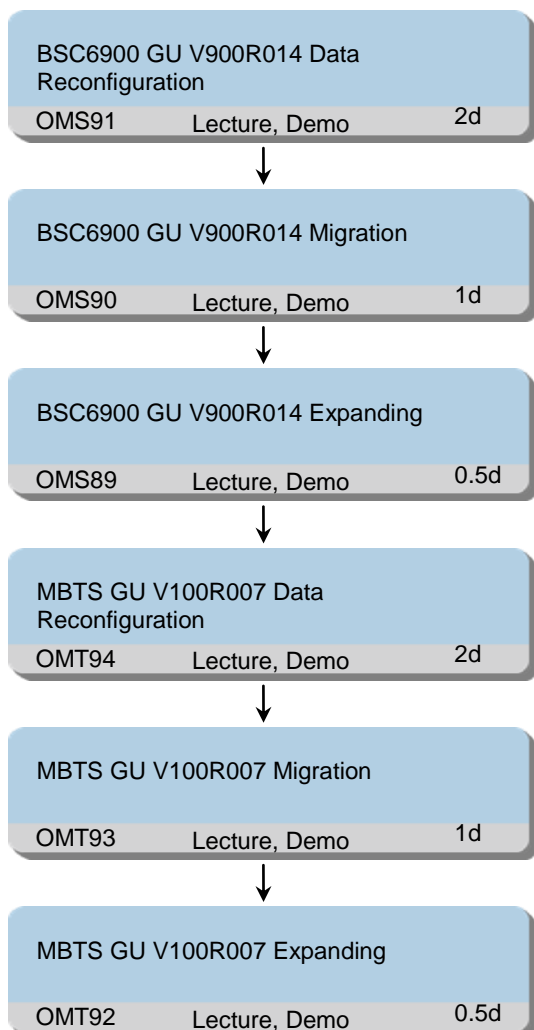
8 working days

### Class Size

Min 6, Max 12

## 2.1.19 GSM/UMTS SingleRAN7.0 BSS Reconfiguration Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
 Successful completion of the following program(s):  
 GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training  
 GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training  
 GSM/UMTS SingleRAN7.0 BSC Configuration

### Training

#### Objectives

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

- Describe the procedure of adjusting the BSC
- Describe the modification of OPC and DPC
- Perform the way to adding/removing subracks and boards
- Expand the transmission resource in A, GB and Abis interface.
- Reconfiguring the Transmission Mode on A, Gb and Abis interface.
- Adjust the cell processing in DPU board
- 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 what is BSC migration
- Describe the procedure of the BSC migration
- Perform the BSC migration
- Describe the procedure of expanding the BSC/RNC capacity
- Perform how to add a BSC/RNC board
- Perform how to add an EPS/RNC of BSC
- Describe the procedure of MBTS dynamic data adjustment
- Adjust the Global/Device/Transmission Data
- Adjust the Cells/TRXs/Channels Data
- Adjust the BTS Data
- Repairment BTSs
- Detail the scenarios of BTS/NodeB migration
- Detail the procedure of BTS/NodeB migration
- Perform the BTS/NodeB migration
- Describe the procedures of expanding the BTS capacity
- Perform how to add BTS Cells

- Perform how to add BTS TRXs
- Perform how to add WBBP Board
- Perform how to add RF Unit

Duration

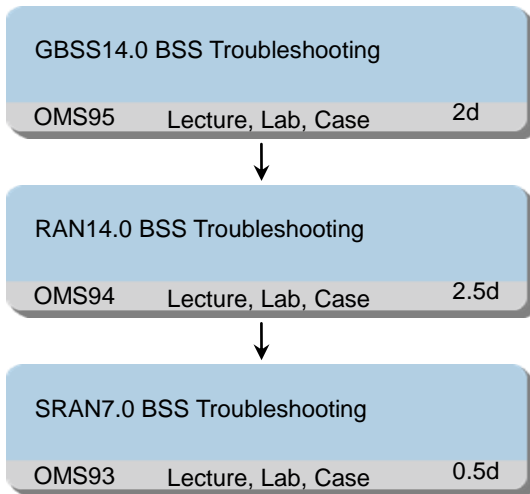
7 working days

Class Size

Min 6, Max 12

## 2.1.20 GSM/UMTS SingleRAN7.0 BSS Troubleshooting Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
 Successful completion of the following program(s):  
 GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training  
 GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training  
 GSM/UMTS SingleRAN7.0 BSC Configuration Training

### Objectives

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

- Grasp BSC6900 GSM common fault disposal method

- Understand general procedure of fault judgment and location
- Master the way to prevent BSC6900 GSM fault
- Analyze and handle some typical cases
- Know how to find the fault in GSM BTS
- Know the common fault types
- Grasp GSM BTS fault disposal method
- Know how to prevent the fault
- Describe UMTS RAN troubleshooting process
- Handling UMTS Transmission Faults
- Handling UMTS Equipments Faults
- Handling UMTS O/M Faults
- Handling UMTS Basic Service Faults
- Handling Failure to Install the NodeB LMT
- Handling NodeB High Frequency Deviation NodeB (E1) of Clock
- Handling NodeB Intermittent Interruption of CPRI Link
- Handling NodeB Sleeping Cell
- Grasp BSC6900 GU common fault disposal method
- Analyse and handle some BSC6900 GU typical cases
- Know how to locate the fault in MBTS
- Know how to locate the causes of a fault
- Know how to solve a fault in MBTS
- Collect and analyze cases to improve the troubleshooting capability

### Duration

5 working days

### Class Size

Min 6, Max 12

## 2.1.21 GSM/UMTS SingleRAN6.0 - SingleRAN7.0 Product Delta Training

### Training Path

BSC6900 GU V900R013 - V900R014 Delta		
OMS92	Lecture	2d

### Target Audience

BSS Field Technicians, Operation and  
Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS  
wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN6.0 BTS Operation and  
Maintenance Training

GSM/UMTS SingleRAN6.0 BSC Operation and  
Maintenance Training

GSM/UMTS SingleRAN6.0 BSC Configuration  
Training

### Objectives

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

- Describe BSC6900 GU evolution overview
- Describe the hardware changing in BSC6900  
GU and MBTS GU, including cabinet, subrack  
and boards.
- Describe the software changing in BSC6900  
GU, including OMU board software and OM  
software
- Describe the new features of BSC6900 GU and  
MBTS GU.

### Duration

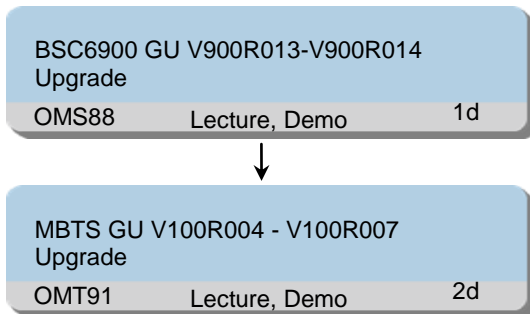
2 working days

### Class Size

Min 6, Max 12

## 2.1.22 GSM/UMTS SingleRAN7.0 Upgrade Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN7.0 BSC Configuration Training

### Objectives

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

- Describe the software installation and upgrade flow
- Outline the backup and restore operations
- Complete the installation and upgrade tasks
- Grasp the OMU routine maintenance commands
- Describe the upgrade procedure
- Describe the upgrade of MBTS
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

### Duration

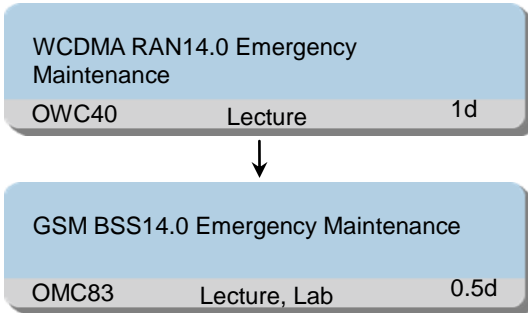
3 working days

### Class Size

Min 6, Max 12

## 2.1.23 GSM/UMTS SingleRAN7.0 Emergency Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN7.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN7.0 BSC Configuration Training

### Objectives

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

- Understand the Basic Symptoms About the Accident
- Know how to collect the related information
- Execute the quick emergency handling methods.
- Describe Brief Guide to Emergent Accidents
- implement Emergency Measures in Emergency Situations
- Describe Preparations and the Suggestions on the Parameter Value Change Before a Holiday
- implement Emergency Measures in Heavy Traffic Situations

### Duration

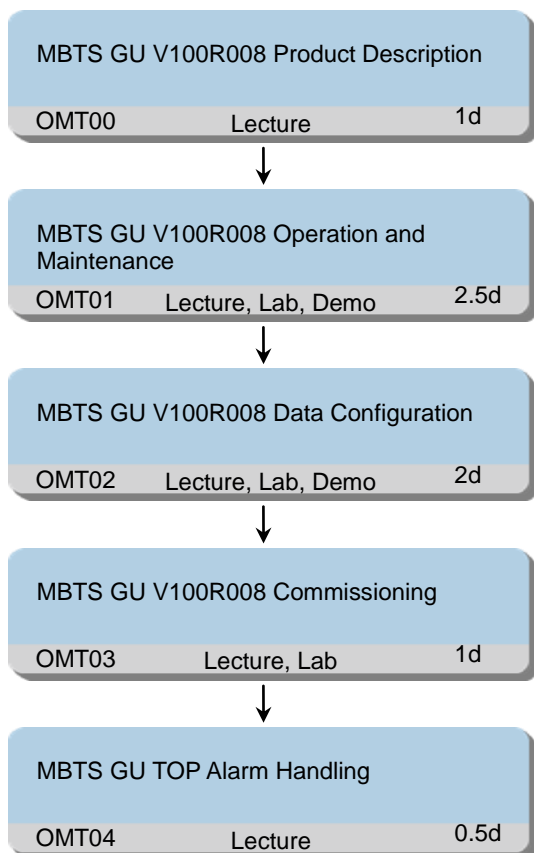
2 working days

### Class Size

Min 6, Max 12

## 2.1.24 GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Comprehend the basic concepts of alarms
- Perform the methods of handling alarms via M2000 / LMT
- Complete TOP alarms handling

### Duration

7 working days

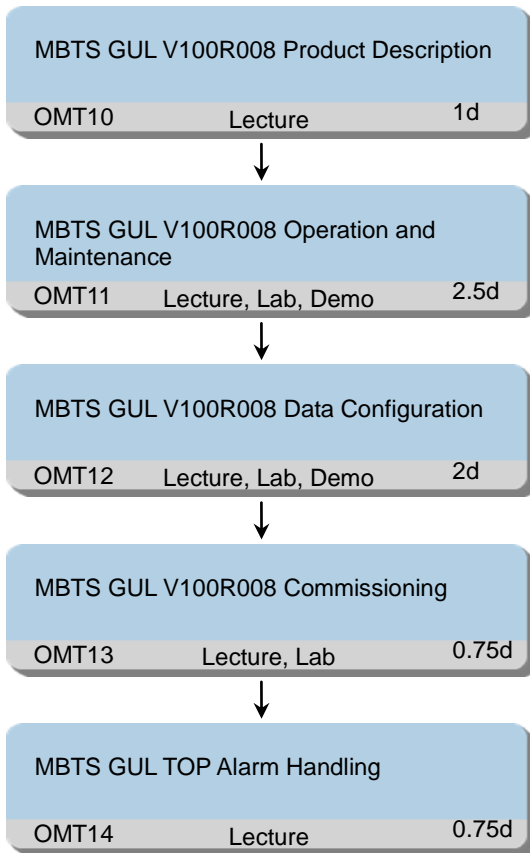
### Class Size

Min 6, Max 12



## 2.1.25 GSM/UMTS/LTE SingleRAN8.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Comprehend the basic concepts of alarms
- Perform the methods of handling alarms via M2000 / LMT
- Complete TOP alarms handling

### Duration

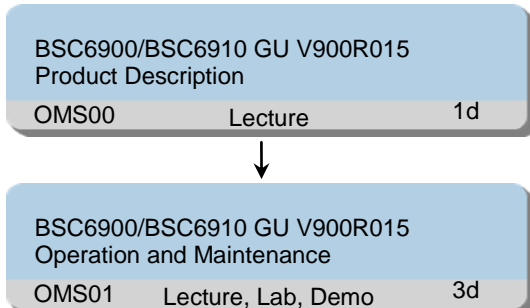
7 working days

### Class Size

Min 6, Max 12

## 2.1.26 GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS 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 BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

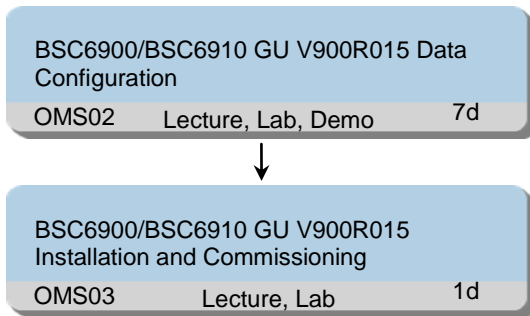
4 working days

### Class Size

Min 6, Max 12

## 2.1.27 GSM/UMTS SingleRAN8.0 BSC Configuration Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training

### Objectives

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

- Detail the Procedure of BSC6900 Data Configuration
- Perform Global Data Configuration
- Perform Equipment Data Configuration
- Perform Interface Configuration
- Perform Cell Configuration
- Outline MBSC data configuration procedure based on CME
- Complete MBSC data configuration
- Export and activate the configuration data
- Describe BSC6900 commissioning procedure
- Outline OMU software functions
- Complete BSC6900 commissioning

### Duration

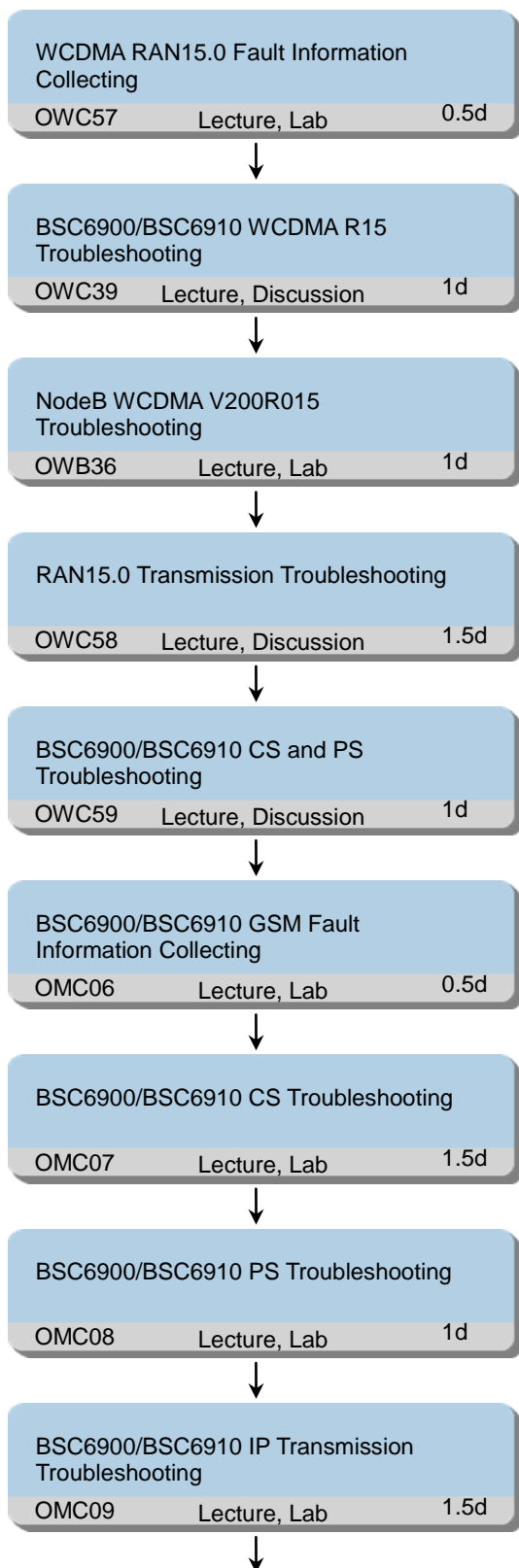
8 working days

### Class Size

Min 6, Max 12

## 2.1.28 GSM/UMTS SingleRAN8.0 BSS Troubleshooting Training (BSC6900/6910)

### Training Path



BSC6900/BSC6910 Clock Troubleshooting		
OMC10	Lecture, Lab	0.5d

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN8.0 BSC Configuration 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 CS and PS fault
- Describe where is the different file in OMU.
- Describe the functions of different files
- Describe the CS Fault Troubleshooting flow
- Know how to do Single pass and no voice Troubleshooting
- Know how to do Cross pass Troubleshooting
- Know how to do Noise Troubleshooting
- Know how to do Echo Troubleshooting
- Describe the PS Fault Troubleshooting flow
- Know how to do PS Data rate Troubleshooting
- Know how to do PS Access Troubleshooting
- Know how to Anylase PS KPI
- 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
- Describe Clock Fault Troubleshooting Flow
- Know how to do Clock troubleshooting
- 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**

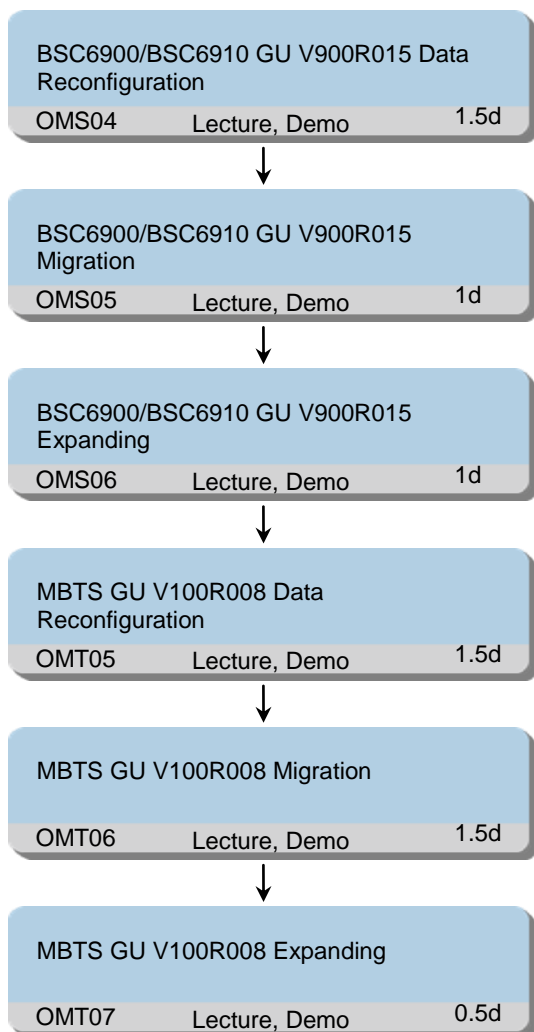
7 working days

**Class Size**

Min 6, Max 12

## 2.1.29 GSM/UMTS SingleRAN8.0 BSS Reconfiguration Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN8.0 BSC Configuration

### Training

#### Objectives

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

- Describe the procedure of adjusting the BSC
- Describe the modification of OPC and DPC
- Perform the way to adding/removing subracks and boards
- Expand the transmission resource in A, GB and Abis interface.
- Reconfiguring the Transmission Mode on A, Gb and Abis interface.
- Adjust the cell processing in DPU board
- 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 what is BSC migration
- Describe the procedure of the BSC migration
- Perform the BSC migration
- Describe the procedure of expanding the BSC/RNC capacity
- Perform how to add a BSC/RNC board
- Perform how to add an EPS/RNC of BSC
- Describe the procedure of MBTS dynamic data adjustment
- Adjust the Global/Device/Transmission Data
- Adjust the Cells/TRXs/Channels Data
- Adjust the BTS Data
- Repairment BTSs
- Detail the scenarios of BTS/NodeB migration
- Detail the procedure of BTS/NodeB migration
- Perform the BTS/NodeB migration
- Describe the procedures of expanding the BTS capacity
- Perform how to add BTS Cells

- Perform how to add BTS TRXs
- Perform how to add WBBP Board
- Perform how to add RF Unit

Duration

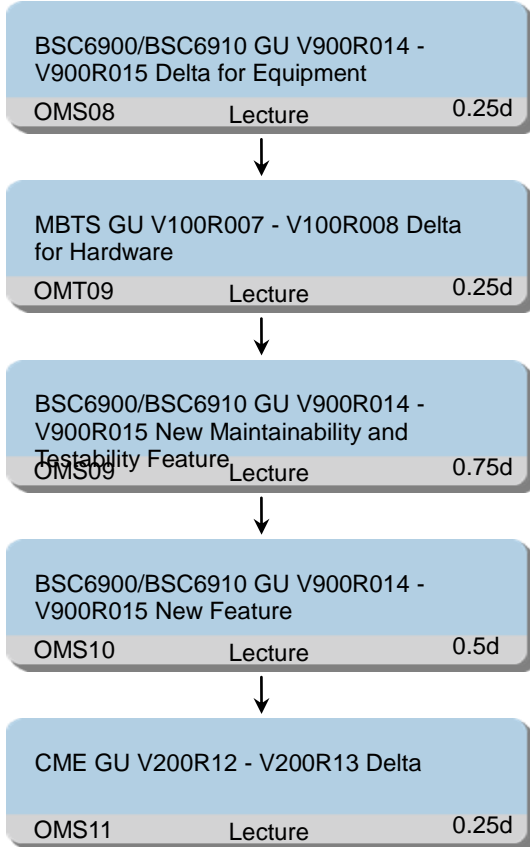
7 working days

Class Size

Min 6, Max 12

## 2.1.30 GSM/UMTS SingleRAN7.0 - SingleRAN8.0 Product Delta Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
 Successful completion of the following program(s):  
 GSM/UMTS SingleRAN7.0 BTS Operation and Maintenance Training  
 GSM/UMTS SingleRAN7.0 BSC Operation and

### Maintenance Training

GSM/UMTS SingleRAN7.0 BSC Configuration Training

### Objectives

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

- Know the capacity specifications of the BSC6900/6910 V900R015
- Know the new hardware adopted by the BSC6900/6910 V900R015
- Know the hardware configuration and capacity of the BSC6900/6910 V900R015
- Know the new hardware adopted by the MBTS GU V100R008
- Know the New hardware configuration
- Know the principles and application scenarios of the O/M features
- Know the configuration procedures and implementation methods of the O/M features
- Know the principles and application scenarios of the new features
- Know the configuration procedures and implementation methods of the new features
- Know the new feature of CME
- Master the new feature for GSM, UMTS and SRAN

### Duration

2 working days

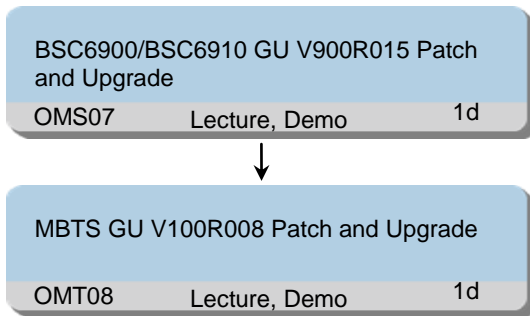
### Class Size

Min 6, Max 12



## 2.1.31 GSM/UMTS SingleRAN8.0 Patch and Upgrade Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training

### Objectives

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

- Describe the software installation and upgrade flow
- Outline the backup and restore operations
- Complete the installation and upgrade tasks
- Grasp the OMU routine maintenance commands
- Describe the upgrade procedure
- Describe the upgrade of MBTS
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

### Duration

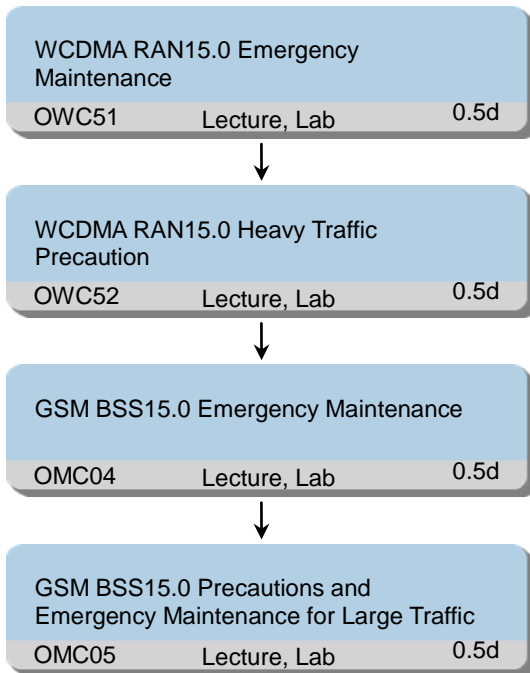
2 working days

### Class Size

Min 6, Max 12

## 2.1.32 GSM/UMTS SingleRAN8.0 Emergency Maintenance Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
 At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
 Successful completion of the following program(s):  
 GSM/UMTS SingleRAN8.0 BTS Operation and Maintenance Training  
 GSM/UMTS SingleRAN8.0 BSC Operation and Maintenance Training  
 GSM/UMTS SingleRAN8.0 BSC Configuration

### Training

#### Objectives

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

- Understand the Basic Symptoms About the Accident
- Know how to collect the related information
- Execute the quick emergency handling methods.
- Understand Precautions and Emergency Maintenance for Large Traffic
- Know how to adjust BSC parameters before large traffic
- Execute emergency maintenance for large traffic
- 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

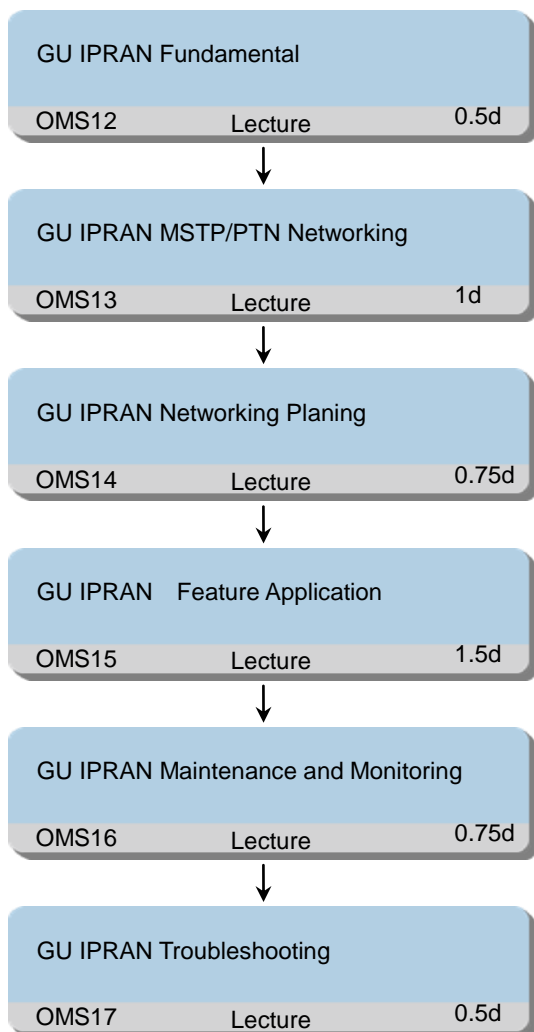
2 working days

#### Class Size

Min 6, Max 12

## 2.1.33 GSM/UMTS SingleRAN IPRAN Application Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC

### Configuration Training

#### Objectives

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

- Learn about IP protocol 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 implementation of key features for IP RAN MSTP networking
- Understand differences between the layer 2 networking and layer 3 networking
- Learn about the concepts and advantages of IP RAN
- Understand IP RAN networking variations
- Learn data exchanges and encapsulation in the packet transport network (PTN)
- Understand implementation of the key features using PTN networking for the IP RAN
- Understand the 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
- Know how to handle faults that occur in reliability-ensuring application in different scenarios
- 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 the differences between the IEEE 1588v2 technology and synchronous Ethernet technology
- 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

- Learn the parameters and commands used to ensure the QoS of IP RANs
- Describe the procedures of implementing QoS in IP RAN end to end (E2E) services
- Learn different QoS configuration and applications in different protocol and networking scenarios
- 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 check
- Monitor IP RAN transmission links, analyze and locate the faults
- Learn the monitoring points for locating common 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
- Learn methods for using packet capturing tool for IP networks
- Learn about the process of analyzing packets and locating faults
- Understand the IP transmission troubleshooting roadmap
- 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

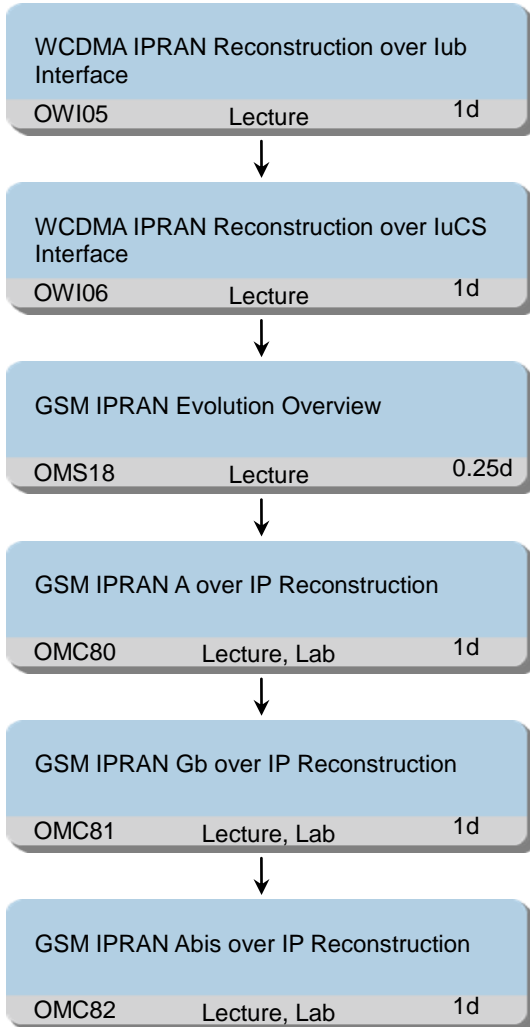
5 working days

#### Class Size

Min 6, Max 12

## 2.1.34 GSM/UMTS SingleRAN IPRAN Reconstruction

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC

### Configuration Training

### Objectives

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

- Describe the IP Evolution
- Grasp the key steps in IP Evolution
- Understand the IP Evolution Policies
- Understand A over IP Networking, Hardware and IP design
- Prepare A over IP reconstruction script
- verify the A over IP reconstruction
- Understand Gb over IP Networking, Hardware and IP design
- Prepare Gb over IP reconstruction script
- verify the Gb over IP reconstruction
- Understand Abis over IP Networking, Hardware and IP design
- Prepare Abis over IP reconstruction script
- verify the Abis over IP reconstruction
- 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

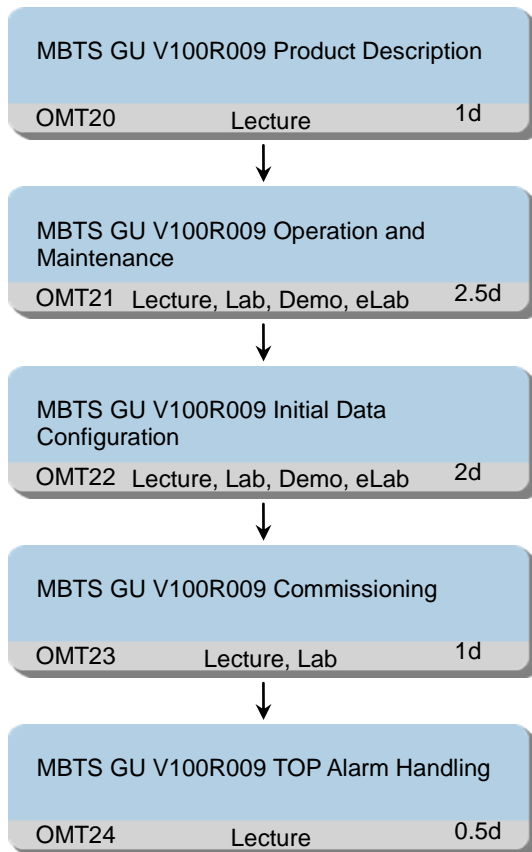
5 working days

### Class Size

Min 6, Max 12

## 2.1.35 GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by U2000
- Perform GSM BTS local operation by LMT
- Perform UMTS NodeB routine operation by U2000
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Comprehend the basic concepts of alarms
- Perform the methods of handling alarms via U2000 / LMT
- Complete TOP alarms handling

### Duration

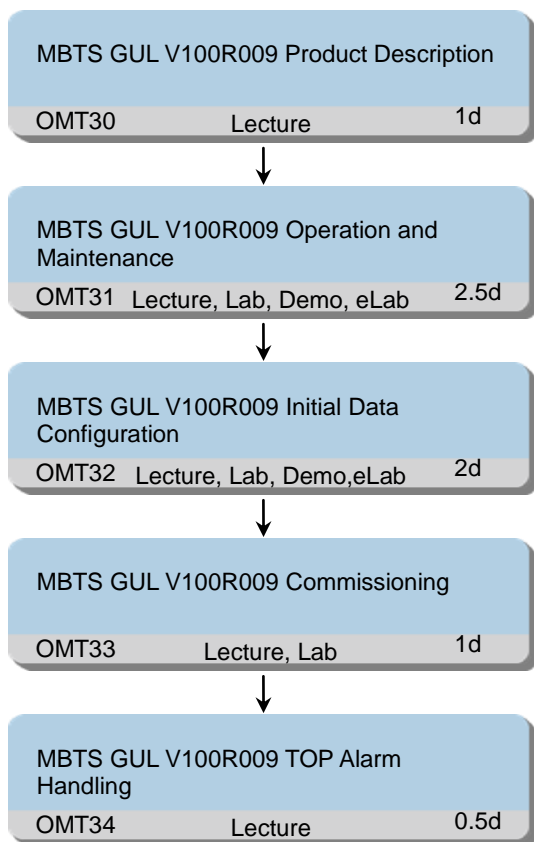
7 working days

### Class Size

Min 6, max 12

## 2.1.36 GSM/UMTS/LTE SingleRAN9.0 BTS Operation and Maintenance Training

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

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

- Outline BTS3900 product functions
- Detail the hardware structure of BTS3900
- Detail the functions of different modules
- Perform hardware configuration and cables connection
- Perform GSM BTS remote operation by web LMT
- Perform GSM BTS local operation by SMT
- Perform UMTS NodeB routine operation by LMT
- Outline the procedure of MBTS data configuration
- Complete the MBTS initial data configuration based on CME
- Describe the meaning of some important parameters
- Understand the MBTS installation procedure.
- Describe the steps of MBTS commissioning.
- Master the commissioning of MBTS.
- Comprehend the basic concepts of alarms
- Perform the methods of handling alarms via U2000 / LMT
- Complete TOP alarms handling

### Duration

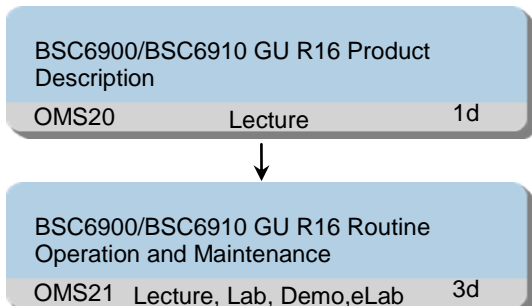
7 working days

### Class Size

Min 6, max 12

## 2.1.37 GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

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

### Objectives

On completion of this program, the participants will

be able to:

- Detail the system structure of BSC6900/BSC6910
- Detail the functions of the components of BSC6900/BSC6910
- Detail the signal flows in BSC6900/BSC6910
- List the typical hardware configuration of BSC6900/BSC6910
- Detail the structure of operation and maintenance subsystem
- Perform the BSC6900/BSC6910 routine operation
- Perform the BSC6900/BSC6910 routine maintenance

### Duration

4 working days

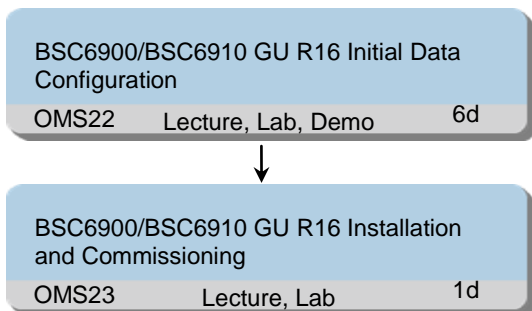
### Class Size

Min 6, max 12



## 2.1.38 GSM/UMTS SingleRAN9.0 BSC Configuration Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training

### Objectives

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

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

### Duration

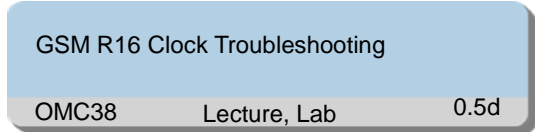
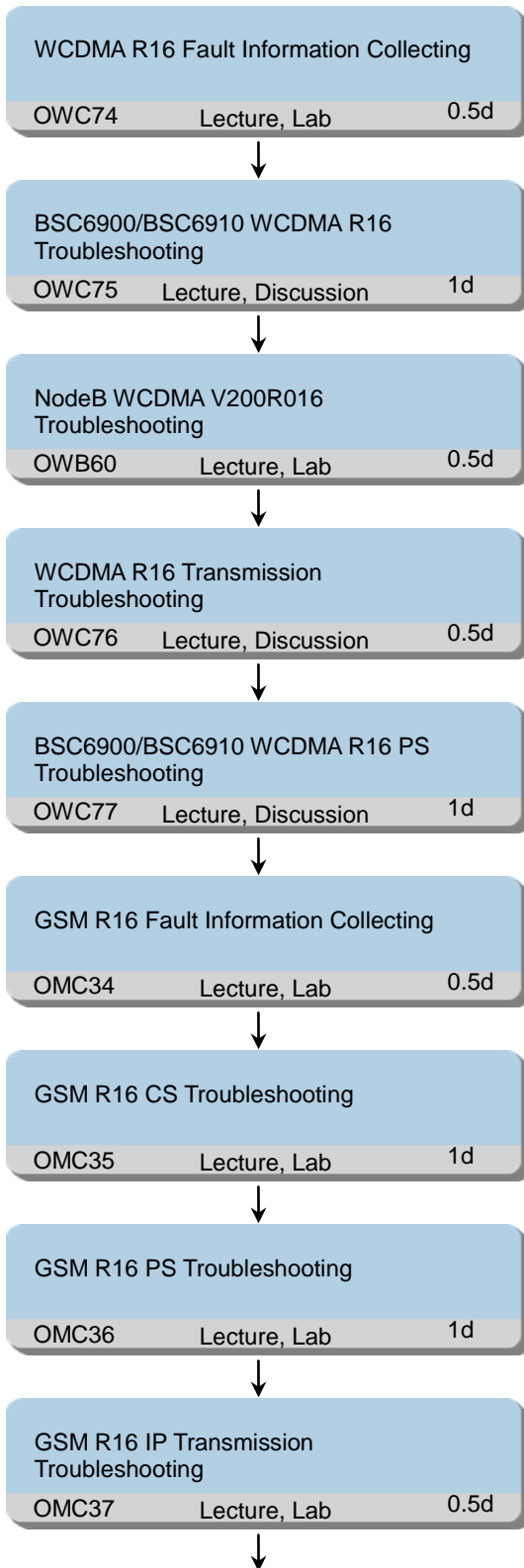
7 working days

### Class Size

Min 6, max 12

## 2.1.39 GSM/UMTS SingleRAN9.0 BSS Troubleshooting Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Configuration 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 CS and PS fault
- Describe where is the different file in OMU.
- Describe the functions of different files
- Describe the CS Fault Troubleshooting flow
- Know how to do Single pass and no voice Troubleshooting
- Know how to do Cross pass Troubleshooting
- Know how to do Noise Troubleshooting
- Know how to do Echo Troubleshooting
- Describe the PS Fault Troubleshooting flow
- Know how to do PS Data rate Troubleshooting
- Know how to do PS Access Troubleshooting
- Know how to Anylase PS KPI
- 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
- Describe Clock Fault Troubleshooting Flow
- Know how to do Clock troubleshooting
- 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

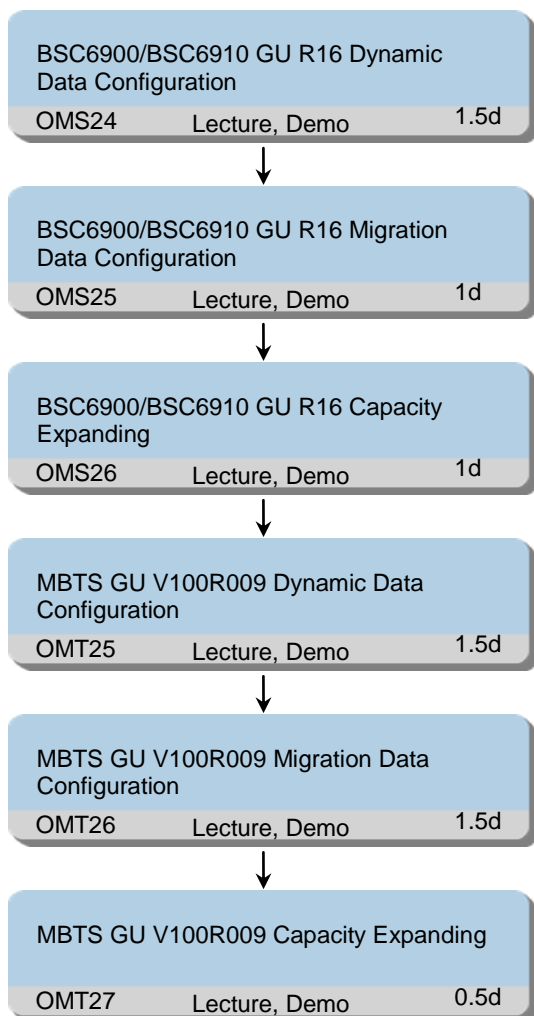
7 working days

Class Size

Min 6, max 12

## 2.1.40 GSM/UMTS SingleRAN9.0 BSS Reconfiguration Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Operation and

### Maintenance Training

- GSM/UMTS SingleRAN9.0 BSC Configuration Training

### Objectives

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

- Describe the procedure of adjusting the BSC
- Describe the modification of OPC and DPC
- Perform the way to adding/removing subracks and boards
- Expand the transmission resource in A, GB and Abis interface.
- Reconfiguring the Transmission Mode on A, Gb and Abis interface.
- Adjust the cell processing in DPU board
- 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 what is BSC migration
- Describe the procedure of the BSC migration
- Perform the BSC migration
- Describe the procedure of expanding the BSC/RNC capacity
- Perform how to add a BSC/RNC board
- Perform how to add an EPS/RNC of BSC
- Describe the procedure of MBTS dynamic data adjustment
- Adjust the Global/Device/Transmission Data
- Adjust the Cells/TRXs/Channels Data
- Adjust the BTS Data
- Repairment BTSs
- Detail the scenarios of BTS/NodeB migration
- Detail the procedure of BTS/NodeB migration
- Perform the BTS/NodeB migration
- Describe the procedures of expanding the

BTS capacity

- Perform how to add BTS Cells
- Perform how to add BTS TRXs
- Perform how to add WBBP Board
- Perform how to add RF Unit

Duration

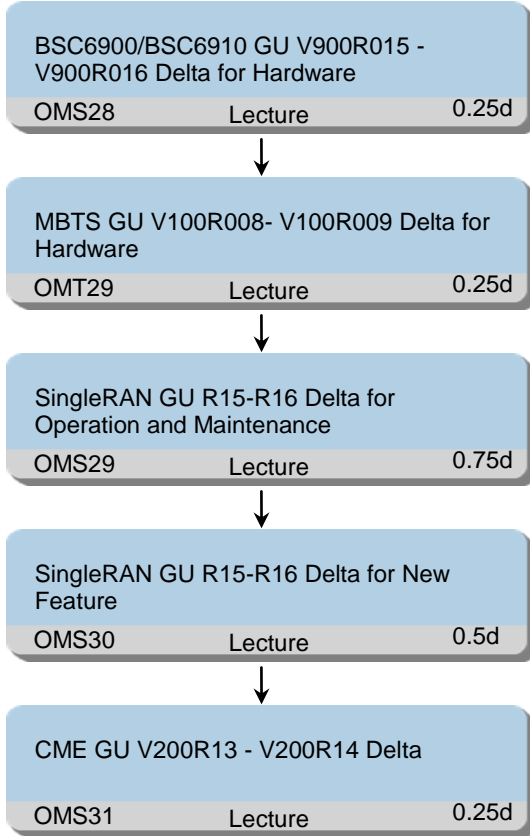
7 working days

Class Size

Min 6, max 12

## 2.1.41 GSM/UMTS SingleRAN8.0 - SingleRAN9.0 Product Delta Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BTS Operation and

### Maintenance Training

- GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Configuration Training

### Objectives

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

- Know the capacity specifications of the BSC6900/6910 V900R016
- Know the new hardware adopted by the BSC6900/6910 V900R016
- Know the hardware configuration and capacity of the BSC6900/6910 V900R016
- Know the new hardware adopted by the MBTS GU V100R009
- Know the New hardware configuration
- Know the principles and application scenarios of the O/M features
- Know the configuration procedures and implementation methods of the O/M features
- Know the principles and application scenarios of the new features
- Know the configuration procedures and implementation methods of the new features
- Know the new feature of CME
- Master the new feature for GSM, UMTS and SRAN

### Duration

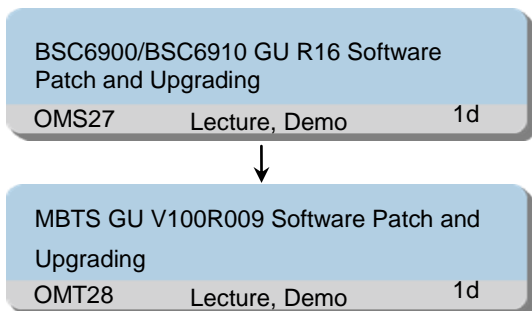
2 working days

### Class Size

Min 6, max 12

## 2.1.42 GSM/UMTS SingleRAN9.0 Patch and Upgrade Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Operation and

### Maintenance Training

### Objectives

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

- Describe the software installation and upgrade flow
- Outline the backup and restore operations
- Complete the installation and upgrade tasks
- Grasp the OMU routine maintenance commands
- Describe the upgrade procedure
- Describe the upgrade of MBTS
- Describe the verification operations after upgrade.
- Describe how to roll the version back to the one before upgrade

### Duration

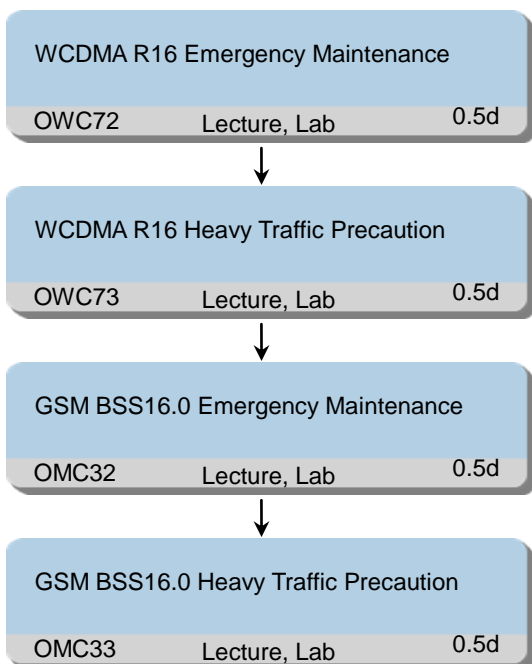
2 working days

### Class Size

Min 6, max 12

## 2.1.43 GSM/UMTS SingleRAN9.0 Emergency Maintenance Training (BSC6900/6910)

### Training Path



### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN9.0 BTS Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Operation and Maintenance Training
- GSM/UMTS SingleRAN9.0 BSC Configuration

### Training

#### Objectives

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

- Understand the Basic Symptoms About the Accident
- Know how to collect the related information
- Execute the quick emergency handling methods.
- Understand Precautions and Emergency Maintenance for heavy Traffic
- Know how to adjust BSC parameters before heavy traffic
- Execute emergency maintenance for heavy traffic
- 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

2 working days

#### Class Size

Min 6, max 12



## 2.2 WBT Training Programs

### 2.2.1 BSC6900 GU V900R013 Product Description (WBT)

#### Training Path

BSC6900 GU V900R013 Product Description (WBT)		
NA	WBT	1h

- GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation and Maintenance Training
- GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Configuration Training

#### Objectives

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

- List the system structure of BSC6900
- Describe the functions of the components of BSC6900
- List the typical hardware configuration of BSC6900

#### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

#### Prerequisites

- Basic knowledge of mobile communications
- At least 1 year working experience in GSM UMTS wireless network operation and maintenance
- Successful completion of the following program(s):
- GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

#### Duration

1 hour

#### Class Size

No limit

## 2.2.2 MBTS GU V100R004 Product Description (WBT)

### Training Path

MBTS GU V100R004 Product Description (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Configuration Training

### Objectives

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

- Know the application scenarios of Dual-Mode BTS3900
- Grasp the hardware structure of Dual-Mode BTS3900
- Grasp the functions of the modules
- Master typical configuration of Dual-Mode BTS3900
- Know the networking topology of Dual-Mode BTS3900

### Duration

1 hour

### Class Size

No limit

## 2.2.3 BSC6900 GU V900R013 Operation and Maintenance(WBT)

### Training Path

BSC6900 GU V900R013 Operation and Maintenance (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation

and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Configuration Training

### Objectives

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

- Detail the structure of operation and maintenance subsystem
- Perform the BSC6900 routine operation
- Perform the BSC6900 routine maintenance

### Duration

1 hour

### Class Size

No limit

## 2.2.4 SingleRAN MBTS GUL Product Overview (WBT)

### Training Path

SingleRAN MBTS GUL Product Overview (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications  
At least 1 year working experience in GSM UMTS wireless network operation and maintenance  
Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training  
GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation

and Maintenance Training  
GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Configuration Training

### Objectives

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

- Understand concept of the 3900 series base station.
- Grasp the hardware architecture.
- Master the typical application.

### Duration

1 hour

### Class Size

No limit

## 2.2.5 SingleRAN MBSC GU Product Overview (WBT)

### Training Path

SingleRAN MBSC GU Product Overview (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation

and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC

Configuration Training

### Objectives

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

- Know Concept of the single RAN
- Know MBSC product benefits
- Know MBSC basic architecture.

### Duration

1 hour

### Class Size

No limit

## 2.2.6 SingleRAN GUL OM Tools Introduction(WBT)

### Training Path

SingleRAN GUL O&M Tools Introduction (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):  
GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Configuration Training

### Objectives

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

- Describe SingleRAN GUL O
- M Tools
- Know how to use Web LMT
- Know how to use M2000
- Know how to use CME

### Duration

1hour

### Class Size

No limit

## 2.2.7 SingleRAN MBTS GUL Site Solution(WBT)

### Training Path

SingleRAN MBTS GUL Site Solution (WBT)		
NA	WBT	1h

### Target Audience

BSS Field Technicians, Operation and Maintenance Technicians and Engineers

### Prerequisites

Basic knowledge of mobile communications

At least 1 year working experience in GSM UMTS wireless network operation and maintenance

Successful completion of the following program(s):

GSM/UMTS SingleRAN6.0/7.0/8.0 BTS Operation and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC Operation

and Maintenance Training

GSM/UMTS SingleRAN6.0/7.0/8.0 BSC

Configuration Training

### Objectives

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

- Describe SingleRAN MBTS GUL Site Solution
- Describe Site Solution for different application Scenarios

### Duration

1 hour

### Class Size

No limit