

## Online Training - SIMATIC S7-1500 with TIA Portal (Advance Course) (AS-OL1500A)

### Objectives

To make participants aware and familiar with:

- SIMATIC S7-1500 automation system
- Advance programming concepts in TIA
- Digitalization topics in TIA Portal along with use cases

### Target Group

- Service engineers
- Programmers
- Commissioning engineers
- Maintenance engineers

### Content

#### Hardware

- System overview of SIMATIC controller families
- SIMATIC S7-1500 family in detail
- Hardware configuration of S7-1500 controller in TIA
- S7-1500 module spectrum

#### TIA portal

- TIA portal products and scope
- Automation planning - TIA selection tool and configuration using AML files\* **new**
- License management for TIA
- Overview of framework
- PLM integration with TIA Portal – explanation\* **new**

#### Software and advance programming concepts

- Linear v/s structured programming approach
- Effective programming using function and function blocks
- Multiple and parameter instance programming
- Working with data blocks(DB)
- Snapshot and download without reinitialization in DB
- Standardization in programming as a basis for enabling digitalization\* **new**
- Working with complex data types
- Programming of Real Time Clock(RTC), jump instructions
- Concept of Organization blocks
- Introduction to indirect addressing
- Compact PID controller configuration using Technology Object(TO) **new**
- SIMATIC security services for machine and plant security\*
- TIA portal options for efficient engineering: Openness\* **new**
- Multi-user team engineering - Collaborative working with teams in TIA\* **new**
- Integrated energy management in TIA portal – Energy Suite\* **new**

#### Communication

- Intelligent device configuration
- Open user CPU-CPU Communication on TCP/IP
- Modbus TCP Communication, Modbus RTU (RTU- demo only)
- Integrated engg. of kinematics: SINAMICS G120 drive integration with S7-1500 using Motion Control - explanation and demo only\*
- S7-1500 controller with remote station on Profinet(PN)/Profibus DP protocol - Explanation and demo only
- S7-1500 controller with HMI panel
- Introduction to cloud connectivity using S7-1500 – explanation\* **new**

#### Troubleshooting and diagnostic topics

- Significance of LED indication on different modules
- Diagnosis using diagnostic buffer
- Cross-references, call structure, assignment list, dependency structure
- Memory resource allotment

- Memory overlap identification
- Trace configuration tool
- Project backup and comparison
- Forcing, renaming, and rewiring concepts
- Remote diagnostics using web server with user defined webpages\*
- Fault tracing using PRODiag\* **new**

#### **HANDS ON**

- Application example-based exercises after each topic.

#### **Prerequisites**

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- Basic know how about automation technology is must
- Basic knowledge of electrical technology and digital electronics
- SIMATIC S7-1500 Basic course is highly recommended

#### **Note**

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##### SOFTWARE VERSION:

- STEP7 TIA v16 Professional
- TIA portal options/required tools:
  - o Test Suite
  - o Openness tool (Openness scripiter)
  - o PRODiag tool
  - o Energy suite

##### TECHNICAL REQUIREMENT:

- A computer or laptop with Windows 7/10 OS and a stable internet connection. (We recommend a data transfer rate of 16 Mbit/s.)
- Microsoft Teams platform for technical presentations and demo. (We recommend using desktop app for best possible use of all functions).
- Goggle Chrome internet browser for assessing virtual lab solution for hands-on

#### **Type**

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Online-Training

#### **Duration**

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5 days

#### **Language**

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#### **Fee**

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35,000 INR  
18% GST additional on Course fee