MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

Phone: +601116373203 | **Email:** info@mawaevents.net

LABORATORY INSTRUMENTATION: UV/VIS, AA, ICP, GAS AND LIQUID CHROMATOGRAPHY TECHNIQUES

"Mastering Advanced Analytical Techniques for Accurate Laboratory Measurements and Process Control"

Schedule

Date	Venue	Fees (Online)
24 – 25 Aug 2026	Online	USD 700 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

Advanced laboratory instrumentation is essential for accurate analysis, quality control, and research across industries. Techniques such as UV/Vis spectroscopy, Atomic Absorption (AA), Inductively Coupled Plasma (ICP), and Gas/Liquid Chromatography provide precise measurements for chemical, environmental, and industrial applications.

This intensive 2-day online training equips participants with practical knowledge and hands-on understanding of key laboratory techniques. Participants will learn the principles, operation, applications, and troubleshooting methods for UV/Vis, AA, ICP, Gas Chromatography (GC), and Liquid Chromatography (LC), enabling them to improve analytical accuracy and process efficiency.

Objectives

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

- Understand the principles and applications of UV/Vis, AA, ICP, GC, and LC
- Operate and maintain laboratory instrumentation safely and effectively
- Conduct accurate measurements and analyses using advanced techniques
- Troubleshoot common problems in analytical instruments
- Interpret and report analytical results accurately
- Enhance laboratory efficiency and data reliability

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Why Attend

- Improve technical competency in modern laboratory instrumentation
- Ensure accurate and reliable analytical results
- Reduce errors and instrument downtime
- Enhance laboratory safety and compliance
- Gain practical understanding of multiple analytical techniques
- Support research, quality control, and process monitoring initiatives

Target Audience

This program is designed for:

- Laboratory technicians and analysts
- HSE and quality control professionals
- Research and development scientists
- Process engineers and chemists
- Environmental and analytical laboratory staff
- Professionals seeking expertise in analytical instrumentation

Individual Benefits

Key competencies that will be developed include:

- Operating UV/Vis, AA, ICP, GC, and LC instruments effectively
- Understanding instrumentation principles and practical applications
- Performing accurate sample preparation, measurement, and analysis
- Troubleshooting and maintaining instruments
- Reporting and interpreting analytical data
- Enhancing professional laboratory skills and technical confidence

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved laboratory efficiency and accuracy
- Reduced analytical errors and downtime
- Enhanced quality control and compliance
- Better process monitoring and research outcomes
- Optimized utilization of laboratory instrumentation
- Strengthened workforce technical competency

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Overview of instrumentation principles and analytical techniques
- Case Studies – Real-world laboratory applications and troubleshooting examples
- Workshops – Hands-on exercises for sample preparation, measurement, and analysis
- Peer Exchange – Group discussions on best practices and challenges
- Tools – Standard operating procedures, instrument checklists, and troubleshooting guides

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Course Outline

Detailed 2-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM Daily Format: 3–4 Learning Modules Coffee Breaks: 09:30 & 11:15 Lunch Break: 01:00 – 02:00

Day 1: Spectroscopic and Elemental Analysis Techniques

Module 1: UV/Vis Spectroscopy (07:30 – 09:30)

- Principles and applications
- Instrument setup and operation

Module 2: Atomic Absorption (AA) and ICP (09:45 – 11:15)

- Techniques and sample preparation
- Analytical applications and limitations

Module 3: Data Interpretation and Troubleshooting (11:30 – 01:00)

- Common instrument issues and corrective measures
- Data accuracy and reporting

Module 4: Workshop – Spectroscopy Analysis Exercises (02:00 – 03:30)

- Practical exercises using sample data

Day 2: Chromatographic Techniques

Module 1: Gas Chromatography (GC) (07:30 – 09:30)

- Principles, operation, and applications
- Sample preparation and analysis

Module 2: Liquid Chromatography (LC) (09:45 – 11:15)

- HPLC and standard methods
- Instrument calibration and troubleshooting

Module 3: Analytical Data Handling and Reporting (11:30 – 01:00)

- Data interpretation, validation, and documentation
- Ensuring accuracy and compliance

Module 4: Workshop & Case Study Review (02:00 – 03:30)

- Practical exercises on chromatographic techniques
- Discussion of real-world laboratory scenarios

Certification

Participants will receive a Certificate of Completion in Laboratory Instrumentation: UV/Vis, AA, ICP, Gas and Liquid Chromatography Techniques, validating their expertise in operating, maintaining, and analyzing results using advanced analytical instruments.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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