

# Atomic Absorption Spectrometry Laboratory Practice Course

20 – 24 December 2026
Bangkok

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**Ref:** 1857_238869 **Date:** 20 – 24 December 2026 **Location:** Bangkok **Fees:** 8000 Euro

## Overview

Atomic Absorption Spectrometry Laboratory Practice Course is a one-week course for laboratory analysts, chemists, quality-control specialists and environmental testing personnel who leave with an AAS Method Control File. Participants apply flame and graphite-furnace workflows to sample preparation, calibration, interference control, quality assurance, maintenance, troubleshooting and defensible reporting across environmental and process laboratories. The course separates element-specific absorbance practice from plasma emission methods. Agile Leaders Training Center develops practical atomic absorption laboratory capability.

## Who Should Attend

- Laboratory teams responsible for elemental analysis and result release
- Quality teams responsible for calibration controls and analytical records
- Environmental testing teams responsible for water, waste and soil extracts
- Process laboratory teams responsible for raw-material and product checks
- Technical support teams responsible for instrument availability and fault isolation

The course assumes participants already perform routine wet-chemistry work and leaves out ICP-OES method development and advanced research instrumentation.

## Departments and Industries

The course supports laboratory and quality functions working with elemental measurements in several sectors.

- Environmental monitoring and water treatment laboratories
- Oil, gas and petrochemical process laboratories
- Mining, metals and materials testing departments
- Food, pharmaceutical and consumer-product quality laboratories
- Maintenance and technical assurance teams supporting analytical instruments

## Learning Objectives

By the end of this course, participants will be able to:

- Compare flame and graphite-furnace AAS method capabilities
- Apply sample preparation and contamination-control practices
- Build calibration and quality-control sequences
- Analyze chemical, spectral and background interference evidence
- Diagnose sensitivity, drift and precision faults
- Evaluate results and assemble defensible analytical records

## Course Agenda

## Day 1: AAS Measurement Foundations

- Beer-Lambert Absorbance Model and Element-Specific Line Sources
- Hollow-Cathode Lamp Selection and Optical Alignment Checks
- Flame AAS and Graphite-Furnace AAS Decision Matrix
- EPA Method 7000B and Method 7010 Scope Mapping
- AAS Method Control File Structure and Data-Quality Objectives

## Day 2: Samples, Standards and Calibration

- Sample Preservation, Digestion and Dilution Decision Tree
- Volumetric Standard Preparation and Traceability Record
- Blank, Calibration Standard and Continuing Check Sequence
- Calibration Curve Review and Working-Range Evaluation
- Contamination Control and Laboratory Reagent-Water Checklist

## Day 3: Atomization and Interference Control

- Burner, Nebulizer and Spray-Chamber Optimization Method
- Graphite-Furnace Temperature Program Development
- Background Correction and Nonspecific Absorption Assessment
- Chemical, Ionization and Spectral Interference Diagnosis Matrix
- Matrix Modification and Standard-Addition Selection Rules

## Day 4: Quality Assurance and Troubleshooting

- Method Blank, Spike, Duplicate and Control-Sample Plan
- Detection Limit and Quantitation Limit Evaluation Workflow
- Control Chart Review and Out-of-Control Response Rules
- Sensitivity, Drift and Precision Fault-Finding Tree
- Preventive Maintenance Log and Corrective-Action Record

## Day 5: Laboratory Practice and Capstone

- Exercise: Select FAAS or GFAAS for a Matrix-and-Level Scenario
- Exercise: Build a Calibration and Quality-Control Batch
- Exercise: Diagnose Interference and Instrument-Fault Evidence
- Exercise: Review Results Against Acceptance Criteria
- Capstone Exercise: Complete an AAS Method Control File

## Practical Exercises

The course uses suggested activities that connect method decisions with laboratory evidence.

- Suggested activity: map a water and process-sample workflow from receipt through reporting
- Suggested activity: prepare a calibration sequence with blanks, checks, spikes and duplicates
- Suggested activity: investigate poor sensitivity using maintenance and interference evidence
- Suggested activity: assemble an AAS Method Control File for technical review

## FAQs

### Who suits the Atomic Absorption Spectrometry Laboratory Practice Course?

Laboratory analysts, chemists and quality personnel suit the course when they already perform routine laboratory calculations and safe wet-chemistry tasks.

### How does atomic absorption spectrometry differ from ICP-OES training?

Atomic absorption spectrometry uses element-specific absorption measurements and flame or furnace atomization, while ICP-OES training centers on plasma emission and multielement optical systems.

### Does atomic absorption training cover both flame and graphite-furnace methods?

Yes. The course compares method selection, operating controls, sensitivity, interferences and quality practices for flame and graphite-furnace AAS.

### How does atomic absorption quality control support defensible results?

Atomic absorption quality control links blanks, calibration checks, spikes, duplicates and control samples to documented acceptance decisions and corrective actions.

### What atomic absorption troubleshooting skills are practiced?

Participants practice diagnosing sensitivity loss, drift, poor precision, contamination, background effects, matrix interference and component-related faults.

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## Conclusion

Participants complete an AAS Method Control File that links method choice, preparation, calibration, quality controls and troubleshooting evidence. The file supports consistent batch review and clearer corrective-action decisions. Participants can adapt its templates to environmental, process and product-testing matrices under their laboratory procedures.