LEARNING SERVICES

Broadband Access Nodes 2012
Training Programs

Catalog of Course Descriptions

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Catalog of Course Descriptions

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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)
	eLearning (WBL)

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IP Overview & Fundamentals

LZU 108 8538 R1A

Description

This course contains of two parts: Overview and Fundamentals. Both ends with knowledge assessments.

The first part gives an introduction into IP. It gives a short historic perspective. It explains the business drivers behind IP, how the networks are evolving to "all-IP", and how IP packet networks are different from circuit based telephony networks.

The second part is made for people who want more technical detail. Fundamentals presents the main concepts behind the IP protocol.

Learning objectives

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

1 Learn about the business drivers for IP
2 Learn about the historical background
3 Learn about how the industry is going towards all-IP
4 Learn about packet switching versus circuit switching
5 Understand what is TCP/IP
6 Know the IPv4 Packet Structure
7 Know the IPv4 Address Schema
8 Know about classless IP addressing
9 Learn about the life of an IP Packet

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisties for this course

Duration and class size

The length of the course is appr. 1 hour

Learning situation

This is a self-paced web-based course

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	Business drivers for IP Historical background of IP How is the industry going towards all-IP? Packet switching versus circuit switching approach What is IP? What id TCP/IP? OSI Model IPv4 Package structure 32-bit address scheme of IPv4 IP addressing	

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IP Routing Overview & Fundamentals

LZU 108 8593 R1A

Description

This course consists of two modules, IP Routing Overview and IP Routing Fundamentals. The IP Routing Overview module describes what IP Routing is, why we use it and how it works. It describes the different types of routing available. It also describes the difference between switching and routing

The IP Routing Fundamentals module describes how IP packets are transmitted in an IP network. Provides information about how Routing Table is populated with route data. The purpose and main functionalities of Dynamic Routing protocols. It also presents techniques to reduce the size of Routing Tables

Learning objectives

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

1 Know the basics of IP routing
2 Describe how IP addresses and subnet masks used
3 Understand the differences between routing and switching
4 Know what routers and routing tables are
5 Compare static versus dynamic routing protocols
6 Understand the difference between interior and exterior routing protocols
7 Describe what IP routing is
8 Understand how IP packets are transmitted
9 Know the purpose and main characteristics of dynamic routing protocols
10 Compare Distance Vector and Link State Advertisement routing protocols
11 Understand the function of a Default Gateway router
12 Define what is Route summarization
13 Tell how does Administrative Distance influence route selection
14 Describe the importance of Convergence Time

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

IP Overview & Fundamentals LZU 108 8538

Duration and class size

The length of the course is appr. 1 hour.

Learning situation

This is a self-paced web based course

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	What is IP Routing IP addressing Routing and Switching Routers and Routing Tables Static versus Dynamic Routing Protocols Interior versus Exterior Routing Protocols Packet Transmission Routing Protocols Default Gateways Summarization Administrative Distance Convergence Time	

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IP-QoS Overview & Fundamentals

LZU 108 8528 R1A

Description

The overview module describes what IP QoS is, why we use it and on a very high-level what are the requirements and how it works. It compares IP QoS to a road network and uses this analogy to explain certain topics. It also describes briefly about DiffServ and QoS marking

The Fundamentals module describes what IP QoS is, why we use it and how it works. It reviews a few concepts related to QoS, including throughput, delay, jitter and loss. It examines how IP Precedence is used and how this evolved to Differentiated Services. It describes the different roles and functions of all components that make up a DiffServ. It also describes congestion avoidance mechanisms and how IP QoS is mapped into layer 2 headers

Learning objectives

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

1 Know why we use QoS

2 Understand congestion avoidance

3 Explain the benefits of QoS to a service provider

4 Identify the benefits of QoS to an end user

5 Understand some typical deployment scenarios

6 Understand why previously used best-effort approach was sufficient but is now unsuitable for triple play services.

7 Revise the concepts of throughput, delay, jitter and loss.

8 Describe Integrated Services.

9 Understand per-hop processing.

10 Understand how IP Precedence is used.

11 Know how IP Precedence evolved to Differentiated Services (DS).

12 Be aware of the different DS components.

13 Explain the different DiffServ functions like classification, marking, policing, queuing and scheduling.

14 Describe how the concept of the Token Bucket works.

15 Identify and explain different congestion avoidance mechanisms like RED and WRED.

16 Understand where the IP QoS marking is mapped into Layer 2 headers

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

IP Overview & Fundamentals	LZU 108 8538
IP Routing Overview & Fundamentals	LZU 108 8593

Duration and class size

The length of the course is appr. 2 hours.

Learning situation

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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	Why QoS Congestion Avoidance Benefits of QoS to the Service Provider Benefits of QoS to the End User Typical Deployment Scenarios Network Requirements Addressing QoS Requirements IP Precedence Differentiated Services DS Components DiffServ Functions Congestion Avoidance IP QoS in Layer 2	

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IS-IS Overview & Fundamentals

LZU 108 8534 R1A

Description

This course consists of two parts: one overview and one fundamentals.
The Overview part provides introduction to the topic on a high level.
It provides a high level introduction to Intermediate System to Intermediate System (IS-IS).
It explains ISIS role in Internet Protocol (IP) and Open Systems Interconnection (OSI) environments.
The Fundamentals part provides the essential information about the topic one must know prior to moving into the more detailed information of the topic.
Fundamentals are addressing the pre-requisite elements of the topic.
The Fundamentals part covers technology background of Intermediate System to Intermediate System (IS-IS) protocol.
It provides the essential information about ISIS.

Learning objectives

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

1 Understanding Intermediate System to Intermediate System (ISIS) role in data networks

2 Understanding key concepts of Intermediate System to Intermediate System (ISIS)

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

IP Overview & Fundamentals	LZU 108 8538
IP Routing Overview & Fundamentals	LZU 108 8593

Duration and class size

The length of the course is appr. 1 hour.

Learning situation

This is a self-pased web based course

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	IS-IS Concepts Link State Database – Building common network view – Creating network topology – Topology of a broadcast network – Calculating best paths Neighbor Discovery Area Concept – Finding way out of L1 area – Suboptimal routing between areas IP Prefix Redistribution into IS-IS OSI addressing schema	

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OSPF Overview & Fundamentals

LZU 108 8536 R1A

Description

This course gives a high level overview of the IP Routing protocol called Open Shortest Path First (OSPF).
It explains the role of this routing protocol in an IP Network.
This course also presents the main concepts behind the IP Routing protocol called Open Shortest Path First (OSPF).

Learning objectives

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

1 Understand the role of OSPF(Open Shortest Path First) in IP networks

2 Understand the main concepts of OSPF

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

IP Overview & Fundamentals	LZU 108 8538
IP Routing Overview & Fundamentals	LZU 108 8593

Duration and class size

The length of the course is appr. 1 hour.

Learning situation

This is a self-paced web based course

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	OSPF Concept Link State Database – Building common network view – Creating network topology – Topology of a broadcast network – Calculating best paths LSA Flooding Introduction to concept of area	Self-paced

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Ethernet Standards

LZU 108 7591 R1A

Description

Ethernet is becoming one of the main standard communication protocols used in transport networks to handle the requirements of transporting data traffic in the networks in an efficient way.
Do you have the competence required to handle this?
This course covers the basics of Ethernet and related standards. The objectives of this course will be the prerequisites for many of the product Operations and Operation and Maintenance courses

Learning objectives

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

1 Understand the structure of the Ethernet frame and MAC address format

2 Describe the differences between bridging and switching

3 Understand Ethernet framing, Ethernet over PDH and Ethernet over SDH

4 Define and understand different Ethernet protection protocols

5 Understand the Operations, Administration and Maintenance (OAM) features of Ethernet

6 Define which traffic management mechanisms are available to manage Ethernet traffic performance assurance

7 Understand the use of IGMP over L2 Switches

8 Describe T-MPLS and PBT (PBB-TE)

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisites for this course

Duration and class size

The length of the course is appr. 2 hours.

Learning situation

This is a self-paced web based course

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 Bridge and Switching Ethernet Services Ethernet over PDH and SDH Ethernet Protections Ethernet OAM Traffic Management IGMP over Layer 2 Switch T-MPLS and PBT Test	

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Ethernet Transport Overview & Fundamentals

LZU 108 8519 R1A

Description

Thie course is made of two modules. First the Overview module that gives an introduction into Carrier Ethernet. It explains the need for Carrier Ethernet when building a common Ethernet transport network. It describes the key attributes that make it different from LAN-based Ethernet, and the role of Metro Ethernet Forum in promoting Carrier Ethernet.

The second module is the "Ethernet Transport Fundamentals, web based learning module. This module describes the Ethernet protocol in detail and key concepts Ethernet is based on. It also gives in depth explanation of some of the features Ethernet offers. Telecom Grade Ethernet is also described and the different Telecom Grade Ethernet Solutions are explained."

Both modules end with a knowledge assessment

Learning objectives

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

1 Describe the concept and solution of Carrier Ethernet
2 To learn about challenges in Telco Networks
3 To know the background on Ethernet
4 To know about Carrier Ethernet Services
5 Describe the Ethernet Protocol
6 Explain how Ethernet Works
7 Compare the different Ethernet Link Types
8 Describe Ethernet Bridging and Switching
9 Explain Ethernet Loop Avoidance
10 Describe the Rapid Spanning Tree Protocol
11 Explain the operation of Ethernet VLANs and the IEEE802.1q Protocol
12 Describe Ethernet Resiliency and Link Aggregation
13 Describe Ethernet Ring Protection

14 Understand Provider Bridging - QinQ

15 Understand Provider Backbone Bridging Mac-in-Mac

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

Ehternet Standards	LZU 108 7591

Duration and class size

The length of the course is appr. 1 hour.

Learning situation

This is a self-paced web based course

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)

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1 Why learn about Carrier Ethernet
Challenges and trends in Telco networks
What is Carrier Ethernet
Background on Ethernet
Carrier Ethernet Networks
Ethernet OAM for Service Providers
Ethernet OAM Maintenance Levels
Carrier Ethernet Services
Standardization to support worldwide deployment
Example Deployment
Summary
Knowledge Assessment

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FTTx Technology Overview and Fundamentals

LZU 108 8737 R1A

Description

This course consists of two parts: Overview and Fundamentals.
The Overview part will provide you with a basic overview of FTTx technology, including FTTH (Fiber-to-the-Home), FTTC (Fiber-to-the-Cabinet), FTTB (Fiber-to-the-Building), and FTTT (Fiber-to-the-Tower). It also briefly covers the difference between P2P (Point-to-Point) and P2MP (Point-to-Multi-Point) deployments. The Fundamentals part gives more technical details, this part presents the main concepts behind the FTTX Technology

Learning objectives

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

1 Name the main FTTx technologies
2 Identify the major benefits of the different FTTx technologies
3 Understand the most appropriate deployment scenario for these technologies
4 Understand the structure of an FTTX network
5 Understand the different components of an FTTX network
6 Understand the composition of a Central Office
7 Understand the composition of a Feeder and Distribution Network
8 Understand the composition of a Drop Network
9 Understand the composition of a Premises Network

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisites for this course

Duration and class size

The length of the course is 1.2 hours.

Learning situation

This is a self-paced web based course

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	What is an FTTx Network	
	What is an Optical Fiber	
	Services over FTTx	
	FTTx Architectures	
	FTTx Network Comparisons	
	Network Planning	
	Network Topologies	
	Knowledge Assessment	

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PON Technology Overview and Fundamentals

LZU 108 8738 R1A

Description

This e-learning course consists of two parts: Overview and Fundamental.
The Overview part will provide you with a basic overview of PON technology, including APON/BPON, EPON, GPON and WDM PON. It also briefly covers basic optical fiber characteristics.
The second part adds more technical details. It presents the main concepts behind the PON Technology

Learning objectives

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

1 Explain the PON technology from an overview perspective, including APON/BPON, EPON, GPON and WDM PON

2 Explain basic optical fiber characteristics

3 Explain the main concepts behind the PON Technology

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisites for this course

Duration and class size

The length of the course is 1.25 hours

Learning situation

This is a self-paced web based course

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	What is PON	
	PON Elements	
	PON Services	
	PON Properties	
	Key Concepts in PON	
	PON Network Structures	
	Knowledge Assessment	

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WDM Overview and Fundamentals

LZU 108 8784 R1A

Description

This course consists of two parts.
The first part will provide basic introduction to WDM Fiber Optic Transport technology and relevant components:
- The Photonic Layer, properly named WDM - Wavelength Division Multiplexing
- The Digital Layer, named OTN – Optical Transport Network frame structure
- The Control Plane, with a double name, ASON - Automatic Switched Optical Network and WSON - Wavelength Switched Optical Network

The second part covers the following topics:
- Propagation in Optical Fiber
- Attenuation in Optical Fiber
- Linear Phenomena: CD and PMD
- Non Linear Phenomena: SPM, XPM and FWM
- Stimulated Scattering
- DWDM Amplifier Technology

Learning objectives

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

1 Describe what WDM is and which benefits bring into a transport network

2 Understand what OTN is and which benefits bring to WDM

3 Understand which additional features the introduction of an ASON/SWON control plane bring to the WDM layer

4 Describe in detail WDM transmission technology

5 Understand transmission impairment in optical fibers

6 Understand the main concepts related to the feasibility of a WDM link

7

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisites for this course

Duration and class size

The length of the course is 1.25 hours.

Learning situation

This is a self-paced web based course

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	WDM Overview	
	OTN Overview	
	ASON/WSON Overview	
	WDM Typical deployments	
	WDM Trends and drivers	
	Summary	
	Knowledge Assessment	

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xDSL Technology Overview and Fundamentals

LZU 108 8739 R1A

Description

This e-learning course will provide you with Overivew and Fundamentals level of competence of xDSL technology, including ADSL, SHDSL and VSDL

Learning objectives

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

1 Name the main xDSL technologies
2 Identify the major benefits of the different xDSL technologies
3 Understand the most appropriate deployment scenario for these technologies
4 Understand the key concepts of xDSL technology
5 Understand the xDSL technology backgrounds
6 Identify the xDSL line properties
7 Recognize the main issues in an xDSL line and their possible solutions
8 Understand the line parameters and their results on the line effectiveness

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

There are no prerequisited for this course

Duration and class size

The length of the course is 1 hour

Learning situation

This is a self-paced web based course

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	What is xDSL	
	Main xDSL Technologies	
	xDSL Key Concepts	
	xDSL Properties	

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EDA 1500 Product Overview

LZU 108 8736 R1A

Description

This e-learning course will provide you with a basic overview of the EDA 1500 product and briefly describe its place in the network

Learning objectives

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

1 Understand the Trends and Drivers in the market

2 Understand the Position in the Network and its main Functions

3 Understand some of the most common Deployment Scenarios, Applications and Solutions, followed by the underlying technologies and architectures

4 Understand the Members of the product family

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

Broadband Access Technologies Basic Competence

Duration and class size

The length of the course is 1 hour and

Learning situation

This is a self-pace web based course

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	
	Functionality	
	Deployment Scenarios	
	Product Family	
	Summary	
	Knowledge Assessment	

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EDA 1500 Product Fundamentals – System Architecture

LZU 108 8885 R1A

Description

The following module will provide you with a technical overview of the EDA 1500 system architecture, including hardware and software

Learning objectives

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

1 Learn the basics about the EDA 1500 hardware.

2 Understand the purpose of the different cards and their basic features.

3 Complete an overview of the most relevant ONTs and ONUs in the product portfolio.

4 Learn about the internal architecture of the node (BLM 1500 OLT).

5 Understand the protection mechanisms available in the system.

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

EDA 1500 Product Overview LZU 108 8736

Duration and class size

The length of the course is 0.75 hour

Learning situation

This is a slef-paced web based course

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	Broadband Loop Multiplexer – Hardware	
	ONT, ONU and MDU	
	Broadband Loop Multiplexer – Internal Architecture	
	Summary	
	Knowledge Assessment	

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EDA 1500 Product Fundamentals – Key Concepts

LZU 108 8886 R1A

Description

The following module will provide you with a technical overview of the key concepts of the EDA 1500 supported features and services

Learning objectives

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

1 Understand the basics of the EDA 1500 data service.

2 Recognize the different data forwarding mechanisms.

3 Learn the basics of the services supported by the EDA 1500 solution.

4 Understand the traffic flow in the IPTV service.

5 Learn the building blocks of the ONT/ONU data transport.

6 Understand the data flows in the BLM (Broadband Loop Multiplexer)

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

EDA 1500 Product Fundamentals - System Architecture LZU 108 8885

Duration and class size

The length of the course is 0 days and 1 hours and the maximum number of participants is 8.

Learning situation

This is a self-paced web based course

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	Ericsson GPON Solution	
	Data Services Overview	
	Video Services Overview	
	Other Services Overview	
	ONT/ONU Data Transport Model	
	BLM Data Transport Model	
	Summary	
	Knowledge Assessment	

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EDA 1500 Product Fundamentals – System Configuration and Management

LZU 108 8887 R1A

Description

The following module will provide you with a technical overview of the EDA 1500 system configuration and management.

Learning objectives

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

1 Describe the Element Manager for EDA 1500 is EntriView.

2 Understand the EM has a Client/Server structure where the server is a Sun workstation while the Client can be a Windows PC.

3 Understand that the equipment can be configured by means of a CLI (Command Line Interface) or with a Graphical User Interface (GUI).

4 Understand that the Graphical Interface allows different views of the network, such as the Main View, Tree View and Alarm View.

5 Understand that from the OLT it is possible to read the equipment data of the connected ONTs

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

EDA 1500 Product Fundamentals – Key Concepts LZU 108 8886

Duration and class size

The length of the course is 1 hour

Learning situation

This is a self-paced web based course

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	Element Management System	
	EMS Graphical User Interface	
	EMS Alarms and Events Management	
	ONT Registration	
	Provisioning, Configuration and Management	
	Summary	
	Knowledge Assessment	

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EDA 1500 Product Fundamentals – Introduction to CLI and System Debugging Overview

LZU 108 8884 R1A

Description

The following module will provide you with an introduction to the Command Line Interface (CLI) and familiarize you with system debugging and troubleshooting on the EDA 1500 solution

Learning objectives

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

1 Describe that EDA 1500 can be configured and controlled via the CLI interface

2 Understand that the CLI interface can be accessed locally via a RS-232 cable or remotely

3 Describe the login procedure

4 Perform checks to be done before connecting the terminal

5 Describe the Graphical user interface (GUI) description

6 Describe an example of a CLI application

7 Understand the basics of troubleshooting the EDA 1500 solution.

8 Learn the basic operations for fault finding in the EDA 1500 solution.

9 Troubleshoot physical faults on the EDA 1500.

10 Learn the fault finding basics to diagnose a data service.

11 Understand the troubleshooting of an IPTV service.

12 Identify the faults in a VoIP service

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

EDA 1500 Product Fundamentals - System Configuration and Management LZU 108 8887

Duration and class size

The length of the course is 1.5 hours

Learning situation

This is a self-paced web based course

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	CLI Basics	
	Accessing the BLM	
	Initial Turn-up	
	Basic System Maintenance	
	Level Zero Troubleshooting	
	Layer 1 Troubleshooting	
	Layer 2 Troubleshooting	
	IPTV Troubleshooting	
	VoIP Troubleshooting	
	Other Troubleshooting Tools	
	Summary	
	Knowledge Assessment	

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EDA 1200 Overview P2P/xDSL

LZU 108 8740 R1A

Description

This course consists of two parts.
The first part will provide you with a basic overview of the EDA 1200 Copper product and briefly describe its place in the network.
The second part will provide you with a basic overview of the EDA 1200 Fiber (P2P) product and briefly describe its place in the network

Learning objectives

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

1 Understand the Trends and Drivers in the market

2 Understand the Position in the Network and its main Functions

3 Describe some of the most common Deployment Scenarios, Applications and Solutions, followed by the underlying technologies and architectures

4 Describe the Members of the product family

Target audience

The target audience for this course is:

Fundamentals

Prerequisites

Successful completion of the following courses:

Broadband Access Technologies Basic Knowledge

Duration and class size

The length of the course is 1 hour.

Learning situation

This is a self-paced web based course

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	Trends and Drivers	
	Functionality	
	Deployment Scenarios	
	Product Family	
	Summary	
	Quiz	

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EDA 1200 11A Operation and Maintenance

LZU 108 8341 R1A

Description

This course provides the participants with a comprehensive overview of the EDA1200 ADSL, VDSL2, POTS and fiber/cat5 solution and its components.
This training describes the main configuration steps required for the setup of DSL data services, VoIP and IPTV throughout the built-in local craft tools (Web Interface) in the ECN330, ECN430 and ECN212 controller nodes.
The course also provides the necessary information for the nodes maintenance through the Web Interface. A brief introduction to ServiceOn EM is also included in the training flow.
Please note that this training does not include configuration details for the following nodes: EDN624, EFN324 and EFN432.

Learning objectives

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

1 Describe fundamental principles of the EDA1200 solution
1.1 Describe ADSL, VDSL2, POTS and fiber/cat5 network solutions
1.2 Describe the function and features of ADSL, VDSL2, POTS and fiber/cat5 solutions
1.3 Explain data, video and telephony implementation scenarios

2 Describe the EDA1200 components
2.1 List the network components
2.2 Describe the main function of each network component

3 Describe Quality of Service and security measures
3.1 Describe ATM and packet based QoS
3.2 Describe access methods
3.3 Describe end-user and network security measures

4 Describe the management systems for EDA1200
4.1 Describe the main characteristic of ServiceOn EM
4.2 Describe the applications in ServiceOn EM
4.3 Describe the local craft tools

5 Install and configure node controllers
5.1 Install and configure ECN212, ECN330 and ECN430
5.2 Configure link aggregation and switch extension

6 Configure EDN312 and EDN612 IP DSLAMs
6.1 Configure lines

6.2 Configure ADSL and VDSL services
6.3 Perform end-to-end and line tests

7 Configure VoIP services
7.1 Configure SIP servers, profiles and agents
7.2 Configure H.248 Media Gateways, profiles and controllers
7.3 Configure RTP and jitter profiles
7.4 Configure DNS servers
7.5 Configure SIP line terminations
7.6 Configure H.248 line terminations
7.7 Perform end-to-end and line tests

8 Define a multicast IPTV service
8.1 Describe the different types of IGMP behaviors
8.2 Configure end-users' lines for multicast services

9 Advanced data configuration
9.1 QoS, Scheduling and queue configuration
9.2 QoS flow configuration
9.3 Relay agent configuration

10 Perform node maintenance
10.1 Backup and restore node database
10.2 Upgrade node software
10.3 Configure SNMPv3

11 Set the ADSL and POTS configuration parameters
11.1 Configure the rate adaptation
11.2 Assign the ADSL and VDSL2 line and service configuration parameters
11.3 Set the POTS configuration parameters

Target audience

The target audience for this course is:

System Technicians, Service Technicians, System Engineers, Service Engineers, and Field Technicians

Prerequisites

Successful completion of the following courses:

IP Networking, LZU 102 397, or equivalent qualifications
A good understanding of DSL , Ethernet and access network services is also required.

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Duration and class size

The length of the course is 3 days and the maximum number of participants is 8.

Learning situation

The course is based on theoretical and practical instructor-led lessons given in both a classroom and 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	Describe fundamental principles of the EDA1200 solution	1
	Describe the EDA1200 components	3
	Describe quality of service and security measures	1
	Describe the management systems for EDA1200	1
2	Install and configure node controllers	1
	Configure EDN312 and EDN612 IP DSLAMs	2
	Configure VoIP services	1,5
	Define a multicast IPTV service	1,5
3	Advanced data configuration	3
	Perform node maintenance	2
	Set the ADSL and POTS configuration parameters	1

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EFN 324/432 Operation and Maintenance

LZU 108 8345 R1A

Description

This course describes the main system characteristics of the EFN324/432 fiber/cat5 access node, gives a detailed description of QoS handling including traffic classification, scheduling, and policing mechanism.
This training provides the participants with the knowledge and skills required to install, configure and provision services in an EFN324 access node using CLI and ServiceOn Element Manager.
The course enable the attendees to the installation and service provisioning of an EFN432 node by ServiceOn Element Manager.

Learning objectives

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

1 Describe EFN324 based solutions
1.1 Describe typical EFN324 based access nodes
1.2 Describe services supported by the EFN324
1.3 Describe the main function of the EFN324
1.4 Describe network functions

2 Describe EFN324 characteristics
2.1 Describe the switching functions
2.2 Describe the security functions
2.3 Describe the system function

3 Explain QoS mechanisms
3.1 Explain traffic classification
3.2 Explain scheduling
3.3 Explain policing

4 Install the EFN324
4.1 Perform initial configuration of the EFN324 using CLI
4.2 Verify the installation
4.3 Create services using CLI
4.4 Define the access network in SOEM
4.5 Create a subnetwork
4.6 Add an EFN node to the network topology
4.7 Create an IP network

5 Create EFN324 services and end-users in EM-PEM

5.1 Create and modify service configurations
5.2 Create and modify end-user profiles
5.3 Create, modify, and delete end-users

6 Perform EFN324 debugging and diagnostics
6.1 Describe packet logger and trace logger applications
6.2 Use the packet logger

7 Describe EFN434 based solutions
7.1 Describe typical EFN432 based access nodes
7.2 Describe services supported by the EFN432
7.3 Describe the main function of the EFN432

8 Describe EFN324 characteristics
8.1 Describe the switching functions
8.2 Describe the security functions
8.3 Describe the system function

9 Explain QoS mechanisms
9.1 Explain traffic classification
9.2 Explain scheduling
9.3 Explain policing

10 Install the EFN432 in the access network
10.1 Define the access network in SOEM
10.2 Create a subnetwork
10.3 Add an EFN node to the network topology
10.4 Create an IP network

11 Create EFN432 services and end-users in EM-PEM
11.1 Create and modify service configurations
11.2 Create and modify end-user profiles
11.3 Create, modify, and delete end-users

12 Perform node maintenance through ServiceOn Element Manager
12.1 Node configuration backup and restore
12.2 Software maintenance tasks

Target audience

The target audience for this course is:

Service Technicians, System Engineers, Service Engineers, Field Technicians

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Prerequisites

Successful completion of the following courses:

The participants should have a good knowledge of the Ethernet protocol; at least a basic knowledge about EDA 1200 and its configuration throughout the ServiceOn Element Manager EM-PEM plug-in.

Duration and class size

The length of the course is 2 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 a 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	Describe the EFN based solution	1
	Describe the EFN characteristics	2
	Explain the QoS mechanism	2
	Install the EFN	1
2	Create EFN services and end-users	4
	Perform node maintenance	2

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EDA 1500 R11 Operation and maintenance

LZU1088342 R1A

Description

This course provides the participants with an overview of Ericsson's Gigabit Passive Optical Network (GPON) solution, its hardware components and the software features. The training describes the operating procedures for the first node commissioning (turn-up) and the implementation of the data, VoIP and IPTV services.
This course also offers a walk-through of the main service-level security features and an advanced view of the main service trimming operations at the data plane level.
The training includes the necessary information for the node maintenance through CLI and EntriView (Element Management System).

Learning objectives

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

1 Describe fundamental principles of GPON
1.1 Key advantages of GPON
1.2 Common reasons for deploying GPON
1.3 Functional components of a GPON access network
1.4 Key characteristics and limitations of GPON
1.5 Overview of the main frame formats
1.6 End to end data transport in GPON

2 The Ericsson EDA 1500 GPON solution
2.1 Major benefits of EDA 1500 GPON solution
2.2 Major characteristics of BLM 1500 hardware
2.3 Services overview that can be provisioned using the BLM 1500
2.4 The management interfaces and their methods of access

3 The BLM 1500 initialization process
3.1 CLI structure and syntax
3.2 Identify an entity using the AID, ONID and IFN for the CLI commands
3.3 Basic CLI commands
3.4 Understand service and maintenance commands and related states
3.5 Equipment commissioning tasks (turn-up)
3.6 BLM 1500 initialization using CLI commands
3.7 Access and navigate the EntriView GUI
3.8 Main alarm management features
3.9 Alarm customization capabilities

3.10 Enable packs and ports via EMS
3.11 Define EFP, LAG, and port mirroring on G28 and E28 packs
3.12 ONT registration concepts by performing activation with methods A, C and D
3.13 ONT ranging information and power measurements

4 Basics of the data service
4.1 Forwarding mode on the GSX B1 port for G28 and E28 packs
4.2 the BLM traffic transport concept
4.3 Define working data service by configuring pack, port, and ONT/ONU service parameters
4.4 Understand the traffic aggregation points
4.5 How VLAN rules affect the data service
4.6 Troubleshoot connectivity problems using the mapping tables

5 Introduction to the EMS Profile Manager

6 EDA 1500 VoIP concepts and provisioning
6.1 The BLM voice solutions concepts for SIP and H.248
6.2 Define a SIP voice service via EMS
6.3 End-to-End POTS Service View

7 EDA 1500 IPTV concepts and provisioning
7.1 the differences between RF and IPTV solutions
7.2 the functions for each pack on the IPTV service
7.3 Video service implementation using EMS and CLI
7.4 Troubleshooting IPTV service

8 Understand E1 services though EDA1500
8.1 Define a E1 service via EMS and CLI

9 Performance data collection and analysis

10 Data service options in the BLM and ONT
10.1 Analyze forwarding modes and VLAN rules options: some notable examples
10.2 the forwarding options on G28 and E28 packs for mixed mode deployment
10.3 Single and multiple bridges on an ONT
10.4 Diagnose connectivity problems using the mapping tables

11 Traffic management and service trimming
11.1 Port and VLAN filters, rate limits and traffic shaping functions using EMS and CLI
11.2 VLAN shapers vs. Logical Interfaces
11.3 QoS management tools for the BLM and ONT
11.4 Define and apply packet classifiers

12 Overview of the service-level security functions
12.1 DHCP Relay Agent
12.2 802.1x port-based network access control
12.3 BLM security measures to protect the downstream access
12.4 ONT security measures to protect the upstream access
12.5 IP security events

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13 Equipment maintenance
13.1 Software management tasks using CLI and EMS
13.2 Backup and restore tasks for BLM 1500 registry files and ONT MIB files
13.3 EMS log files analysis and management
13.4 Using report manager

Target audience

The target audience for this course is:

Network Deployment Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, Field Technicians

Prerequisites

Successful completion of the following courses:

The participants should be familiar with basic knowledge about telecomunications and data communications.
Attendees must have a good understanding of the Ethernet protocol and a basic knowledge about Voice over IP and IPTV services.

Duration and class size

The length of the course is 5 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.

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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	Describe fundamental principles of GPON	2,5
	The Ericsson EDA 1500 GPON solution	2,5
	The BLM 1500 initialization process	1
2	The BLM 1500 initialization process (cont'd)	2
	Basics of the data service	3
	Introduction to the EMS Profile Manager	1
3	EDA1500 VoIP concepts and provisioning	2
	EDA1500 IPTV concepts and provisioning	2
	Understand E1 services though EDA1500	1
	Performance data collection and analysis	1
4	Data service options in the BLM and ONT	3
	Traffic management and service trimming	3
5	Overview of the service-level security functions	2
	Equipment maintenance	4

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EDA2530 R11 Operation and Maintenance

LZU1088344 R1A

Description

Do you have the EDA 2530 11A network element and you do not know how to configure it and operate maintenance on it? The EDA 2530 is an IP-DSLAM equipment making part of the new generation network and performing pure Ethernet/IP-based features. Even those engineers who used to work in the access network for a long time surely need to update to the specific features of such as the new generation network.
With the help of this training the attendees will understand the features of the EDA 2530 in rel 11A and its applications as multiservice platform in the IP-based network. Furthermore, the training documentation provided in this course will give the trainee an essential guidance for performing configuration and operation steps in the most efficient way.

Learning objectives

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

1 Basics of the EDA2530 equipment
1.1 Explain the benefits and the characteristics of the xDSL access
1.2 Describe the basics of the Ethernet network
1.3 Describe roles and features of the EDA2530 equipment

2 Network applications and background theory
2.1 Describe the EDA2530 network applications
2.2 Illustrate the network scheme for Data, Video and VoIP applications

3 Equipments, units and composition rules
3.1 Describe the characteristics of the subracks
3.2 Discuss about the supported tributary units and their relevant features
3.3 Discuss about the line interfaces and their relevant features
3.4 Correlate the composition to the provided services

4 Hardware and software protection schemes
4.1 Illustrate the protection schemes and their implementation in the equipment
4.2 Describe equipment backup, card protection and line protection schemes

5 Communication schemes and parameters
5.1 Describe In-Band and Out-Band connection interfaces
5.2 Describe the communication standards used by the equipment

6 The EDA2530 LCT and perform first commissioning
6.1 Navigate the interface

6.2 Provision and verify the configuration of the uplink interfaces
6.3 Verify the configuration of the Ethernet lines
6.4 Configure VLAN, VLAN sub-interface and IP address for the In-Band management service

7 Configure Data services
7.1 Define parameters for Data services
7.2 Configure the equipment level setup for Data services
7.3 Configure client interfaces
7.4 Configure the Ethernet Type Mapping (standard and non-standard working configuration) as traffic segregation
7.5 Understand the importance of the DHCP Intermediate Agent feature
7.6 Configure the DHCP Intermediate Agent feature

8 Configure SHDSL services
8.1 Describe general SHDSL features
8.2 Define the parameters for SHDSL services
8.3 Describe Ethernet, TDM and ATM features
8.4 Describe PWE3 features
8.5 Describe the relevant protocol stacks for the above mentioned protocols

9 Configure Video Multicast services
9.1 Define the different Video service solutions
9.2 Configure the equipment level setup for the Video multicast
9.3 Configure client interfaces
9.4 Configure IGMP channels

10 Configure VoIP services
10.1 Illustrate the basics of the VoIP network
10.2 Understand the parameters of the VoIP configuration
10.3 Configure client interfaces

11 Operate main maintenance procedures
11.1 Perform backup and restore of the equipment database
11.2 Perform the equipment software upgrade
11.3 Monitor alarms
11.4 Monitor performances collection
11.5 Operate basic troubleshooting procedures

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Target audience

The target audience for this course is:

The target audience for this course is: System Technicians, Field Technicians, System Engineers.

Prerequisites

Successful completion of the following courses:

The participants should be familiar with the xDSL, ATM, Ethernet and IP.

Duration and class size

The length of the course is 4 days and 0 hours and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in a classroom environment using equipment and tools. This course can be conducted at the Customer premises.

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	Basics of the EDA2530 equipment	2
	Network applications and background theory	2
	Equipments, units and composition rules	2
2	Hardware and software protection schemes	2
	Communication schemes and parameters	2
	The LCT interface and first commissioning	2
3	Configure Data services	2
	Configure SHDSL services	2
	Configure Video multicast services	2
4	Configure VoIP services	3
	Operate main maintenance procedures	3

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