KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

Human-Machine Interface (HMI) Design and Implementation

Learn to design and implement industrial HMIs using WinCC, from project creation and alarms to data logging, recipes and user administration.

32 Hours	7	51	3
DURATION	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

The Human-Machine Interface (HMI) Design and Implementation course equips participants with the skills to create user-friendly and efficient HMIs for industrial and automation systems. Participants will learn HMI design principles, best practices, and real-world applications through theoretical lectures and practical exercises. The course covers topics such as SCADA overview, project creation, basic configuration, alarm configuration, data logging, trend configuration, recipe management, and user administration.

WHO THIS COURSE IS FOR

This course is ideal for individuals involved in industrial automation and control systems, including engineers, technicians, and system integrators

Participants should have a basic understanding of industrial automation systems and processes, and familiarity with programming concepts will be beneficial but not mandatory

PREREQUISITES

- Basic understanding of industrial automation systems and processes: Familiarity with the concepts and functioning of industrial automation systems will help participants grasp the HMI design principles more effectively.
- Familiarity with programming concepts (not mandatory but beneficial): While not mandatory, having some knowledge of programming concepts will be advantageous in understanding certain aspects of HMI design and implementation

LEARNING OBJECTIVES

Participants will learn to:

- Understand HMI fundamentals and WinCC software
- Design user-friendly HMIs for industrial systems
- Configure alarms, data logging, and recipe management
- Manage user administration and access protection
- Apply HMI best practices and troubleshoot issues
- Consider ethical aspects of HMI design and development

COURSE SYLLABUS

7 Modules, 51 Topics

01

Introduction to HMI

TOPICS

- **SCADA Overview:** Definition of HMI, Data Acquisition, Data Communication, Data Presentation
- Difference between PLC & PC
- Examples of HMI
- **System Overview:** WinCC Overview, Components of WinCC, WinCC Engineering Editions, WinCC Runtime Versions, Licensing, System Limits, System Requirements

02

Project Creation & Basic Exercises

TOPICS

Creating a Project · Adding Devices and Establishing a Connection · Setting Ethernet Address · Connection to PLC · Not Integrated Runtime Settings · Configuring Buttons and Output · Basic Examples Related to PBs & Dos

03

Basic Configuration

TOPICS

Configuring Graphic View · Text Display Configuration · Input and Output for Alphanumeric Display · Text and Graphic List Configuration · Movement and Fill Property Configuration

04

Practices

Alarm Configuration

TOPICS

Steps in Configuring an Alarm · Message Blocks · Alarm Class · Trigger Setting for Discrete Alarm · Displaying Alarms · Alarm View Properties

05

Data Logging & Trend Configuration

TOPICS

Types of Process Value Logging · Procedure for Configuring Data Logs · Properties of Process Value Logs · Editing Logging Tags · Displaying the Data Log Trend View · Properties of the Trend View

06

Practices

Recipe Management

TOPICS

- Structure of the Recipe
- Communication with the Controller Using Tags
- Table Representation of WinCC Recipe View
- Sorting in the Recipe View
- Exporting in the Recipe View
- Selection Dialog
- Procedure for Configuring a Recipe
- Recipe Editor
- Entering Recipe Data
- Setting Recipe Properties
- Configuring the Recipe View
- Entry of Recipe Data

07

Practices

User Administration

TOPICS

- Structure of User Administration
- How Access Protection Works
- Steps in Configuring User Administration
- Structuring Authorizations
- Creating Authorizations
- Assigning Authorizations to Objects
- Configuring User Groups
- Configuring Users
- Configuring the User View
- Configuring Login Dialog
- Displaying the Name of Logged-On Users

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
04	**Alarm Configuration**	Practices on Different Examples
06	**Recipe Management**	Practices on Different Examples
07	**User Administration**	Practices on Different Examples

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

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