PARTNERS IN KNOWLEDGE UK LTD
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Flow Measurement & Custody Transfer

PIK855-1225 UK-LDN-1

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Place	: London	**Venue**	: Radisson Blu Hotel (19-25 Granville Place, London W1H 6PA) - TBC		
Start Date	: 29-12-2025	**End Date**	: 06-01-2026	**PPP**	: £4950

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If you can't train them, you can't blame them!

Short Description:

Flow measurement is a critical process in industrial settings, designed to ensure the accurate quantification of fluid movement. This precision is vital for effective monitoring and control of various operations. In tandem with flow measurement, custody transfer plays a significant role in the oil and gas industry, focusing on the exact measurement and transfer of ownership of hydrocarbons. This process is essential for maintaining transparency and compliance in commercial transactions, as it guarantees that all parties involved have a clear understanding of the quantity and quality of the fluids being transferred. To support the skills necessary for these tasks, a comprehensive training program is available that covers the operation, technology, and maintenance of gas turbines. Participants in this program will gain valuable knowledge and hands-on experience, equipping them with the ability to troubleshoot common issues, optimize system performance, and ensure the reliable operation of gas turbine systems. This training is crucial for professionals looking to enhance their expertise in flow measurement and custody transfer, ultimately contributing to more efficient and effective industrial processes.

Course Overview:

COURSE OBJECTIVES

At the end of this program, participants will be able to:

- Develop a solid understanding of fluid and gas laws essential for effectively utilising flow measurement devices.
- Grasp the primary requirements of custody transfer systems within the industry.
- Appreciate the critical aspects of flow measurements, including accuracy and repeatability, for efficient operations.
- Gain knowledge of contemporary flow measurement meters, such as:
  - Differential pressure (DP) meters.
  - Turbine meters.
  - Positive displacement meters.
  - Coriolis flow meters.
  - Magnetic flow meters.
  - Ultrasonic flow meters.
- Evaluate the adequacy of a metering system.
- Select appropriate custody transfer metering systems.
- Identify potential issues related to flow measurement systems.

TARGET AUDIENCE

- Engineers from various disciplines.
- Technicians from various fields.
- Instrumentation personnel.
- Procurement personnel.
- Quality control personnel.
- Inspection engineers.

- Maintenance engineers.

Program Outline:

DAY 1: Introduction – Fundamental Fluid and Gas Principles

1. Principles and necessities of custody transfer.
2. Essential fluid characteristics - pressure, viscosity, and flow volume.
3. Flow patterns - laminar versus turbulent flow, Reynolds number, and flow losses.
4. Comprehension of energy laws (Bernoulli's principle) and the continuity equation.
5. Ideal versus real gases, along with gas laws (Boyle's, Charles's, Gay-Lussac's).

DAY 2: Overview of Flow Meter Characteristics and Performance

1. Core concepts in flow measurement - accuracy, precision, and rangeability.
2. System characteristics and flow capacity.
3. Performance indicators - accuracy, stability, repeatability, sensitivity, noise, and linearity.
4. Significance of flow modification and meter runs.
5. Measurements of temperature and pressure in flow systems.

DAY 3: Varieties and Uses of Flow Meters

1. Differential Pressure (DP) flow meters - orifice plates, Venturi tubes, nozzles, and Pitot tubes.
2. Positive Displacement (PD) meters - rotor types, oscillating piston, and oval gear designs.
3. Turbine flow meters - standard and helical designs.
4. Common challenges - erosion, corrosion, cavitation, and obstructions.
5. Uses, installation prerequisites, and standards for DP, PD, and turbine meters.

DAY 4: Varieties and Uses of Flow Meters (Continued)

1. Ultrasonic flow meters - operation principles and applications.
2. Magnetic flow meters - principles and functionalities.
3. Coriolis flow meters - design features and applications.
4. Installation prerequisites and standards for ultrasonic, magnetic, and Coriolis meters.
5. Requirements for straight runs to ensure precise flow measurements.

DAY 5: Flow Measurement Systems and Custody Transfer Considerations

1. Guidelines for custody transfer.
2. Requirements for custody transfer.
3. Meter factor and its influence on the precision of custody transfer.
4. Proving systems - direct, indirect, master meter, volume.
5. Displacement systems.
6. Custody transfer skids and their significance in achieving accurate measurements.
7. The function of flow computers, communication, and the integration of temperature and pressure readings.