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## ***ABLE Instruments & Controls Limited***

### **Advanced Measurement of Natural Gas - Meters and Metering Systems.**

**Course Code: FG001L, 3 day Instructor-Led**

**Venue: ABLE Training Centre, Dyce, Aberdeen**

*This course is offered in association with:*



### ***ABLE Training - Education and Certification***

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**Official Curriculum**

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## Introduction

Elements of this syllabus are subject to change.

### **Comprehensive Hydrocarbon Gas Measurement**

This course is intended for senior technicians, engineers and well seasoned industry veterans. It is taught at an advanced level.

The comprehensive course is divided into “core subjects” and “meter specific” topics. The core subjects are generally applicable to all flow meter types.

## Audience

This course is suitable for those who would like an in depth understanding of natural gas measurement uncertainty.

It is particularly suitable for:

- Metering Engineers
- Process Engineers
- Senior Instrument Engineers

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## Prerequisites

This course requires that students meet the following prerequisites:

- Delegates should have a good knowledge of flow metering.

## Course Materials

The student kit includes a comprehensive workbook for this class.

## Course Outline

This comprehensive course is divided into “core subjects” and “meter specific” topics. The core subjects are generally applicable to all meter types, included are:

- introduction to the industry
- general meter installation effects
- fluid properties (compressibility, sound speed, viscosity etc)
- calibration and traceability
- measurement uncertainty
- meter station design
- industry standards (AGA, API, ISO)
- pressure and temperature measurement

The details of meter specific topics will vary from one meter to the next, topics include:

- basic operating principle
- design variations
- calculations
- industry standards
- installation effects
- maintenance
- diagnostics and troubleshooting problems
- calibration
- meter station design



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Meter types include

- Orifice and other dp meters
- turbine
- coriolis
- ultrasonic
- positive displacement