



2 Day`s Training Programme on

Instrumentation, Process Control, Automation, Control Valves and Actuators

Operation and Maintenance, Industrial Implementation

(Selection, Sizing, troubleshooting) 16-17 August, 2017, Nagpur

Course Description:

This course covers basics of industrial process control and the instrumentation used for it. It elaborates various sensors and its working principle, specifications, and design and selection aspects used for sensing various process parameters along with merits and limitations of each type of sensor. The course would also build the knowledge of the participants related to working principles of control loop components, the control strategies, and the PID controller fundamentals including the terminology, algorithms and tuning methods. A special emphasis on real life implementations, case studies and international standards would ensure participants to co-relate the theory with their day to day practice. The course aims to build a good understanding about the basics of instrumentation & control and it focuses on providing the practical aspects of installation, commissioning and troubleshooting.

Course Objectives: Upon Completion of this course the participant will be able to

- Learn basics of industrial process control
- Understand Open and Closed Loop Control
- Learn various sensors used for measurement of process parameters such as temperature, flow, pressure, level etc. covering principle of operation, specifications etc.
- Have knowledge on Transmitters and Intelligent Instrumentation
- Understand working of Control Loop Components
- Gain knowledge on PID control strategy and its real life implementation
- Know the art of PID controller tuning



- Learn about installation, testing, commissioning and maintenance of Instrumentation & Control
- Practical Implementation

Who Should Attend?

Instrumentation, Electrical, Mechanical and Process Engineers, Project Engineers, Maintenance engineers and supervisors interested to acquire the knowledge in the field of Automation, Measurement and Process control. 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.

Whereas interested and look out of Knowledge on process control and automation are welcome. The program will be a value adding experience for fresher' s to understand insight on subject matter for improving knowledge and performance.

Course Contents & Delivery Schedule:

| Module | Content |
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| Module 1 | Background and Evolution of Process Control/ Automation, P & ID Instrumentation symbols Feedback Control Block Diagram. |
| | Concepts Sensors and Transducer and its Characteristics Principle of working, merits and limitations, selection criteria for Temperature Measurement Sensors: Thermocouple & RTD |
| Module 2 | Principle of working, merits and limitations, selection criteria for following sensors: Pressure Measurement Flow Measurement: Orifice, Rotameter, MagFlow |



Centre For Industrial Solution and Advanced Training

AN ISO 9001:2015 CERTIFIED

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| Module 3 | Principle of working, merits and limitations, selection criteria for following sensors: Level Measurement: Conductive, Capacitive, Diff Pr. Position Sensing: Limit, Photo, Proximity Sw. Speed Measurement: Encoders |
| Module 4 | Standard Signals, SMART Transmitter I to P Converter, Control Valves, Actuators and Positioner |
| Module 5 | PID Controllers: Algorithms, forms, terminology, selection Tuning of Controllers, Operation and Maintenance. |
| Module 6 | (As time permits) Installation and Commissioning Troubleshooting of Instrumentation & Control |

Program Duration: 2 Days (10.00 a.m. to 5.30 p.m., on both days)

Registration Details:

- ❖ **Dates of the program:** 16-17 August, 2017 (2 Days).
- ❖ **Participation fees:** INR 16000/- per delegate (GST Extra@18%).

Payment:

- ❖ ECS/NEFT/DD in favor of “Centre for Industrial Solution and Advanced Training” Payable at Nagpur, Maharashtra, India (For NEFT/ECS). Account No: 0509102000003353 Bank: IDBI, Wardha- 442001, MS, India; IFSC Code: IBKL0000509; Swift Code IBKLINBB007; MICR Code 000259000.

Venue: KEC, International Training Centre, Butibori, Nagpur, Maharashtra, India.

For Registration, please do contact to,

We prefer on line Registration through our web www.cisat.co.in.

1. Mahendra Dhande 9168326662

Mrs. Rupali - 00-91-7709012815; vikas@cisat.co.in; cisat.nagpur@gmail.com;



About Expert: Mr Sudhir Panditrao (Expert, Consultant and Trainer)

Bachelor of Engineering (Instrumentation and Control), College of Engineering Pune, 1985

Master of Engineering (Instrumentation and Control), College of Engineering Pune, 2003

Specialisation: Process Instrumentation

Professional Experience Over 30 Years

During his professional career spanning over 29 years, Sudhir 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 also worked as a director for process control and computer peripherals manufacturing company mainly supplying to major automation manufactures. **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. He has worked as a consultant to various leading international organizations viz. Tata Honeywell, Eureka Industrial Equipments, Thermax etc. His passion for teaching / training goes way back with his association with academic institutions since 1988. He has been a visiting faculty at the Government College of Engineering Pune (COEP) and the Department of Instrumentation Science at the University of Pune. He played a key role in launching and conducting training programmes for industry professionals and students at COEP. His continued passion saw him establish SAN Techno Mentors in 2007 – a company focused on providing training and consultancy in various engineering areas.

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.**

Sudhir has carried out training in India and abroad 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.