

AUTOMATION LAB

- This lab imparts skill and knowledge on Industrial automation with an exclusive training on hardware and software components to automate industrial and commercial applications.
- Candidates are trained on automation products like PLC, HMI and SCADA to control and monitor the plant and machine.
- Labs are equipped with Modular Controllers with Technology functions and advanced configurations.
- Programmes were developed to enhance the skill set of the participants on Hardware & Programming basics and servicing.

Basics of PLC

Course Description / Learning Objective

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

- Identify the components and performance characteristics of the SIMATIC S7-1200 PLC, Signal and Communication Modules.
- Positioning of modular S7 Controllers.
- Install a PLC system, including the HMI and communication cabling.
- Use the various address types to edit, reload, structure and run a program.
- Document, test, and basically troubleshoot the control system and its program.
- Understand and create binary operations, timers, counters, mathematical functions etc.
- Interface an HMI with the PLC control system to control and monitor from a remote location.
- The components of the TIA Portal: SIMATIC STEP 7 Basic and WinCC Basic
- Program execution in automation systems
- Binary and digital operations in Ladder language
- Setup and assembly of the SIMATIC S7-1200 automation system
- Hardware and software commissioning of the SIMATIC S7-1200 with the TIA Portal
- SIMATIC S7-1200 hardware configuration and parameterization
- Introduction to the Touch Panel (HMI)
- Deeper understanding of contents through practical exercises on TIA system model

Basics of SCADA

Course Description / Learning Objective

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

- Configuration and Parameterization of Simatic products for WINCC applications
- Installing communication between Stations.
- Screen creation for Monitoring and controlling Machine and Plants.
- Screen design with basic elements and control elements.
- Tag monitoring from a remote area with creative visualization for the process variable.
- Learning to assign the text and the graphic list for operator station
- Dynamizing screens for effective response and creating animations to monitor the field operations.
- Configuration for screen navigation.
- Working with layers.
- Use of tags and types of tags in Wincc.
- Data Logging and Trends to record process variable
- Configuration of Alarm and Events
- Security management using user Administration Tool
- Recipe management for process industries like Food processing and Beverage factories

LIST OF HARDWARE COMPONENTS

SIMATIC S7 Controllers – S7-1500 and S7-1200

- The Simatic S7-1200 Basic Controller for small to medium-sized applications.
- The Simatic S7-1500 Advanced Controller for medium-sized and complex applications.
- S7-1200 is designed with integrated input and outputs for standalone operations. Controller are enhanced with reliable diagnostics and safety integration

HMI- Touch panel and Key Touch Panel (KTP700 & TP700 Series)

- SIMATIC HMI is engineered to support the increasingly complex processes and optimized to meet specific human machine interface needs using open and standardized interfaces in hardware and software

LIST OF SOFTWARE COMPONENTS

TIA portal software for integrated automation.

- The Totally Integrated Automation Portal (TIA Portal) is a central framework for engineering SIMATIC products. It provides solutions to complete range of digitalized automation in discrete and analog.

WIN-CC Professional for Visualization(SCADA)

- An innovative software with scalable process-visualization system and numerous high-performance functions for monitoring automated processes.
- WinCC is the ideal choice for process visualization tasks of highest complexity and SCADA applications up to Plant Intelligence solutions

STEP-7 PROFESSIONAL software for engineering PLC CONTROLLERS

- An engineering tool for configuration and programming for all SIMATIC controllers to solve your engineering tasks intuitively and efficiently.
- STEP 7 Professional comprises PLC programming with Device and Network configuration

Courses offered

S.No	Domain	Course Name	Hours	Prerequisites
1	Automation	Basics of PLC	50	Electrical, Electronics, Mechanical, Instrumentation engineers (4 th Semester)
2	Automation	Basic of SCADA	50	Electrical, Electronics, Mechanical, Instrumentation engineers (6 th Semester)