LEARNING SERVICES

RBS 6000
Training Programs

Catalog of Course Descriptions

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Catalog of Course Descriptions

INTRODUCTION 5

LTE/SAE IN NUTSHELL 6

LTE/SAE SYSTEM OVERVIEW 8

RBS 6000 IN A NUTSHELL 12

GSM RBS 6102 FIELD MAINTENANCE 17

GSM RBS 6201 FIELD MAINTENANCE 21

GSM RBS 6202 FIELD MAINTENANCE 23

GSM RBS 6301 FIELD MAINTENANCE 25

GSM RBS 6601 FIELD MAINTENANCE 27

LTE RBS 6101 FIELD MAINTENANCE 29

LTE RBS 6102 FIELD MAINTENANCE 33

LTE RBS 6201 FIELD MAINTENANCE 37

LTE RBS 6202 FIELD MAINTENANCE 41

LTE RBS 6301 FIELD MAINTENANCE 45

LTE RBS 6401 FIELD MAINTENANCE 49

LTE RBS 6601 FIELD MAINTENANCE 51

RBS 6000 OVERVIEW **55**

WCDMA RBS 6101 FIELD MAINTENANCE **59**

WCDMA RBS 6102 FIELD MAINTENANCE **63**

WCDMA RBS 6201 FIELD MAINTENANCE **67**

WCDMA RBS 6202 FIELD MAINTENANCE **71**

WCDMA RBS 6301 FIELD MAINTENANCE **75**

WCDMA RBS 6302 FIELD MAINTENANCE **79**

WCDMA RBS 6401 FIELD MAINTENANCE **83**

WCDMA RBS 6601 FIELD MAINTENANCE **85**

Introduction

Ericsson has developed a comprehensive Training Programs service to satisfy the competence needs of our customers, from exploring new business opportunities to expertise required for operating a network. The Training Programs service is delineated into packages that have been developed to offer clearly defined, yet flexible training to target system and technology areas. Each package is divided into flows, to target specific functional areas within your organization for optimal benefits.

Service delivery is supported using various delivery methods including:

Icon	Delivery Method
	Instructor Led Training (ILT)
	Virtual Classroom Training (VCT)
	eLearning (WBL)
	Workshop (WS)
	Short Article (SA)
	Structured Knowledge Transfer (SKT)
	mLearning
JDA	Job duty analysis (JDA)
CGA	Competence GAP Analysis (CGA)

LTE/SAE in Nutshell

LZU1087417 R1A

Description

Do you want to know what LTE/SAE is all about. This eLearning course will give you on overview on end user experience of Long Term Evolution (LTE) in terms of services and applications, speed and capacity as well as network setup. The course will also highlight the mobile technology evolution. The course content is a simple explanation of the next generation technology with a focus on a non technical target audience.

Learning objectives

On completion of this course the participants will be able to:

1 What is LTE/SAE?
2 How fast is LTE?
3 What is included in the Mobile Technology Evolution?
4 What is the end user experience?
5 What are possible services and application?
6 What is the speed and capacity?
7 Is it better than 3G?
8 How much does it cost?
9 Do I need a new phone?
10 Is the coverage and mobility better then today?
11 How does LTE/SAE work?
12 Which Frequencies are used?
13 Which nodes are included in the Radio Network?
14 Which nodes are included in the Core Network?
15 What is the meaning of the typical LTE related abbreviations?

Target audience

The target audience for this course is:

System Technicians,
Service Technicians,
Field Technicians,
System Administrators,
Application Developers,
Business Developers,
Customer Care Administrators.
The main focus of this course is on non techical personnel.

Prerequisites

Successful completion of the following courses:

None

Duration and class size

The length of the course is 1 hour.

Learning situation

This is a web-based interactive training course with multimedia content.

LTE/SAE System Overview

LZU1087020 R5A

Description

If you want to know what LTE/SAE (Long Term Evolution / System Architecture Evolution) is, this course will give you an overview of the new radio technology and protocols involved in the E-UTRAN (Evolved UTRAN, also referred to as LTE) and the architecture behind EPC (Evolved Packet Core, also referred to as SAE – System Architecture Evolution). The course also provides descriptions of the CPP hardware platform, operation and maintenance and RBS hardware.

Learning objectives

On completion of this course the participants will be able to:

1 Explain the background and architecture of E-UTRAN and EPC
1.1 Describe the evolution of cellular networks
1.2 Summarize the evolution of 3GPP releases, from release 99 to release 8
1.3 Explain the logical architecture of EPS (E-UTRAN and EPC)
1.4 Give an overview of the QoS framework

2 Describe the EPC Architecture
2.1 Describe the interfaces in EPS
2.2 Describe the Evolved Packet Core (EPC)
2.3 Describe the role of the MME, S-GW and PDN-GW
2.4 Describe the S1 (and X2) protocol stacks
2.5 Explain the interaction with IMS on an overview level

3 Describe the E-UTRAN principles
3.1 List the radio interface protocols
3.2 Describe the radio interface techniques used in uplink and downlink
3.3 Describe the channel structure of the radio interface
3.4 Explain the OFDM principle and benefits
3.5 Detail the reference symbols in UL & DL
3.6 Describe the basic principles of MIMO
3.7 Describe the RBS hardware in LTE

4 Describe O&M (Operation and Maintenance) for EPS
4.1 Describe the impact of EPC on the Ericsson OSS-RC
4.2 Explain the concepts related to Smart Simplicity, Self Organizing Networks (SON), RBS Autointegration, Automated Neighbor Relations (ANR)
4.3 Describe the overall role and function of OSS-RC

Target audience

The target audience for this course is:

Network Engineer, Service Engineer, Service Design Engineer, Network Design Engineer.

Prerequisites

A general knowledge in cellular systems and radio technology.

Duration and class size

The length of the course is 2 days and the maximum number of participants is 16.

Learning situation

This course is based on theoretical instructor-led lessons and theoretical exercises given in a classroom environment.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction, LTE/SAE Introduction	3
	EPC Architecture	3
2	Radio Interface principles	3
	Operation and Maintenance and RBS HW	3

LTE/SAE– System Overview, WBL

LZU 108 7318 R2A

Description

If you want to know what LTE/SAE (Long Term Evolution / System Architecture Evolution) is, this course will give you an overview of the new radio technology and protocols involved in the E-UTRAN (Evolved UTRAN, also referred to as LTE) and the architecture behind EPC (Evolved Packet Core, also referred to as SAE – System Architecture Evolution).

Learning objectives

On completion of this course the participants will be able to:

1 Explain the background and architecture of E-UTRAN and EPC
1.1 Describe the evolution of cellular networks
1.2 Summarize the evolution of 3GPP releases
1.3 Describe the flexible spectrum usage

2 Describe the EPS Architecture
2.1 Explain the logical architecture of EPS (E-UTRAN and EPC)
2.2 Give an overview of the interfaces in EPS
2.3 Describe the radio interface techniques
2.4 Explain the difference between the FDD and TDD mode
2.5 Detail the terminal states
2.6 Describe the Evolved Packet Core
2.7 Describe the role of the MME and the S-GW
2.8 Detail the S1 and X2 interfaces and their protocol stacks

3 Describe the Air Interface
3.1 Explain the radio interface structure
3.2 Detail the channel structure of the radio interface
3.3 Describe the physical signals in UL and DL
3.4 Detail the time-domain structure in the radio interface in UL and DL for both FDD and TDD mode
3.5 Detail the downlink transmission technique
3.6 Have a good understanding of the OFDM principle, signal generation and processing
3.7 Detail the reference symbols in DL
3.8 Detail the control signaling in DL
3.9 Detail the uplink transmission technique
3.10 Have a good understanding of the SC-FDMA principle, signal generation and processing

3.11 Explain the pros and cons with OFDM and SC-FDMA
3.12 Detail the control signaling in UL
3.13 Describe the concepts of layers, channel rank, spatial multiplexing, SU-MIMO and MU-MIMO
3.14 Detail the Radio Resource Management and Mobility
3.15 Describe the Radio Resource Management
3.16 Describe UL and DL scheduling and signaling
3.17 Explain the concepts of dynamic and persistent scheduling
3.18 Describe LTE Mobility
3.19 Describe intra-LTE mobility in ECM_CONNECTED and ECM_IDLE mode
3.20 Explain inter-working with 2G/3G

Target audience

The target audience for this course is:

Network Engineer
Service Engineer
Service Design Engineer
Network Design Engineer

Prerequisites

Successful completion of the following courses:

A general knowledge in cellular systems and radio technology.

Duration and class size

The length of the course is 3 hours.

Learning situation

This is a web-based interactive training course with multimedia content

RBS 6000 in a Nutshell

LZU1087504 R1A

Description

This WBL course is intended to give the participant an overview of the RBS 6000 series. Are you interested in the latest RBS technology from Ericsson. The RBS 6000 Overview course will guide you thought the concept and explain you the main benefits of the new architectures. You will learn how the multi-standard concept is implemented, more room for expansion is generated and how you can lower the power consumption of your network for greater sustainability.

Learning objectives

On completion of this course the participants will be able to:

1 Describe on an overview level the RBS 6000 Platform

2 Describe the generic building and form structure used in RBS 6000

3 Describe on an overview level the building practice

4 Explain the advantages of multi-standard RBS

5 Describe how more room for expansions is generated

6 Compare the power consumption of a RBS 6000 to today's technologies

7 Understand how WCDMA is implemented in the RBS 6000
7.1 Describe on block level which boards and units gives the WCDMA Functionality

8 Understand how LTE is implemented in the RBS 6000
8.1 Describe on block level which boards and units gives the LTE Functionality

9 Understand how GSM is implemented in the RBS 6000
9.1 Describe on block level which boards and units gives the GSM Functionality

Target audience

The target audience for this course is:

System Technician
Service Technician
System Engineers

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Service Engineers

Prerequisites

The participants should be familiar with the WCDMA, GSM and LTE on overview level.

Duration and class size

The length of the course is 1 hour.

Learning situation

This is a web-based interactive training course with multimedia content.

Ericsson WCDMA System Overview

LZU1085418 R13A

Description

Do you need to understand what 3rd generation systems are all about? Do you get lost when people talk about Wideband Code Division Multiple Access (WCDMA) system? This course explains the purpose of the WCDMA Core, Radio, and Service Network Elements together with the standardization of the WCDMA access network. In addition, the participants will learn how Ericsson's mobile core network solution connects to external networks such as WCDMA Radio Access Networks, PSTN Networks, PABXs, IMS/VoIP networks or other Mobile Networks. The focus is on general principles rather than specific technical details.

Learning objectives

On completion of this course the participants will be able to:

1 Detail the nodes and interface in WCDMA Network

1.1 Explain the idea of the converged industries and the layered core network
1.2 Present the 3GPP network model, and Ericsson network
1.3 Explain on overview level the functionality of each node and its architecture
1.4 Show some statistics about WCDMA today and the market trend related to technology

2 Understand the standardization bodies involved in 3rd generation

2.1 Distinguish the Standardization bodies involved in the WCDMA Systems
2.2 Give in own words why standards are important in Telecommunications
2.3 Acknowledge what standardization bodies are, and what are their functions
2.4 Express the concept of full duplex communication, and FDD.
2.5 State the frequency bands and systems chosen for the different areas

3 Explain on an overview level the Ericsson Mobile Core Network Solution

3.1 Explain on an overview level the architecture of the mobile core network
3.2 Describe the Mobile Softswitch Solution
3.3 Detail the architecture and functions of the MSC-Server and M-MGW
3.4 Describe the two nodes involved in the P.S, domain of the core network
3.5 Recall the transport domain, and the various transport technologies used
3.6 Describe interconnections and protocols in the C.S. and P.S. Domains
3.7 Identify the function of the main database nodes
3.8 Explain basic traffic cases in the Mobile Softswitch Solution

4 Explain the 3rd Generation Radio Access Network

4.1 Explain various access techniques
4.2 State the coding types used in WCDMA, and how they prevent interference in the uplink and downlink
4.3 Recognize the Importance of power control
4.4 List the different handover scenarios in terms of soft, softer and hard handover
4.5 Acknowledge the architecture of the Ericsson RAN Nodes RNC and RBS
4.6 Identify the basic principles of HSDPA and EUL

5 Detail the Network Services involved in WCDMA
5.1 Acknowledge the functions of the service layer
5.2 Detail various terminal technologies and platforms used
5.3 Identify the difference between Applications and enablers, and detail some of the more common enablers
5.4 Explain Mobile Positioning, MMS and Messaging Over IP
5.5 Acknowledge the architecture and operation of the IP Multimedia Subsystem (IMS)

Target audience

The target audience for this course is:

Service Planning Engineer, Service Design Engineer, Network Design Engineer, Network Deployment Engineer, Service Deployment Engineer, System Technician, Service Technician, Service Engineer, Field Technician, System Administrator, Application Developer

Prerequisites

Successful completion of the following courses:

The participants should be familiar with general telecom technologies.

Duration and class size

The length of the course is 2 days and the maximum number of participants is 16.

Learning situation

This course is based on theoretical instructor-led lessons given in a classroom environment.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Network Introduction	1
	Standardization	1
	Mobile Core Network Solution	4
2	Circuit Switched and Packet Switched traffic cases	1
	WCDMA Radio Access Network Technology	4
	Service Network and IP Multimedia	1

GSM RBS 6102 Field Maintenance

LZU1087643 R3A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6102 standard node with RUG 11 or RUS 01/02 type (optional radio units for hybrid configuration such as RRUS 01, RRUS 02, RRUS 12, AIR 11 and AIR 21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6102 type on BSS level of software release base on 1 type of radio unit. On completion of this course the participants will also be familiar with the features of the Operation and Maintenance Tool, OMT.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the GSM RAN Site Concept for RBS
1.1 Explain the basic GSM Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6102 nodes
2.1 Explain RBS 6102 Main features
2.2 Explain the RBS 6102 Hardware architecture
2.3 Identify the RBS 6102 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6102
2.7 Understand the RBS 6102 Maintenance procedures
2.8 Explain RBS 6102 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI

3.5 Know that different tool kits exists and how to order the Tool Kits

4 Use the Operation Maintenance Terminal (OMT)

4.1 Install and start the Operation Maintenance Terminal.
4.2 Understand Remote OMT (R-OMT) over IP
4.3 Understand the Managed Object (MO) for G12 Model
4.4 Install and start the Operation & Maintenance Terminal, OMT
4.5 Access and use the different Views; System, Cabinet, Radio and Object
4.6 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log.
4.7 Access the property help feature from each window.

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

GSM System Survey, LZU108852
RBS 6000 Overview, LZU1087503

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.5
	GSM RAN Systems and Site Introduction	0.5
	GSM RBS 6102 Maintenance	3.0
	Customer Product Information and Tool Kits	0.5
	Operation and Maintenance Terminal	1.5

GSM RBS 6201 Field Maintenance

LZU1087646 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6201 standard node with RUG11 or RUS 01/02 type (optional radio units for hybrid configuration such as RRUS 01, RRUS 02, RRUS 12, AIR 11 and AIR 21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6201 type on BSS level of software release base on 1 type of radio unit. On completion of this course the participants will also be familiar with the features of the Operation and Maintenance Tool, OMT.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the GSM RAN Site Concept for RBS
1.1 Explain the basic GSM Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6201 nodes
2.1 Explain RBS 6201 Main features
2.2 Explain the RBS 6201 Hardware architecture
2.3 Identify the RBS 6201 Connection interfaces
2.4 Explain DUG Hardware architecture
2.5 Identify the DUG connection Interfaces
2.6 Explain the Battery Backup System 6201
2.7 Understand the RBS 6201 Maintenance procedures
2.8 Explain RBS 6201 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Use the Operation Maintenance Terminal (OMT)

4.1 Identify the OMT Kit and what it consists
4.2 Understand Remote OMT (R-OMT) over IP
4.3 Understand the Managed Object (MO) for G12 Model
4.4 Install and start the Operation & Maintenance Terminal, OMT
4.5 Access and use the different Views; System, Cabinet, Radio and Object
4.6 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
4.7 Access the property help feature from each window

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

GSM System Survey, LZU108852
RBS 6000 Overview, LZU1087503

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.5
	GSM RAN Systems and Site Introduction	0.5
	GSM RBS 6201 Maintenance	3
	Customer Product Information and Tool Kits	0.5
	Operation and Maintenance Terminal	1.5

GSM RBS 6202 Field Maintenance

LZU1088284 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6202 standard node with RUG11 or RUS 01/02 type (optional radio units for hybrid configuration such as RRUS 01, RRUS 02, RRUS 12, AIR 11 and AIR 21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6202 type on BSS level of software release base on 1 type of radio unit. On completion of this course the participants will also be familiar with the features of the Operation and Maintenance Tool, OMT.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the GSM RAN Site Concept for RBS
1.1 Explain the basic GSM Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Units
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6202 nodes
2.1 Explain RBS 6202 Main features
2.2 Explain the RBS 6202 Hardware architecture
2.3 Identify the RBS 6202 Connection interfaces
2.4 Explain DUG Hardware architecture
2.5 Identify the DUG connection Interfaces
2.6 Explain the Battery Backup System 6202
2.7 Understand the RBS 6202 Maintenance procedures
2.8 Explain RBS 6202 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI

3.5 Know the different tool kits exist and how to order the Tool Kits

4 Use the Operation Maintenance Terminal (OMT)

4.1 Identify the OMT Kit and what it consists
4.2 Understand Remote OMT (R-OMT) over IP
4.3 Understand the Managed Object (MO) for G12 Model
4.4 Install and start the Operation & Maintenance Terminal, OMT
4.5 Access and use the different Views; System, Cabinet, Radio and Object
4.6 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log.
4.7 Access the property help feature from each window.

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

GSM Systems Survey, LZU108852
RBS 6000 Overview, LZU1087503

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.5
	GSM RAN Systems and Site Introduction	0.5
	GSM RBS 6202 Maintenance	3
	Customer Product Information and Tool Kits	0.5
	Operation and Maintenance Terminal	1.5

GSM RBS 6301 Field Maintenance

LZU1087891 R3A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6301 standard node with RRUS 01 (optional radio units for hybrid configuration such as RRUS 02, RRUS 12 and AIR are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6301 type on BSS level of software release base on 1 type of radio unit. On completion of this course the participants will also be familiar with the features of the Operation and Maintenance Tool, OMT.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the GSM RAN Site Concept for RBS
1.1 Explain the basic GSM Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6301 nodes
2.1 Explain RBS 6301 Main features
2.2 Explain the RBS 6301 Hardware architecture
2.3 Identify the RBS 6301 Connection interfaces
2.4 Explain DUG Hardware architecture
2.5 Identify the DUG connection Interfaces
2.6 Explain the Antenna Integrated Radio Unit
2.7 Understand the RBS 6301 Maintenance procedures
2.8 Explain RBS 6301 Handling faulty equipment

3 Use the Customer Product Information (CPI)
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know that different tool kits exists and how to order the tool kits

4 Use the Operation Maintenance Terminal (OMT)

4.1 Identify the OMT Kit and what it consists
4.2 Understand Remote OMT (R-OMT) over IP
4.3 Understand the Managed Object (MO) for G12 Model
4.4 Install and start the Operation & Maintenance Terminal, OMT
4.5 Access and use the different Views; System, Cabinet, Radio and Object
4.6 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log.
4.7 Access the property help feature from each window.

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

GSM System Survey, LZU108852
RBS 6000 Overview, LZU1087503

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.5
	GSM RAN Systems and Site Introduction	0.5
	GSM RBS 6301 Maintenance	3,5
	Customer Product Information and Tool Kits	0.5
	Operation and Maintenance Terminal	1

GSM RBS 6601 Field Maintenance

LZU1087674 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6601 standard node with RRUS 01 type (optional radio units for hybrid configuration such as RRUS 02, RRUS 12, AIR 11 and AIR 21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6601 type on BSS level of software release base on 1 type of radio unit. On completion of this course the participants will also be familiar with the features of the Operation and Maintenance Tool, OMT.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the GSM RAN Site Concept for RBS
1.1 Explain the basic GSM Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6601 nodes
2.1 Explain RBS 6601 Main features
2.2 Explain the RBS 6601 Hardware architecture
2.3 Identify the RBS 6601 Connection interfaces
2.4 Explain DUG Hardware architecture
2.5 Identify the DUG connection Interfaces
2.6 Explain the Battery Backup System 6601
2.7 Understand the RBS 6601 Maintenance procedures
2.8 Explain RBS 6601 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know that different tool kits exists and how to order the tool kits

4 Use the Operation Maintenance Terminal (OMT)

4.1 Install and start the Operation Maintenance Terminal.
4.2 Understand Remote OMT (R-OMT) over IP
4.3 Understand the Managed Object (MO) for G12 Model
4.4 Install and start the Operation & Maintenance Terminal, OMT
4.5 Access and use the different Views; System, Cabinet, Radio and Object
4.6 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log.
4.7 Access the property help feature from each window.

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

GSM System Survey, LZU108852
RBS 6000 Overview, LZU1087503

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.5
	GSM RAN Systems and Site Introduction	0.5
	GSM RBS 6601 Maintenance	3.0
	Customer Product Information and Tool Kits	0.5
	Operation and Maintenance Terminal	1.5

LTE RBS 6101 Field Maintenance

LZU1087896 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6101 standard node with RUL and RUS 01/02 type (optional radio units for hybrid configuration such as RRUL 11, RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6101 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6101 nodes
2.1 Explain RBS 6101 Main features
2.2 Explain the RBS 6101 Hardware architecture
2.3 Identify the RBS 6101 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System 6101
2.7 Understand the RBS 6101 Maintenance procedures
2.8 Explain RBS 6101 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6101 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

LTE RBS 6102 Field Maintenance

LZU1087645 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6102 standard node with RUL and RUS 01/02 type (optional radio units for hybrid configuration such as RRUL 11, RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6102 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6102 nodes
2.1 Explain RBS 6102 Main features
2.2 Explain the RBS 6102 Hardware architecture
2.3 Identify the RBS 6102 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System 6102
2.7 Understand the RBS 6102 Maintenance procedures
2.8 Explain RBS 6102 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6102 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

LTE RBS 6201 Field Maintenance

LZU1087648 R5A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6201 standard node with RUL and RUS 01/02 type (optional radio units for hybrid configuration such as RRUL 11, RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6201 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6201 nodes
2.1 Explain RBS 6201 Main features
2.2 Explain the RBS 6201 Hardware architecture
2.3 Identify the RBS 6201 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System 6201
2.7 Understand the RBS 6201 Maintenance procedures
2.8 Explain RBS 6201 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4

5 Connect to a node using COLI and also using NCLI

5.1 Understand basic commands using COLI and using NCLI
5.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
5.3 Understand the basic principles behind the Managed Object Model (MOM)
5.4 Understand the file system in a CPP based node
5.5 Investigate the purpose and the location of the various types of logs.

6 Use the Element Manager

6.1 Download and start the Element Manager
6.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
6.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
6.4 Access the property help feature from each window
6.5 Create a Customized View (User Defined) in Element Manager
6.6 Handling License Key Files, LKF
6.7 Explain how to format the node
6.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6201 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

LTE RBS 6202 Field Maintenance

LZU1088285 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6202 standard node with RUL and RUS 01/02 type (optional radio units for hybrid configuration such as RRUL 11, RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6202 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6202 nodes
2.1 Explain RBS 6202 Main features
2.2 Explain the RBS 6202 Hardware architecture
2.3 Identify the RBS 6202 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System PBC 6200
2.7 Understand the RBS 6202 Maintenance procedures
2.8 Explain RBS 6202 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6202 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

LTE RBS 6301 Field Maintenance

LZU1087893 R3A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6301 standard node with RRUL 11 type (optional radio units for hybrid configuration such as RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6301 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6301 nodes
2.1 Explain RBS 6301 Main features
2.2 Explain the RBS 6301 Hardware architecture
2.3 Identify the RBS 6301 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System for RBS 6301
2.7 Understand the RBS 6301 Maintenance procedures
2.8 Explain RBS 6301 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6301 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

LTE RBS 6401 Field Maintenance

LZU1089575 R1A

Description

This course is a task-based maintenance course where participants will understand the functions of the RBS 6401, it's optional units and learn how to handle RBS faults at site. During this activity, participants will also get familiar with the use of the ALEX documents (or Customer Product Information) to handle faulty equipment and perform correct procedure in replacing the hardware.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Explain the basic heterogeneous network
1.4 Advantages and benefits of heterogeneous network
1.5 Understand the concepts of Small Cell Sites

2 Perform maintenance tasks on the RBS 6401 nodes
2.1 Explain RBS 6401 Main features and optional equipment
2.2 Explain the RBS 6401 Hardware architecture
2.3 Identify the RBS 6401 Connection interfaces
2.4 Understand the role of the IPG 6440
2.5 Understand the RBS 6401 Maintenance procedures
2.6 Explain RBS 6401 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Handling Fault on-site
4.1 Understand how to isolate and correct common malfunctions of RBS 6401
4.2 Know the behavior of the indicators
4.3 Perform restart of the RBS 6401

ERICSSON

4.4 Perform RBS 6401 replacement
4.5 Have a basic understanding of the Ericsson Node Integration Scanner (ENIS)

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089120
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 days and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	RBS 6401 components	0.75
	LTE RBS 6601 Maintenance	2
	Customer Product Information (CPI) and Tool Kits	0.5
	Handling fault 0n-site	2

LTE RBS 6601 Field Maintenance

LZU1087890 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6601 standard node with RRUL 11 type (optional radio units for hybrid configuration such as RRUS 01, RRUS 02, RRUS 11, RRUS 12, RRUS 61, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6601 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the LTE RAN Site Concept for RBS
1.1 Explain the basic LTE Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6601 nodes
2.1 Explain RBS 6601 Main features
2.2 Explain the RBS 6601 Hardware architecture
2.3 Identify the RBS 6601 Connection interfaces
2.4 Explain DUL Hardware architecture
2.5 Identify the DUL connection Interfaces
2.6 Explain the Battery Backup System for RBS 6601
2.7 Understand the RBS 6601 Maintenance procedures
2.8 Explain RBS 6601 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

LTE/SAE System Overview, LZU1087020
RBS 6000 Overview, LZU1087503
LTE L13 Air Interface (optional), LZU1089102
Or
LTE/SAE - System Overview (WBL), LZU1087318
RBS 6000 in a Nutshell, LZU1087504

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	LTE RAN Systems and Site Introduction	0.5
	LTE RBS 6601 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

RBS 6000 Overview

LZU1087503 R5A

Description

The new RBS 6000 product family is the compact multi standard base stations used in GSM, WCDMA and LTE networks. The focus of this course is to cover all RBS models used by Ericsson in the current market. We will explain the RBS 6000 units, block diagram, technical specifications and optional units. Installation, operation and maintenance procedures will be briefly described.

Learning objectives

On completion of this course the participants will be able to:

1 Recognize and identify the main components of Radio Access Network, RBS Site Solutions and RBS 6000 basic functions

1.1 Give a high level overview on the GSM, WCDMA and LTE Network nodes
1.2 Introduce the RBS 6000 family
1.3 Discuss the migration and substitution scenarios
1.4 Describe the indoor and outdoor site support portfolio
1.5 Describe Distribution Frame (DF), Antenna near parts such as Tower Mounted Amplifier (TMA) and Remote Electrical Tilt Unit (RETU)

2 Describe on an overview level the RBS 6000 Platform and understand how Radio Access for various radio technologies is implemented in the RBS 6000

2.1 Understand the RBS 6000 Full Freedom, Hybrid Concept and the Unit migration
2.2 Describe the single, multi standard and mixed mode in RBS 6000
2.3 Describe on block level the Digital Unit and Radio Unit for GSM, WCDMA and LTE
2.4 Understand how CDMA is now added into RBS 6000
2.5 Understand the Transport Units such as the Site Integration Unit (SIU), Transport Connectivity Unit (TCU) and Indoor Pico Gateway (IPG 6440)

3 Detail the RBS 6000 portfolio for compact macro, full-size macro, main-remote and micro/Pico RBS

3.1 Describe the full size macro base station RBS 6102
3.2 Describe the compact outdoor macro base station RBS 6101
3.3 Describe the full size macro base station RBS 6201
3.4 Describe the compact indoor macro base station RBS 6202
3.5 Describe the compact main-remote base station RBS 6601 with Remote Radio Units (RRU) and Antenna Integrated Radio (AIR)

3.6 Describe the compact main-remote base station RBS 6301 and 6302
3.7 Describe the micro RBS 6501 and Pico RBS 6401
3.8 Understand the site power for all RBS 6000

4 Outline the main Operation and Maintenance tools for RBS 6000
4.1 Understand HyperTerminal used as Command Line Interface, (COLI)
4.2 Understand Node Command Line Interface, (NCLI)
4.3 Understand the web browser Element Manager, (EM)
4.4 Understand the Operation and Maintenance Terminal, (OMT)

Target audience

The target audience for this course is:

System Engineer

Prerequisites

Successful completion of the following courses:

GSM System Survey, LZU108852
Ericsson WCDMA System Overview, LZU1085418
LTE/SAE - System Overview, LZU1087020
Or
GSM Radio Network Overview (WBL), LZU1086235
WCDMA RAN Overview (WBL), LZU1085202
LTE/SAE in Nutshell (WBL), LZU1087417
RBS 6000 in a Nutshell (WBL), LZU1087504

Duration and class size

The length of the course is 1 day and and the maximum number of participants is 16.

Learning situation

This course is based on theoretical instructor-led lessons given in a classroom environment.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Introduction	0.5
	Radio Access Network, RBS Site Solutions and RBS 6000 basic functions	1
	RBS 6000 Platform	1
	RBS 6102/6101	0.5
	RBS 6201/6202	0.5
	RBS 6601/6301	0.5
	RRUW / RRUS 01	0.25
	RRUS 11 / RRUS 61	0.25
	RRUS 02 / RRUS 12	0.25
	mRRUS 12 / AIR 11&21	0.25
	RBS 6301/6501/6401	0.5
	Site Power	0.5

WCDMA RBS 6101 Field Maintenance

LZU1087895 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6101 standard node with RUW 01/02 and RUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 01, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6101 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6101 nodes
2.1 Explain RBS 6101 Main features
2.2 Explain the RBS 6101 Hardware architecture
2.3 Identify the RBS 6101 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6101
2.7 Understand the RBS 6101 Maintenance procedures
2.8 Explain RBS 6101 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Handling License Key Files, LKF
5.6 Explain how to format the node
5.7 Explain how to load the basic package software
5.8 Have a basic understanding of system upgrade
5.9 Explain backup handling

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	WCDMA RAN Systems and Site Introduction	0.5
	WCDMA RBS 6101 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

WCDMA RBS 6102 Field Maintenance

LZU1087644 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6102 standard node with RUW 01/02 and RUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 01, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6102 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6102 nodes
2.1 Explain RBS 6102 Main features
2.2 Explain the RBS 6102 Hardware architecture
2.3 Identify the RBS 6102 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6102
2.7 Understand the RBS 6102 Maintenance procedures
2.8 Explain RBS 6102 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Handling License Key Files, LKF
5.6 Explain how to format the node
5.7 Explain how to load the basic package software
5.8 Have a basic understanding of system upgrade
5.9 Explain backup handling

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	WCDMA RAN Systems and Site Introduction	0.5
	WCDMA RBS 6102 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

WCDMA RBS 6201 Field Maintenance

LZU1087647 R6A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6201 standard node with RUW 01/02 and RUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 01, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6201 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6201 nodes
2.1 Explain RBS 6201 Main features
2.2 Explain the RBS 6201 Hardware architecture
2.3 Identify the RBS 6201 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6201
2.7 Understand the RBS 6201 Maintenance procedures
2.8 Explain RBS 6201 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Handling License Key Files, LKF
5.6 Explain how to format the node
5.7 Explain how to load the basic package software
5.8 Have a basic understanding of system upgrade
5.9 Explain backup handling

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	WCDMA RAN Systems and Site Introduction	0.5
	WCDMA RBS 6201 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

WCDMA RBS 6202 Field Maintenance

LZU1088278 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6202 standard node with RUW 01/02 and RUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 01, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/12 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6202 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio
1.3 Identify the RBS 6000 Support System, Radio Modules and Digital Units
1.4 Understand RBS 6000 Building Block and Hybrid configuration
1.5 Identify the Antenna System Controller, ASC
1.6 Identify and locate the Remote Electrical Tilt Unit, RETU

2 Perform maintenance and configuration tasks on the RBS 6202 nodes
2.1 Explain RBS 6202 Main features
2.2 Explain the RBS 6202 Hardware architecture
2.3 Identify the RBS 6202 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6202
2.7 Understand the RBS 6202 Maintenance procedures
2.8 Explain RBS 6202 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know that different tool kits exists and how to order the Tool Kits.

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and the location of the various types of logs.

5 Use the Element Manager
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Handling License Key Files, LKF
5.6 Explain how to format the node
5.7 Explain how to load the basic package software
5.8 Have a basic understanding of system upgrade
5.9 Explain backup handling

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	0.25
	WCDMA RAN Systems and Site Introduction	0.5
	WCDMA RBS 6202 Maintenance	3
	Customer Product Information and Tool Kits	0.25
	Command Line Interface/Node Command Line Interface	1
	Element Manager	1

WCDMA RBS 6301 Field Maintenance

LZU1087892 R3A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6301 standard node with RRUS 01 type (optional radio units for hybrid configuration such as RRUW, RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6301 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6301 nodes
2.1 Explain RBS 6301 Main features
2.2 Explain the RBS 6301 Hardware architecture
2.3 Identify the RBS 6301 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the DUW connection Interfaces
2.6 Explain the Battery Backup System 6301
2.7 Understand the RBS 6301 Maintenance procedures
2.8 Explain RBS 6301 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and location of various types of logs

5 Use the Element manager (EM)
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	15 minutes
	WCDMA RBS 6301 Maintenance	3 hours
	WCDMA RAN Systems and Site Introduction	0.5 hour
	Customer Product Information and tool kits	15 minutes
	Command Line Interface/Node Command Line Interface	1 hour
	Element Manager	1 hour

WCDMA RBS 6302 Field Maintenance

LZU1088932 R3A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6302 standard node with RRUW/RRUS 01 type (optional radio units for hybrid configuration such as RRUS 02, RRUS 11, RRUS 12, mRRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6302 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6302 nodes
2.1 Explain RBS 6302 Main features
2.2 Explain the RBS 6302 Hardware architecture
2.3 Identify the RBS 6302 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the MU connection Interfaces
2.6 Explain the Battery Backup System 6302
2.7 Understand the RBS 6302 Maintenance procedures
2.8 Explain RBS 6302 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and location of various types of logs

5 Use the Element manager (EM)
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	15 minutes
	WCDMA RBS 6302 Maintenance	3 hours
	WCDMA RAN Systems and Site Introduction	0.5 hour
	Customer Product Information and tool kits	15 minutes
	Command Line Interface/Node Command Line Interface	1 hour
	Element Manager	1 hour

WCDMA RBS 6401 Field Maintenance

LZU1089576 R1A

Description

This course is a task-based maintenance course where participants will understand the functions of the RBS 6401, it's optional units and learn how to handle RBS faults at site. During this activity, participants will also get familiar with the use of the ALEX documents (or Customer Product Information) to handle faulty equipment and perform correct procedure in replacing the hardware.

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Explain the basic heterogeneous network
1.4 Advantages and benefits of heterogeneous network
1.5 Understand the concepts of Small Cell Sites

2 Perform maintenance tasks on the RBS 6401 nodes
2.1 Explain RBS 6401 Main features and optional equipment
2.2 Explain the RBS 6401 Hardware architecture
2.3 Identify the RBS 6401 Connection interfaces
2.4 Understand the role of the IPG 6440
2.5 Understand the RBS 6401 Maintenance procedures
2.6 Explain RBS 6401 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Handling Fault on-site
4.1 Understand how to isolate and correct common malfunctions of RBS 6401
4.2 Know the behavior of the indicators
4.3 Perform restart of the RBS 6401

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4.4 Perform RBS 6401 replacement
4.5 Have a basic understanding of the Ericsson Node Integration Scanner (ENIS)

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503 or RBS 6000 in a Nutshell, LZU1087504
CPP Node Features and Functions, LZU1086116
WCDMA W13 Air Interface (optional), LZU1089117

Duration and class size

The length of the course is 1 days and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course introduction	0.25
	WCDMA RAN Systems and Site Introduction	0.5
	RBS 6401 components	0.75
	WCDMA RBS 6601 Maintenance	2
	Customer Product Information (CPI) and Tool Kits	0.5
	Handling Fault on- site	2

WCDMA RBS 6601 Field Maintenance

LZU1087675 R4A

Description

This course is a task-based course covering hardware replacement and maintenance of the RBS 6601 standard node with RRUW/RRUS 01 type (optional radio units for hybrid configuration such as RRUS 02, RRUS 11, RRUS 12 and AIR 11/21 are available in the Appendix). The participants will perform hardware fault localization, hardware replacement and configuration tasks on a RBS 6601 type. On completion of this course the participants will also be familiar with the features of the operation and maintenance tools such as Element Manager (EM), COmmand Line Interface (COLI) and Node Command line Interface (NCLI).

Learning objectives

On completion of this course the participants will be able to:

1 Explain on overview level the WCDMA RAN Site Concept for RBS
1.1 Explain the basic WCDMA Radio Access Network
1.2 Outline the RBS 6000 portfolio and Support System
1.3 Understand RBS 6000 Building Block and Hybrid configuration
1.4 Identify the Distribution Frame (DF) and the Site Support Unit
1.5 Identify the Antenna System Controller, (ASC) and the Remote Electrical Tilt Unit, (RETU)

2 Perform maintenance and configuration tasks on the RBS 6601 nodes
2.1 Explain RBS 6601 Main features
2.2 Explain the RBS 6601 Hardware architecture
2.3 Identify the RBS 6601 Connection interfaces
2.4 Explain DUW Hardware architecture
2.5 Identify the MU connection Interfaces
2.6 Explain the Battery Backup System 6601
2.7 Understand the RBS 6601 Maintenance procedures
2.8 Explain RBS 6601 Handling faulty equipment

3 Use the Customer Product Information (CPI) and Tool Kits
3.1 Explain the CPI Library structure of the node
3.2 Find information in the CPI Library with use of regular expression
3.3 Find operational instructions (OPI) and maintain the node according to the OPI
3.4 Find additional information on an alarm and solve the problem with the help of the

CPI
3.5 Know the different tool kits exist and how to order the Tool Kits

4 Connect to a node using COLI and also using NCLI
4.1 Understand basic commands using COLI and using NCLI
4.2 Have a basic understanding of the functionality and technology used in COLI and NCLI
4.3 Understand the basic principles behind the Managed Object Model (MOM)
4.4 Understand the file system in a CPP based node
4.5 Investigate the purpose and location of various types of logs

5 Use the Element manager (EM)
5.1 Download and start the Element Manager
5.2 Access and use the different “Views”; Containment, ATM, Equipment, IP, Licensing, Radio Network and the Software.
5.3 Find the alarm list and comment on the Alarms and Events on the Alarm and Event Log
5.4 Access the property help feature from each window
5.5 Create a Customized View (User Defined) in Element Manager
5.6 Handling License Key Files, LKF
5.7 Explain how to format the node
5.8 Explain how to load the basic package software

Target audience

The target audience for this course is:

Field Technician

Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview, LZU1085418
RBS 6000 Overview, LZU1087503
CPP Node Features and Functions, LZU1086116
WCDMA W12 Air Interface (optional), LZU1088640

Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both

classroom and in a technical environment using equipment and tools.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated Time (hours)
1	Course Introduction	15 minutes
	WCDMA RBS 6601 Maintenance	3 hours
	WCDMA RAN Systems and Site Introduction	0.5 hour
	Customer Product Information and tool kits	15 minutes
	Command Line Interface/Node Command Line Interface	1 hour
	Element Manager	1 hour