



## Metrology in Testing Laboratories

### Aim of Course

This course has been specifically designed to address questions that personnel in Testing Laboratories have regarding Metrology issues. It addresses aspects of selecting, managing and calibrating the test and measuring equipment such as thermometers, mass balances, pH meters, etc., which are commonly found in these Laboratories.

### Pre-Requisites for attending this course

Fulfilling the following pre-requisites will enhance the enjoyment and value of the course:

- Experience in performing measurements in a Testing Laboratory using test equipment
- Exposure to ISO/IEC 17025

### Course Overview

#### Introduction

- Why measure and what is Metrology?
- Metrology basics for testing laboratory personnel

#### The need for measurement

- The need for measurements in Testing Laboratories
- Calibration of instruments in-house
- Perform tests to declare conformance
- Quantify quantities influencing the measurement uncertainty

#### Basic concepts and definitions

- Measurement
- Quantity
- Measureand
- Error
- Correction
- Accuracy
- Uncertainty of measurement
- Verification
- Repeatability
- Calibration
- Test Accuracy Ratio
- Test Uncertainty Ratio

#### Relationship between measurement and quality

- Interchangeability of components

#### How to ensure accurate measurements

- Selection of equipment
- Calibration of equipment
- The International System of Units (SI)
- Metrological Traceability
- Ongoing verification of equipment

#### Uncertainty of measurement

- What role does uncertainty of measurement play in metrology
- Basic guidance as to how interpret metrology certificates
- How to use the information on these certificates

#### Who should attend?

Testing Laboratory managers and technical staff who are responsible for ensuring technically valid test results are reported.

#### Course Duration

2 Days

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