**Training Program on Oil, Water & Gas Flow Measurement & Control Techniques & Standards**

General Orientation Program on India and its culture.

Theory Session 40% , On the job Lab/ Hands on trainings 40%, Evaluation of Projects and Standards presentations 20% on an average.

**Course Content:**

1. **Flow Engineering Basics, Symbols, notations, schematics etc. Over view of units and conversion factors.**
2. **Elements of flow Technology Management, Method validation.**
3. **Hands on experience on calibration of flow meters like orifice, venturi, Turbine flowmeters, Ultrasonic Flowmeters, PD Meters, Electro Magnetic Flowmeter, Vortex meter, etc in water/ oil / air media; Calibration of CNG mass flowmeters, Methods validation.**
4. **Testing of valves, safety valves and related pipeline products, air release valves.**
5. **Introduction to CFD and its applications to processes in Oil, Water & Gas flow metering; ANSIS, FLUENT Software.**

**Selection & Application of flowmeters:**

Selection & Application of flowmeters used in Oil & Gas medium. Different types of flowmeters. Control Techniques, Different types of control valves -Butterfly, Ball, Globe, Angle valve etc. Intelligent control valves, Flow characteristics of valves, non return valves, upstream / downstream control valves / gas filling head.

**Flowmeters Evaluation / Calibration**:

Calibration of secondary instrumentation in flow metering & control, meter prover, Flowmeter "Model Approval" as per Organization Internationale De Metrolgie Legale (OIML) Standards, Calibration of flowmeters in multiviscous media, Instrument, software for flowmeter & control valve selection and sizing.

**Study of International Standards followed for Oil / Gas computations transfer**:

International Standards followed in Oil and Gas flow measurement viz API, AGA, OIML etc. Custody transfer in petro-chemical industry - Norms / Calculation, Heating value calculation.

**Performance Quality aspects in flowmetering systems:**

Assessment of uncertainty and statistical analysis of accuracy in fluid flow, Traceability or measurement, maintenance aspects of flowmeters, valves and its related custody transfer instrumentation according to OIML /ISO standards.

**Flow network System parameters:**

Fluid flow pressure surge analysis for water network, inspection and auditing of flowmetering stations to check conformance to API/I AGA, Flow measurement and control in industrial process control, natural gas properties and computations for flow correction, Oil and gas network distribution analysis technique storage tanks, prover systems.

**Electronic Instrumentation and Data Acquisition Systems:**

Flow measurement and control in distribution network, Flow computers for custody transfer, Instrumentation related to flow measurement, Automatic level gauging of storage tanks.

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