



## Industrial Automation / Control Systems Training

**Duration:** 60 Hours

Call us at (+1) (435) 610-1777 / (801) 901-3010 [info@mindsmapped.com](mailto:info@mindsmapped.com)

### Session 1: Industrial Automation

- ✚ Introduction to Industrial Automation/ Control System.
- ✚ Need for Industrial Automation.
- ✚ Layers of Automation.
- ✚ Introduction to Process Industries.
- ✚ Overview of Continuous & Batch Process.
- ✚ Role of automation in process industries.

### Session 2: Process Control System

- ✚ Process Overview.
- ✚ Process parameters.
- ✚ Introduction of Process Control System (DCS, PLC, ESD,F&G).

### Session 3: Field Instruments

- ✚ Introduction to Field Signals: Analog Input, Analog Output, Digital Input, Digital Output
- ✚ Basics of Field Instrumentation.
- ✚ Transmitters and Signal Types.
- ✚ Measurements of Process Parameters: Temperature, Pressure, Level, etc.
- ✚ Final Control Element and Positioners.
- ✚ Sensors and Switches.
- ✚ Actuators: Solenoid, Pneumatic, Hydraulic and Electrical Actuator.

### Session 4: Programmable Logic Controller

- ✚ PLC basics
- ✚ PLC hardware
- ✚ PLC architecture
- ✚ PLC components
- ✚ Trouble shooting and fault diagnostics

### Session 5: PLC Software

- ✚ PLC programming software(AB,Siemens)
- ✚ Ladder logic
- ✚ Addressing concept
- ✚ Programming instructions
- ✚ FBDs
- ✚ Trouble shooting and fault diagnostics.

### Session 6: Distributed Control Systems

- ✚ Introduction to DCS System
- ✚ Architecture of DCS(ABB)
- ✚ Hardware of DCS
- ✚ Comparison between PLC & DCS
- ✚ Redundancy
- ✚ Functional Block diagram
- ✚ Application of DCS
- ✚ Trouble shooting and fault diagnostics

### Session 7: SCADA(Wonderware Intouch)

- ✚ Application of DCS
- ✚ Introduction
- ✚ GUI creation with objects like indicators, buttons, etc
- ✚ Data communication
- ✚ Archiving methodologies
- ✚ Handling alarms , events and Trends Scripting

### Session 8: Mockup Interview Session

### Session 9: Process Control Loops

- ✚ Introduction to types of Control Systems: Open Loop, Closed Loop.
- ✚ Types of Control Loops: Feedback Control, Cascade Control, Ratio Control, Feed Forward Control.
- ✚ Types of Control Modes: On- Off Control, PID Control.
- ✚ Overview of Advanced Process Control.

### Session 10: Input Documents

- ✚ Documentation required to start a project
- ✚ How to validate the input documents

### Session 11: Engineering Documents

- ✚ Importance of Engineering Documents.
- ✚ Documents contributing towards Engineering. Documentation.

### Session 12: Piping & Instrumentation Diagrams

- ✚ Introduction to P&ID.
- ✚ P&ID Legends & Terminology.

### Session 13: Resume Preparation

### Session 14: Project Flowchart

- ✚ Introduction to PFD
- ✚ Basics of PFD.

### Session 15: Industrial Networking and Communication Protocol

- ✚ Basics of networking in Industries.
- ✚ Modbus TCP/IP
- ✚ Profibus
- ✚ Fieldbus

### Session 16: Pilot Project



**Course Highlights:**

- ✦ Hands on Assignments from each session
- ✦ Instructor led learning sessions
- ✦ Interactive sessions & Hands on Practice
- ✦ Lifetime access to Knowledge Base
- ✦ Interview and Job perspectives

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