Mobitex

Training Catalogue

1 Introduction

Employee training has a far greater strategic importance than ever before in the telecommunications business management. Ensuring that your staff will be fully able to take advantage of the constant stream of new technologies, new network structures and new customer requirements in today's dynamic markets.

The purpose of this catalogue is to present Mobitex training courses. Information on course objectives, prerequisite knowledge and who should attend the courses is included in the course descriptions. If you find the descriptions not comprehensive enough, please contact the Mobitex Training Centre in Gothenburg, Sweden and we will gladly provide you with more information.

Most of the courses consist of theoretical and practical sections. Some of the courses are intended mainly as practical courses and the number of students admitted to them is limited to facilitate better hands-on training.

Quality

To be able to give the best quality Mobitex training, all our instructors at the Mobitex Training Centre are certified. If the instructor is a certified Mobitex instructor, we can guarantee a high standard of knowledge of the Mobitex network, the latest new regarding hardware and software upgrades.

Contents

2 Practical Information

Address and telephone numbers

Mobitex Technology AB
Training Centre
Theres Svensson gata 15
SE-417 55 GOTHENBURG
SWEDEN

Exchange: +46 31 350 20 00
Fax: +46 31 350 20 10

E-mail: training@mobitex.com

Course Location

The Mobitex Training Centre is located at the address above.

Course Language

Courses are mainly held in English, unless other agreements have been made.

Additional Information

If you need further information regarding courses, please contact the Mobitex Training Centre.

Cancellation

If it is necessary to cancel a course, Mobitex Technology must be immediately notified in writing. If the notice of cancellation is received less than 4 weeks prior to the course starting date, 20% of the total course fee will be charged. If the cancellation is received later than 2 weeks prior to the scheduled start, the full course fee will be invoiced. Please note that each course requires a minimum number of trainees, and Mobitex Technology has the right to cancel a scheduled course if that number is not reached.

Seminars

In connection with new Mobitex System releases, update seminars or workshops can be offered. These are intended for marketing and technical personnel respectively.

Course Fee Specification

The following is included in all courses held at Mobitex Training Centre in Gothenburg.

- Teacher / Teachers
- Course documentation
- Rental of hardware
- Lunches

3 Mobitex Courses

3.1 Mobitex System Overview

Order number
FAB 801 1874 (1 day)
FAB 801 1875 (2 days)

General
This course provides an overall description of the Mobitex system.

Objectives
After completing the course the participant will have a general understanding of the Mobitex system and its applications. This course is an entry requirement for several other Mobitex courses.

Contents

Day 1 - Overview
- Introduction
- Applications
- Network structure
- System characteristics
- Traffic routing
- Charging principles
- Network components

Day 2 "Technical Continuation"
- Network communication
  - Protocol overview
  - MPAK
- Radio
  - ROSI / Air Interface
  - Radio channels
- Network / Cell planning
- Summary

Training methods
Theoretical lessons and exercises.

Who should attend
All personnel who will work with the Mobitex network.

Entry requirements
Basic knowledge of radio and data communication.

Duration
1 or 2 days

Remarks
This course can be ordered in two versions, one (1) day or two (2) day version. The 1-day version will cover the first day of the two-day versions.

Max/Min number of students: 25 / 8

3.2 Mobitex Network Installation & Maintenance

Order number

FAB 801 1902 (MX and BRU3, 4 days)
FAB 801 1903 (MX, 2 days)
FAB 801 1904 (BRU3, 2 days)

General

The course provides a detailed description of the network nodes and included hardware components. The course is intended for field engineers who will be involved in installation, commissioning, operation and maintenance of Mobitex network nodes.

Objectives

After completing the course the participants will be able to understand the hardware down to board level as well as be able to install, commission, operate and maintain the network nodes.

Contents

- Description and use of the Mobitex system library
- Functional and hardware descriptions of the network nodes
- Installation principles and site requirements
- Hardware configuration
- Connection and operation of node operator's terminal, NODOP
- Reading of console printouts
- Commissioning and maintenance of nodes
- Troubleshooting

Training methods

Theoretical lessons and theoretical/practical exercises.

Who should attend

Operation, maintenance, installation and commissioning personnel.

Entry requirements

Mobitex System Overview course or corresponding knowledge.

Duration

4 days or 2 days

Remarks

The course includes the network nodes MX and/or BRU3.

Note that this course can be ordered in three versions.

The course requires that technical documentation and equipment, such as Mobitex network nodes, tests tools and equipment for measurement, is available and working. It is therefore recommended that the course be held at the Mobitex facility.

Max. number of students: 8 (if two nodes of each type is available, otherwise the maximum number of students is 6).

Min. number of students: 4

3.3 NCC Operation & Maintenance

Order number FAB 801 1881

General The course provides the knowledge and skills necessary for operating the network using NCC Operation & Maintenance tools.

Objectives After completing the course, the participants will be able to operate and maintain the entire network from the network control centre, NCC.

Contents

- Introduction to NCC
- How to use the digital client library
- The NCC Tool-box, NCC environment
- Network configuration
- Network management
- Alarm management
- Configuration and redundancy
- NCC System Management and housekeeping
- Planned new functionality

Training methods Theoretical lessons and practical hands-on exercises.

Who should attend NCC system manager, network operation and maintenance personnel, personnel with a need for understanding the available tools for handling the Mobitex NTE network.

Entry requirements Mobitex System Overview course. Experience from terminal handling.

Duration 5 days

Remarks The course requires an operational Mobitex system, fully equipped with an NCC and necessary terminals, printers, documentation, etc. It is therefore recommended that the course be held at the Mobitex facility.

Max/Min number of students: 8 / 4

3.4 NCC Subscription Management

Order number FAB 801 1882

General The course provides an understanding of how to administrate and handle subscriptions in the NCC system.

Objectives After completed course, the participants will be able to:
- Administrate the customer subscription
- Use SAM knowledge to support operation and maintenance personnel in troubleshooting.
- Handle invoicing procedures

Contents
- Introduction to SAM
- How to use SAM
- Subscription Administration Tools
- Accounting (subscription states, different changes)
- Billing processes
- Troubleshooting
- System management
- Daily routines

Training methods Theoretical lessons and practical hands-on exercises.

Who should attend NCC system managers, system network administrators, operation and maintenance personnel, personnel with a need for understanding the available tools for handling the Mobitex NTE network.

Entry requirements Mobitex System Overview course.

Duration 2 days

Remarks The course requires an operational Mobitex system, fully equipped with an NCC and necessary terminals, printers, documentation, etc. It is therefore recommended that the course be held at the Mobitex facility.

If the course is run together with the NCC O&M course, the total course length is seven days. To order the OM and SAM course run together please state both FAB 801 1881 and FAB 801 1882 in the training order form.

Max/Min number of students: 8 / 4

3.5 Mobitex Application Design & Development

Order number
FAB 801 1877 (2 days)
FAB 801 2384 (3 days)

General
The Access Protocols for Applications course gives an Overview of protocols used in Mobitex. Questions related to designing applications for Mobitex are also discussed.

Objectives
After completing the course the student will be able to correctly design and develop applications for Mobitex. The student will also have knowledge of the ways to connect to a Mobitex network, and how to use Mobitex Data Packets.

Contents
Day 1 & 2
- Overall update on applications as well as available hardware, i.e. modems, terminals and PDAs (Personal Digital Assistants) used on Mobitex networks around the world today.
- General knowledge concerning the Mobitex infrastructure, its hardware components, software functionality and features.
- How data packets are routed in/out and within a Mobitex network and the concept of roaming.
- A thorough orientation regarding the essential communication protocols.
- How to write Java applications for M3000 Mobitex modem.
- Finally the student will be trained to avoid the most common pitfalls when developing wireless applications.

Day 3
- Hands-on training for Java programming of the M3000 modem.

Training methods
Theoretical lessons and exercises.

Who should attend
System integrators, application designers and technical support staff.

Entry requirements
Basic knowledge of Radio and Data communication.

Duration
2 days or 3 days.

Max/Min number of students: 16 / 8

3.6 Cell Planning Principles

Order number FAB 801 1884

General The course has been specially designed to give the students a general understanding of cell planning principles, applicable to MRS6000 Mobitex networks. The course is suitable for both 900 MHz and 400 MHz networks and addresses Mobitex System Software Releases R14E, R14N and NTE. The book “CME20 Cell Planning Overview” will be used in applicable parts together with the “Mobitex Cell Planning Guidelines” document.

Objectives After completing the course the participant will have an understanding of the cell planning principles and can relate them to the practical behavior and performance of the network.

Contents

- General properties of electromagnetic waves
- How information is superimposed on radio waves
- Radio wave propagation and attenuation
- Pathless fast signal variations, i.e. fading parameters that affect channel capacity
- Application profiles and their impact on the traffic capacity of a radio channel
- Blocking and delay
- BAS output power, balancing a cellular system
- Common re-use patterns, interference problems
- Site survey optimization of a radio network
- How system growth affects cell planning roaming parameters like ‘good base’, ‘better base’ and ‘bad base’

Training methods Theoretical lessons.

Who should attend People involved in the planning or operation of a Mobitex network who want to increase their knowledge on the principles of the cell planning process for a Mobitex Wireless Data network and the consequences on its performance.

Entry requirements Basic knowledge of radio and data communication. General knowledge of Mobitex as well as RF-knowledge is an advantage.

Duration 1 day

Max/Min number of students: 16 / 8

3.7 Mobitex MPAK Router

Order number FAB 801 3919

General The Mobitex MPAK Router is an independent product, which is used as a gateway to the Mobitex network. This course gives information related to the MPAK Router functionality, supervision and configuration.

Objectives After completing the course the student will have basic knowledge of the MPAK Router product and how it is used to connect host applications to the Mobitex network. The student will also be able to supervise and configure an MPAK Router with the aid of the customer documentation.

Contents

- Purpose of the MPAK Router
- Characteristics of the MPAK Router
- Hardware setup
- Supervision through an SNMP manager
- Supervision through the command line interface
- Configuration
- Migration

Training methods Theoretical lessons

Who should attend System integrators and technical support staff.

Entry requirements Mobitex System Overview course

Duration 1 day

Max/Min number of students: 25 / 8

3.8 IAS - IP Access Server

Order number FAB 801 1905

General This seminar is designed to teach an understanding of the IP Access Service (IAS).

Objectives After completing this seminar the participant will have an understanding of the IAS.

Contents

- IAS presentation
- MDOT
- Demo Application
- Graphical User Interface (GUI)

Training methods Theoretical seminar

Who should attend Anyone who will be involved with extending the Mobitex network with IP Access.

Entry requirements Mobitex System Overview course

Duration 1 day

Max/Min number of students: 25 / 8

3.9 NTE Upgrade Seminar

Order number FAB 801 1883

General This seminar is designed to teach an understanding of the third generation Mobitex System Release called “NTE”.

Objectives After completing this seminar the participant will have an understanding of new functionality in System Release NTE compared to R14 System Releases.

Contents

- Network Topology Enhancement
- Objectives of NTE
- Overview
- The backbone
- BIU, NIU, DRR
- Client/Server technology and user interface
- The digital client library

Training methods Theoretical lecture

Who should attend People that are or will be involved in the planning or operations of a Mobitex NTE network.

Entry requirements Previous Mobitex R14 knowledge.

Duration 1 day

Max/Min number of students: 25 / 8

4 On-site Courses

Arrangements can be made to have standard courses held at your location. We will provide instructor/instructors and necessary course documentation. The customer is assumed to provide classroom facilities and all necessary training equipment. On-site courses can be tailored to your specific needs. Scheduling for on-site courses must be arranged no later than 2 months before the date when training should commence.

The customer should provide the following items at any course:

- A classroom equipped with a white-board and OH projector/Data projector.

At On-site NCC courses, the following equipment is needed:

- One PC per 2 students (Maximum number of participants at the NCC course are 8).
- NCC with correct HW (Alpha, VAX, PC).
- At least one MOX of MX type.
- At least one BAS (BRU3 or BRS2).
- At least one FST.
- At least one mobile (the mobile shall have the same frequency as the BAS).
- Config for modem.
- Cables for NODOP and CONSOLE (2 different kinds of each).

At On-site Network Installation & Maintenance courses (MX and BRU3), the following equipment is needed:

- A classroom for 8 students – no computers will be needed.
- One MX and BRU3 connected to the NCC
- Access to -48 V (MX)
- Access to ~220 V/110 V (BRU3)
- Main ground Wire (35 mm²) connected to the main ground for the site.

Additional costs for On-site courses

- Should it be necessary to borrow equipment from the Training Centre for the course, no charge will be levied for the actual loan. But transportation costs of equipment from/to Sweden will be charged to the customer.
- Travel costs, hotel accommodation and allowances for the teacher/teachers are not included in the course fee and will be charged separately.
- Travel, accommodation, all transport, allowances and lunches for the students are not included.

5 Customer Specific Training

Upon request Mobitex Technology can provide customer-specific training. Please specify what kind of training that is needed, how many students will attend and any other information of importance regarding your training requirements. Please allow two weeks for a response. A request for customer-specific training must be sent three months prior to the date when training is to commence.

Current customer specific trainings are listed below.

- R14 NCC Operation & Maintenance FAB 801 1878
- R14 NCC Subscription Management FAB 801 1879