

# ADVANCED MARINE ELECTRICAL COURSES - MODULE 5,6

(INSTRUMENTATION, PROCESS CONTROL & PROGRAMMABLE LOGIC CONTROLLERS)



Course Durations: **5 Days**

Course Applicability Ranks: **C/E, 1/A/E, G/E, 2/A/E, ELEC**

## Contents of the course:

- Analogue & Digital Signal Outputs from Sensors , Primary Sensors, RTD/Thermocouple/Thermistors
- Signal Conditioning and Standard Signals, Instrument Calibration, Interactive and Non interactive
- 2 & 4 Wire Telemetry, The 4 to 20 mA Loop
- A/D & D/A conversion, Digital Signal Transmission
- Loop Calibration in Source/Simulate Modes, Measurement of Level / Flow / Viscosity / Differential Pressure
- Step and Modulating Control Systems
- Various Process Control Systems on board
- Boiler Automation, AC & Fridge Automation, AVR and Speed Governor
- Control Engineering Terminology
- Control Loop Components
- Direct & Reverse Acting and Fail Safe Concepts
- PID Theory
- Practical wiring up of PID control systems
- Tuning PID Controllers to a given Process
- Nakakita Pneumatic PID Controller
- EPCON Electro pneumatic PID Controller
- Digital PID Controllers
- Pneumatic valve positioner and Digital Siemen's SIPART Positioner
- Microcontrollers and Programmable Logic Controllers
- Programming of PLC / HMI
- Understanding Inputs & Outputs of a PLC
- Wiring up Inputs & Outputs of a PLC
- Practical Trouble Shooting of PLC Systems

