C.V. Raman Global University
ODISHA BHUBANESWAR INDIA

Post Diploma in Automation & Process Control (PDAPC)

Learning Target:

The Participants will be able to

- Solve the Logic and proper Electrical Wiring according to Industrial standard.
- Program & commission PLC, DRIVE, etc.
- Install & configure Distributed Control System.
- Combine various program modules for complex structured programs.
- Understand concepts of different Industrial drives; such as: Electrical, Pneumatics & Hydraulics.
- Work on different industrial sensors & networks.
- Assess through mechatronics-based production line.
- Understand IoT, RFID, SCADA and other features of Industry 4.0 based production line.
- Solve problems related to LV switchgear, AC & DC drive.
- Troubleshoot & maintenance of the automation process.
- Understand & work on Process control systems using P, PI & PID controllers.

Participant Profile:

- B. Tech/BE/ Diploma Students of EE, EEE, ETC, ECE, ME, AE&I.

Evaluation:

- Theory & Practical Exam
- Project work based on Industrial Application.

Time Durations:

- 720 Hours
- 6 Hours/Day, 5 Days/Week

Contact us:

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COURSE CONTENT:

SL. NO	TOPIC	HOURS	CONTENT	CERTIFIED BY
01	RELAY LOGIC & CONTROL	45	❖ Switching devices ❖ Relay & Contactor ❖ Inching, Latching, Interlocking. ❖ OLR, Timer, Starter ❖ One Line Diagram design & Simulation	rexroth A Bosch Company
02	SENSORS & TRANSDUCERS	30	❖ Introduction to Sensors & Transducers ❖ Types and its operations. ❖ Operating range, Hysteresis, Reduction factor calculation using software ❖ Distance measurement & Level control	rexroth A Bosch Company
03	Programmable Logic Controller (PLC)	45	❖ Introduction to PLC ❖ History & Architecture of PLC ❖ Programming with Rexroth L20, L25 PLC ❖ Different types of programming Languages (LD, SFC, FBD) ❖ Interfacing of I/O with PLC ❖ PLC networking	rexroth A Bosch Company
04	PNEUMATICS	45	❖ Introduction to Pneumatics technology. ❖ Valves and Actuators. ❖ Electrical application with pneumatics. ❖ Closed Loop Pneumatics ❖ Circuit design & Simulation (Automation Studio/ Fluidsim)	rexroth A Bosch Company
05	HYDRAULICS	30	❖ Introduction to Hydraulics Drive. ❖ Types of Valves & Actuators. ❖ Electrical application with hydraulics. ❖ Proportional hydraulics. ❖ Mobile Hydraulics	rexroth A Bosch Company
06	MECHATRONICS	50	❖ Introduction to Mechatronics ❖ System design using mechatronics concept. ❖ Programming of a complex mechatronics system (Rexroth mMS kit) ❖ Troubleshooting & Maintenance ❖ Programming in PLC networking ❖ Design of SCADA view of a plant	rexroth A Bosch Company
07	INDUSTRY 4.0 & ROBOTICS	30	❖ Introduction to system design using Industry 4.0 ❖ Programming of IoT & RFID based mechatronics system ❖ Design of SCADA view of a plant in Active Cockpit ❖ Introduction to Robotics	rexroth A Bosch Company

			❖ Programming of Cartesian Motion System Robot	
08	PLC & HMI	50	❖ The role of PLC & HMI in the industrial automation revolution. ❖ To study different industrial applications of PLC (S7-1200&S7-1500) using STEP 7 professional V13 & V15 (TIA PORTAL). ❖ Make graphic objects dynamic through programming for real time monitoring with HMI. ❖ Network topology-industrial networking.	SIEMENS Ingenuity for life
09	SCADA & DCS	50	❖ The importance of the SCADA system in the industrial environment. ❖ Configure, preview reports, archive and display trends curve & tables. ❖ Basic knowledge on screen sharing, control priority, user security. ❖ The role of DCS in manufacturing industries. ❖ Plant hierarchy settings, OS compiling	SIEMENS Ingenuity for life
10	AC & DC DRIVE	80	❖ Application of Electric Drive in industrial automation ❖ Installation & Commissioning of Drives ❖ Controlling the dynamics of the dc motor & 3 phase induction motor and its responses to applied load	SIEMENS Ingenuity for life
11	LV SWITCHGEAR	20	❖ Familiarization with low-voltage switchgear ❖ Importance of fault analysis ❖ Requirement of different types of protection equipment. ❖ Fault level calculation, definitions & terms used in industry	SIEMENS Ingenuity for life
12	BASIC PROCESS AUTOMATION	20	❖ Introduction to Process Engineering ❖ Understanding Control System ❖ Basic knowledge on Process Automation ❖ Mechanical layout of EduKit-PA ❖ Understanding different process parameters ❖ Controlling the process parameters using EduKit-PA	FESTO

13	ADVANCE PROCESS AUTOMATION	20	❖ Advancement of Technology in Process engineering ❖ Sensor Technology ❖ Commissioning of EduKit-PA with Advance Technology ❖ Open loop control technology. ❖ Close loop control technology ❖ To know how to control the level and flow by using different controlling systems. ❖ Controlling and simulation using FluidLab PA	FESTO
14	PROCESS AUTOMATION IN MODULAR PLANTS	30	❖ Overview of MPS -PA Compact Workstation ❖ Mechanical layout of MPS - PA Compact Workstation ❖ Difference between open loop and closed loop control technology ❖ To know how to control the level, flow, pressure and temperature by using different controlling systems. ❖ Programming with PLC.	FESTO
15	INDUSTRY BASED APPLICATION & LEARNING SYSTEM ON PROCESS AUTOMATION	30	❖ To know mechanical design of a station ❖ Reading and creating PI diagrams and documentation ❖ Measurement of non-electrical, process engineering variables ❖ Fundamentals of closed loop control engineering. ❖ P, I, D Controls ❖ Optimization of a control loop.	FESTO
16	COMMUNICATION ENGLISH	40	❖ Orientation & Registration ❖ Verbal communication skills ❖ Personality development	C. V. Raman Global University
17	COMPUTER NETWORK ARCHITECTURE	30	❖ OS installation ❖ Required driver installation ❖ Automation tools installation ❖ Basics of TCP/IP ❖ System Networking	C. V. Raman Global University