

Scandinavian Academy Training Center

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Riyadh - Al Khaleej District - Sheikh Abdul Aziz Bin Abdul Rahman Bin Bishr Street - 13223 - Office No. 5 | P.O.BOX : 13224

Course: Oil and Gas Processing Flow Measurement

Code	City	hotel	Start	End	price	Language - Hours
OG-127SA	Al Khobar	Hotel Meeting	2027-01-31	2027-02-04	12950 SR	En - 25

INTRODUCTION

Accurate flow measurement is essential to today`s oil & gas operations. Our Fiscal Metering Training Seminar aims to provide training to facility operators, technicians and engineers, which, once delivered, "keep on working".

Delegates are encouraged to raise queries both during and at any time after attending the seminar. Delegates are also encouraged to bring with them any issues that they may have to the seminar.

High quality multi-media is used to supplement traditional methods throughout the presentation, (based on our Interactive Training Software) which has proven to be more useful in explaining and understanding the topic than actually seeing a system in operation.

SEMINAR OBJECTIVES

- Understanding the Legal and Commercial Metering Requirements
- Appreciate design criteria and importance of accuracy
- Understand measurement concepts and types of error
- Understand the basic concepts, principle of operation and equipment used for Gas metering, liquid metering, proving and sampling
- Understood the basic concepts, principle of operation and hardware used for typical flow computers, Prover Control Micro-computers and Supervisory Systems.
- Understand the typical operations, control functions and record keeping requirements
- Evaluate the results of Turbine Meter Calibration and determine the validity by use

of Control Chart

SEMINAR OUTLINE

TYPICAL GAS SYSTEM OVERVIEW

- Typical Gas Pipeline System
- Role of Operator
- Overview of Typical Gas Sales
- Contracts

TYPICAL GAS METERING SYSTEM OVERVIEW

- Introduction to Fiscal Metering
- Pipework and Valving
- Flow Measurement
- Secondary Instrumentation

PRIMARY FLOW MEASUREMENT INSTRUMENTATION

- The Flowmeter
- Meter Tubes and Other Fittings
- Removals/Replacement Procedure

FLOW MEASUREMENT ACCURACY

- Flow Measurement Uncertainty,
- Rangeability and Calibration
- Calculating Uncertainty
- Traceability

SECONDARY MEASUREMENT INSTRUMENTATION

- Pressure Measurement
- Temperature Measurement
- Density Measurement

GAS QUALITY MEASUREMENT

- The Gas Sampling and Conditioning System
- Relative Density Analyser
- Moisture Analyser

GAS CHROMATOGRAPHS

- Introduction to Gas Chromatography
- Gas Conditioning System
- Gas Chromatograph
- Chromatograph Controller
- Calibration and Maintenance

COMPUTER SYSTEM OVERVIEW

- Hardware
- Software
- Display Formats
- Alarm Handling and Interpretations
- Response to Input Failures

SUPERVISORY COMPUTER SYSTEM

- Hardware and Software
- Operator Interface
- System Security
- Communications

METERING PANEL AUXILIARY EQUIPMENT

- Analogue to Digital Conversion
- Power Supplies

INTRODUCTION TO PRIMARY FLOW MEASUREMENT DEVICES

- Introduction
- Basic Principles of Pipe Flow
- Mathematical Developments

PRIMARY FLOW MEASUREMENT DEVICES - Differential Pressure Type

- Simple Theory
- Orifice Meters
- Venturi Meters
- Flow Nozzles
- Low Loss Devices
- Variable Orifice Meters
- Variable Area Meters
- Pitot Tubes and Pitot Static Tubes
- Target Flowmeters

PRIMARY FLOW MEASUREMENT DEVICES - Displacement Flowmeters

- Basic Principles
- Liquid Meters
- Designs for Gases
- Advantages and Disadvantages
- Applications

PRIMARY FLOW MEASUREMENT DEVICES - Rotary Inferential Meters

- Turbine Flowmeters
- Miscellaneous Designs
- Advantages and Disadvantages

PRIMARY FLOW MEASUREMENT DEVICES - Fluid Oscillatory Flowmeters

- Principle of Operation
- Vortex Shedders
- Advantages and Disadvantages

PRIMARY FLOW MEASUREMENT DEVICES - Electromagnetic Flowmeters

- Principle of Operation
- AC and Pulsed DC Types
- Applications
- Advantages and Disadvantages

PRIMARY FLOW MEASUREMENT DEVICES - Ultrasonic Flowmeters

- Doppler Type
- Time-of -Flight Type
- Clamp-on Type
- Applications
- Advantages and Disadvantages

PRIMARY FLOW MEASUREMENT DEVICES - Mass Flow Measurement

- Coriolis Flowmeters
- Angular Momentum Devices
- Thermal Meters
- Applications
- Advantages and Disadvantages

PRIMARY FLOW MEASUREMENT DEVICES - Miscellaneous

- Cross Correlation
- Tracer Methods
- Weighing Methods
- Lasers

The Scandinavian Academy for Training Center adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant receives the training material (both theoretical and practical) in printed form and saved on a CD or flash drive. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training Center.

Program Timings: 9:00 AM to 2:00 PM

The program includes:

- A daily buffet provided during the sessions to ensure participants comfort.
- A closing ceremony on the final day to distribute certificates and celebrate participants achievements.
- **Note: All prices are exclusive of 15% Value Added Tax (VAT).**

Our Success Partners

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