



# THE INSTITUTE OF MARINE ENGINEERS (INDIA)

## Mumbai Branch

**Instrumentation, Automation, Control**  
**PLC/HMI, SCADA/AMS/DCS**  
**100 % Live Demonstration**

**Course Starts 18<sup>th</sup> to 22<sup>nd</sup> May, 2026**

**FACULTY: Mr. Ajit Kumar K.T. Chief Engineer MEO 1 , 81-85 DMET Kolkatta**

**TARGET AUDIENCE: Superintendents, Senior CEs & ETOs**

### DAY 1 INSTRUMENTATION

- Analogue & Digital Signals
- Demo of various Primary Sensors and their Outputs
- Active & Passive Sensors
- Direct and Indirect Measurement of Parameters
- RTD, Thermocouples, PT100, PT 1000, Thermistor
- Standard Instrumentation Signals, Pneumatic & Electric
- Demo of Various Signal Conditioners
- Demo of 4-20 mA loop wiring up
- Demo of 4 to 20 mA loop current reading by various methods
- Demo of 2 wire and 4 wire Telemetry
- Demo of Instrument Calibration, of Analogue & Digital Signal Conditioners
- Demo of Interactive and Non Interactive Instrument calibration

### DAY 2 AMS / SCADA / DCS

- Practical Applications of various Parameter Measurements on Board Ships
- Demo of Data Acquisition SCADA and AD Conversion
- Demo of Range & Differential Settings
- Rising & Falling Pressure Switches
- Differential Pressure switch
- Various Thermostats
- Demo of Ships Alarm Monitoring System
- Demo of Loop Calibration in Simulate & Source Modes

### DAY 3 AUTOMATION SYSTEMS ON BOARD

- Theory Boiler Automation
- Demo of Boiler Water Level measurement by DP Transmitter & its Calibration
- Theory Refrigeration & Air Conditioning Automation
- Alarms and Trips on board and their testing
- BWT Level Measurement
- COT Level Measurement
- VRCS Operation
- Engine Over speed trips and testing, engine tripping systems
- Cable Supervision of critical systems
- Auto Standby By Start / Stop Systems
- Power Management Systems (PMS)
- Proximity Sensors
- Rotary Encoders
- Opto Couplers & Signal Isolators

### DAY 4 PROCESS CONTROL ENGINEERING

- Process Control Concepts, On/Off & Modulating Controls
- Typical On/Off Control Systems on Board Ships
- Self Acting Control Systems on Board Ships
- Typical Modulating Control Systems on Board Ships
- Demo of Process Control Parameters (SV/PV/MV/Output) captured dynamically on a SCADA Screen Graphically.
- Demo of Open Loop Response of a Digital Controller to input changes
- Demo of Proportional, Integral & Derivative Actions
- Demo of Auto Tuning of a PID Digital Controller to a given process
- Demo of 3-15 psi actuator, Reverse and Direct acting concepts of Transmitter, Controller, Actuator and Valve
- Demo of I/P & P/I Converters & Calibration
- Demo of Pneumatic Valve Positioner Calibration
- Demo of Nakakita Pneumatic Analogue Controller
- Demo of SIEMENS SIPART Digital valve positioner initialization & Operation
- Pneumatic, Electro Pneumatic, Digital, PLC, SCADA/DCS based PID Controllers

### DAY 5 PLC/HMI, DIGITAL COMMUNICATION

- Demo of Microcontrollers and PLC, Their Differences
- Demo of Various PLCs – Siemens, Mitsubishi, Delta
- Demo of Delta HMI and its link to Delta PLC
- Demo of Digital & Analogue, Inputs & Outputs (I/O's) of a PLC
- Demo of Ladder Logic Programming of a PLC
- Demo of Programming of a HMI
- Demo of Controlling PLC from HMI
- Demo of Controlling a VFD from HMI, vide digital communication, no hard wiring
- Digital Communication Standards
- Digital Communication Protocols
- Digital Communication Connectors
- Digital Communication Cables

**Fees : \*Members - Rs. 23000/- + 18 % GST**  
**(IMEI, CMMI and INA Members)\***

**\*Non-Members - Rs. 25000/- + 18% GST**

**Date : 18<sup>th</sup> to 22<sup>nd</sup> May 2026**  
**5 DAYS ONLINE COURSE**

**Time: 0900 hrs to 1700 hrs**  
**Venue : Web Platform / Zoom**

Kindly enrol & make payment through <https://linktr.ee/imei.m>  
and

After registration please drop email to [training\\_mumbai@imare.in](mailto:training_mumbai@imare.in)

**Contact Person for any queries:-**

**Kindly contact Ms. Anita Patill : 91-9225516456 / Mr. Suraj Negi : 91-9967481448**