

<b>Industrial Automation using PLC &amp; SCADA Syllabus</b>	
<b>Total duration: 80 hours (Theory 40 Hours + Lab 40 Hours)</b>	
<b>Faculty</b>	
<b>Start Date</b>	
<b>End Date</b>	

<b>PLC &amp; SCADA Total Duration : 80 Hours</b>		<b>Signature</b>	
<b>Session</b>	<b>Topics</b>	<b>Faculty</b>	<b>Student</b>
<b>Session 1</b>	Introduction about industrial automation		
	History of industrial automation		
	Need of automations in industries		
	Example for industrial automation		
	Automation control circuit and power circuit		
	Control system in Industry		
<b>Session 2</b>	Field Instruments		
	Types and working of field devices		
	Automation using relays and field devices		
	Examples for relays and field devices		
	Logical functions done by relays and field devices		
<b>Session 3</b>	Introduction about Programmable Logic Controller		
	History of PLC		
	Architecture of PLC		
	CPU		
	IO Modules		
	Power Supply and Communications		
	Input and Output Devices		
	Need of PLC for Industrial Automation		
<b>Session 4</b>	Types of PLC Models		
	Introduction about PLC Programming		
	Types of Programming Languages		
	Introduction about PLC Programming software		
<b>Session 5</b>	Ladder logic diagram		
	Structure of program		
	Procedure for creating ladder diagram		
	Logical function done by ladder program in software		
<b>Session 6</b>	Interfacing the field component to PLC		
	Sink and Source type wiring		
	Need of push button for industrial automation		
	Importance of latching and unlatching concepts		
	Memory concept		
	Working with		
	1. Omron Zen Support PLC Software		
	2. Seimens Step 7 PLC Software		

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<b>Session 7</b>	Interlocking & Trip concept		
	Types of interlocking		
	Need of interlocking		
	Timers		
	Types of timers		
	Example Problem for automation using timers		
<b>Session 8</b>	Need for counters		
	Types of counters		
	Example for automation using counters		
	Jump and subroutine		
	Importance of loop instruction		
	Automation using Jump and Subroutine.		
	Example Problems		
<b>Session 9</b>	Rockwell Automation-AB PLC Software		
	Working with AB PLC Software		
	Rslink Classic Working Environment		
	RSLogix Emulator Settings		
	Simulation Exercises in RSLogix 500 & RSLogix 5000		
<b>Session 10</b>	Upload and Download Program.		
	AB PLC Panel Board Wiring.		
	Introduction about analog devices		
	Interfacing analog devices to PLC		
	Math function in FBD programming		
	Bit function		
	Other instructions		
<b>Session 11</b>	Shift and Rotate Instructions		
	Math function		
	Compare and Compute Functions		
	Scaling Concept		
	Explain about PI ,PD ,PID operation		
	Explain control of conveyor system		
	Develop the ladder program for conveyor system		
	Execute the logic [relay] functions by using functional block		
	Develop The FBD program for conveyor system		
<b>Session 12</b>	Difference between auto control and manual control		
	Explain suitable example for auto control with manual control		
	Example for auto and manual control process and run in plc		
	Explain about traffic light control		
	Develop ladder program for traffic light control		
	Develop FBD for traffic light control and run in PLC		
<b>Session 13</b>	Introduction about SCADA.		
	Fundamental Principles of Modern SCADA Systems		
	Advantages and Disadvantages		
	SCADA Hardware and Software		

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<b>Session 14</b>	Remote Terminal Unit (RTU)		
	RTU Configuration		
	RTU Hardware Modules		
	Testing and Environmental Consideration		
<b>Session 15</b>	The Master Station		
	Features and Functions		
	Typical Structure of Master Station		
	Master Station Software		
	Local Area Network & Modems		
<b>Session 16</b>	OSI Layer		
	Central Site Computer Facilities		
	Emerging New Technologies in SCADA System		
	Rockwell Automation Allen Bradley SCADA		
	Factory Talk View Introduction		
<b>Session 17</b>	Project Creation in Factory Talk		
	Display		
	Tags		
	Library		
	Run Time Security		
	Working with Properties		
	Animation		
	Alarm Setup		
	Trend		
	Language Switching		
<b>Session 18</b>	Interfacing PLC to SCADA.		
	Example Exercises 1 – Automatic Bottle Filling System		
	Example Exercises 2 - Traffic Light Control		
<b>Session 19</b>	Example Exercise 3 -Program to Control Level of Parallel Tanks		
	Example Exercise 4- Program to Operate Drilling of Parts		
<b>Session 20</b>	Industrial Project Documents		
	P&ID Diagrams		
	IO List Preparation		
	Cause & Effect Diagram		
	Single line Diagram		
	Control Narratives		
	Function Design Specification		