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HYDRAULIC MODELING FOR PIPELINE SYSTEMS

Start Date:	25/01/2027	**End Date:**	29/01/2027
Categories:	Oil & Gas	**Venues:**	London
Formats:	In Person	**Instructors:**	

OVERVIEW

This technical course equips participants with the knowledge and tools to perform hydraulic modeling for pipeline systems. It focuses on flow simulation, transient analysis, software tools, and optimization strategies for both design and operational phases of pipelines.

OBJECTIVES

By the end of this course, participants will be able to: • Understand fluid dynamics fundamentals relevant to pipeline flow. • Build and calibrate hydraulic models for various pipeline configurations. • Conduct steady-state and transient (surge) analyses. • Use industry-standard software tools for simulation and troubleshooting. • Apply modeling results to improve pipeline design and operational efficiency.

COURSE OUTLINE

1. Fluid Flow Principles and Hydraulic Behavior in Pipelines 2. Pipeline Modeling Techniques and Data Requirements 3. Transient Analysis: Surge, Water Hammer, and Pressure Transients 4. Software Applications: Model Building, Calibration, and Validation 5. Model-Based Decision Making: Design Optimization and Operations

TARGET AUDIENCE

Pipeline engineers, hydraulic modelers, flow assurance specialists, and operations planners involved in the design and performance of pipeline systems.

METHODOLOGY

Modeling labs, software simulations, real-world case reviews, and scenario-based exercises.

CONCLUSION

Participants will be able to confidently apply hydraulic modeling tools and techniques to support safe, efficient, and cost-effective pipeline system design and operation.

DAILY AGENDA

Day 1: Hydraulic Principles and Flow Behavior

Understanding steady-state and transient flow fundamentals in pipelines.

Day 2: Pipeline System Data and Model Setup

Gathering design/operational data and constructing base hydraulic models.

Day 3: Transient Events and Surge Analysis

Modeling water hammer, surge, and mitigation techniques.

Day 4: Software Application and Model Calibration

Using industry tools for model simulation, validation, and troubleshooting.

Day 5: Model Optimization and Operational Strategy

Applying results to optimize pipeline design, safety margins, and efficiency.

For more information, please contact us:
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