

Programmable Logic Controllers (PLC) Operations, Programming, Engineering

<p align="center">COURSE DESCRIPTION</p> <p>COURSE DESCRIPTION Programmable Logic Controllers are launched way back in 1970s and today PLC s are being used in all the industries. The PLCs are being extensively used in manufacturing/ production, packing, raw material processing etc. for monitoring, regulatory and sequential control, safety interlocks, motion control, alarms and sequence of events recording, and various other tasks. These are operated either in standalone mode and or they are interfaced with SCADA/ DCS for enhanced functionality. The applications of PLCs are ever increasing with emphasis on automation for the improvement of productivity, quality and safety. This is an introductory course, which aims to build a good understanding about the basics of PLCs and it focuses on providing the practical aspects of PLC operations, programming, and engineering.</p> <p>The course covers PLC block diagram, architectures, operation, usage, instructions, applications, specifications and hardware selection, configuration and programming, documentation related to URS and FDS, wiring diagrams, installation and commissioning, troubleshooting and maintenance. A special emphasis on real life implementations, case studies and international standards would ensure participants to correlate the theory with their day to day practice. A brief introduction to hierarchical structure of control systems and PLC communications would help the participants to enhance their exposure related to control pyramid and interface to office automation systems.</p> <p align="center">COURSE OBJECTIVES</p> <p>Upon Completion of this course the participant will be able to</p> <ul style="list-style-type: none"> • Understand PLC fundamentals and programming languages as per IEC 61131 • Work with PLC programming using ladder logic • Develop skills on PLC instructions and operation vis-à-vis applications • Have knowledge on PLC Project Engineering, Design and Selection • Understand PLC communications • Become expert on PLC installation and commissioning • Master the art of PLC maintenance and troubleshooting • Have a brief exposure to hierarchical structure of control system <p align="center">WHO SHOULD ATTEND</p> <p>Instrumentation, Electrical, Mechanical and Process Engineers, Project Engineers, Maintenance engineers and supervisors interested to work in the field of PLCs. The course will definitely be beneficial for the all the other department people concerned with the plant operations, maintenance and safety. It could be also useful for the procurement and quality personnel.</p> <p align="center">Training Methodology</p> <p>Training will be delivered through lectures and demonstration with emphasis on practical examples and case studies. Experienced instructor is provided to guide the participant using demonstrations and hands on lab exercises so that they are prepared to work confidently in the field of PLC based automation.</p> <p align="center">THE INSTRUCTOR</p> <p>Mr. Sudhir Panditrao The faculty for this course, Mr. Sudhir Panditrao has done his graduation and masters in instrumentation engineering with specialization in process instrumentation. During his professional career spanning 22 years, Mr. Panditrao has worked in the areas of instrumentation and automation design, detailed engineering, projects, installation and commissioning at site for variety of industry applications. He has experience of working in the Middle East as a profit centre head that included international projects, sales and marketing in instrumentation and industrial packaging.</p>	<p>He has worked as a consultant to various leading international organizations. Mr. Panditrao has carried out training in the areas of instrumentation, industrial automation, PLC, DCS, SCADA, advanced process control, automation project engineering etc. for many professionals, students and professors from several leading companies, engineering colleges and institutes. He has worked as an Asst. Professor with one of the leading technical institutes and has published many papers. He is associated with number of institutes as a visiting faculty and is a member of board of studies and postgraduate recognized teacher at University. He has presented a paper at IEEE Conference on Advance Process Control at Vancouver, Canada in May 2005.</p> <p align="center">COURSE OUTLINE</p> <p>Module 1 Background and Evolution of Process Control/ Automation Basic Concepts - Open /Close loop Continuous and Discrete Control Current Scenario - PLC and DCS based automation Hierarchical Structure of Control Systems PLC Block Diagram, Components, Architectures and Scan Cycle PLC programming Languages as per IEC 61131 PLC hardware configuration and addressing PLC basic instructions - NO, NC, Set, Reset</p> <p>Module 2 PLC instructions - Timers and counters PLC instructions - Arithmetic, Comparison PLC instructions - Move, Logic Hands on Lab Practice</p> <p>Module 3 PLC instructions - Program Control PLC instructions - Analog Control PLC Advanced Instructions Hands on Lab Practice</p> <p>Module 4 PLC Engineering Design/ Specifications and Selection Documentation and Project Engineering Panel and Field Wiring Installation and Commissioning Hands on Lab Practice Project</p> <p>Module 5 PLC troubleshooting System Bits Fault Tables Data Watch Lists Introduction to HMI and SCADA PLC Communications RS232, RS485 Project</p>
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