CNC Power Engineering

Always on the move

CNC, Drives, and Software

Training Catalog 2026

www.num.com

num
CNC Solutions

Who besides you has the best expertise in your area of business?

The answer is obvious and quite simple: you are the expert in your field. Similarly, no one other than NUM could claim to have the deepest expertise of our extended range of drives and CNCs. After all, this has been our business for over sixty years. This is why we are your number one partner for the training of your teams.
Whether you are a User, an OEM, a Maintenance specialist or a System builder, NUM has in its catalog all kind of training sessions dedicated to your applications and this for all generation of NUM products making parts on today machines.
Of course each customer has its own requirements, each machine and each application has its own specificities, and this is why we can also offer customized training sessions focused on your particular needs.
As a provider of CNC High End Applications, we have organized our training sessions by features and level of knowledge required, in order to help you to get all the data you need and only the data you need to be the most efficient. These sessions are conducted by training specialists and applications engineers so you can be assured that you will always get the most accurate and professional answers, whatever your question or concern might be. These sessions will give a chance to develop a durable relationship between our companies to further develop cooperation for the full benefit of all.

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Training with NUM: your advantages

- Technical data are up to date
- Should you need a specific function, you will get in depth information
- Partnership development
- You will be in touch with the experts in every domain of NUM activity
- Whatever your area of expertise might be (Maintenance, Service, Programming, Setup…), you will find the courses you need
- Full range of products, and software in one location

Training Centers

All NUM technical centers are equipped to provide training. These sessions will take place either in our premises or in your facility.

Some training facilities

Training Courses

The different training modules are linked in a way to provide a logical path for mastering our application solutions in your area of expertise.

	FX	TR	3	0	1
Control Series					
Flexium+ und FlexiumPro	FX				
Flexium+	FL				
FlexiumPro	FP				
Training					
Type					
Product Knowledge			1		
Operation and Diagnostics			2		
Maintenance			3		
Engineering and Integration			4		
Modifier					
Expertice Level					
Beginner					1
Advanced					2
Specialist					3

Generic Training Sessions

FXTR101	Flexium system description
FXTR102	Flexium and Safety
FXTR201	Operation and basic maintenance
FXTR202	Advanced part programming
FXTR213	Flexium 3D
FXTR223	Dynamic operators in C
FXTR233	High speed cutting – 5-axis functions
FXTR301	Flexium system maintenance
FXTR433	Extended NCK Access (ENA)
FXTR463	Safety including NUM-SAMX

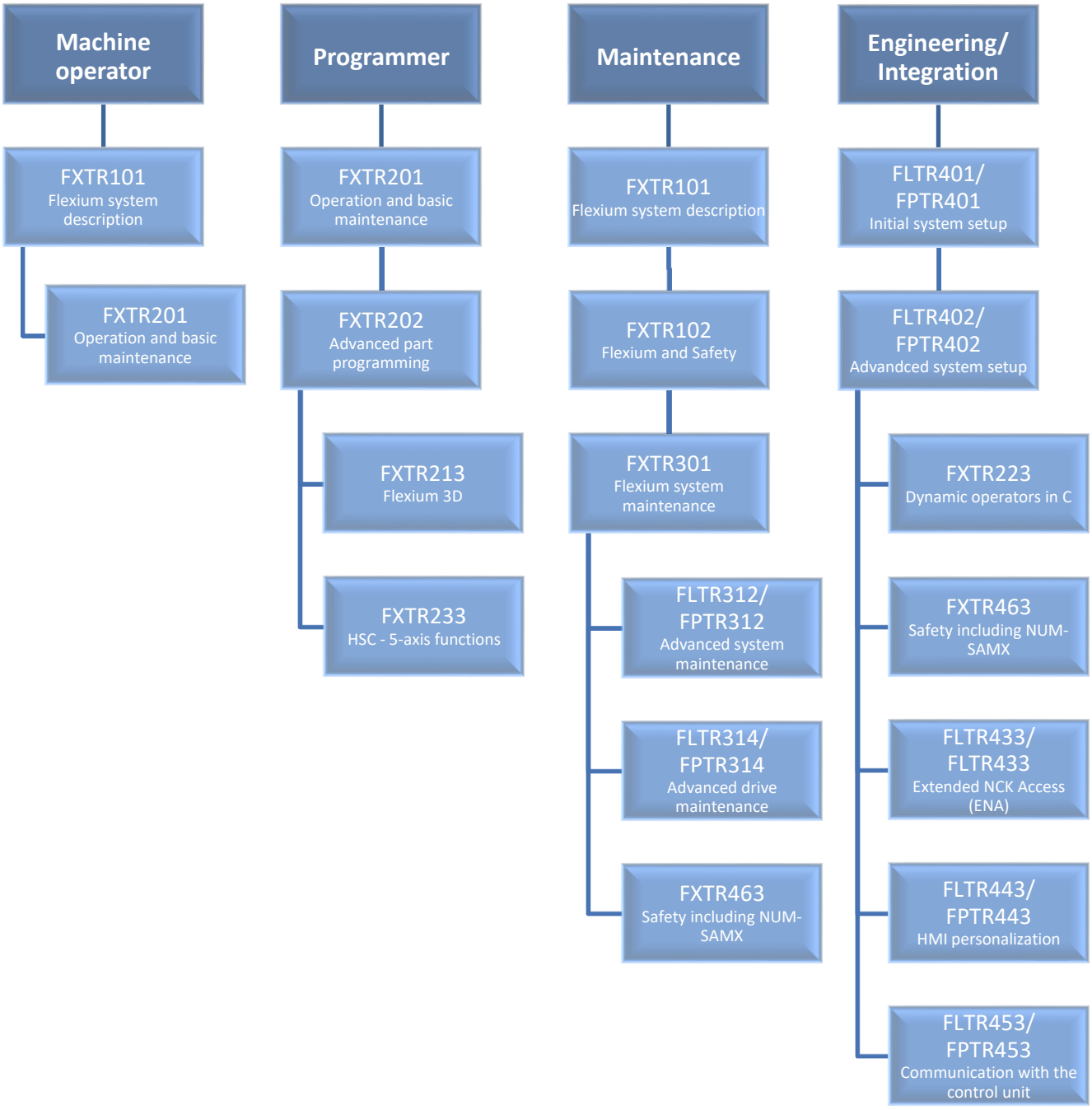
Flexium+ Specific Training Sessions

FLTR312	Flexium+ system advanced maintenance
FLTR314	NUMDrive X advanced maintenance
FLTR401	Flexium+ system initial setup
FLTR402	Flexium+ system advanced setup
FLTR 443	Flexium+ HMI personalization
FLTR 453	Communication with Flexium+

FlexiumPro Specific Training Sessions

FPTR 312	FlexiumPro system advanced maintenance
FPTR 314	NUM DrivePro advanced maintenance
FPTR 401	FlexiumPro system initial setup
FPTR 402	FlexiumPro system advanced setup
FPTR 443	FlexiumPro HMI personalization
FPTR 453	Communication with FlexiumPro

Proposed Training Paths



Your Training Contacts

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For other countries, please contact your local sales representative or NUM Switzerland (sales.ch@num.com).

Training Organization

Quotation
Offers can be asked at your training contacts (see section ‘Your Training Contacts’).

Date and timetable
Training dates and timetables will be part of a quotation.

Journey
Your local sales representative of NUM will provide you with journey information.

Hotels
Your local sales representative of NUM can recommend you hotels near to the training places.

Flexium system description FXTR101

Your area of interest

General knowledge

Prerequisite

None

Objectives

- ✓ Understanding the Flexium range structure (CNCs and Drives)
- ✓ Understanding the main functions
- ✓ Ability to define a configuration with the Flexium catalogue

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Flexium catalogue (on memory stick)

Training Content

Flexium CNC presentation
- The different models of CNCs
- Hardware structure – Software functions

The panels
- PC Panels
- Machine panels

The PLC
- Structure
- Programming languages
- IOs

NUMDrive X presentation
- Hardware structure
- Drives functions and performances
- Axis and spindle motors

NUM DrivePro presentation
- Hardware structure
- Drives functions and performances
- Axis and spindle motors

Tools
- PLC programming
- Web tools

Applications
- From the single unit CNC to the multi CNC - multi panels configurations

Questions and answers (1/2 hour)

Duration

1 day

Date / Costs

Please consult your local training contact

Flexium and Safety

FXTR102

Your area of interest

General knowledge

Prerequisite

None

Objectives

- ✓ Understanding the Flexium safety concepts
- ✓ Understanding the various safety features
- ✓ Ability to define the components and development required for a particular configuration

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Flexium catalogue (on memory stick)

Training Content

Safety: What is it?
- Safety PLCs
- Safe motions
- Safety level

General on EtherCAT and FSoE

The Safe PLC
- Structure
- Programming languages
- I/Os

Safety and Motions
- SAMX, STOX and NUMDrive X or NUM DrivePro

Questions and answers (1/2 hour)

Duration

1 day

Date / Costs

Please consult your local training contact

Operation and basic maintenance FXTR201

Your area of interest

Machine operator – 1st level maintenance

Prerequisite

Knowledge of NUM products or FXTR101

Objectives

- ✓ Ability to run a machine equipped with Flexium system
- ✓ Understanding and adjusting the coordinate systems and tools offsets
- ✓ Understanding operators message and status indicators to perform a first level maintenance

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Programming manual (on memory stick)

Training Content

Operation
- Using the HMI
- Modes of operation
- ISO concepts (interpolation – feedrate – tools offsets – main canned cycles)
- Coordinate systems – programmable axis
- Work preparation, tools offsets, origin presets
- Basic of parametric programming

Maintenance
- Status indicators
- Operators messages
- LED indications
- Backup of essential data
- Adding a system option

Tools
- Web tools
- Flexium license loader

Questions and answers (2 hours)

Duration

3 days

Date / Costs

Please consult your local training contact

Advanced part programming FXTR202

Your area of interest

Advanced part programming – custom macros – special functions for OEM

Prerequisite

FXTR201

Objectives

- ✓ Mastering the advanced ISO functions of the system
- ✓ Ability to create a custom macro (tool changer – milling head exchange – probing etc.)

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Programming and advanced programming manual (on memory stick)

Training Content

Advanced ISO functions
- Polar programming
- Probing management
- Pocket cycles
- Complements on parametric programming
  - Detailed information on E parameters
  - Relation with the outside via the PLC
- Structured programming
- Dynamic operators
- Customized G codes

Exercises

Questions and answers

Duration

4 days

Date / Costs

Please consult your local training contact

Flexium 3D FXTR213

Your area of interest

Machine operation - Programming

Prerequisite

Knowledge of NUM products or FXTR201

Objectives

- ✓ Using Flexium 3D to simulate and validate a part program
- ✓ Interacting with Flexium HMI to correct possible programming faults
- ✓ Optional : Customizing Flexium 3D for machine simulation

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)

Training Content

Flexium 3D presentation
- Principle of operation
- The different screens

Running Flexium 3D
- Program configuration
- Defining the blank and the tools
- Off line and On line simulation

Exercises

Optional
- Designing a machine model

Questions and answers (2 hours)

Duration

1 day + 1 day optional

Date / Costs

Please consult your local training contact

Dynamic operators in C

FXTR223

Your area of interest

Customized CNC extensions

Prerequisite

FXTR202 and C language

Objectives

- ✓ Develop an application using dynamic operators in C

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Flexium catalogue (on memory stick)

Training Content

- Principle of dynamic operators
- Short example using classic dynamic operators
- Review list of parameters
- The compiler
- Examples
- Trace and debug

Duration

1 day

Date / Costs

Please consult your local training contact

High Speed Cutting – 5-axis functions FXTR233

Your area of interest

5-axis parts machining

Prerequisite

FXTR202

Objectives

- ✓ Mastering 5-axis machining functions
- ✓ RTCP (Rotating Tool Centre Point)
- ✓ Inclined plane
- ✓ High speed cutting

Supports

Training materials
- Individual components
- Simulator

Deliveries
- Course presentation (on memory stick)
- Flexium catalogue (on memory stick)

Training Content

- NC 5-axis functions
- RTCP and inclined plane parameterization
- Application
- High speed machining functions
- Speed and acceleration controls
- Optimization of parameters
- Axis adjustments
- Flexium Tools instruments
- Practical case

Questions and answers (1/2 hour)

Duration

2 days

Date / Costs

Please consult your local training contact

Flexium system maintenance FXTR301

Your area of interest

Maintenance

Prerequisite

FXTR102

Objectives

- ✓ Ability to detect and replace defective components in a short time
- ✓ Predictive maintenance

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)

Training Content

Flexium system maintenance
- System structure
- Components
- System start up
- Diagnostics
- Software updates
- Service tool
- Safety
- Backup and Restore procedures
- Part replacement

Drives maintenance
- Product knowledge
- Drives exchange procedure

Questions and answers (1 hour)

Duration

3 days

Date / Costs

Please consult your local training contact

Flexium+ system advanced maintenance FLTR312

Your area of interest

Maintenance

Prerequisite

FXTR102

Objectives

- ✓ Ability to detect and replace defective components in a short time
- ✓ Predictive maintenance

Supports

Training materials
- ○ Simulator

Deliveries
- ○ Course presentation (on memory stick)

Training Content

Flexium+ system maintenance
- ○ Detailing the product structure
- ○ Exchange zone
- ○ Troubleshooting with Flexium HMI
- ○ Flexium Tools
- ○ Parameters modification
- ○ Debugging with the PLC
- ○ PLC program adjustments
- ○ Backup and restore

NUMDrive X drives advanced maintenance
- ○ Detailed analysis
- ○ Drives instruments
- ○ Drives exchange procedure
- ○ Safety application maintenance

Questions and answers (1 hour)

Duration

3 days

Date / Costs

Please consult your local training contact

FlexiumPro system advanced maintenance FPTR 312

Your area of interest

Maintenance

Prerequisite

FXTR301

Objectives

- ✓ Ability to detect and replace defective components in a short time
- ✓ Predictive maintenance

Supports

Training materials
- ○ Simulator

Deliveries
- ○ Course presentation (on memory stick)

Training Content

FlexiumPro system maintenance
- ○ Detailing the product structure
- ○ Exchange zone
- ○ Troubleshooting with Flexium HMI
- ○ Flexium Tools
- ○ Parameters modification
- ○ Debugging with the PLC
- ○ PLC program adjustments
- ○ Backup and restore

NUM DrivePro advanced maintenance
- ○ Detailed analysis
- ○ Drives instruments
- ○ Drives exchange procedure
- ○ Safety application maintenance

Questions and answers (1 hour)

Duration

3 days

Date / Costs

Please consult your local training contact

NUMDrive X advanced maintenance FLTR314

Your area of interest

Machine maintenance

Prerequisite

FXTR301

Objectives

- ✓ Ability to detect and replace components or adjust parameters

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)

Training Content

Review
- Range description
- Troubleshooting with Flexium HMI

Components connections
- Structure of a NUMDrive X application

Adjustments
- Using Flexium Tools for diagnostic
- Main drive parameters
- Adjustment and control

Questions and answers

Duration

3 days

Date / Costs

Please consult your local training contact

NUM DrivePro advanced maintenance FPTR 314

Your area of interest

Machine maintenance

Prerequisite

FXTR301

Objectives

- ✓ Ability to detect and replace components or adjust parameters

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)

Training Content

Review
- Range description
- Troubleshooting with FlexiumPro HMI

Components connections
- Structure of a NUM DrivePro application

Adjustments
- Using FlexiumPro Tools for diagnostic
- Main drive parameters
- Adjustment and control

Questions and answers

Duration

3 days

Date / Costs

Please consult your local training contact

Flexium+ system initial setup FLTR401

Your area of interest

Engineering and Setup

Prerequisite

FXTR201

Objectives

- ✓ Create a first Flexium+ application for a simple machine
- ✓ Control basic functions – Run two axes and a spindle

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Installation manual – Commissioning manual – Flexium Tools (all on memory stick)

Training Content

Understanding Flexium+ structure

Flexium Tools presentation
- Getting familiar with the package
- Languages
- Variables
- Structure of a project

Practical exercise
- Creating the control structure
- Integrating IOs (CANopen and Ethernet)
- Integrating a panel
- Handling modes, manual and automatic commands
- Operator messages
- Power on, security
- Integrating axes and spindles
- First level of parameterization
- Running a simple part program
- Introduction to the custom visualization

Questions and answers

Duration

5 days

Date / Costs

Please consult your local training contact

Flexium+ system advanced setup FLTR402

Your area of interest

Engineering and Setup

Prerequisite

FLTR 401

Objectives

- ✓ Commissioning a Flexium system on any kind of machine

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Full set of Flexium manuals – Flexium Tools – Example project (all on memory stick)

Training Content

Detailed analysis of exchange variables

Flexium Tools complements
- Project simulation and debug
- Application control (Tasks – automated checks)
- Field bus control
- Advanced functions (Probing – tool wear – shutdown etc.)
- Custom screens complements
- Optional functions (multi NCK – multi panels etc.)
- Writing custom libraries

Questions and answers

Duration

5 days

Date / Costs

Please consult your local training contact

FlexiumPro system initial setup FPTR 401

Your area of interest

Engineering and Setup

Prerequisite

FXTR201

Objectives

- ✓ Create a first FlexiumPro application for a simple machine
- ✓ Control basic functions – Run two axes and a spindle

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Installation manual – Commissioning manual – Flexium Tools (all on memory stick)

Training Content

Understanding FlexiumPro structure

FlexiumPro Tools presentation
- Getting familiar with the package
- Languages
- Variables
- Structure of a project

Practical exercise
- Creating the control structure
- Integrating IOs (CANopen and Ethernet)
- Integrating a panel
- Handling modes, manual and automatic commands
- Operator messages
- Power on, security
- Integrating axes and spindle
- First level of parameterization
- Running a simple part program
- Introduction to the custom visualization

Questions and answers

Duration

5 days

Date / Costs

Please consult your local training contact

FlexiumPro system advanced setup FPTR 402

Your area of interest

Engineering and Setup

Prerequisite

FPTR 401

Objectives

- ✓ Commissioning a Flexium system on any kind of machine

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Full set of Flexium manuals – Flexium Tools – Example project (all on memory stick)

Training Content

Detailed analysis of exchange variables

FlexiumPro Tools complements
- Project simulation and debug
- Application control (Tasks – automated checks)
- Field bus control
- Advanced functions (Probing – tool wear – shutdown etc.)
- Custom screens complements
- Optional functions (multi NCK – multi panels etc.)
- Writing custom libraries

Questions and answers

Duration

5 days

Date / Costs

Please consult your local training contact

Extended NCK Access (ENA) FXTR433

Your area of interest

Engineering and Setup

Prerequisite

FLTR402 or FXTR402

Objectives

- ✓ Exchange of additional data between NCK and PLC

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Flexium Tools – Example project

Training Content

Structure of internal communication in Flexium systems

ENA library
- Available parameters and functions

Application
- Reading parameters
- Writing parameters
- Files management

Questions and answers

Duration

2 days

Date / Costs

Please consult your local training contact

Flexium+ HMI personalization FLTR443

Your area of interest

Engineering and Setup

Prerequisite

- FXTR101
- Windows knowledge
- Programming knowledge of script languages

Objectives

- ✓ Creating Flexium HMI custom pages in HTML/JavaScript

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Software Development Kit access
- Example (on memory stick)

Training Content

Introduction in the architecture of Flexium+ HMI

Explanation of the Flexium+ HMI components
- FXBrowser
- FXServer
- FXLib
- FXLog

Structure of configuration files
- FXServer.ini
- FXUser.ini

Explanation of the FXServer architecture
- Event handling
- task management
- …

Abstract of development tools

Exercises related to practice using HTML and JavaScript
- Object instancing of the classes of the development components
- Using of the development components
- Characteristics of the array structure of event classes
- Programming examples

Questions and answers

Duration

3 days

Date / Costs

Please consult your local training contact

Communication with Flexium+ FLTR453

Your area of interest

Engineering and Setup

Prerequisite

- FXTR101
- Windows knowledge
- Knowledge of object oriented programming (OOP) and use of COM server

Objectives

✓ Using of FXServer for the communication with the different components of Flexium+. This allows connections to other systems, independent HMIs, etc. to be realized.

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Software Development Kit access
- Programming examples in C# and C++ (on memory stick)

Training Content

Introduction in the architecture of FXServer

Explanation of the Flexium+ components
- FXBrowser
- FXServer
- FXLib
- FXLog

Explanation of the FXServer
- Eventhandling
- Task-Management

…

Exercises related to practice using C#
- Object referencing and instancing of the classes of the development components
- Using of the development components
- Characteristics of the array structure of event classes
- Programming examples

Questions and answers

Duration

2 days

Date / Costs

Please consult your local training contact

FlexiumPro HMI personalization FPTR 443

Your area of interest

Engineering and Setup

Prerequisite

- FXTR101
- Windows knowledge
- Programming knowledge of C#

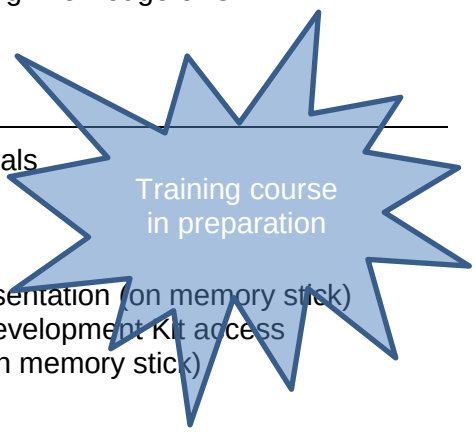
Objectives

- ✓ Creating FlexiumPro HMI custom pages in C#

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Software Development Kit access
- Example (on memory stick)



Training Content

Introduction in the architecture of FlexiumPro HMI

Explanation of the FlexiumPro HMI architecture

Structure of configuration files

Abstract of development tools

Exercises related to practice using C#
- Programming examples

Questions and answers

Duration

3 days

Date / Costs

Please consult your local training contact

Communication with FlexiumPro FLTR453

Your area of interest

Engineering and Setup

Prerequisite

- FXTR101
- Windows knowledge
- Programming knowledge of C#

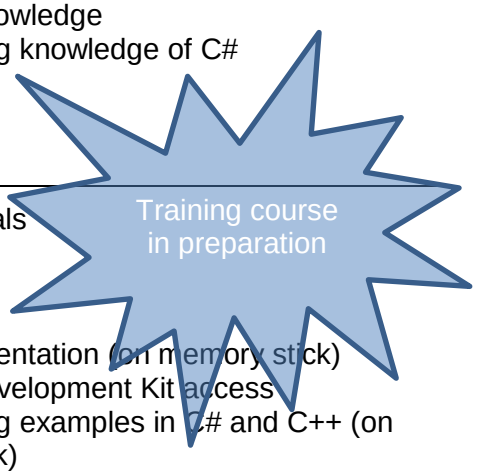
Objectives

- ✓ Use of the FlexiumPro SDK for communication with the various FlexiumPro components. This allows connections to other systems, independent HMIs, etc. to be realized.

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Software Development Kit access
- Programming examples in C# and C++ (on memory stick)



Training Content

Introduction in the architecture of FlexiumPro SDK

Exercises related to practice using C#
- Programming examples

Questions and answers

Duration

2 days

Date / Costs

Please consult your local training contact

Safety including NUM-SAMX FXTR463

Your area of interest

Engineering and Setup

Prerequisite

FXTR102 or FPTR 402

Objectives

- ✓ Understand concept.
- ✓ Program and setup a safety application on a Flexium+ or FlexiumPro system

Supports

Training materials
- Simulator

Deliveries
- Course presentation (on memory stick)
- Software Development Kit access
- Example (on memory stick)

Training Content

Hardware structure

Safety functions

Safety application concept

Safe PLC programming

Drive functions
- NUM-STOX setup
- NUM-SAMX setup

Questions and answers

Duration

2 days

Date / Costs

Please consult your local training contact

Individual training

Your area of interest	Prerequisite
Something around NUM controls	Depending on the training content

Objectives	Supports
✓ Will be defined with you	Training materials ○ Simulator Deliveries ○ Course presentation (on memory stick) ○ Example (on memory stick) if available

Training Content

Will be developed with you

Duration	Date / Costs
To be defined	Please consult your local training contact

Individual training courses can be held at NUM locations or at the customer's site.

Booking Form

For booking of training, please send an e-mail to following address with content below:

China: longwei.jiang@num.com

India: info.in@num.com

Taiwan and rest of Asia: johnny.wu@num.com

For other countries, please contact your local sales representative or NUM Switzerland (sales.ch@num.com).

E-mail content

Company name:
Contact person:
Function:
Phone:
Address:

Your order number:

Training number:
Training date:
Training location:
Names of the participants: