



*Training Course:  
Oil and Gas Processing Flow Measurement*

*28 April - 9 May 2024  
Istanbul (Turkey)  
DoubleTree by Hilton Istanbul Esentepe*

## Training Course: Oil and Gas Processing Flow Measurement

Training Course code: EN616 From: 28 April - 9 May 2024 Venue: Istanbul (Turkey) - DoubleTree by Hilton Istanbul Esentepe Training Course Fees: 10080 ₺ Euro

### 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.

### Course Objectives of Oil and Gas Processing Flow Measurement

- Understanding the Legal and Commercial Metering Requirements
- Appreciate design criteria and the importance of accuracy
- Understand measurement concepts and types of error
- Understand the basic concepts, the principle of operation and equipment used for Gas metering, liquid metering, proving and sampling
- Understood the basic concepts, the 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

### Course Outlines of Oil and Gas Processing Flow Measurement

#### Day 1: TYPICAL GAS SYSTEM OVERVIEW

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

#### Day 2: TYPICAL GAS METERING SYSTEM OVERVIEW

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

#### Day 3: PRIMARY FLOW MEASUREMENT INSTRUMENTATION

- The Flowmeter

- Meter Tubes and Other Fittings
- Removals/Replacement Procedure

#### Day 4: FLOW MEASUREMENT ACCURACY

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

#### Day 5: SECONDARY MEASUREMENT INSTRUMENTATION

- Pressure Measurement
- Temperature Measurement
- Density Measurement

#### Day 6: 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

#### Day 7: 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

#### Day 8: METERING PANEL AUXILIARY EQUIPMENT

- Analog 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

#### Day 9: 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

#### Day 10: 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

## Registration form on the Training Course: Oil and Gas Processing Flow Measurement

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

### Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Company Information

Company Name: .....  
Address: .....  
City / Country: .....

### Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....  
Position: .....  
Telephone / Mobile: .....  
Personal E-Mail: .....  
Official E-Mail: .....

### Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
- ☐ Please invoice my company

### Easy Ways To Register

Telephone:  
+201095004484 to  
provisionally reserve your  
place.

Fax your completed  
registration  
form to: +20233379764

E-mail to us :  
info@gh4t.com  
or training@gh4t.com

Complete & return the  
booking form with cheque  
to: Global Horizon  
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