

€ TRAINING

Measurement Uncertainty in Testing ISO IEC
17025





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Introduction:

This training program provides participants with comprehensive insights into understanding and managing measurement uncertainty in testing processes, in accordance with the ISO/IEC 17025 standard. Through this program, participants will enhance the accuracy and reliability of their testing procedures, ensuring compliance with international quality standards.

Program Objectives:

At the end of this program, participants will be able to:

- Understand the principles of measurement uncertainty as outlined in ISO/IEC 17025.
- Identify sources of uncertainty in testing processes and measurement systems.
- Quantify and evaluate measurement uncertainty using appropriate statistical methods.
- Implement strategies to minimize and manage measurement uncertainty effectively.
- Ensure compliance with ISO/IEC 17025 requirements for measurement uncertainty.

Targeted Audience:

- Quality Assurance Managers.
- Laboratory Technicians.
- Testing and Calibration Professionals.
- Metrology Specialists.
- Regulatory Compliance Officers.
- Quality Control Analysts.

Program Outline:

Unit 1:

Fundamentals of Measurement Uncertainty:

- Introduction to measurement uncertainty and its importance in testing.

- Key concepts and definitions in measurement uncertainty.
- Understanding the ISO/IEC 17025 requirements related to uncertainty.
- Case studies illustrating the impact of measurement uncertainty on testing outcomes.

Unit 2:

Sources of Uncertainty in Testing:

- Identifying and categorizing sources of uncertainty in testing.
- Systematic and random errors in measurement processes.
- Environmental factors and their influence on measurement uncertainty.
- Case studies highlighting sources of uncertainty in different testing environments.

Unit 3:

Quantifying Measurement Uncertainty:

- Statistical methods for quantifying measurement uncertainty.
- Uncertainty propagation and error analysis techniques.
- Calculation of standard uncertainty and expanded uncertainty.
- Exercises on quantifying measurement uncertainty in laboratory settings.

Unit 4:

Managing Measurement Uncertainty:

- Strategies for minimizing and managing measurement uncertainty.
- Calibration and verification procedures to reduce uncertainty.
- Metrological traceability and its role in uncertainty management.
- Risk-based approaches to uncertainty mitigation.
- Case studies demonstrating effective management of measurement uncertainty.

Unit 5:

ISO/IEC 17025 Requirements for Measurement Uncertainty:

- Overview of ISO/IEC 17025 requirements related to measurement uncertainty.
- Documentation and reporting of measurement uncertainty.
- Accreditation and audit considerations for uncertainty estimation.
- Implementation challenges and best practices for ISO/IEC 17025 compliance.
- Steps for interpreting and applying ISO/IEC 17025 guidelines for measurement uncertainty.