

Basic Automation Course

(5 Days, 20 Hours)

Day	Content	Faculty
01	<ol style="list-style-type: none">1. PLC Overview<ol style="list-style-type: none">a. Introductionb. What is a PLCc. History of PLCd. PLC Componentse. How a PLC Worksf. PLC Input and Outputsg. Central Processing Unit (CPU)h. Input Devicesi. Programming Devicesj. Programming Concepts2. PLC Hardware<ol style="list-style-type: none">a. Modular PLCb. CPUc. Memory Typesd. CPU Memory Organizatione. Power Supply Modulesf. Signal Modulesg. Connection Modulesh. Special Purpose Modules	Dr Salman Baig, Mr Faheem Ansari
02	<ol style="list-style-type: none">3. Number, Codes & Data Types<ol style="list-style-type: none">a. Decimal Numbersb. Binary numbersc. Octal Numbersd. Hexadecimal Numberse. Binary Coded Decimal (BCD)4. SIMATIC Modular PLCs (S7-300,400&1200)<ol style="list-style-type: none">a. SIMATIC S7 300 PLCsb. SIMATIC S7 400 PLCsc. SIMATIC S7 1200 PLCsd. SIMATIC S7 1500 PLCse. SIMATIC ET 200	Mr Faheem Ansari Mr Fahad Bilal
03	<ol style="list-style-type: none">5. PLC Input & Output<ol style="list-style-type: none">a. PLC input Outputb. Digital Inputc. Digital outputd. Analog inputse. Analog outputsf. Signal Module Status indicatorsg. Power Suppliesh. Distributes I/Oi. System Configuration	Mr Faheem Ansari Mr Fahad Bilal

	<ul style="list-style-type: none"> j. PLC Tags k. Monitoring Values in the CPU <p>6. PLC Communication</p> <ul style="list-style-type: none"> a. Serial Communication b. Industrial Networks c. Network Cables d. Wireless Communication e. PROFIBUS DP f. Actuator Sensor Communication g. Industrial Ethernet h. PROFINET Devices Type i. PROFINET Profiles 	
04	<p>7. PLC Programming Concepts</p> <ul style="list-style-type: none"> a. TIA Portal b. SIMATIC STEP 7 Engineering Software c. SIMATIC STEP 7 Basic (TIA Portal) d. SIAMTIC STEP 7 Professional (TIA Portal) e. Modular Programming f. CPU Memory g. Assigning CPU Memory Areas to Instructions h. Data Types <p>8. Basic Ladder Diagram Programming</p> <ul style="list-style-type: none"> a. Bit Logic Instructions b. Power Flow c. Contact and Coil Instructions d. AND, OR & Exclusive OR (XOR) e. Inversions f. Set & Reset instructions g. Additional Ladder Diagram Instructions 	<p>Mr Faheem Ansari Mr Fahad Bilal</p>
05	<p>9. Basic Function Block Diagram</p> <ul style="list-style-type: none"> a. Bit Logic Instructions b. Network Execution c. AND Instruction d. OR instruction e. Exclusive OR (EX-OR) Instruction f. Inversion g. Set & Reset Instructions h. Additional FBD Instructions <p>10. Exercise /Hands-on Practice</p>	<p>Mr Faheem Ansari Mr Fahad Bilal</p>