

## Course Name: PLC, HMI and IoT

### Short description

The Totally Integrated Automation Portal (TIA Portal) forms the work environment for integrated engineering with all automation devices – controller, HMI and drives. The course provides you with the knowledge to quickly and easily configure machine and plant-specific HMI tasks using the SIMATIC WinCC software based on the TIA Portal. You will learn the possibilities of the configuration and the advanced programming of a SIMATIC S7-1500 and S7-1200 automation system with the "TIA Portal" engineering platform.

### Objectives

On completion of this course the participant will be able to: -

- Identify the components and performance characteristics of the SIMATIC S7-1200 PLC, S7-1500 PLC.
- Install a PLC system, including the HMI and communication cabling.
- Perform a commissioning of TIA components you can deepen your theoretical knowledge with numerous practical exercises on a TIA system model.

### Target Group

- Engineering students.
- Trainers, Planners/implementers, Programmers & Operators.
- Service personnel, Commissioning engineers, Engineering personnel, Maintenance personnel.

### Content

- Course introduction (objectives, curriculum), Overview and significant performance characteristics of the SIMATIC-S7 system family.
- Identify the major components of a PLC and describe their functions.
- Summarize the capabilities of STEP 7 (TIA Portal).
- Identify important features of the automation languages and learn possible application of various block types (OB, FC, FB, DB).
- Run programme based on relay logic (latching, interlocking), Gate logic (with NO/NC concept).
- Binary and Digital Operations including IEC Timers, IEC Counters, Comparators.
- Analogue value processing (scaling).
- Advanced programming possibilities of SIMATIC S7-1200 & S7-1500.
- Making Report, Trend for data analysis, set alarms for safety with an HMI device (Touch panel).
- Graphic image creation, make graphic object dynamic through programming for real time monitoring with an HMI.
- A step towards IIoT (controlling through web-server).
- Solve comprehensive programming tasks.

### Prerequisites

- Technical understanding.
- Basic knowledge on digital electronics and computer networking.
- A basic understanding of electrical components such as relay, switches and solenoids would also be very useful.
- The ability to use an MS Windows PC, keyboard and mouse.

### Note

In this course you will work with SIMATIC S7-1500, S7-1200, HMI PANEL and software SIMATIC STEP 7 based on TIA portal.

### Type

On-line training.

### Duration

30 hrs.

### Language

English.

