framatome

# IC academy

Training Solutions 2021

# IC academy

**With more than 40 years of training experience, Framatome's full training portfolio includes courses on virtually every aspect of nuclear power plant construction and operation. We also design individually tailored training programs and courses to suit our customers' specific requirements. Our long-standing relationships with global experts, utilities, and institutions give us the necessary expertise to offer valuable insights into nuclear safety policy and procedures.**

**Our training solutions focus on:**

- Certified, experienced instructors and experts in all fields of nuclear technology
- Competent advice and support regarding your intended training goals
- Practical courses with applied training on real-life systems
- Training curriculum customized to your needs
- High-quality training materials individually tailored for each course and customer

## Our promise to you

Framatome offers comprehensive training solutions for the development, construction and maintenance of nuclear power plants. Our IC academy is home to world-leading experts in the industry, ready to share their know-how and experience with your operational teams. Framatome delivers the training programs you need to help you achieve your team's development goals.

**Your performance**
is **our** everyday **commitment**

# TRAINING LOCATIONS

**Framatome offers extensive system and operations training at our modern training facilities or on-site at customer locations worldwide.**

### France

Framatome France offers instrumentation and control trainings drawn from decades of operational experience and best practices. Courses are available at Framatome sites in Lyon and Paris, as well as at actual plant sites like Flamanville. To ensure the best training for all customers, classroom and hands-on instruction are provided by our training experts.

### Germany

For more than 40 years Framatome has provided extensive training courses covering both nuclear plant construction and operation at our Training Center in Karlstein and Erlangen. Comprehensive instrumentation and control training is further supported by actual platforms and component mock-ups allowing participants to learn in realistic environments.

## USA

Located in Lynchburg, Va., Framatome's Technical Training Center is located on 3.5 acres,  with full-scale mock-ups, classrooms, offices, and labs to meet the growing nuclear site maintenance needs in the U.S. and around the world. Course participants receive classroom and hands-on training for plant-specific instrumentation and control configurations and new procedures in a safe, realistic environment.

## China Slovakia

We also offer instrumentation and control academy training courses near customer locations in China and Slovakia for our local customers in Asia and Eastern Europe. The full list of courses is continually expanding and is also available in customers' native language. Our teams of trainers look forward to welcoming you at one of the Framatome facilities, or provide training at your local facility.

# TELEPERM XS
## DIMAS Fundamentals

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 3 days |  Framatome Karlstein |  German / English |

### TARGET GROUP
This course is intended for I&C engineering, V&V, commissioning and maintenance personnel.

### OBJECTIVES
Upon successful completion of this course, participants will be able to:
- Explain the interaction between DIMAS and the online system
- Explain the basic functionalities of a Service Unit and CPU operating modes
- Perform parameter changes
- Explain DIMAS clients and their functionalities
- Develop DIMAS scripts using DIMAS Client API
- Implement Graphical Service Interfaces with the aid of dimasQt

### CONTENT
This course covers DIMAS functionality, version 3.6.x. The functionality and the possible applications of the Service Unit and DIMAS (including clients) are explained and consolidated on with the aid of practical exercises. The Python programming interface is explained on the basis of the DIMAS Client API with reference to practical examples. The programming skills acquired are used to perform the first steps in the development of a Graphical Service Interface. The course covers the following topics in detail:
- Introduction to the Service Unit and DIMAS
- Principle of the TELEPERM XS service concept
- Functionality of DIMAS clients (TXSStatus, FDView, EventLog, DIMAS-Shell)
- Introduction to the DIMAS client API (dimasUtil)
- Introduction to operating modes and parameterization
- Development of scripts and Graphical Service Interfaces
- Practical exercises

### PREREQUISITES
Knowledge of Python is mandatory.
Basic knowledge of I&C and experience in digital automation systems, as well as basic TELEPERM XS knowledge, are advantageous but not essential. General IT skills and Linux knowledge are necessary.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Engineering Detailed Design

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 5 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for external/internal engineers (I&C, IT, QM) and training personnel, qualification personnel.

### OBJECTIVES
Upon successful completion of this course, participants will be able to:
- Name the basic properties of TELEPERM XS I&C systems with respect to system design, hardware and software
- Explain the most important steps and tools of the engineering process
- State the tools required for engineering of TELEPERM XS I&C systems
- List the tasks and contents of I&C requirement and system specification
- Use the engineering tools for code generation, verification & validation, testing and documentation of TELEPERM XS application software

### CONTENT
In addition to a short introduction to TELEPERM XS basics, the course covers the most important elements of the TXS engineering process. It gives an overview of how to generate an I&C system specification and detailed engineering of software coding, as well as the verification and validation of the individual process steps using the associated engineering tools (SPACE). The validation tool SIVAT is also examined closely. The theoretical knowledge is consolidated in practical exercises. The course covers the following topics in detail:
- TELEPERM XS basics
- TELEPERM XS engineering process (overview)
- Overview of I&C requirement and system specification (levels 1-4)
- SPACE function diagram editor (FDE) in detail
- SPACE database design (identification coding concept, tips and rules)
- Generation of an I&C system specification (hardware, software)
- Application software coding using all SPACE tools
- Validation of the application software using SIVAT

### PREREQUISITES
Basic knowledge of I&C and experience in digital automation systems, and basic knowledge of TELEPERM XS (such as the prior attendance of a TELEPERM XS basic course). General IT skills are desirable.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Engineering Detailed Design - Compact

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 3 days | Framatome Karlstein | German / English |

**TARGET GROUP**
I&C engineering personnel, as well as I&C test and commissioning personnel who have already taken part in an engineering course.

**OBJECTIVES**
Upon successful completion of this course, participants will be able to:
- Recall the basic knowledge of TELEPERM XS I&C systems with regard to system architecture, hardware and software
- Revise important steps and content of engineering processes
- Explain the tools which are necessary for engineering of TELEPERM XS I&C systems
- Use the engineering tools for creation, verification & validation and documentation of TELEPERM XS software independently

**CONTENT**
This course is a refresher course for all persons who have previously participated in an engineering course. The most important features and topics of TELEPERM XS engineering are revised in a compact manner. This course is based on the TELEPERM XS Engineering Detailed Design engineering course. The participants perform practical exercises to expand and consolidate their knowledge.
The following topics are covered in detail:
- TELEPERM XS basics (function computer, system architectures and properties)
- TELEPERM XS engineering process (concept)
- SPACE function diagram editor (FDE)
- Create an I&C system specification (hardware and software)
- User software coding using all SPACE tools
- Practical exercises

**PREREQUISITES**
TELEPERM XS system knowledge with regard to architecture, hardware and software.

**OTHER INFORMATION**
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Fundamentals Compact

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 3 days | Framatome Karlstein | German / English |

### TARGET GROUP
Personnel involved in I&C project processing, including management staff and personnel in sales/marketing of I&C equipment and licensing authorities.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- Explain the architecture, function computers, TELEPERM XS hardware modules, as well as the system properties of a TELEPERM XS system
- State the TELEPERM XS engineering process
- Design part of a database
- Perform some tasks with TELEPERM XS SPACE tools
- Identify and explain maintenance and diagnostic possibilities

### CONTENT
This course essentially covers the same topics as course TELEPERM XS Fundamentals including practicals, but in a condensed form. Course participants receive an overview of TELEPERM XS products, the engineering process and the process of operation and maintenance. They learn about selected hard- and software components, as well as system properties. Safety I&C architectures and maintenance/diagnostic applications are presented.
The course covers the following topics in detail:
- Basics of the TELEPERM XS system (function computer with architecture, hardware and software with system properties)
- Engineering process (incl. V&V and function specifications)
- Important function specifications as part of a database (network plan)
- SPACE tools, which are a part of the engineering process
- Introduction to maintenance and the necessary tools
- Simple demonstrations and exercises are included

### PREREQUISITES
General knowledge of automation technology for safety systems in nuclear power plants.

### OTHER INFORMATION
This course will be the basis for the following courses: TELEPERM XS-Maint, TXS-QDS, TXS-HW2G, TXS SIVAT, TXS-ADMIN
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Fundamentals including Practicals

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 5 days | Framatome Karlstein | German / English |

### TARGET GROUP
Personnel involved in I&C project processing, including management staff and personnel in sales/marketing of I&C equipment and licensing authorities.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- Explain the architecture and function computers of a TELEPERM XS I&C system
- State the basic functions of the hardware modules
- Explain TELEPERM XS system properties and fault detection
- State the TELEPERM XS engineering process in detail
- Design simple databases
- Work with the TELEPERM XS SPACE tools
- Interpret the diagnostic possibilities

### CONTENT
This course covers the overall concept of the safety I&C system platform TELEPERM XS (TXS). It gives an overview of TELEPERM XS products, the engineering process (including V&V and SPACE tools) and operation (handling, maintenance). The most important TELEPERM XS hardware and software components, as well as their system properties, are presented. TELEPERM XS safety architecture and maintenance/diagnostic applications are explained. The following topics are covered in detail and their practical applications are stated:
- Basics of the TELEPERM XS system (architecture, function computers, Hardware 2nd generation and system properties)
- Engineering process, including function specifications and V&V management
- Specification of a database with hardware & software plans (detailed engineering)
- Engineering tools (SPACE)
- Introduction to diagnostics and any tools required
- Overview of the Test Bay and ERBUS
- Practical exercises, demonstrations and seminar tasks

### PREREQUISITES
General knowledge of automation technology for safety systems in nuclear power plants. General IT skills and knowledge of Linux required.

### OTHER INFORMATION
This course will be the basis for the following courses: TELEPERM XS-Maint, TXS-QDS, TXS-HW2G, TXS SIVAT, TXS-ADMIN
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com
for more information

# TELEPERM XS
## Fundamentals Overview

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 2 days | Framatome Karlstein<br>Framatome Beijing | German / English / Chinese |

### TARGET GROUP
Personnel involved in I&C project processing, including management staff and personnel in sales/marketing of I&C equipment and licensing authorities.

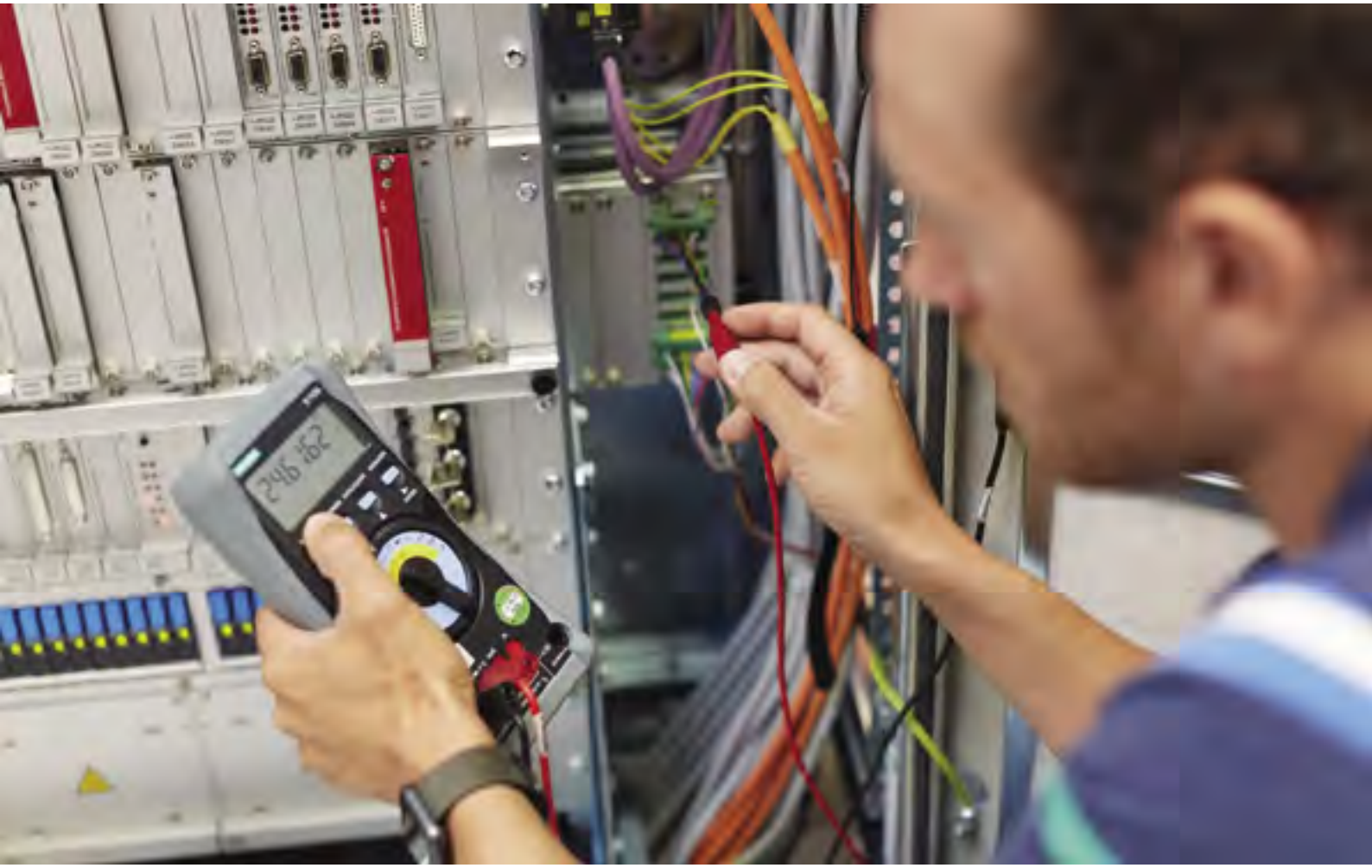
### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- Explain the basic concepts of the TELEPERM XS system platform
- Identify the relevant hardware modules of the system platform
- State the system properties of the digital I&C system and the possibilities for fault detection
- Explain the basic principles of engineering and maintenance

### CONTENT
This course gives a condensed overview of TELEPERM XS products. The participants learn about individual components of the TELEPERM XS system. This includes hardware and software components, and an initial insight into the system properties, the engineering process and maintenance.
The course covers the following topics in detail:
- Basics of the TELEPERM XS system
- TELEPERM XS function computer and system architectures
- Overview of the most important hardware/software modules and TELEPERM XS system properties
- Overview of the engineering process
- Introduction to maintenance
- Presentation of additional demonstrations

### PREREQUISITES
General knowledge of automation technology for safety systems in nuclear power plants.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information



# TELEPERM XS
## Hardware 2nd Generation

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 3 days | Framatome Karlstein | German / English |

**TARGET GROUP**
This course is intended for I&C engineering personnel, technical project managers, I&C testing, commissioning and maintenance personnel.

**OBJECTIVES**
Upon successful completion of this course, participants will be able to:
- State the basics of TELEPERM XS Hardware 2nd generation
- Explain the connection between the mechanical structure of a cabinet and the conceptual requirements regarding the assembly of a TXS cabinet
- Explain the structure and the operating principle of cabinet modules and cabinet connection techniques
- Plan the hardware in the engineering process (e.g. cabinet arrangement diagram)

**CONTENT**
The course begins with an introduction and an overview of TELEPERM XS Hardware 2nd generation. The actual properties of the TELEPERM XS Hardware 2nd generation are presented, including the new range of TELEPERM XS modules. The course provides information on purpose, structure and function of the modules, including cabinet power supply, circuit breaker and monitoring. A cabinet arrangement diagram will be designed. Thereby, the relationship between engineering specification and the functionality of the cabinet modules are mediated. This includes coding concept, standards, cabinet structure, mechanics, etc. The course covers the following topics in detail:
- Basics of TELEPERM XS hardware components
- Purpose, structure and operating principle of modules
- Non-code-relevant analog and binary modules
- Code-relevant modules (computer, communication, input and output modules)
- Creation of a cabinet arrangement diagram using VISIO
- Consolidation of instruction material in theoretical and practical exercises

**PREREQUISITES**
Basic knowledge of I&C and digital automation systems, basic knowledge of TELEPERM XS (introductory course). Generic IT skills (VISIO) are advantageous.

**OTHER INFORMATION**
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Maintenance HW2G/DIMAS

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 10 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for I&C maintenance personnel and I&C testing and commissioning personnel.

### OBJECTIVES
Upon successful completion of this course, participants will be able to:
- Explain TELEPERM XS basics, architecture and system properties
- Explain concept and mechanisms of TELEPERM XS maintenance
- Independently diagnose and troubleshoot the TELEPERM XS system (HW faults/SW errors) with aid of the TXS Service Unit and rectify the faults/errors
- Identify hardware faults, replace faulty modules, change parameters, save changes and load software
- Document the troubleshooting

### CONTENT
The course covers all aspects of TELEPERM XS maintenance for carrying out independent diagnosis, troubleshooting, parameterization, module replacement and commissioning of a real system. The theoretical knowledge is consolidated in practical exercises.
The course covers the following topics in detail:
- Basics of the TELEPERM XS system (system architecture, HW2G, system properties, engineering, coding concept)
- Diagnosis using the TELEPERM XS Service Unit (monitoring and annunciation concept, SU, DIMAS and DIMAS clients, introduction, operating modes and parameterization)
- Diagnosis and maintenance at the training cabinet (independent diagnostic analysis with the Service Unit and the training cabinet, module replacement, commissioning of the system in accordance with the actual TXS documentation)
- Technical documentation of faulty modules in accordance with the return procedure

### PREREQUISITES
Basic knowledge of I&C and experience in digital automation systems. TELEPERM XS basic knowledge (e.g. attendance of TXS basics or engineering). Knowledge of Python is required. Generic IT skills and Linux knowledge are necessary.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Maintenance HW2G/DIMAS

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 5 days | Framatome Karlstein | German / English |

**TARGET GROUP**
I&C maintenance personnel, including I&C testing and commissioning personnel.

**OBJECTIVES**
Upon successful completion of this course, course participants will be able to:
- Explain the TELEPERM XS basics, architecture and system properties
- Explain the concept and mechanism of TELEPERM XS maintenance
- Use the different DIMAS clients on the Service Unit (SU) for TELEPERM XS diagnosis and maintenance
- Monitor the TELEPERM XS system, modify parameters and verify parameter changes
- Explain module exchange procedure and module settings

**CONTENT**
The course is based on TELEPERM XS Hardware 2nd generation and the 2nd generation of TELEPERM XS core software version ≥ 3.6.x with DIMAS clients.
The course starts with a short introduction to TELEPERM XS basics and their plant-specific applications. The main focus is on function, application and handling of the TELEPERM XS Service Unit as a tool for diagnosis and troubleshooting in TELEPERM XS systems. Further topics are diagnosis at the cabinet and methods and handling for module replacement.
The course covers the following topics in detail:
- TELEPERM XS basics (system architecture and system properties; HW2G; SPACE function diagram editor FDE)
- Basics of TELEPERM XS maintenance with the Service Unit (DIMAS introduction, DIMAS clients, operating modes and parameterization)
- TELEPERM XS diagnostics at the cabinet (identification/repair of errors at the cabinet; replace or set modules)
- Practical exercises

**PREREQUISITES**
General IT skills and basic I&C knowledge as well as knowledge of digital automation systems. Basic knowledge of TELEPERM XS (e.g. previous attendance of TELEPERM XS basics or engineering course) is desirable.

**OTHER INFORMATION**
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Maintenance HW2G/SMS

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 5 days |  Framatome Karlstein |  German / English |

### TARGET GROUP
I&C maintenance personnel and I&C testing and commissioning personnel.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- State basics of the TELEPERM XS system (e.g. architecture, hardware and system properties)
- Explain the concept and mechanism of TELEPERM XS maintenance and its use in the context of maintenance service
- Carry out the following activities independently: system error analysis, diagnosis, troubleshooting and recovering

### CONTENT
The course is based on TELEPERM XS Hardware 2nd generation and the core software version 3.3 x with SMS and GSM as diagnostic tools. After a short introduction to the basics and their plant-specific application, the course focuses on the functionality, application and use of the Service Unit, which is the main tool for fault detection and diagnosis. The theoretical knowledge is consolidated in practical exercises.
The essential elements of the course are:
- System Basics (function computer and system architectures, Hardware 2nd generation and system properties)
- The basics of maintenance
- Fault analysis and diagnosis using the Service Unit and the TELEPERM XS cabinet
- Procedure and handling of module replacement
- Loading software and verify loaded software and parameter settings

### PREREQUISITES
Basic knowledge of control and digital automation systems, basic knowledge of TELEPERM XS by preference. Previous attendance of a TELEPERM XS basics or engineering course is desirable but not essential.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## QDS (Qualified Display System) Applications

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 2 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for I&C personnel, electrical, simulator training instructors and power plant operators.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- Explain the concept and mechanisms of QDS
- Use QDS, including connection to a TELEPERM XS system
- Use engineering tools such as Qt Designer, QDS_Gen, QDS_HMI and QDS_SU
- Monitor the connected TELEPERM XS system
- Modify settings
- Download application to QDS hardware

### CONTENT
The course provides an overview of the concept and function of the TELEPERM XS QDS (Qualified Display System). The participants learn how a QDS system is integrated into TELEPERM XS and design a QDS application using the QDS tools QDS_Gen, Qt Designer, QDS_HMI and QDS_SU. At the end of the training course, they are able to download their applications onto the QDS hardware, which is connected to a TELEPERM XS training cabinet.
The course covers the following topics in detail:
- Hardware architecture
- Software architecture
- QDS in SPACE
- Engineering tools
- Designing displays
- Connection of signals and HMI
- QDS Service Unit
- Practical exercises

### PREREQUISITES
Basic TELEPERM XS knowledge (e.g. previous attendance of a TELEPERM XS fundamentals course or TELEPERM XS engineering course) is desirable. IT skills and Linux knowledge are necessary.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## SIVAT - V1.8 Verification and Validation

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 2 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for I&C engineering personnel and personnel who want to acquire comprehensive knowledge in this field.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- Explain the field of application SIVAT in the engineering process and the concept and function of SIVAT (1.8)
- Generate a simulation code by using SIVAT (1.8)
- Create simulation scripts
- Test and validate I&C functions

### CONTENT
This course covers the function of SIVAT (SImulation based VAlidation Tool V1.8) and the generation of SIVAT code. In addition, the course participants will learn how to work with SIVAT. They will learn to test and validate the engineered I&C functions in the software environment of SIVAT by using scripts.
The course covers the following topics in detail:
- The purpose, principle and requirements of the SIVAT simulation
- Generation of simulation code for an exemplary project of simulator structure
- Graphical user interface of SIVAT
- Work with simulation scripts
- Signal manipulations and simulation of malfunctions
- Practical exercises

### PREREQUISITES
A basic background in I&C and in electrical engineering. Experience with digital automation systems is desirable. TXS basic knowledge (such as participation in a TELEPERM XS fundamentals course) is mandatory, prior attendance of a TXS engineering course desirable.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## SIVAT - V3.6 Verification and Validation

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 3 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for I&C engineering personnel and personnel who want to acquire comprehensive knowledge in this field.

### OBJECTIVES
Upon successful completion of this course, participants will be able to:
- Explain the purpose, principles and requirements of a SIVAT simulation
- Use the SIVAT user interface (3.6.x)
- Explain and use the SIVAT Client API (3.6.x)
- Explain the interaction between DIMAS and SIVAT objects
- Specify and explain SIVAT test cases and their functions
- Create SIVAT test scripts using Python

### CONTENT
This course covers the function of SIVAT (SImulation based VAlidation Tool) version 3.6.x. Course participants learn about the functions of SIVAT and how it is used in the engineering process. Subsequently, the SIVAT programming interface available in Python is explained using practical examples. Based on this, the participants validate an I&C function using the SIVAT code by developing their own SIVAT/Python test script. The course covers the following topics in detail, both theoretically and practically:
- Scope of SIVAT applications during the engineering process
- The concept and functionality of SIVAT
- Script design with help of SIVAT Client API
- Interaction between SIVAT and DIMAS
- Simulation of malfunctions
- Automation of test cases
- Integration of external models

### PREREQUISITES
Knowledge of Python is mandatory. Attendance of DIMAS course L540.1 is also recommended. Basic knowledge of I&C and experience in digital automation systems are desirable. IT and Linux knowledge is necessary.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Special Basic/Eng/Maint/Operation

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 2x 5 days | Framatome Karlstein | German / English |

### TARGET GROUP
Customers and staff members with an interest in acquiring comprehensive knowledge of the TELEPERM XS safety I&C system in a very short time.

### OBJECTIVES
Upon successful completion of this course, course participants will be able to:
- State the basic properties of TELEPERM XS I&C systems with respect to system design, hardware and software
- Explain the most important system architectures of the safety I&C
- Describe fundamental features of the TELEPERM XS Hardware 2nd generation and understand the engineering process
- Work with the SPACE engineering tools, carry out system diagnostics and know and understand the features of the Test Bay

### CONTENT
The course provides a detailed insight into all engineering activities for the TELEPERM XS system platform. The participants consolidate their knowledge in practical exercises.

**Part 1:**
- TELEPERM XS basics (function computer, TELEPERM XS engineering process, system architecture, Hardware 2nd generation, system properties)
- Introduction to I&C function specifications (levels 1-4)
- SPACE function diagram editor (FDE), design rules, and practical applications of SPACE tools
- Exercises relating to hardware and software specification and application code generation

**Part 2:**
- TELEPERM XS maintenance (monitoring concept, diagnosis at the cabinet, introduction and diagnosis using Service Unit and DIMAS, module replacement and settings, loading and verifying software, and practical exercises concerning troubleshooting)
- SIVAT introduction
- TELEPERM XS Test Bay (introduction, Test Bay structure, test program, procedure and performance)

### PREREQUISITES
Basic knowledge of I&C and of digital automation systems and generic IT skills are desirable.

### OTHER INFORMATION
This is a two-part course, each part lasting 5 days. Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## SYSADMIN-Linux Fundamentals

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 2 days | Framatome Karlstein | German / English |

### TARGET GROUP
This course is intended for technicians responsible for the administration of a TELEPERM XS system.

### OBJECTIVES
Upon successful completion of this course, participants will be able to:
- State the basic functions of the TELEPERM XS Service Unit (SU)
- Configure TELEPERM XS hardware and software for a SU
- Install and test TELEPERM XS Core Software
- Perform basic administrative tasks on a TELEPERM XS Service Unit

### CONTENT
The course is based on the Linux operating system and TELEPERM XS software version higher than 3.3. using the TELEPERM XS Service Unit. The participants learn how to set up and administrate users, groups and printers. Furthermore, they learn how to install TELEPERM XS software packages. YaST system administration is also dealt with. Handling of the KDE desktop environment will be consolidated. The participants consolidate the acquired knowledge in practical exercises.
The course covers the following topics in detail:
- Overview of TELEPERM XS and Linux
- Installation of SUSE Linux Enterprise Server
- KDE and Linux concepts
- Creation of TELEPERM XS users and groups
- Installation of TELEPERM XS software packages
- Configuration and administration of TELEPERM XS
- YaST Control Center
- Practical exercises, including testing of the installation

### PREREQUISITES
Basic knowledge of I&C and computer technology, and of the Linux operating system, are mandatory. Experience with digital automation systems is desirable. Basic knowledge of TELEPERM XS is mandatory.

### OTHER INFORMATION
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# TELEPERM XS
## Test Bay and ERBUS

| DURATION | LOCATION | LANGUAGES |
|---|---|---|
| 5 days |  Framatome Karlstein |  English/German on request |

**TARGET GROUP**
This course is intended for customers and internal staff with an interest in acquiring comprehensive knowledge of the TELEPERM XS safety I&C system in the Test Bay.

**OBJECTIVES**
Upon successful completion of this course, course participants will be able to:
- State the Test Bay (concept and setup, test programs and test procedures)
- Define the general concepts and setup of ERBUS (test system)
- Explain the function of the ERBUS Simulation Control Unit (SCU), the Test Machine (TM) and the Test Equipment Controller (TEC)
- Use ERBUS software tools and the ERBUS Client API
- Carry out safety I&C functional tests using Python-based ERBUS scripts

**CONTENT**
The training course covers the following topics: Test Bay, platform, required resources, test plan, test procedure, test performance and conditions. The main focus of the course is the ERBUS test system (SCU with SW version 3.6.x and TM SW version 2.0.0), which is the main test system in the Test Bay. Knowledge about the ERBUS hardware and software is provided. I&C functional tests are discussed and carried out. Theoretical and practical exercises allow the participants to consolidate their knowledge. The course covers the following topics in theory and practice:
- The concept and setup of the Test Bay
- The Test Bay equipment
- Test programs, procedures and performance
- Introduction to ERBUS, Test Machine and the Simulation Control Unit
- Hardware connections
- ERBUS and DIMAS in communication with the ERBUS-Shell
- Testing of signal connections and I&C functionality using Python scripts

**PREREQUISITES**
Knowledge of Python is compulsory.
Basic knowledge of I&C and experience in digital automation systems are desirable.
TELEPERM XS and Linux basic knowledge is advantageous but not essential.

**OTHER INFORMATION**
Participants: 6 to 8 persons

Contact: ic-academy@framatome.com for more information

# IC academy
## Organization and information

**SPECIFIC TRAINING REQUIREMENTS**
Do you have specific requirements for a training course? We can put together a tailor made course. Please contact us and we will be happy to advise you.

**Please email us at:**
**ic-academy@framatome.com**

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