BLACKBIRD FOR TRAINING

# Meter Proving & Metering System

20 – 24 June 2027
Cairo (Egypt)



# Meter Proving & Metering System

**Ref:** 3254570_313862 **Date:** 20 – 24 June 2027 **Location:** Cairo (Egypt) **Fees:** 4900 GBP

## Introduction

This course focuses on the principles and practical applications of metering systems. Participants will gain an in-depth understanding of fluid properties, various types of flow meters, and measurement techniques, including meter proving, sampling, and proving methods. The course will cover a wide range of metering system technologies, from traditional methods to advanced digital metering systems. By the end of the course, participants will be equipped with the skills needed to ensure accurate and efficient fluid measurement in various industries.

## Course Objectives

By the end of this course, participants will:

- Understand the properties of fluids and relevant gas laws related to metering systems.
- Learn the characteristics of accurate measurement and how to evaluate meter performance.
- Familiarize themselves with different types of flow meters and their specific applications.
- Gain insights into advanced metering system technologies, including ultrasonic meters and Coriolis flow meters.
- Develop practical skills in meter proving, sampling, and flow computing techniques.

## Course Outlines

### Day 1: Fundamentals of Fluid Properties and Measurement

- Properties of fluids: density, viscosity, and compressibility.
- Relevant gas laws Boyle's and Charles' laws.
- Overview of metering systems and their importance in industrial measurement.
- Factors affecting meter performance.
- Introduction to meter proving concepts and its role in ensuring accuracy.



## Day 2: Differential Pressure and Positive Displacement Meters

- Principles and applications of differential pressure meters.
- Types of differential meters: orifice plates, Venturi meters, and flow nozzles.
- Positive displacement meters: lobes, gears, and nutating discs.
- Comparison of performance and accuracy across different metering technologies.
- Troubleshooting and maintenance tips for ensuring optimal meter performance.

## Day 3: Turbine and Ultrasonic Flow Meters

- Turbine flow meters: operating principles and applications.
- Key components of turbine meters and their functions.
- Ultrasonic flow meters: transit-time and Doppler methodologies.
- Advantages and limitations of ultrasonic meters.
- Applications of ultrasonic flow meters in both liquid and gas metering.

## Day 4: Electromagnetic and Coriolis Flow Meters

- Principles of electromagnetic flow meters and their applications in water, wastewater, and industrial fluids.
- Overview of Coriolis mass flow systems.
- Coriolis flow meters: applications in liquid and multiphase metering.
- Performance optimization and troubleshooting for both electromagnetic and Coriolis flow meters.

## Day 5: Sampling, Proving, and Flow Computing

- Techniques for fluid sampling and ensuring quality control.
- Meter proving methods and equipment used in field and laboratory settings.
- Overview of flow computing and data integration systems.
- Safety and environmental compliance in metering operations.
- Final review and practical exercises for reinforcing key concepts.



## Why Attend This Course: Wins & Losses!

- Comprehensive Understanding: Gain in-depth knowledge of meter proving and its role in maintaining accuracy in metering systems.
- Advanced Metering Technologies: Explore cutting-edge technologies, including smart metering systems, digital metering systems, and advanced metering systems.
- Practical Experience: Develop hands-on experience in meter proving procedures, ensuring reliable flow measurements and troubleshooting techniques.
- Real-World Applications: Learn how different types of flow meters are used in industries such as oil and gas, utilities, and chemical processing.
- Cost Efficiency: Learn how to optimize your metering system to reduce costs, prevent downtime, and improve operational efficiency.
- Industry-Relevant Skills: Build expertise in meter proving systems, smart metering, and metering technologies, making you a valuable asset to your organization.

## Conclusion

This course provides a comprehensive exploration of metering systems, focusing on meter proving, flow measurement technologies, and troubleshooting methods. Whether you're working with traditional flow meters or advanced electronic metering systems, you will leave the course with the knowledge and practical skills needed to optimize the performance of metering systems in various industrial applications. By mastering meter proving procedures and gaining expertise in flow measurement, you will enhance the efficiency, accuracy, and reliability of your operations.

