

## INSTITUTE FOR DESIGN OF ELECTRICAL MEASURING INSTRUMENTS, MUMBAI

### WORKSHOP ON CALIBRATION OF PRESSURE, TEMPERATURE & FLOW MEASURING INSTRUMENTS

DURATION	Three Days
TIMINGS	10.00 a.m. to 5.00 p.m. daily
VENUE	IDEMI, Mumbai
FEE/PARTICIPANT	Rs. 9,000/- + (GST as applicable)
INTAKE CAPACITY	25 participants

#### WHO SHOULD ATTEND

Engineers who are connected with Temperature, Pressure & Flow measuring related instruments and are responsible for Maintenance, Calibration & Testing of such instruments or Quality Control activities of the organization. The professionals who are involved, in project formulation, selection of instruments or dealing with Application Engineering & hence useful for marketing personnel as well.

SPECIFICALLY THIS COURSE IS DESIGNED FOR LABORATORY PROFESSIONALS.

#### WHY SHOULD YOU ATTEND?

The program deals with the entire range of Temperature, Pressure & Flow related instruments and renders a systematic approach in measurement, calibration, typical errors in measurement and their estimation. The program demonstrates the practical-skills in handling this range of instruments, which will meet requirements of ISO/IEC17025:2017 & specific criteria for Temperature, Pressure & Flow Measurements.

#### WHAT THE PROGRAM CONTAINS

##### TEMPERATURE

1. Calibration Philosophy, Traceability of Temperature Standards
2. Calibration of Temperature Sensor- RTD, Thermo couples etc
3. International Temperature Scale ITS 90
4. Temperature Indicators & Controllers
5. Temperature Calibrators
6. Glass type of Thermometer
7. Selection & Applications of Temperature measuring Instrumentation
8. Estimation & Expression of Uncertainties in Temperature measurements as per NABL 141
9. Specific Criteria of Laboratory accreditation for Thermal Measurement as per NABL 124
10. Exercises on
  - a. Uncertainty Calculation in Temperature Measurement
  - b. Evaluation of Errors in Temperature Measurement

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### **PRESSURE**

1. Pressure Standards & Traceability
2. Overview of Pressure Measurement Techniques
3. Errors in Measurements & estimation of uncertainties as per NABL 141
4. Calibration of Pressure Gauges, Dead Weight Testers
5. Overview of Pressure Transducers, Construction, Specifications and Selection Criteria
6. Pressure Transmitters & Recorders
7. Specific Criteria for Accreditation of Calibration of Pressure related instruments Calibration Lab.
8. Exercise on
  - a. Evaluation of Errors in Pressure Measurement
  - b. Estimation of Uncertainty in Pressure Measurements

### **FLOW**

1. Overview of Various Flow meters & Flow Measurements
2. Calibration of Turbine Flow Meter
3. Calibration of Magnetic Flow Meter, Calibration of ROTA Meter
4. Calibration of Mass Flow Meter
5. Specific Criteria for Accreditation of Fluid Flow Lab as per NABL 125
6. Estimation & Expression of Uncertainties in Flow Measurements as per NABL 141 (Concepts, Sources, Measures)
7. Exercises on
  - a. Uncertainty Calculation

### **FACULTY**

The Faculty will be drawn from highly experienced Instrumentation. Professionals and IDEMI Laboratories who are experts in Industrial Instrumentation and calibration techniques.

**CERTIFICATE OF PARTICIPATION WILL BE ISSUED TO EACH PARTICIPANT**