TRAINING TITLE

GAS MEASUREMENT AND FLOW METERING STATION

Training Duration

5 days

Training Venue and Dates

Ref. No. IC134	**Gas Measurement and Flow Metering Station**	**5**	**5-9 May 2025**	**$5,500**	**DUBAI, UAE**

In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- **$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

The Gas Measurement and Flow Metering Station course is designed to provide participants with the knowledge and skills required to operate, maintain, and troubleshoot gas measurement and metering systems used in oil and gas industries, utilities, and other related sectors. Flow metering is a critical aspect of managing gas distribution, production, and transportation, ensuring accurate billing, regulatory compliance, and operational efficiency.

TRAINING OBJECTIVES

By end of course participants will be able to understand

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- Gas measurement and metering technicians
- Operations and maintenance engineers
- Instrumentation and control engineers
- Regulatory and compliance officers
- Project engineers and supervisors in oil and gas, utilities, and industrial sectors
- Quality control and assurance personnel
- Safety officers
- Technical support teams

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WHO SHOULD ATTEND?

- Gas turbine and compressor operators
- Control system engineers and technicians
- Maintenance engineers and technicians
- Instrumentation and automation engineers
- Process engineers and energy managers
- Plant supervisors and managers
- Safety officers and environmental engineers
- Technical support and troubleshooting staff

COURSE PROGRAM

Day 1: Introduction to Gas Measurement and Flow Metering

- **Overview of Gas Measurement**
  - The importance of accurate gas measurement in the energy sector
  - Gas measurement and flow metering in the gas production, transmission, and distribution systems
  - Regulatory and industry standards for gas measurement (e.g., AGA, ISO, API)
- **Types of Gas Flow Meters**
  - Positive displacement meters
  - Turbine meters
  - Coriolis meters
  - Ultrasonic meters
  - Differential pressure (DP) meters
  - Thermal mass flow meters
  - Factors influencing meter selection: accuracy, flow range, pressure, temperature
- **Key Metering Station Components**
  - Flow meters, valves, pressure regulators, control systems, and instrumentation
  - Data acquisition and transmission systems
  - Backup power supplies and flow conditioning devices

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Day 2: Operating Gas Flow Meters and Metering Stations

- **Gas Flow Measurement Principles**
  - Measurement units: standard cubic feet (SCF), cubic meters (m^3), mass flow, energy flow
  - Factors affecting gas measurement: pressure, temperature, gas composition, and flow profile
  - Flow profiles and their impact on measurement accuracy
- **Metering Station Operations**

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- Startup and shutdown procedures for flow metering stations
- Flow data collection: how to read, record, and interpret flow data
- Operating procedures for different types of meters: turbine, ultrasonic, Coriolis
- Remote monitoring and control of metering stations
- Preventive maintenance schedules for metering systems

- **Common Operational Challenges**
  - Handling pressure variations, gas quality changes, and temperature fluctuations
  - Dealing with pulsation, noise, and vibration in flow metering systems
  - Managing fluctuating gas flow rates and system shutdowns

Day 3: Calibration and Verification of Gas Flow Meters

- **Importance of Meter Calibration**
  - Why calibration is essential for accurate gas measurement and regulatory compliance
  - Calibration standards and protocols: AGA, ISO, and other relevant standards
  - Traceability and the role of calibration certificates
- **Calibration Techniques and Procedures**
  - Overview of calibration methods for different types of meters
  - Using calibration rigs and facilities: pneumatic, hydraulic, and electronic calibration
  - Calibration for pressure, temperature, and gas composition adjustments
  - Performing on-site calibration for gas flow meters
  - Interpreting calibration results and adjusting meter parameters
- **Meter Verification Procedures**
  - Verifying the accuracy of gas meters: field verification, lab verification, and digital verification systems
  - Procedures for field testing: zeroing, span testing, and accuracy checks
  - Verifying compliance with operational standards
- **Maintaining and Storing Calibration Data**
  - Documentation requirements for calibration and meter performance
  - Recording and storing calibration data for audit and compliance purposes

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Day 4: Troubleshooting Gas Flow Metering Systems

- **Common Metering System Failures and Issues**
  - Mechanical and electronic faults in gas meters
  - Leaks, pressure drops, and abnormal flow readings
  - Sensor drift, signal interference, and data anomalies
- **Diagnostic Techniques for Gas Flow Meters**
  - Using diagnostic tools and software to identify faults in metering systems

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  - Fault detection in meters: visual inspections, performance analysis, and diagnostics
  - Analyzing pressure, temperature, and flow data to detect discrepancies
  - Corrective actions for faulty flow meters and instrumentation
- **Case Studies: Real-World Troubleshooting**
  - Analyzing case studies of flow metering issues in gas operations
  - Group discussions and problem-solving exercises
  - Steps to resolve common metering issues and improve system reliability
- **Preventive Maintenance and Monitoring**
  - Establishing a preventive maintenance plan for flow metering systems
  - Utilizing online monitoring tools for early fault detection
  - Regular inspections and performance tests to minimize downtime

Day 5: Regulatory Compliance and Best Practices in Gas Flow Metering

- **Regulatory and Industry Standards for Gas Measurement**
  - Overview of national and international regulations: AGA, ISO, API, and local standards
  - Compliance with fiscal metering requirements and quality standards
  - Safety and environmental regulations impacting metering stations
  - Auditing and certification processes for metering systems
- **Gas Metering Data Management**
  - Managing flow data for billing, reporting, and regulatory purposes
  - Data storage, security, and retrieval best practices
  - Managing discrepancies in metering data: error detection and reconciliation
- **Optimizing Gas Measurement Operations**
  - Best practices for optimizing flow metering accuracy and performance
  - Continuous improvement strategies for metering station operations
  - Leveraging automation and data analytics for better decision-making
  - Future trends in gas metering technology: digital meters, smart metering systems

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NOTE:
Pre-& Post Tests will be conducted.
Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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