



ENGINE 3.1 Training Programs

Package Description

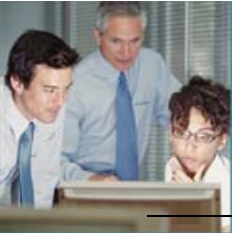


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1 Introduction

This revision of the document emphasises training available within the ENGINE Solution on Core and Management Systems as well as ENGINE Multi Media on current and available releases.

Ericsson has developed an extensive competence development learning portfolio to satisfy the competence needs of our customers in all situations and at all times – from exploring business opportunities, to expertise required for operating a network. The training has been developed to offer clearly defined, yet flexible training paths to target specific technical and business areas within your organization using blended learning – from traditional classroom teaching, to learning off the web for efficient, cost effective and highly successful results.

The ENGINE Training Package is a group of training courses, to build up competence when moving into the new Multi Service technology solutions.

2 Why invest in ENGINE Training?

At Ericsson, we've worked with hundreds of operators and Service Providers worldwide, and we are in a strong position to help. As a leader in developing industry standards for technology and products, we have structured our training packages around your needs, from basics to more advanced operations. Ericsson can identify your training needs and then select the right training package to provide the competencies required for a successful and profitable future.

Benefits

- **Faster time to revenue**

Task orientated, targeted and blended training to ensure staffs is operational in less time

- **Cost efficiency**

Blended learning for both time and cost efficiency. Lower operational costs provided by task oriented training

- **Increased performance/less churn**

Efficient processes achieved by skilled and competent staff

- **Minimal risk**



Ericsson's vast industry knowledge and experience is available through appropriate training

- **Organizational effectiveness**

Clear and continuous training strategies to motivate staff and provide opportunities for long term business success

3 What's in the ENGINE Training Package?

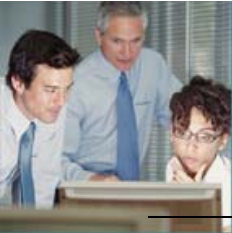
The ENGINE training offers a number of training courses ranging from how to explore the business opportunities to how to run the network, and focusing on target groups within different work areas of an operator's organization. For each work area we present standard training flows that match the currently defined job tasks. Continuous development of learning products within the ENGINE area is happening. Therefore the content and length of the learning products can be changed.

The course flows are focusing on following work areas:

- Fundamentals
- Network Operation
- Network Maintenance
- Network Development
- Customer Care
- Business Management

To ease the use of this document, the courses contained in the course flows are abbreviated, reflecting the type of course and/or methodology. The meaning of each abbreviation is given in the following:

- Instructor-Led Training (ILT)
- Web Based Learning (WBL)
- Multimedia Based Learning (MBL)
- Streaming Video (SV)
- Task Oriented Learning (TOL)



4 ENGINE Integral – Delta Training

4.1 AXE 810 Delta Training (FAB 102 1310)

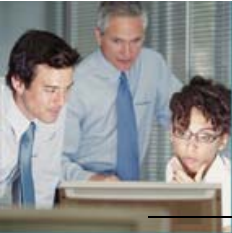
There are four courses covering the changes when going from the existing AXE platform to the new AXE 810 platform. The first course, AXE 810 Configuration Delta, is a course that covers all changes coming along with the new platform, while the other two courses deal specifically and more in detail with the new APZ versions of the AXE: APZ 212 30/33 and APZ 212 40.

Two courses are existing for the APZ 212 40:
-APZ 212 40 Delta which is just theoretical and
-APZ 212 40 Operation & Maintenance, Delta which consists both from Theoretical and practical sessions.

The courses are available as Instructor-led Training (ILT) in a classroom environment.

4.1.1 Main Learning Objectives

1. Describe the new AXE 810 on a basic level
2. Describe changes and improvements on APZ level
3. Describe changes and improvements on APT level
4. Describe new functionalities introduced with AXE 810
5. Be able to configure AXE 810 hardware
6. Describe the differences in the hardware structure between APZ 212 20 and 212 30/33
7. Describe the hardware structure of APZ 212 33C
8. Describe the new store structure of APZ 212 30/33 CP's
9. List the new commands introduced with the APZ 212 30/33 CP's
10. Perform Operation & Maintenance activities on APZ 212 30/33 CP's
11. Describe and explain the key features of APZ 212 40
12. Describe and explain the hardware and software structure in APZ 212 40
13. Describe and explain the Fault Handling in APZ 212 40 CP
14. Describe and explain the Error Handling in APZ 212 40
15. Reload, maintain and Dump the APZ 212 40
16. Handle faults in CP Hardware, CDU, FANs and RPHM
17. Extract restart information in case of CP Software faults
18. Extract error log files from CP / APG and send it for further analysis and troubleshooting
19. Perform a CP stoppage and retrieval of restart data
20. Work with the Ethernet RP bus and
21. Connect GEMs to RPB-E

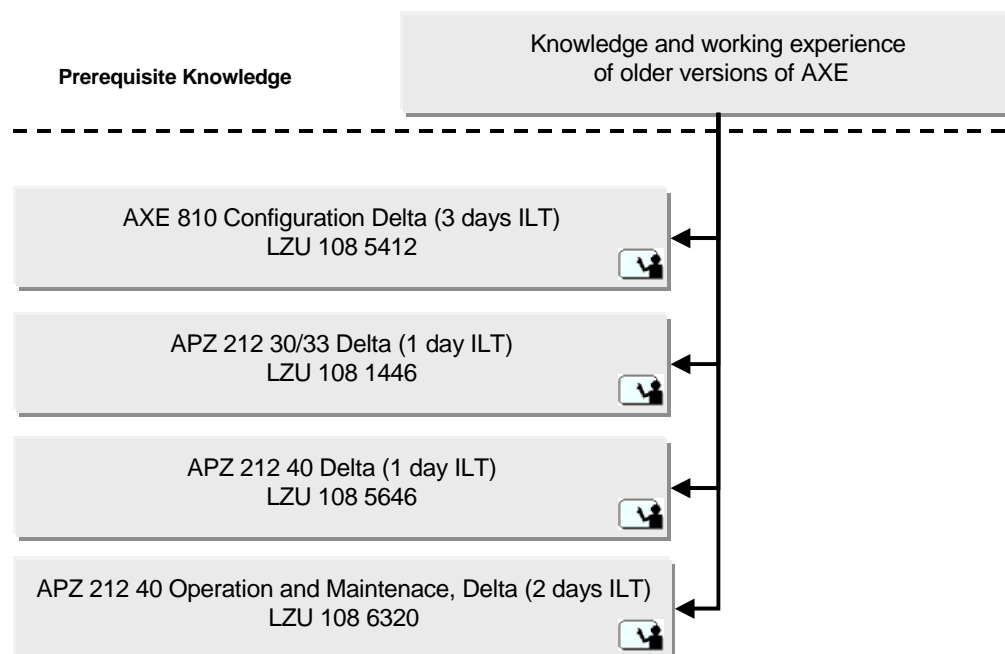


4.1.2 Prerequisites

Participants attending this course flow should have very good working experience in operating and maintaining AXE exchanges, both the APZ and the APT part.

4.1.3 Training Flow

AXE 810 Delta Training (FAB 102 1310)



ENGINE Integral Delta Training (FAB 102 1335)

There are two courses in this flow. The ENGINE Integral 1.0/2.0 to 3.0/3.1 course is a theoretical one covers the differences between EIN 1.0/2.0 and EIN 3.0/3.1. The course ENGINE Integral 2.0 to 3.1 Integration and Verification Delta, consists of both theoretical and practical sessions.

The target audience for these courses consists of Ericsson and customer technical personnel

4.1.4 Main Learning Objectives

- 1 Explain the differences in network implementation between EIN 1.0/2.0 and EIN 3.0/3.1.



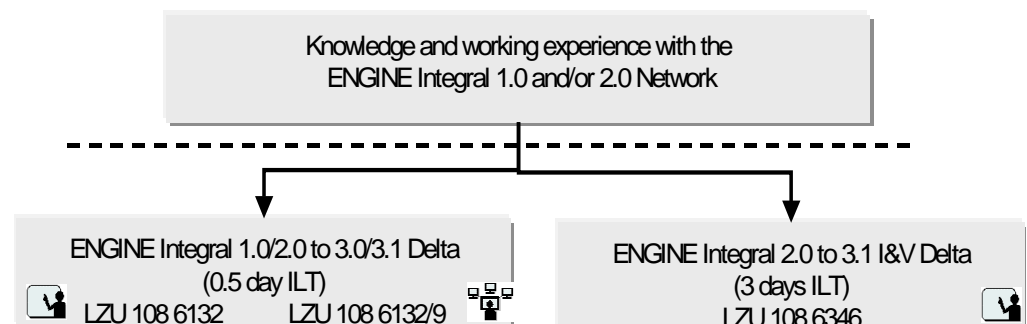
- 2 Explain the accesses supported by EIN3.1
- 3 Describe the new EIN 3.1 HW and SW.
- 4 Describe the implementation of the EIN 3.1 communication protocols.
- 5 Understand the traffic cases supported in EIN 3.1.
- 6 Understand the basics about the migration from EIN 1.0/2.0 to EIN 3.1
- 7 Configure and Integrate the EIN 3.1 over an IP backbone

The target audience for this seminar consists of Ericsson and, on request, customer technical personnel that wish to have early knowledge about EIN 3.0/3.1 and already has the knowledge of EIN 1.0/2.0

4.1.5 Prerequisites

For contentment the participants of the seminar should have knowledge of EIN 2.0/EIN 1.0 equivalent to EIN Integration & Verification, LZU 108 5860.

4.1.6 Training Flow



4.2 MN-OSS Delta Training (FAB 102 1694)

The purpose of this flow is to provide the participants with the knowledge of the differences between the R5 and R6 releases

4.2.1 Main Learning Objectives

1. Describe the differences between MN-OSS R5.1 and MN-OSS R6.0, for the MN-OSS operator. (Which tools have been upgraded, which tools have been removed, which tools are new in R6.0).
2. Describe the differences between the R5.1 versions and the R6.0 versions of upgraded Operator's tools and use these tools to manage MN-OSS Nodes



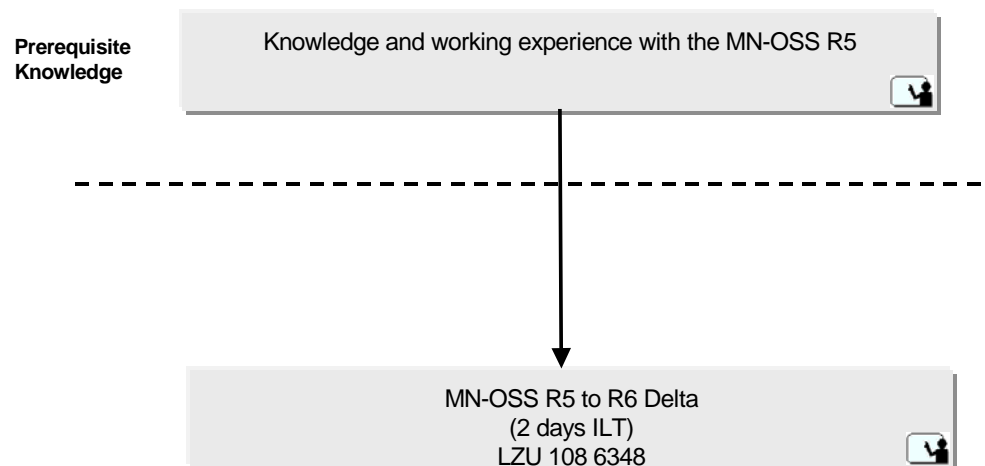
3. Describe the new MN-OSS R6.0 Operator's tools and use these tools to manage MN-OSS Nodes
4. This flow will not cover System Administrator functions

4.2.2 Prerequisites

The student should have attended the course MN-OSS Operations ToATM course LZU 108 5948 R3A, or have equivalent knowledge & experience of MN-OSS R5.1

4.2.3 Training Flow

MN-OSS Delta Training (FAB 102 1694)



4.3 AXD301 Delta Training (FAB 102 1693)

The purpose of this flow is to provide the participants with the knowledge of the differences between the R6 and R7.1 releases

4.3.1 Main Learning Objectives

- 1 Describe the new HW and SW that are used when the AXD 301 are used towards an IP core network instead of ATM
- 2 Use the AMS (AXD Management System) to define and understand parameters for the new IPS (IP Subsystem) MFA (Managed Functional Area).
- 3 Know the new alarms that connected with IPS.
- 4 Give an overview of the IP routing protocols, RIP V2, OSPF, IS-IS, BGP 4, and define one of these interfaces on the AXD 301



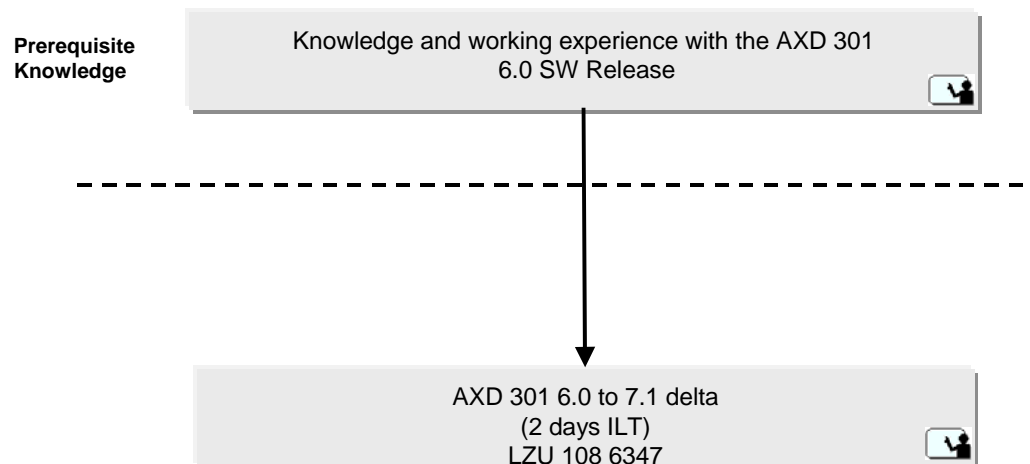
- 5 Describe and define the differentiated services (DiffServ) on the AXD 301
- 6 Describe and define MPLS protocol support and features supported.

4.3.2 Prerequisites

The student should have attended the course AXD301/305 Configuration & Verification LZU 102 709 R2A, or have equivalent knowledge & experience of AXD301/305

4.3.3 Training Flow

AXD 301 Delta Training (FAB 102 1693)



4.4 AXE Enabler Network Configuration (FAB 102 1346)

The purpose of this training flow is to provide the participants with the knowledge about the functionality in AXE Enabler 1.0 which is the new software used in ENGINE Integral networks. The differences between Local 7.2/TL4.2/TG5.2 and AXE Enabler 1.0 modern/classic will be the main topics described but even the differences from earlier product lines will be mentioned.

4.4.1 Main Learning Objectives

1. Describe the node types supported by the AXE Enabler 1.0
2. Describe the main differences between L7.2/TL4.2/TrG 5.2 and AXE Enabler 1.0 Classic and Modern



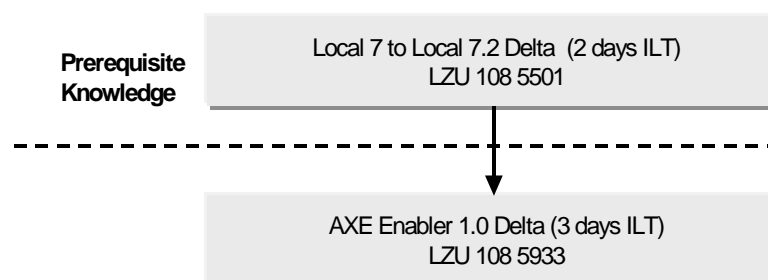
3. Describe the main hardware changes in HWM1.5 platform and the support of large switches
4. Understand the main functions and features in APZs supporting Enabler 1.0
5. Describe the main differences between L7.2/TL4.2/TrG 5.2 and AXE Enabler 1.0 Classic and Modern
6. Describe the IPN network solution
7. Describe the AXE Enabler 1.0 functions in an EIN 2.0
8. Describe the ported products to AXE Enabler 1.0 GAS

4.4.2 Prerequisites

The participants should have attended the course Local 7 to Local 7.2 Delta, which is handling the Translocal 4.2 as well, or have equivalent knowledge in operation of the Local 7.2/ Translocal 4.2 application.

4.4.3 Training Flow

AXE Enabler Network Configuration (FAB 102 1346)



5 ENGINE Integral – Network Fundamentals

5.1 Introduction to IP Networks, WBL (FAB 102 1313)

This is a complete Web Based Learning flow that provides a comprehensive introduction to the underlying principles of data communications. The flow is integrated into the IP Fundamentals flow FAB 102 1314 and contains information on how a PC communicates with other devices and networks, modern LAN and WAN technologies and concepts, the TCP/IP protocol suite, mobile network technologies, network architecture and applications and the management of data networks.

This flow also serves to introduce topics that will be covered in more detail in further Ericsson courses.



5.1.1 Main Learning Objectives

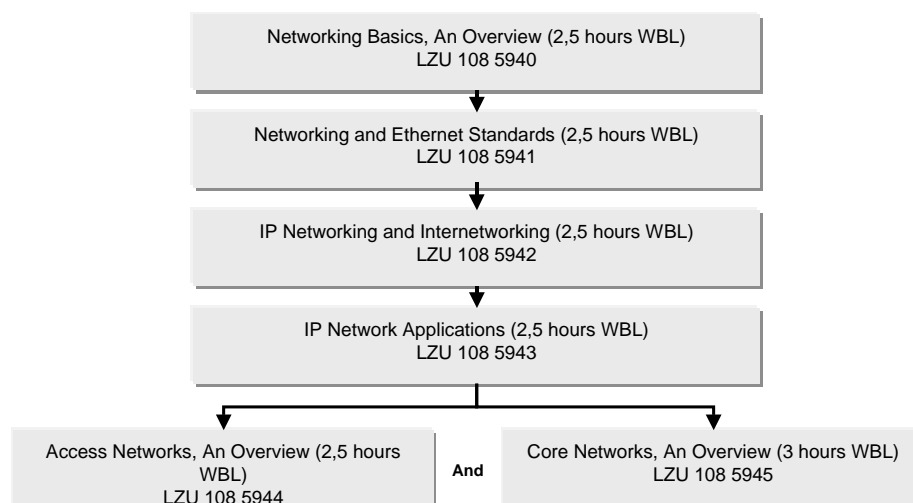
9. Describe how to connect a PC to a datacom network
10. Explain the basics of networking, Local Area Networks (LAN) and the Ethernet Standard
11. Describe Wireless Local Area Networks (WLAN)
12. Describe the basic concepts of IP networking
13. Describe the basic concepts of IP internetworking
14. Describe how to use the network and describe IP network applications
15. Explain the TCP/IP data communications architecture
16. Understand fixed network connections: access networks
17. Understand the basic concepts of mobile access
18. Describe the technologies in the core network
19. Define core network architectures
20. Understand network operation and maintenance

5.1.2 Prerequisites

There are no prerequisites to this course flow. General telecommunication knowledge might be of advantage, though.

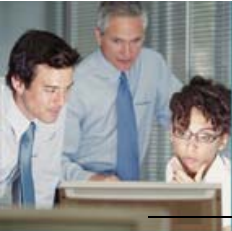
5.1.3 Training Flow

Introduction to IP Networks, WBL (FAB 102 1313)



5.2 IP Fundamentals (FAB 102 1314)

The IP Fundamentals training flow targets all technical personnel requiring knowledge on the TCP/IP protocol suite describing IP addressing principles and the purpose and operation of different protocols such as IP, TCP, UDP, ICMP, ARP. The flow gives a short historical introduction to the technology but the focus is mainly of the different protocol



structures and transfer mechanisms. Practical networking exercises are included to prepare participants for real life challenges. Throughout the course flow, hands-on labs are used to pinpoint important aspects of theory sessions.

5.2.1 Main Learning Objectives

1. Describe IPv4 and IPv6 protocol, addressing and subnetting / aggregation
2. Describe the purpose and operation of different protocols such as TCP, UDP, ICMP, SMTP, POP3, IMAP, ARP, DNS and DHCP
3. Describe the purpose and operation of different network devices and routing protocols used in IP networking
4. Describe the threats and security issues in the IP networks
5. Describe the devices and services in building a secure network
6. Describe Encryption technologies, security services and certificates
7. Describe Encryption technologies, security services and certificates
8. Describe IP addresses, IP Applications and Services
9. Analyse the protocols used for Web, Email, FTP, TFTP, Telnet, Secure Shell
10. Describe Security (Tunnel mode) for IP Sec AH and IP Sec ESP and how it affects router performance and throughput
11. Diagnose router statistics to obtain packet rate / throughput for different applications / routing protocols
12. Design a network consisting of different WAN technologies (ATM, Frame Relay, POS) and define quantity of routers, and interfaces required
13. Describe the steps involved in the design / planning process of an IP network
14. Describe network design process, perform exercises related to real solutions and describe steps in network performance analysis for IP networks
15. Define the IP addresses /subnet-mask required for different size networks and links
16. Describe Network performance and Identify the tools used to measure / troubleshoot QoS / GoS

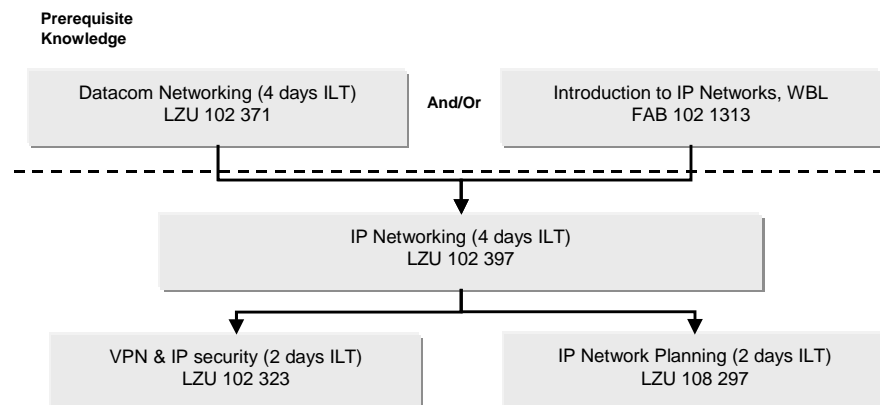
5.2.2 Prerequisites

The participants of this course flow should have attended the course Datacom Networking and should have worked through the courses of the flow Introduction to IP Networks, WBL (FAB 102 1313), or have equivalent knowledge in the area of IP Networks and Protocols and datacommunication technologies.



5.2.3 Training Flow

IP Fundamentals (FAB 102 1314)



5.3 IPv6 Fundamentals (FAB 102 1383)

IPv6 is coming into IP Networks now and brings the need of adapting the competence to this new protocol. This course flow provides the competence to understand the transition to IPv6 networks and co-existence of IPv4 and IPv6 networks.

The course IPv6 and Transition from IPv4 to IPv6 gives a profound technical presentation of the Internet protocol IPv6. The course will also discuss different IPv4-IPv6 transition mechanisms. After this course it will be clear how IPv6 will function in a network and how IPv6 can co-exist with IPv4.

The course IPv6 and Transition from IPv4 to IPv6, Hands-on deals in addition with different challenges, problems and solutions concerning the transition from IPv4 to IPv6 networks. The transition mechanisms will be configured practically in a network in this course.

Participants just wanting to get to know about the principles may attend the first course, while participants needing practical experience in configuring an IPv6 network are recommended



to attend the hands-on course, which also covers the theory part of the theoretical course.

5.3.1 Main Learning Objectives

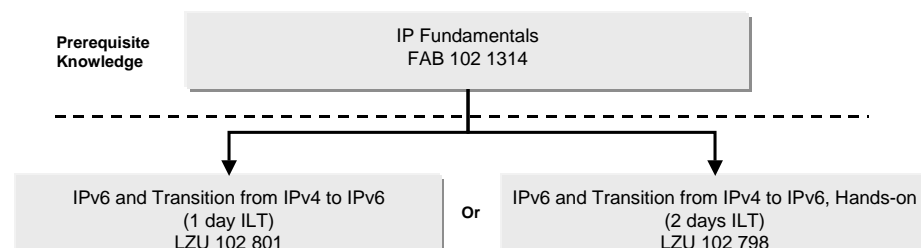
5. Describe the protocol IPv6 on an advanced level.
6. Describe some of the important Transition Mechanisms between IPv4 and IPv6.
7. Get an overview of how the Transition Mechanisms work when setting up an IPv6 network.
8. Set up an IPv6 network configuring routers and hosts.

5.3.2 Prerequisites

Participants of this flow shall have attended the course flow IP Fundamentals (FAB 102 1314).

5.3.3 Training Flow

IPv6 Fundamentals (FAB 102 1383)



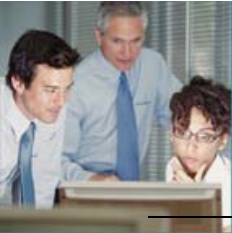
5.4 IPv6 Routing Configuration (FAB 102 1384)

This course flow consists of a profound technical presentation of the routing protocols RIPng, OSPFv3, ISIS and BGP4+. The protocols and their different functions in the Internet are discussed.

The flow is meant for personnel working with operation, configuration and planning of IPv6 networks.

5.4.1 Main Learning Objectives

1. Know how the Routing Protocols are used in IPv6
2. Know how they are working on a router and the hosts of an IPv6 network

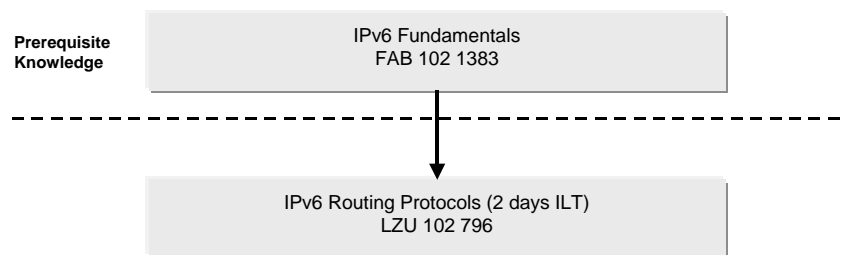


5.4.2 Prerequisites

Participants of this course flow should have attended the course flow for IPv6 Fundamentals (FAB 102 1383).

5.4.3 Training Flow

IPv6 Routing Configuration (FAB 102 1384)



5.5 IPv6 Advanced Network Configuration (FAB 102 1385)

This course flow is a profound technical presentation of the Internet protocol IPv6, Transitions Mechanisms from IPv4 to IPv6 and of the advanced features related to IPv6: QoS (DiffServ, RSVP / IntServ) and IPSec. IPv6 and these features are essential in a 3G/UMTS cellular network. These subjects will be discussed and related to examples in real life.

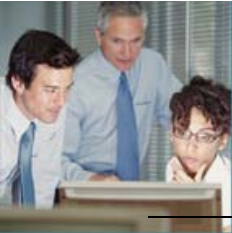
The participants will learn how to configure the advanced features on an IPv6 router. Examples of how to configure a host in an IPv6 network will be presented.

5.5.1 Main Learning Objectives

1. Describe the protocol IPv6 on an advanced level.
2. Describe and configure the Transition Mechanisms between IPv4 and IPv6.
3. Understand how QoS (DiffServ, RSVP / IntServ) and IPSec are working.
4. Configure these mechanisms and features on a router.
5. Configure a host in an IPv6 network.

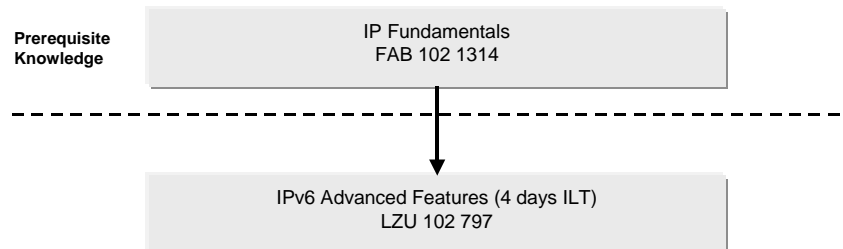
5.5.2 Prerequisites

Participants of this course flow should have attended the course flow for IPv6 Fundamentals (FAB 102 1383).



5.5.3 Training Flow

IPv6 Advanced Network Configuration (FAB 102 1385)



5.6 ATM Fundamentals (FAB 102 1315)

The ATM Fundamentals training flow targets all technical personnel requiring knowledge on the Asynchronous Transfer Mode (ATM) principles. This flow covers all protocols supported, cell formats, creating of circuits and connections to enable ATM network traffic and ATM internetworking. The evolution and trends of ATM networking and alternative technologies including IP and Frame Relay as well as multi-service traffic types and quality of service (QoS) is discussed. The latter part of the course focuses on IP over ATM.

The actual courses are merged from a former ATM course and a dedicated IP over ATM course, as these topics need to be connected more and more when discussing these technologies.

The course can be delivered as both Instructor-led Training (ILT) in a classroom environment or as Virtual Classroom Training (VCT) where students can attend the training from their own workplace over the web at a pre-designated day and time.

5.6.1 Main Learning Objectives

1. Describe basic ATM concepts and ATM
2. Describe ATM Standardization
3. Describe the physical layer
4. Describe the ATM layer
5. Describe the ATM Adaptation Layers (AAL 1, 2, 5 and 0)
6. Describe circuit emulation
7. Understand signaling and addressing
8. Understand UNI signaling
9. Understand PNNI routing and signaling



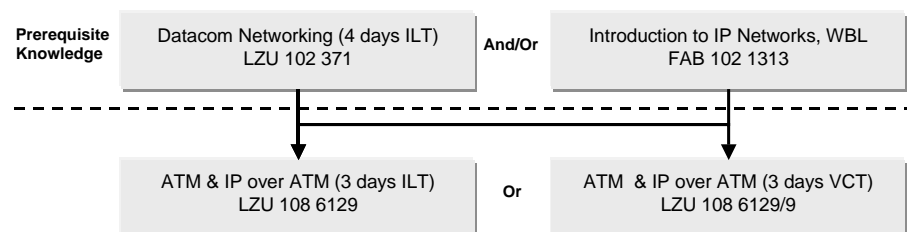
10. Understand Other signaling protocols—AAL2, B-ICI, AINI and IISP
11. Understand network management
12. Understand ATM Traffic Descriptors
13. Describe quality of Service parameters
14. Describe traffic control
15. Understand the ATM switch architecture
16. Understand ATM networks
17. Describe IP over ATM fundamentals
18. Describe Multiprotocol Encapsulation over AAL5
19. Describe Classical IP over ATM
20. Describe Multiprotocol Label Switching (MPLS)

5.6.2 Prerequisites

Participants of this course flow should have attended the course Datacom Networking and the course flow Introduction to IP Networks, WBL (FAB 102 1313).

5.6.3 Training Flow

ATM Fundamentals (FAB 102 1315)



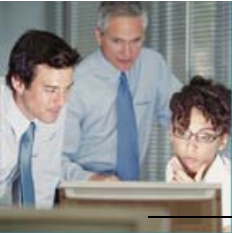
5.7 AXE Fundamentals (FAB 102 1336)

This training flow gives the basic Telecommunication knowledge. The flow consists of three Media Based Learning products and two instructor led courses.

This flow also serves to introduce topics that will be covered in more detail in further Ericsson courses.

5.7.1 Main Learning Objectives

- Telecoms 2000: An Overview
- 1 Telecommunications overview
 - 2 Mobile Communications



- 3 ISDN and Broadband Communications
- 4 Telecommunications (Management and Planning)
- 5 The Public Switched Telephone Network (PSTN)
- 6 Data Communications
- 7 Telecommunications Standards

Telecoms 2000: Fundamentals

- 1 Basic Concepts
- 2 Transmission
- 3 Signaling
- 4 Switching
- 5 Case Studies

Telecommunication ABC

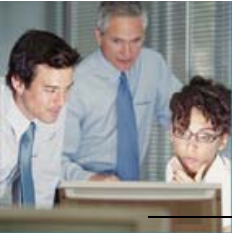
1. Describe the organization of Ericsson and state the most important products made by the company
2. Describe Ericsson's role in the world of telecommunications
3. Describe the main architecture of the telecommunications network
4. State the most important transmission media
5. Describe how analogue signals are converted and sent through the network
6. Describe the main parts of an AXE exchange
7. Describe the main parts of a mobile telephone network

AXE for the 21st Century

1. Trends in modern communications and how AXE has developed in response to them
2. Major characteristics and functional structure of AXE
3. Main platforms within AXE, such as switching and signaling
4. Applications that run on the AXE platform, such as Business Communications, Mobile Communications, Intelligent Networks, PSTN/ISDN and the Internet
5. Centralized and local operation, maintenance and management features of the AXE system including the TMOS and XMATE products
6. Major AXE product lines
7. Advanced AXE Hardware (BYB 501)

AXE Survey

- 1 Describe the main characteristics of AXE
- 2 Describe the structure of AXE
- 3 Describe the Control system in AXE
- 4 Describe the APT 1.5
- 5 Describe how the different HW versions cooperate with each other
- 6 Describe the major product lines in AXE
- 7 Illustrate traffic handling in AXE
- 8 Describe how Operation and Maintenance is performed in AXE



- 9 Describe briefly the procedures involved in marketing and design of AXE
- 10 Explain the Internet related application using the AXE

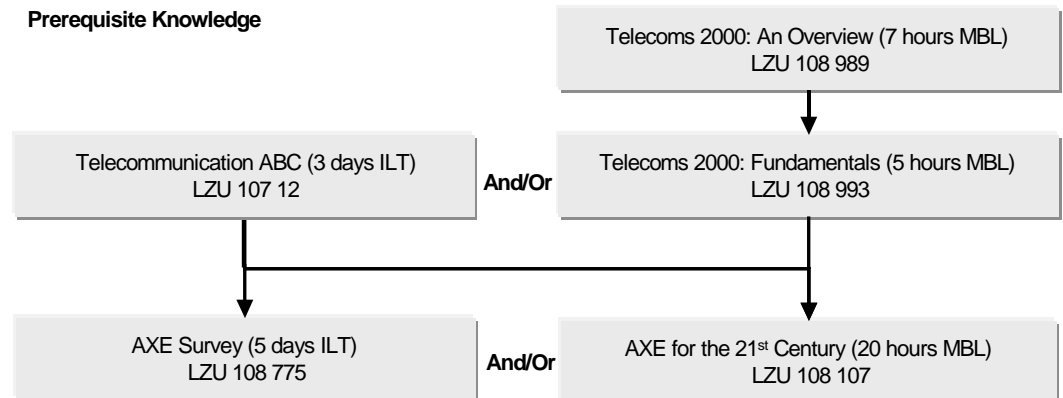
5.7.2 Prerequisites

There are no prerequisites for this course

5.7.3 Training Flow

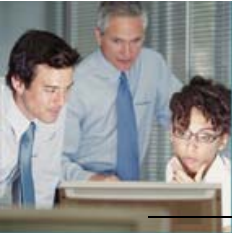
AXE Fundamentals (FAB 102 1336)

Prerequisite Knowledge



5.8 ENGINE Access Ramp Fundamentals (FAB 102 1749)

This training flow introduces the student to the ENGINE Access Ramp concept and the node elements within each of the Access network solutions. The future of ENGINE Access solutions is also covered as well as the management system supporting the access solutions. After participating in this flow the student will have a good understanding of the features and advantages that is included in the ENGINE Access Ramp solution.



5.8.1 Main Learning Objectives

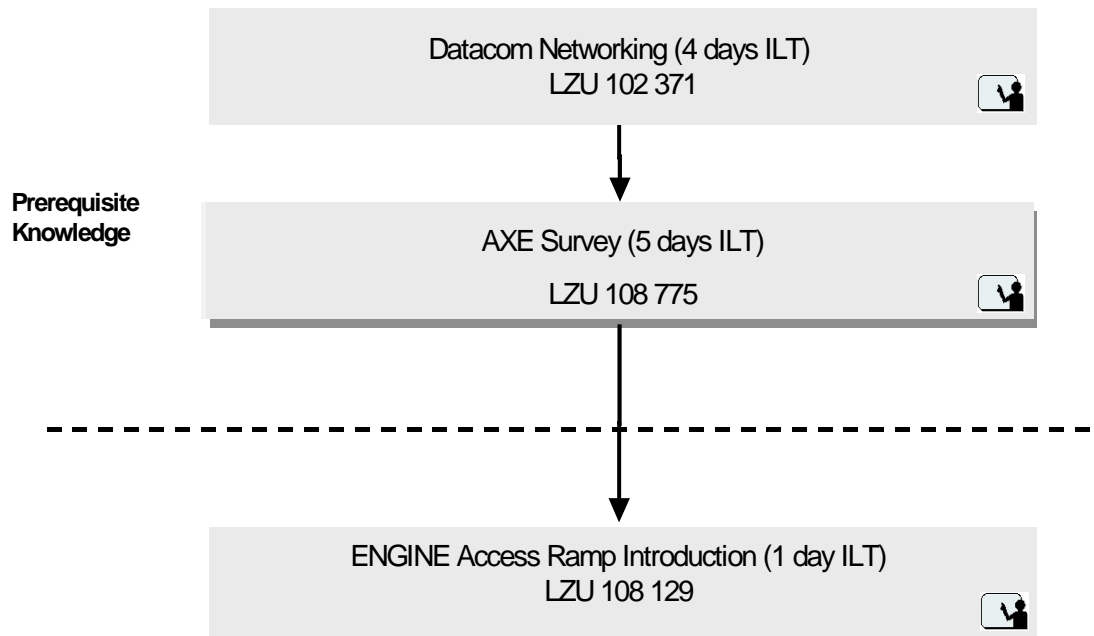
- 1 Outline the role of ENGINE Access Ramp in the ENGINE concept.
- 2 List the services offered by ENGINE Access Ramp
- 3 Describe the components of ENGINE Access Ramp
- 4 Identify how management is carried out in the access network

5.8.2 Prerequisites

Basic Telecoms knowledge, subscriber stage knowledge in AXE and Datacoms knowledge to the level of:

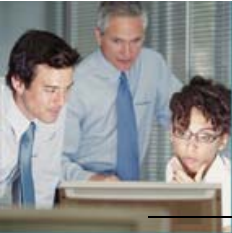
Datacom Networking, LZU 102 371

5.8.3 Training Flow



5.9 ENGINE Core Fundamentals (FAB 102 1337)

This training flow introduces the student to the ENGINE core concept and the node elements within each of the ENGINE Multi-Service network solutions. It deals with the features and benefits of the ENGINE Core solutions and the market drivers that make ENGINE worth investing in. The future of ENGINE solutions and core technologies is also covered as well as the management system supporting the ENGINE Integral solutions. It describes how ATM and IP is used to transmit



voice over the core network and shows different traffic scenarios. After participating in this flow the student will have a good understanding of the features and advantages that is included in the ENGINE Softswitch solutions.

5.9.1 Main Learning Objectives

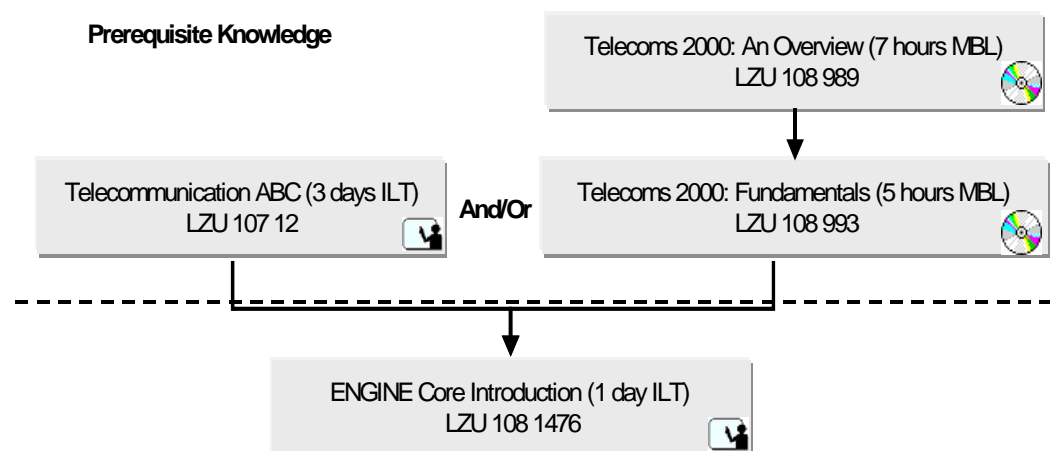
- 5 Understand why an operator would choose ENGINE
- 6 Understand how IP, ATM and MPLS are used in the connectivity network for ENGINE
- 7 Describe the basic functions and network elements of ENGINE Softswitch solutions: ENGINE Integral Network and ENGINE Multimedia Network
- 8 Explain the basics of the management system MN-OSS R6

5.9.2 Prerequisites

Telecommunication ABC, LZU 107 12, (3 days ILT) and/or
Telecoms 2000: Fundamentals LZU 108 993 (5 hours MBL)

5.9.3 Training Flow

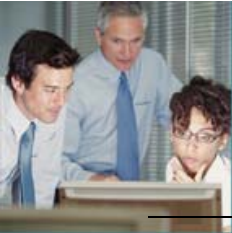
Engine Core Fundamentals (FAB 102 1337)



6 ENGINE Integral – Network Management, MN-OSS

6.1 MN-OSS Operation Telephony over Packet, Network Surveillance (FAB 102 1338)

The Management system for ENGINE Core solutions is called MN-OSS (Multi Service Networks Operating Support System) and is applicable for all ENGINE Integral Networks. These



training flows are divided into two different tracks one for AXE Classic network management and one for the Telephony over ATM (ENGINE Integral) solution management. This is due to the fact that the AXD 301/305 nodes only operate in the ENGINE Integral solutions hence the AXD specific management applications are only included in the Telephony over ATM flow and the AXD 301/305 specific courses.

The ENGINE management training flows gives several training path options based upon the management systems and tools that are to be handled. If specific tools or applications will be handled by separate job categories the courses covering these areas can easily be identified and taken out of a training flow. There are courses to support personnel dealing with only AXE related network surveillance, AXD 301/305 related network surveillance as well as training for personnel that will cover network surveillance for the Telephony over ATM solution covering both nodes.

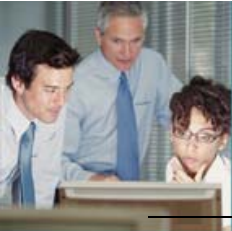
The flows can be customized to suite the operators specific needs for training on certain applications.

6.1.1 Main Learning Objectives

- 1 Describe the functionality and be able to use all of the standard applications included in the MN-OSS System release 6.0, including the Telephony over Packet (ToATM and ToIP) package.
- 2 Describe the structure and contents of the User Documentation and Task Procedure Support.
- 3 Use Element Management Tools to communicate with, and configure AXE/AXD network elements.
- 4 Transfer files between MN-OSS & AXE network elements using FHA
- 5 Describe and use OPS both as a development tool and part of an expert system
- 6 Describe and use the Command File Language (CFL) in OPS to produce simple OPS command files
- 7 Use Fault Manager tools to manage alarms and configure the way they are presented
- 8 Describe the functionality of the Alarm Handler/Gateway
- 9 Know how to detect and localize suspected faults on the virtual connections

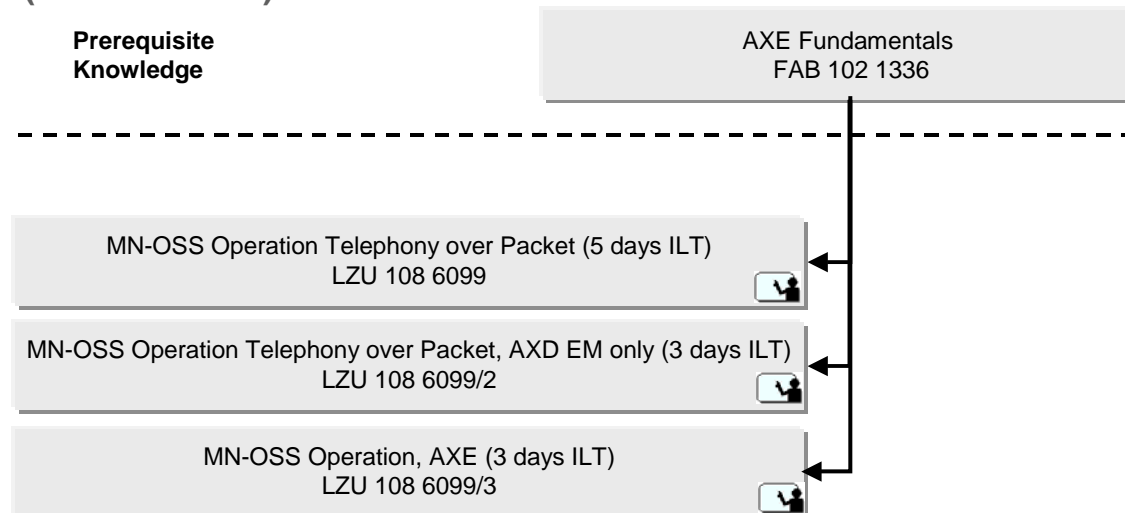
6.1.2 Prerequisites

Students participating in this flow shall have AXD301 C&V LZU 102 709 (or equivalent) and AXE Operation & Configuration LZU 108 6145 (or equivalent) training. They should also have knowledge and experience of Windows 2000 based computer systems and Basic UNIX knowledge.



6.1.3 Training Flow

MN-OSS Operation Telephony over Packet, Network Surveillance (FAB 102 1338)



6.2 MN-OSS System Administration (FAB 102 1340)

This flow will give the student knowledge about administration of the MN-OSS R6 system. After the course the students will be able to handle the standard maintenance of an up-and-running system.

The focus in the flow is the MN-OSS UNIX platform and the student will gain thorough knowledge about how to handle processes, errors and authority in the MN-OSS system. The flow also covers fault management and network element connections and consists of modules with mostly practical sessions (task-oriented) with complementary theoretical parts. In the practical sessions the students will be presented with the tasks required to administer and maintain an MN-OSS system. The students solve the tasks on a training system, using the on-line documentation. The tasks are always concluded by an instructor lead discussion.

6.2.1 Main Learning Objectives

- 1 Administrate the MN-OSS system and the applications that make up the MN-OSS system.
- 2 Configure GNIP to suit the needs of the alarm surveillance personnel
- 3 Handle authority administration in MN-OSS



- 4 Manage processes in the OSS system
- 5 Describe and use the main components in MN-OSS (from an administrator's point of view)
- 6 Set up connections from MN-OSS to AXE and AXD based network elements
- 7 Perform standard maintenance on the MN-OSS system, including dumping Sybase databases Perform standard maintenance in the OSS system

6.2.2 Prerequisites

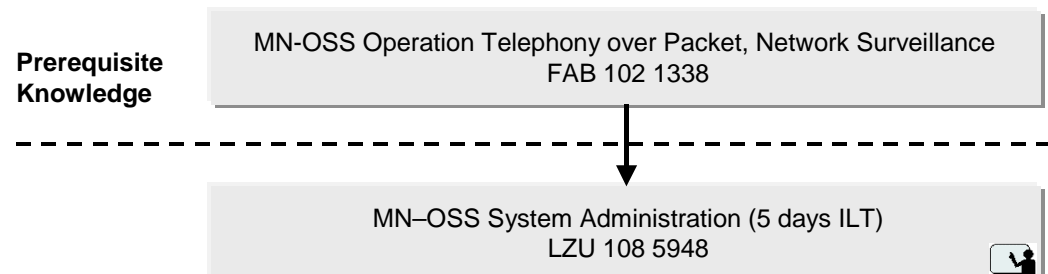
The participants should be familiar with MN - OSS Application systems handling to the level of the MN-OSS Operation, Telephony over Packet LZU 108 6099 (previously LZU 108 5658).
They should also have completed the following external courses or equivalent knowledge:

- Sybase: *Fast track to Adaptive Server Enterprise*
- SUN: Solaris System Administration I and II

The participants should also be familiar with Veritas Volume Management

6.2.3 Training Flow

MN-OSS System Administration (FAB 102 1340)



7 ENGINE Integral – Field Maintenance

7.1 AXD 301/305 Field Maintenance (FAB 102 1341)

This flow consist of one course which will teach the students how to troubleshoot alarms, replace faulty hardware and perform system restarts on the AXD 301/305.
The course consists of theoretical and practical sessions.



The target audiences for this course are Field Engineers responsible for performing administration and maintenance on AXD 301.

7.1.1 Main Learning Objectives

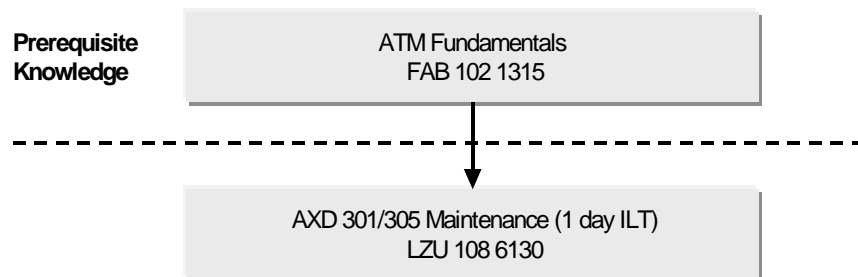
- 1 Perform starts and restarts of the AXD 301/305
- 2 Troubleshoot events and alarms on the system
- 3 Remove and replace faulty hardware
- 4 Perform a backup and software upgrade
- 5 Carry out file synchronization

7.1.2 Prerequisites

Students attending this flow shall have attended the ATM Fundamentals flow or have equivalent knowledge.

7.1.3 Training Flow

AXD 301/305 Field Maintenance (FAB 102 1341)



7.2 AXE Field Maintenance (FAB 102 1365)

This flow consist of one course which focuses on more advanced training for Maintenance staff. After the course the student will have a deeper understanding of the maintenance activities in an AXE exchange. The practical part must be performed in a real exchange with realistic exercises.

The target audience for this course is mainly field maintenance staff. Other personnel interested in AXE maintenance activities can also attend the course

7.2.1 Main Learning Objectives

- 1 Have a general knowledge of the system to be able to perform maintenance activities.



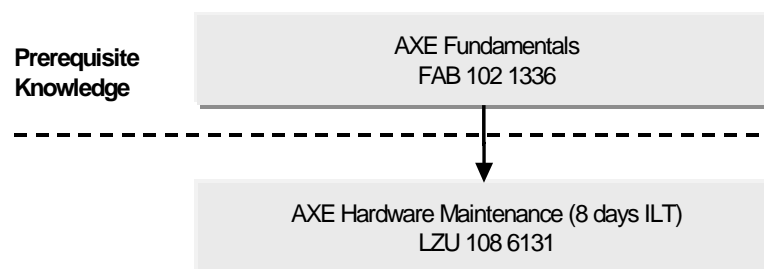
- 2 Perform basic maintenance activities in AXE.
- 3 Handle alarms in a correct manner.
- 4 Perform maintenance on IO.
- 5 Perform maintenance on APZ 212.
- 6 Perform maintenance on group switch.
- 7 Perform maintenance on trunks.
- 8 Perform maintenance on Signaling system No. 7.
- 9 Be able to check the system status.

7.2.2 Prerequisites

The participants should be familiar with the AXE structure and have a general understanding of the functionalities of the system. Successful completion of the AXE Survey LZU 108775 course.

7.2.3 Training Flow

AXE Field Maintenance (FAB 102 1365)



8 ENGINE Integral – Network Operation

8.1 AXD 301/305 Network Operation & Configuration (FAB 102 1342)

This flow will teach the students about various components of the AXD 301/305 and its management system. Students will look at the management interfaces and security management. Students will work with batch jobs and log files and configure IP management and Control. They will also learn how to configure both permanent connections and soft permanent virtual connections, as well as the various different signaling protocols, UNI, PNNI, IISP and AINI. Students will look at how to define the IP functionality and use other IP-based technologies such as MPLS and differentiated services. They will also look at how to configure IP protocols such as IS-IS,



BGP 4, RIP V2, and OSPF. The course will also look at how the AXD deals with voice compression and AAL2 trunking, Inverse Multiplexing and switch fabric management. This flow consists of theory sessions followed by practical exercises to achieve knowledge on how to operate the system.

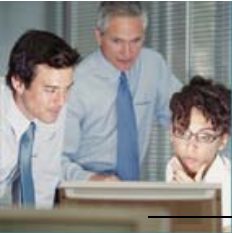
The target audience for this course are Engineers who occupy an Operator role. These people are responsible for configuring and testing the AXD 301/305

8.1.1 Main Learning Objectives

- 1 Use the AXD management system (AMS).
- 2 Configure different users in security management.
- 3 Configure batch jobs and log files.
- 4 Turn on and configure IP control and look at remote Ethernet connections
- 5 Create performance management reports
- 6 Configure permanent connections and look at areas in the switch fabric
- 7 Turn on and configure the charging administration service
- 8 Show how the AXD is used in networks
- 9 Describe and define various different signaling protocols and test a call across interfaces configured with the following protocols, UNI, PNNI, IISP and AINI
- 10 Give an overview of the IP routing protocols, RIP V2, OSPF, IS-IS, BGP 4, and show how to define these interfaces on the AXD 301
- 11 Describe and define the differentiated services on the AXD 301
- 12 Describe and define MPLS protocol support and features supported
- 13 Give an overview of how the AXD deals with voice compression, AAL2 trunking, Circuit Emulation, Inverse Multiplexing and switch fabric management.

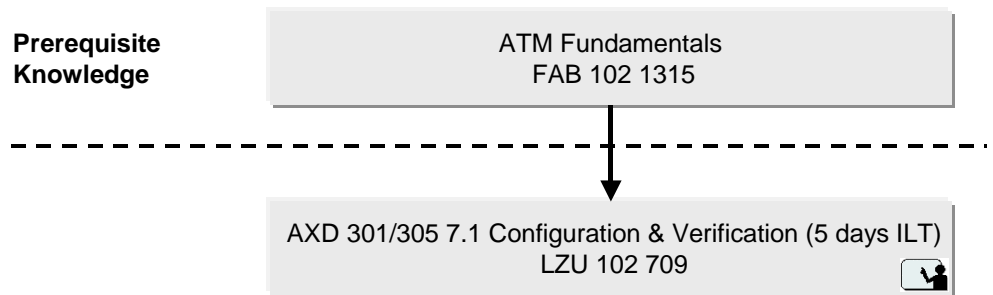
8.1.2 Prerequisites

Students attending this flow shall have attended the ATM Fundamentals flow or have equivalent knowledge.



8.1.3 Training Flow

AXD 301/305 Network Operation & Configuration (FAB 102 1342)



8.2 AXE Network Operation & Configuration (FAB 102 1344)

The AXE Exchange together with an AXD 301/305 switch forms the Telephony server in the ENGINE Intergral networks and this flow is therefore a prerequisite flow to the ENGINE network configuration courses.

On completion of this training flow the participants will have knowledge of the Operation & Maintenance activities performed in an AXE Exchange and an understanding of the most frequent types of work. The flow will also give more advanced training for Operational staff as well as other personnel working with configuring the system. The flow provides the participants with a deeper understanding of the Operation and Configuration activities in an AXE exchange.

The Automated O&M using OPS course is intended to train the students in using the functions of the Operation Procedure Support (OPS) tool within an MN-OSS system. The main focus is to give the students knowledge about how to use OPS to create, edit and debug command files for advanced command handling. The OPS command files (Scripts) can take care of routine- and time consuming jobs and the network operator can instead work with more important tasks.



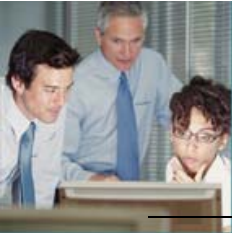
8.2.1 Main Learning Objectives

For the Operation and Configuration course:

- 1 Know the different parts of AXE (APZ/APT/Subsystems)
- 2 Be able to use tools to handle the system
- 3 Be able to use MML commands.
- 4 Be able to use command files to configure the system.
- 5 Be able to use the AXE library as an aid (COD/POD/OPI/Application Information/etc.).
- 6 Know the different I/O systems delivered from Ericsson.
- 7 Have a basic understanding of the APG40 product
- 8 Have a basic understanding of the IOG20 product
- 9 Be able to operate the APZ 212.
- 10 Be able to handle System Backup functions
- 11 Be able to configure the boards in the RPHM.
- 12 Be able to handle and configure the RPs
- 13 Be able to handle and configure the different parts the group switch
- 14 Be able to configure SNTs and DIPs and synchronization
- 15 Define trunks (ETC5 and ET155) and signaling system no7
- 16 Be able to handle the basic exchange data

For the OPS course:

- 17 Describe and use OPS both as a development tool and part of an expert system
- 18 Describe and use the Command File Language (CFL) used to develop Command Files in OPS
- 19 Creating of advanced command files

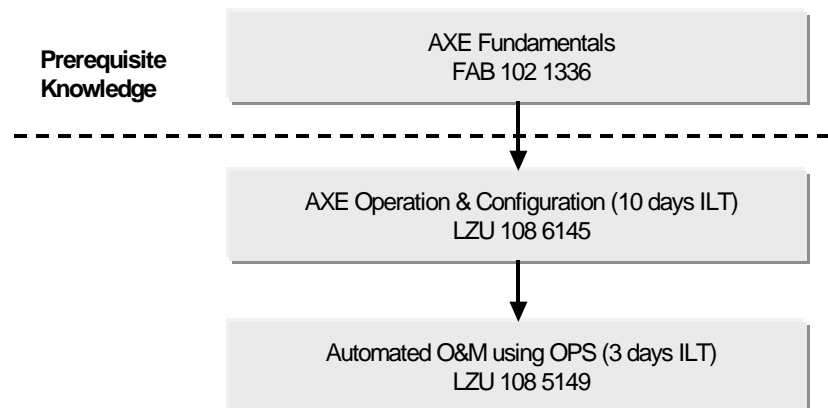


8.2.2 Prerequisites

Students participating in this training flow must have attended the course AXE Survey, LZU 108 775 or have equivalent knowledge.

8.2.3 Training Flow

AXE Network Operation & Configuration (FAB 102 1344)



8.3 APG 40 Network Operation & Configuration (FAB 102 1345)

The APG 40 will replace IOG20 and APG 40 is included as the I/O system in all Ericsson major System Solutions such as ENGINE, WCDMA Systems and GSM that have been rolled out worldwide.

This training flow introduces students to the APG 40 node and its functionality. The students will carry out operational and maintenance tasks on the Platform and the APIO application. The flow consists of 3 practical courses that target different functions.

The first course is targeted towards Operation and Maintenance personnel with the following main parts included: Introduction to APG 40, APG 40 Hardware and Software, ACS Functions, Services and Facilities, Configure STS, collect statistics using STS, APIO including FMS and MCS.

The Installation and Configuration course is targeted towards System administrators and will also contain some installation activities.

The following main parts are included: Start up of APG 40, Installation of APIO, Description of the APG 40 Domain, Domain Handling on APG 40 and Migration from IOG 20 to APG 40.



This is an instructor-supported training flow with focus on practical exercises.

8.3.1 Main Learning Objectives

For the Operation & Maintenance, Installation & Configuration and Recovery Procedures:

- 1 Know how to connect to the APG 40
- 2 Understand how to connect to the APG 40, using a local console, Telnet (WinFiol) and PcAnywhere
- 3 Be familiar with the hardware on APG 40
- 4 Understand the different software layers in APG 40
- 5 Be able to use the graphical user interfaces
- 6 Perform function change of AP
- 7 Understand and use APIO application
- 8 Know how to start up the APG 40
- 9 Upgrade and install software on the APG 40
- 10 Understand domain handling in APG 40
- 11 Migrate to APG from IOG
- 12 Collect statistics using STS
- 13 Configure the STS on AP to request counter data from the CP
- 14 Give an overview of STS on APG40 and describe the main functions
- 15 Describe the main functions of the STS
- 16 Configure the database and start the transfer of counter values Know how to connect to the APG 40
- 17 Perform a Health Check of an APG40 System
- 18 Create a Trouble Report
- 19 Make a proper backup of the APG40 System
- 20 Perform the AP, System Disaster Recovery OPI to restore an APG40 System
- 21 Do a Quorum Restore on the APG40 System
- 22 Initiate a data disk restore on the APG40 System

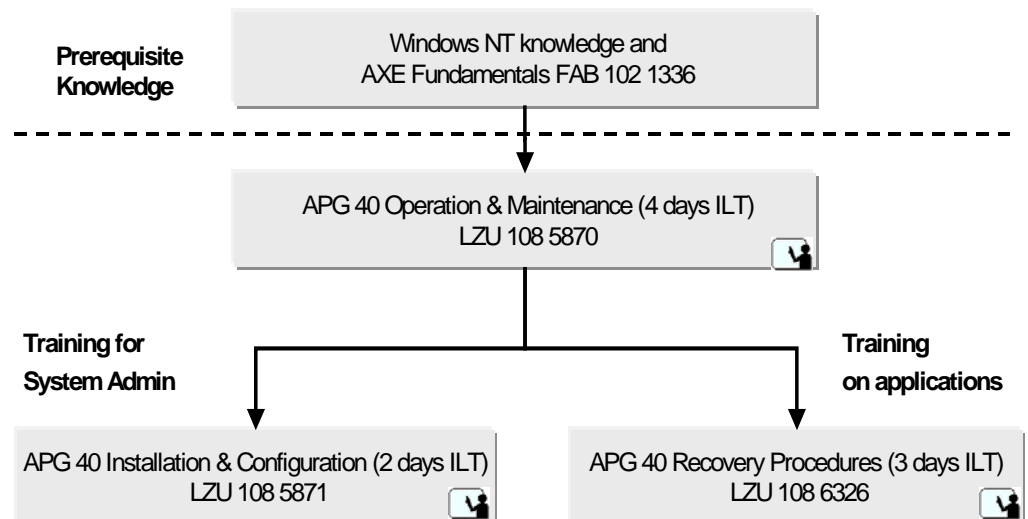
8.3.2 Prerequisites

Students participating in this training flow should have knowledge of Windows NT or Win2k and shall have attended in the following courses or have equivalent knowledge.

AXE Survey, LZU 108 775

8.3.3 Training Flow

APG 40 Operation & Configuration (FAB 102 1345)



8.4 ENGINE Access Ramp Narrowband, Network Configuration (FAB 102 1750)

This training flow is a modular learning product on how to perform Operation & Maintenance activities on an ENGINE Access Ramp for AXE application. The flow is instructor-led and task-oriented. At the end of the course the student will be able to perform O&M activities on an AXE connected ENGINE Access Ramp.

This flow is intended for all personnel working with configuration, operation as well as maintenance of the system. The ENGINE Access Ramp flow for Narrowband requires AXE knowledge as a prerequisite.

8.4.1 Main Learning Objectives

- 1 Describe the general system structure of the ENGINE Access Ramp for AXE, its units and their basic functions
- 2 Describe the different signalling interfaces used and how V5 is used in ENGINE Access Ramp
- 3 Understand the difference between the ENGINE Access Ramp for AXE application and the ENGINE Access Ramp for V5.2 interface.
- 4 Verify control signalling on the CSP and the signalling on the V5.1 and TAU channels.
- 5 Define a new AU PSTN in an existing Network Node, connect subscribers and take those into service.
- 6 Define a new AU ISDN in an existing Network Node, connect subscribers and take those into service.

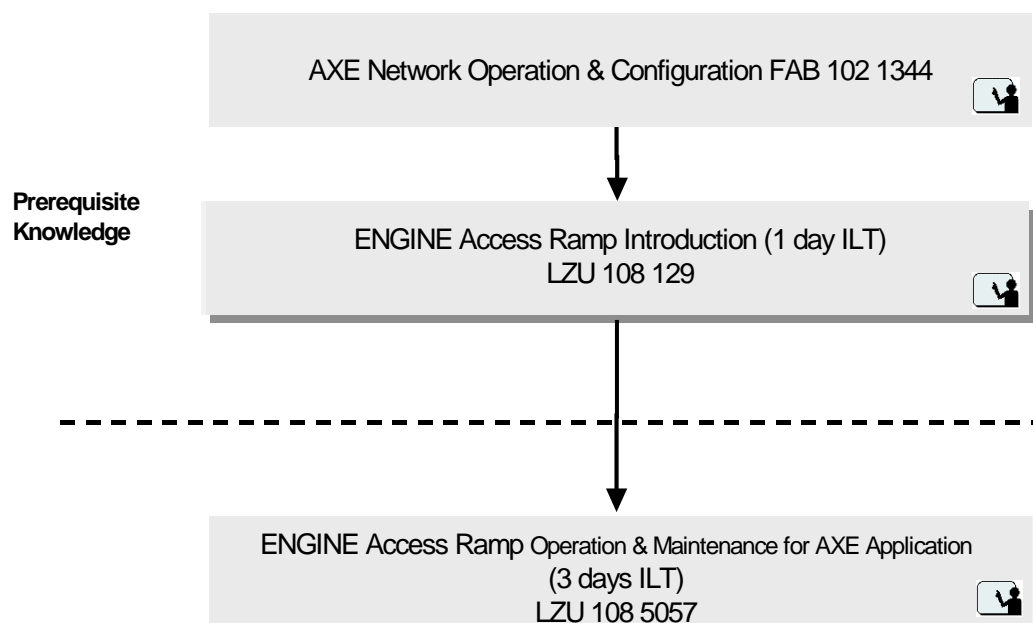


- 7 Check for alarms and take correct actions
- 8 Describe the HW units of the TAU and their main uses
- 9 Describe the main software blocks used by TAU, including the blocks for the different TAU applications
- 10 Carry out a function change of load module for a plug-in unit, from the LOG20 to the plug-in unit (AU orTAU).

8.4.2 Prerequisites

Students participating in this flow shall have attended the AXE Network Configuration flow or have equivalent knowledge.

8.4.3 Training Flow



8.5 ENGINE Core Signaling Network Configuration (FAB 102 1347)

The flow consists of one course which is designed to give the participant an in depth appreciation of signaling technologies used in telecommunications today. This course deals with the concepts that are introduced for the latest introduction to telecommunications and Engine Integral Networks. It covers topics relating to the initial signaling concepts evolving into the more advanced signaling techniques required for fixed networks. This course also relates new packet technologies like IP, ATM to modern day telecommunications.

The target audience for this course are Core Network Engineers, Core Network Specialists, ATM Transport Network



Specialists, 1st, 2nd and 3rd line Support Engineers (Ericsson internal) and Core Network Integration Engineers (Ericsson internal)

8.5.1 Main Learning Objectives

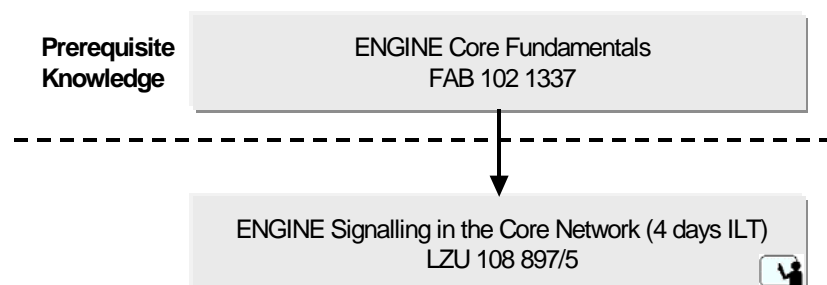
- 11 Explain the structure of the Signaling System No7
- 12 Describe three different signaling transport alternatives MTP, SAAL and SIGTRAN
- 13 Describe the user plane protocol stacks.
- 14 Explain ISUP, SCCP and TCAP.
- 15 Explain H.248 and BICC.
- 16 Explain the bearer control signaling of PNNI and IPBCP.
- 17 Explain SIP/SIP-T and H.323 signaling in EIN.

8.5.2 Prerequisites

Students attending this training flow shall have participated in the ENGINE Core Fundamentals flow.

8.5.3 Training Flow

ENGINE Core Signaling Network Configuration (FAB 102 1347)



8.6 ENGINE Integral Network Configuration (FAB 102 1348)

This training flow is targeted towards Operation & Maintenance as well as support personnel that will configure, operate and maintain the ENGINE Integral networks. The flow covers knowledge regarding how to configure and verify the functionality of the ENGINE Integral network as well as setting up connections and deal with alarms and fault finding. It deals with necessary configuration in all existing nodes of the network in order to establish the communication. It also contains the verification needed to secure a complete and successful configuration of the entire network and the access node interfaces supported.



The Operation and Maintenance course is suitable for anyone who will deal with daily activities relating to the operation of an Integral based ENGINE Network, monitoring and solving alarms. The Fault finding course will give the student more detailed knowledge on how to find faults in the network according to the guidelines. The faultfinding methods will help participants to locate the faults, which will lead to a more specified Trouble Reports.

This flow is of TOL nature, which means that the focus is on practical exercises that will be performed on the existing features and functionality.

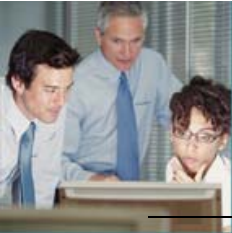
8.6.1 Main Learning Objectives

- 1 Know all network elements of an ENGINE Integral Network and understand how traffic is handled between the elements
- 2 Understand the HW and SW implementation in EIN
- 3 Establish CP communication between the Call Control Function (CCF) and the Mediation Logic (ML), and know what alarms that are connected to this interface.
- 4 Configure the interconnect interface (IC) between the CCF and the MGW(IC), and know what alarms that are connected to his interface
- 5 Configure the MGW control interface between the ML and the MGW, using H.248, and know what alarms that are connected to this interface.
- 6 Configure the Bearer Independent Call Control (BICC) interface between Telephony Servers (TeS) belonging to different domains, and know what alarms that are connected to this interface.
- 7 Configure at least two of the ETSI-ISUP, ANSI-ISUP, V5.2, ETSI- PRA, EAR and RSS accesses, and know what alarms that are connected these accesses.
- 8 Verify the configuration by making test calls, using the different accesses configured.
- 9 Make call-path tracings in CCF, ML and MGW.
- 10 Use faultfinding methods for the EIN to locate and solve faults.
- 11 Trace calls and connections through the EIN.
- 12 Understand recovery and reliability in the EIN.
- 13 Understand how to use the different counters for measurement in the EIN.

8.6.2 Prerequisites

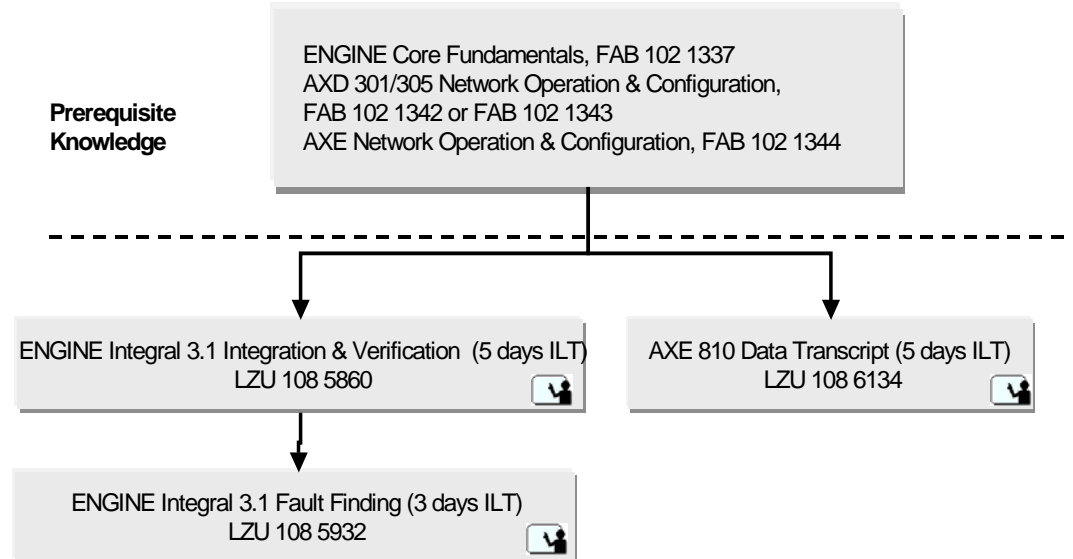
Students participating in this flow shall have attended the following courses or have equivalent knowledge.

ENGINE Core Fundamentals
AXD 301/305 Network Configuration
AXE Network Configuration



8.6.3 Training Flow

ENGINE Integral Network Configuration (FAB 102 1348)



9 ENGINE Networks – Business Management

9.1 ENGINE Business Management (FAB 102 1350)

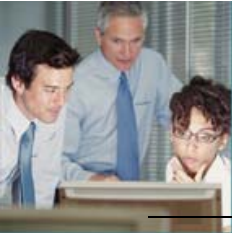
The purpose of this seminar is to provide senior staff and investors with an improved understanding of the key elements influencing the profitability of a future wireline operating company. The participants will improve their business acumen and get a better understanding of the interaction between operation and strategies. The prime goal for the seminar is to provide support for better planning and management of future wireline operating companies.

9.1.1 Main Learning Objectives

- 1 Understand the key elements influencing the profitability when planning a future wireline operating company.
- 2 Support better planning and management of a future wireline operating company.

9.1.2 Prerequisites

The student shall have a general understanding the fixed telecom systems.



9.1.3 Training Flow

ENGINE from a Business Perspective (2 days ILT)
LZU 108 5353

10 Customer Care

10.1 Agents, Tele Sales, Help desk staff and Team Leaders

10.1.1 Customer Care Professionalism, Customer Care

This training course is targeted towards Agents, receptionists, telesales staff and helpdesk staff. Any position that involves direct contact with the customer, either by phone or e-mail inbound and outbound roles in contact/call centres. It will give knowledge on how to answer any direct customer inquiry in a correct and professional manner. This course deals with how to handle customer calls, listening to customer inquiries, transferring calls, dealing with billing issues and listening to customer complaints and acting thereafter.

The Customer Care Professionalism is a training package built on a portfolio of various training modules. Modules are chosen depending of the profile of the target Customer Care organization. The Customer Care Professionalism will enhance the operation of your Customer Care organization through training of personnel on relevant tasks of operation.

10.1.1.1 Main Learning Objectives

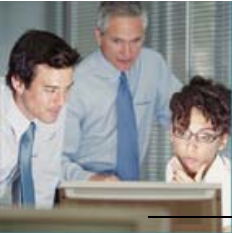
This training package will help a call-center employee to answer direct customer inquiries in a technically correct and professional manner. It will also help you to fulfill your goal regarding "number of inquiries from customers solved at first contact".

10.1.1.2 Prerequisites

General PC knowledge is required to participate in this course.

10.1.1.3 Training Flow

Customer Care Professionalism (2 days ILT)
LZU 108 3214



10.1.2 Team Leaders, Customer Care

The purpose of this course is to provide the team leader with useful tools for handling his/her role as a team leader being aware of such as group dynamics, group processes, conflicts, the importance of coaching etc. This course will be useful both for team leaders already in charge and for those who would like to become a team leader. Specific cases will be studied so that the participants interactively will be able to discuss how to handle eventual complications linking theory with practice.

10.1.2.1 Main Learning Objectives

- 1 Understand how a team leader at a call-center or another type of Customer Care Organization shall handle the role as a team leader being aware of what influences a team, its well-being and effectiveness.
- 2 Understand about leadership styles, team development, team roles, communication skills, tools for handling conflicts, guidelines for coaching and measuring quality.
- 3 Understand the importance of the team leader and his/hers collaborators as being the ones facing the customer and therefore delivering Excellent Customer Service.

10.1.2.2 Prerequisites

There are no prerequisites to this training flow.

10.1.2.3 Training Flow

The Complete Team Leader Course (2 days ILT)
LZU 108 2049

11 How Do We Deliver?

11.1 Process

All customer orders are placed with the Ericsson customer account team. The local Ericsson team is in turn supported by a training co-ordinator team and competence consultant your nearest Regional Training Center.

The co-ordinator team has close relations with all training units within Ericsson. Once the training schedule is agreed upon, the co-ordinator does the final bookings and produces a complete scheme for all training. When the courses start, the co-ordinator monitors the implementation and corrects and adapts changes that might be needed.



11.2 Delivery Methods

The content of our training package is delivered via web-based learning product or an instructor-led learning product, or a complete training flow consisting of several learning products, web-based and/or instructor-led.

The instructor-led courses can be delivered at Ericsson's regional or local training centers, or at your premises.

Ericsson Education Online provides you the access to web-based learning products, online articles, online booking to courses and support services through the Extranet or Internet portal.

11.3 Delivery Requirements

The training flows contain courses with practical exercises using Ericsson equipment. When these practical courses are delivered at the customer's premises, the customer must provide suitable training equipment for the course.

Using equipment in an operational network is generally not recommended, as Ericsson can take no liability for courses using live equipment.

11.4 Trainer profiles

All Ericsson teachers are certified in the course(s) that they are conducting. The certification is carried out according to Ericsson's global certification process. The certification process involves pedagogical skills as well as technical skills related to the particular subject for the course.

11.5 Responsibilities

Training at Ericsson Training Centers:

The Ericsson Training Center is responsible for booking of classrooms and training equipment, course invitations, course certificates, etc.

Training at your premises:



The organising Ericsson training center shall explicitly define the requirements of classrooms, equipment, etc. to the customer.

Your training organization is responsible for course invitations, booking of classrooms, equipment, etc. according to the instructor's requirements.

12 Prerequisites

As a requirement, prerequisite knowledge varies from individual courses, please have a look at the course descriptions for more specific information.

13 Related Services

Knowledge Step

A learning campaign to increase knowledge for a large number of people in an effective way, in a short time period, with high quality. It is a managed customised solution that can be used to increase knowledge in different areas. The service targets entire organizations and is scalable from 500 to 10 000 participants. It is easily tailored to the needs of different customers and target groups. The service objective is to increase the knowledge in a specific area for an entire organization or part of an organization in a limited time frame.

Competence Consulting

A service that evaluates the customer's competence and performance improvement needs, linking them to the customer's business goals. Using proven methods, Consultants assist executives, managers, and employees in the customer organization to achieve their full potential. The outcomes of this service include recommendations on complete and efficient solutions for competence development which are in alignment with business goals. The service can also provide the customer with job procedure definitions. The results of the service lead to higher performance levels and a more effective operational network and can also be used in such areas as career planning, recruitment and incentives planning.