Food Testing Laboratory Course: Food Microbiology, Chemical Analysis and Lab QA

28 December 2026 – 1 January 2027
Amsterdam - Zuidas business district hotel



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Ref: 1692_26490 **Date:** 28 December 2026 – 1 January 2027 **Location:** Amsterdam - Zuidas business district hotel **Fees:** 23500 SAR

Introduction:

Food testing laboratory work in food microbiology, chemical analysis and lab QA is the subject of this 1-week course for food microbiology and food chemistry bench teams, which ends with a Food Testing Programme and Laboratory QA Plan. Factory and authority food laboratories lose credibility when sampling plans are improvised, Salmonella or Listeria results arrive late, culture media are never challenged and proximate or residue figures drift unnoticed. Nominees already run food tests at the bench and work through lab exercises on plates, extracts and result sheets. CoreConcept Training Center delivers this food testing laboratory course.

Course Objectives:

- Design food sampling plans and prepare test portions, initial suspensions and decimal dilutions for solid, liquid and powdered food matrices
- Perform detection and enumeration of Salmonella, Listeria monocytogenes, E. coli, Enterobacteriaceae, aerobic colony counts and yeasts and moulds using horizontal ISO methods
- Select and interpret rapid screening methods such as PCR, immunoassay and ATP bioluminescence alongside reference culture methods
- Run proximate analysis for moisture, ash, protein, fat and fibre and plan contaminant and residue testing for mycotoxins, pesticides, veterinary drugs and heavy metals
- Control result quality through culture media performance testing to ISO 11133, method verification in food matrices and proficiency testing review
- Build a Food Testing Programme and Laboratory QA Plan that sets test frequencies, environmental monitoring zones and quality control checks for a case food organisation

Target Audience:

- Food microbiology bench staff responsible for plating, enrichment, colony counting and confirmation of food and swab samples
- Food chemistry bench staff responsible for proximate tests, extractions and instrumental residue or contaminant analysis
- Section leads responsible for daily test allocation, result review and release in food testing laboratories
- Laboratory QA officers responsible for media checks, control charts, method verification records and proficiency testing schemes
- Sampling and environmental monitoring staff responsible for collecting product, ingredient and surface samples in food plants and retail premises

Course Outline:

Day 1: Food Testing Laboratory Scope, Sampling and Sample Preparation

- Food Laboratory Test Menu Mapped to Product Categories
- Attribute Sampling Plans With n, c, m and M
- Aseptic Sample Collection, Transport Temperature and Receipt Checks
- Test Portion, Initial Suspension and Decimal Dilution Preparation
- Current Test Menu and Turnaround Time Gap Review

Day 2: ISO Microbiology Methods for Pathogens and Indicator Organisms

- ISO 6579-1 Salmonella Pre-Enrichment, Selective Enrichment and Plating
- ISO 11290-1 Listeria Monocytogenes Detection and Confirmation Steps
- E. coli and Enterobacteriaceae Enumeration by Colony Count
- Aerobic Colony Count and Yeast and Mould Plate Reading
- Colony Counting Rules, Weighted Mean Calculation and Result Expression

Day 3: Rapid Methods, Environmental Monitoring and Food Chemistry Benches

- Real-Time PCR Pathogen Screening and Presumptive Result Handling
- Immunoassay Lateral Flow and ATP Bioluminescence Hygiene Checks
- Environmental Monitoring Zones, Swab Sites and Listeria Trending
- Proximate Analysis Bench Methods for Moisture, Ash and Fat
- Kjeldahl and Dumas Protein Determination With Nitrogen Factors

Day 4: Contaminants, Residues and Laboratory Result Quality Control

- Mycotoxin Testing by Immunoaffinity Clean-Up and Chromatography
- Pesticide and Veterinary Drug Residue Screening With QuEChERS Extraction
- Heavy Metal Digestion and Spectrometric Measurement in Food Matrices
- ISO 11133 Culture Media Productivity, Selectivity and Specificity Testing
- Method Verification Data and Proficiency Testing Z-Score Review

Day 5: Lab Exercises and Food Testing Programme Build

- Case Dairy Plant Positive Listeria Swab Investigation Lab
- Case Spice Batch Salmonella Presumptive and Confirmation Decision
- Case Cereal Sample Aflatoxin Result Above Action Level
- Case Media Batch Failure and Retest Decision Record
- Food Testing Programme and Laboratory QA Plan Completion

Skills You Will Gain:

- Food Sampling Plan Design
- Pathogen Enrichment and Confirmation
- Indicator Organism Enumeration
- Rapid Pathogen Screening
- Environmental Swab Trending
- Proximate Composition Analysis
- Residue and Mycotoxin Testing
- Culture Media Performance Testing

Why Attend This Course:

- Deliver a Food Testing Programme and Laboratory QA Plan to the laboratory head and the plant or authority quality manager
- Decide whether a presumptive PCR or plate result is confirmed, retested or reported, and when a sample must be resampled
- Avoid late pathogen results, unchallenged media batches and drifting proximate or residue figures that lead to disputed product releases
- Coach bench colleagues on dilution series, colony counting rules, swab site selection and z-score interpretation

Conclusion:

Back at the laboratory, the participant gives the laboratory head and the quality manager of the plant or authority a Food Testing Programme and Laboratory QA Plan. Section leads use its test menu, sampling plans and environmental monitoring zones to schedule work, while QA officers use its media checks, verification records and proficiency testing review to judge whether results can be released. After the first quarter of use, the laboratory should review turnaround times, presumptive-to-confirmed ratios, media failures and proficiency z-scores, then adjust test frequencies.

Frequently Asked Questions FAQ:

What should participants know before the food testing laboratory course on food microbiology and chemical analysis?

Participants should already work at a food microbiology or food chemistry bench and know basic aseptic technique and weighing. Bringing anonymised plate records, a sampling plan, a media check sheet or a proficiency testing report helps them apply the lab exercises to their own laboratory.

How does the food testing laboratory course differ from a laboratory management system or food safety plan course?

It teaches the tests themselves: sampling, pathogen and indicator methods, rapid screening, proximate, residue and contaminant analysis, media checks and verification. Management system courses cover laboratory policies and assessments, and food safety plan courses cover hazard control in production, so both appear here only as interfaces.

Why do food testing laboratories confirm rapid food microbiology results with culture methods?

Rapid methods such as PCR give presumptive results within a day, but a positive must usually be confirmed by isolating the organism on selective media and confirming it. Confirmation avoids reporting false positives and provides an isolate for typing or investigation.

What do participants take back from the food testing laboratory course?

Participants take back a Food Testing Programme and Laboratory QA Plan for a case food organisation, with a test menu, sampling plan table, environmental swab map, media performance check sheet, method verification record and proficiency testing review form they can adapt to their own laboratory.