ISO/IEC 17025 Laboratory Quality Management and Implementation

29 March – 2 April 2027
Amsterdam - Zuidas business district hotel



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Introduction:

Laboratory quality management breaks down when results leave the laboratory without clear evidence of competent staff, traceable calibration, fit methods and controlled records, and customers or assessors then question every report. This Core Concept course takes laboratory managers, quality managers and senior analysts through ISO/IEC 17025:2017 implementation: impartiality, personnel competence, metrological traceability, method verification and validation, measurement uncertainty, sampling, quality control, reporting, nonconforming work, internal audits and management review. Participants build an ISO/IEC 17025 Implementation and Assessment Readiness File for their own laboratory.

Course Objectives:

- Map a laboratory's activities, structure and documentation against the general, structural, resource, process and management system requirements of ISO/IEC 17025:2017
- Establish impartiality, confidentiality and personnel competence controls with authorisation records for every laboratory activity
- Maintain equipment calibration programmes and metrological traceability evidence for measurement results
- Select, verify and validate test and calibration methods and estimate measurement uncertainty for reported results
- Monitor the validity of results through control charts, proficiency testing and handling of complaints and nonconforming work
- Run internal audits and management reviews that prepare the laboratory for an accreditation assessment

Target Audience:

- Laboratory managers responsible for the technical operation and resourcing of testing or calibration laboratories
- Quality managers responsible for the laboratory management system, document control and corrective action
- Senior analysts and technical leads responsible for method validation, uncertainty estimates and result authorisation
- Calibration and metrology supervisors responsible for equipment programmes and traceability records
- Internal auditors responsible for auditing laboratory activities and reporting findings to management

Course Outline:

Day 1: Laboratory Quality Management and the ISO/IEC 17025:2017 Structure

- ISO/IEC 17025:2017 Architecture: General, Structural, Resource, Process and Management System Requirements
- Laboratory Scope Definition and Activities Register for Testing and Calibration Work
- Impartiality Risk Register and Confidentiality Arrangements for Customer Information
- Organisational Structure, Quality Manager Role and Management System Document Control
- Laboratory Gap Assessment Checklist and Current-State Evidence Review

Day 2: Resource Requirements: Personnel, Facilities, Equipment and Traceability

- Personnel Competence Matrix: Qualification, Training, Supervision and Authorisation Records
- Facilities and Environmental Conditions Monitoring Log for Test and Calibration Areas
- Equipment Register, Calibration Programme and Intermediate Check Schedule
- Metrological Traceability Chain: Calibration Certificates and Certified Reference Materials
- Externally Provided Products and Services: Supplier Evaluation and Approval Criteria

Day 3: Process Requirements: Methods, Uncertainty, Sampling and Reporting

- Method Selection and Verification Plan for Published Standard Test Methods
- Validation Protocol for Laboratory-Developed and Modified Methods
- Measurement Uncertainty Budget Using the Eurachem/CITAC Guide Approach
- Sampling Plan, Test Item Receipt, Identification and Chain-of-Custody Records
- Test Report and Calibration Certificate Content with Statements of Conformity

Day 4: Assuring Result Validity, Nonconforming Work and Internal Audit

- Quality Control Charts for Check Samples, Blanks and Reference Materials
- Proficiency Testing and Interlaboratory Comparison Result Evaluation
- Complaints Handling, Nonconforming Work Procedure and Corrective Action Records
- Internal Audit Programme: Witnessing Laboratory Activities and Vertical Audits
- Laboratory Information Management Systems at Overview: Sample Tracking, Audit Trails and Instrument Interfaces

Day 5: Case Study Workshop: Implementation and Assessment Readiness File

- Case Study: Impartiality and Nonconforming Work Scenarios from Testing and Calibration Laboratories
- Case Study: Audit Trail of One Test Item from Receipt to Issued Report
- Management Review Pack: Inputs, Quality Indicators and Improvement Actions
- Accreditation Assessment Preparation: Evidence Index, Mock Assessment and Finding Responses
- Build and Peer Review: ISO/IEC 17025 Implementation and Assessment Readiness File

Skills You Will Gain:

- Laboratory Management System Design
- Impartiality Risk Assessment
- Competence and Authorisation Control
- Metrological Traceability Management
- Method Verification and Validation
- Measurement Uncertainty Estimation
- Statistical Quality Control
- Laboratory Internal Auditing

Why Attend This Course:

- Return with an ISO/IEC 17025 Implementation and Assessment Readiness File built around your own laboratory's scope and records
- Close the gaps assessors most often question by linking each reported result to competent staff, calibrated equipment and a validated method
- Turn control chart, proficiency testing and complaint data into management review decisions rather than filed paperwork
- Compare laboratory practice with peers from chemical, materials, environmental, food and calibration laboratories

Conclusion:

Credible laboratory results depend on a management system that ties impartiality, competent people, traceable equipment, fit methods and controlled records to every report issued. The course moves from the ISO/IEC 17025:2017 structure and gap assessment through resource and process requirements, measurement uncertainty and sampling, then to quality control, proficiency testing, nonconforming work, internal audit and LIMS. The final day produces an ISO/IEC 17025 Implementation and Assessment Readiness File ready for management review and the next assessment visit.