

SCADA system & HMI Programming

Pre-request: Have good knowledge with PLC Basic

Course duration: 40 Hours

On completing this course you will be able to:

- Understand how SCADA system work
- How to make GUI for SCADA system
- Make SCADA database
- Make system alarm data base
- Plot all variables and store the values
- Make security for the system
- Make the system animation with visual basic script
- Connect scada with any PLC
- Connect scada with internet
- Deal with HMI

Course Content:

Introduction

- What is scada system?
- Scada system content
- Difference between scada and DCS
- Indusoft web studio Overview
- Installation and register of the software

Graphic Design editor

- Build a simple application
- Slider, bar graph, button, lamp
- Ribbon
- Quick Access Toolbar
- Project Explorer
- Database Spy
- Output Window

Tags

- What is a Tag
- Internal Structure and Data Flow
- Boolean, Integer, Real, String
- Array, Class, Pointer
- Tag Properties

Screen Groups

- Creating Screen Groups
 - Header
 - Navigation
 - Main
- Displaying Logo in Header

Shapes and Formatting

- Shapes
- Formatting tools
 - Height and Width
 - X,Y Position
 - Layer
 - Alignment

Active Objects

- Text
- Button
- Push Button
- Check Box
- Radio Button
- Combo Box
- List Box
- Smart Message
 - Message Display
 - Multistate Indicator
 - Multistate Pushbutton
- Text Box

Animations

- Command
- Hyperlink
- Bargraph
- Text Data Link
- Color
- Position
- Resize
- Rotation
- Command Config
- Hyperlink Options
- Stacked Bargraph
- Text
- Color (By Limit, By Color)
- Position Reference
- Custom Rotation point
 - Rotating imported graphic

Grid Object

- Data Source
 - Class Tag
 - Text File
- Columns
- Conditional Filtering
- Inserting New Information

Trends

- Real-Time
- Historical
 - Trend Worksheet
- Numerical (X/Y plot)
- SPC (Statistical Process Control)

Alarms

- Alarm/Event Control Object
- Alarm Worksheet
- Tag Properties
- History
 - File Location
 - File Format

Symbols

- Linked Symbols
- Project vs. System Symbols
- Custom Properties/Categories
- Creating Your Own Symbols

Built-in Scripting

- Math and Logic Functions
- Interfaces
- Overview of Common Functions

VBScript Interfaces

- Interfaces
- Sub and Functions
- Variables and Scope
- Additional Resources

ActiveX and .NET Controls

- Active-X Slider and Web Browser
- .Net Progress Bar
- Interacting with the Controls

Scheduler

- Event Types
- Calendar
- Clock
- Change
- What Fields to Use
- Example Uses

Tank Demo

- Adding Tags and Class
- Tank, Valves and Selection
- Simulation VBScript
- Contents of Tanks

Recipes

- Functions
- Save
- Load
- Delete
- Init
- VBScript to Select
- .XML

Reports

- Worksheet
- Function
- Disk
- Prn
- PDF
- Printing as TXT, RTF, HTML, CSV, and PDF

Web Thin Client

- One of 3 Thin Clients
- Topology
- Publish Screens as HTML
- Configure Settings
- Configuring Microsoft IIS

Secure Viewer

- One of 3 Thin Clients
- Installation
- Configuration using:
 - Microsoft IIS
 - Shared Folder
 - Tag to Determine if Client or Server

Mobile Access

- One of 3 Thin Clients
- 2 Parts
- Tabular
- MA (HTML5)
- Configuration
- Alarms, Process Tags, and Trends
- Webinar Video

Events

- Event Settings
- Alarm/Event Control Object
- File Format
- Proprietary or Database Selection

Access Database

- Default Database Configuration
- Creating an Access Database
- Configuring Alarm and Events
- Additional DB Interfaces

SQL Database

- Default Database Configuration
- Creating an MS SQL Express Database
- Configuring the Grid Object
- Configure Connection
- Create VBScript with SQL Statements
- Using Output Window
- Database Worksheet

Translation

- Development Environment
- Runtime
- Translation Table
- Set Language Function
- Web Thin Clients and Secure Viewer Can Use Different Languages

Security

- Security Overview
- Configure Groups/Users
- Security with Objects
- Password Protecting Screens and Documents
- Security Webinar Video Online

OPC

- What is OPC?
- What Technologies Does IWS Support?
- Optional
- OPC Foundation Member since 1998
- See OPC Webinar Online

Remote Management

- Remote Agent
- Remote Management Connection
- Downloading to a Remote Runtime
- Remote DBSpy and Log win

Driver

- Driver Worksheets
- Main Driver Sheet
- Standard Driver Sheet(s)
- Status
- Manual
- Scan and Scaling
- Priority
- Troubleshooting
- Import Wizards
- Tag Integration