MAWA EVENTS

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

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

EQUIPMENT OPERATION, MAINTENANCE, CALIBRATION & TROUBLESHOOTING FOR ICP

"Achieve Peak Analytical Accuracy by Mastering ICP Instrumentation & Maintenance."

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** In-House Training

Introduction

Inductively Coupled Plasma (ICP) technology is essential for high-precision elemental analysis in laboratories across industries like environmental science, mining, petrochemicals, and pharmaceuticals. This intensive course provides in-depth practical and theoretical training on operating, maintaining, calibrating, and troubleshooting ICP-OES and ICP-MS instruments, enabling consistent high-performance analysis and compliance with global laboratory standards.

Objectives

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

- Understand the working principles of ICP-OES and ICP-MS systems
- Operate and optimize ICP instrumentation for accurate results
- Perform regular maintenance to minimize downtime and extend equipment life
- Calibrate ICP instruments for traceability and quality assurance
- Diagnose and correct operational issues effectively
- Interpret spectral interferences and optimize analytical performance

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Target Audience

- Laboratory Technicians and Analysts
- Chemists and Quality Control Professionals
- Environmental Testing Personnel
- Mining & Petrochemical Laboratory Staff
- Laboratory Supervisors and Managers
- Anyone responsible for ICP system operation and maintenance

Individual Benefits

- Improve confidence in handling complex ICP equipment
- Reduce instrument downtime and analysis errors
- Enhance troubleshooting, repair, and calibration capabilities
- Position yourself as a specialist in analytical instrumentation

Organizational Benefits

- Maintain high lab throughput and result accuracy
- Minimize costly repairs and instrument failures
- Improve compliance with QA/QC and regulatory standards
- Enhance staff efficiency and laboratory productivity

Instructional Methodology

- Hands-on laboratory demonstrations and simulations
- Case-based learning from real ICP operational issues
- Visual walkthroughs of maintenance and calibration tasks
- Diagnostic exercises using sample spectra and fault logs

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Course Outline

DETAILED 5-DAY COURSE OUTLINE (Customizable) Training Hours: 07:30 AM – 03:30 PM Daily Format: 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

DAY 1 – ICP FUNDAMENTALS & SYSTEM COMPONENTS

- Module 1: Principles of ICP-OES & ICP-MS Technology (07:30 – 09:30)
- Module 2: ICP System Architecture – Torch, Nebulizer, Spray Chamber, RF Generator (09:45 – 11:15)
- Module 3: Plasma Generation and Ionization Process (11:30 – 01:00)
- Module 4: Instrument Safety and Lab Readiness (02:00 – 03:30)

DAY 2 – SYSTEM OPERATION & OPTIMIZATION

- Module 1: Startup, Warm-Up, and Shutdown Procedures (07:30 – 09:30)
- Module 2: Sample Preparation & Introduction Techniques (09:45 – 11:15)
- Module 3: Instrumental Parameters Optimization (11:30 – 01:00)
- Module 4: Software Interface and Run Methods (02:00 – 03:30)

DAY 3 – CALIBRATION & QUALITY CONTROL

- Module 1: Calibration Techniques (External, Internal Standards) (07:30 – 09:30)
- Module 2: Quality Control Samples and Reference Materials (09:45 – 11:15)
- Module 3: Spectral Interference Management and Correction (11:30 – 01:00)
- Module 4: Hands-On Calibration and Validation (02:00 – 03:30)

DAY 4 – MAINTENANCE & TROUBLESHOOTING

- Module 1: Routine and Preventive Maintenance Tasks (07:30 – 09:30)
- Module 2: Common Failures: Torch, Nebulizer, Cones, Vacuum System (09:45 – 11:15)
- Module 3: Troubleshooting Spectral and Instrumental Errors (11:30 – 01:00)
- Module 4: Diagnostics & Instrument Log Review (02:00 – 03:30)

DAY 5 – ADVANCED APPLICATIONS & PERFORMANCE ASSURANCE

- Module 1: Method Development for Complex Matrices (07:30 – 09:30)
- Module 2: Contamination Control and Clean Lab Practices (09:45 – 11:15)
- Module 3: Review of Case Studies and Fault Scenarios (11:30 – 01:00)
- Module 4: Final Practical Assessment & Certification Wrap-Up (02:00 – 03:30)

Certification

Participants will receive a Certificate of Competence in ICP Equipment Operation, Maintenance, Calibration & Troubleshooting, verifying their ability to perform essential tasks on ICP-OES and ICP-MS systems in accordance with analytical best practices and regulatory requirements.

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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In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**