MAWA EVENTS

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

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

GAS CHROMATOGRAPHY (GC) - MASS SPECTROMETRY (MS) - THEORY, BASIC OPERATION & TROUBLESHOOTING. 5 DAYS

"Master the Principles, Operation, and Maintenance of GC-MS Systems for Accurate Chemical Analysis."

Schedule

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

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

Introduction

Gas Chromatography-Mass Spectrometry (GC-MS) is one of the most powerful analytical tools used in environmental, food, petrochemical, pharmaceutical, and forensic laboratories. This intensive hands-on course provides participants with a deep understanding of GC and MS theory, practical operation, method development, routine maintenance, and troubleshooting skills. Through live demonstrations and expert instruction, participants will gain the confidence to handle real-life analytical challenges.

Objectives

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

- Understand the fundamental principles of GC and MS
- Operate GC-MS instrumentation with confidence
- Develop and optimize analytical methods for targeted compounds
- Perform routine maintenance and recognize warning signs
- Troubleshoot common system and performance issues
- Interpret data and improve accuracy and sensitivity

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Why Attend

GC-MS expertise is essential in laboratories for accurate compound identification and quantification. This course enables analysts, lab technicians, and quality assurance professionals to maximize performance, reduce downtime, and produce reliable analytical results.

Target Audience

- Laboratory Analysts and Technicians
- Quality Control and Quality Assurance Personnel
- Environmental, Food, and Pharmaceutical Chemists
- Oil & Gas and Petrochemical Laboratory Staff
- Research Scientists and Forensic Analysts

Individual Benefits

- Enhance your understanding of GC-MS theory and instrumentation
- Reduce errors and improve analysis turnaround time
- Gain practical skills in system setup, calibration, and repair
- Boost your lab efficiency and professional value

Organizational Benefits

- Increase instrument uptime and reduce operational costs
- Ensure data integrity and compliance with lab standards
- Improve accuracy of chemical and trace-level analysis
- Empower in-house staff to resolve issues without vendor dependence

Instructional Methodology

- Live demonstrations on GC-MS instrumentation
- Real laboratory troubleshooting exercises
- Practical workshops on method setup and validation
- Interactive lectures and expert Q&A
- Hands-on maintenance and diagnostic simulations

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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 – PRINCIPLES OF GAS CHROMATOGRAPHY & SYSTEM OVERVIEW

- Module 1: Introduction to Chromatography and GC Theory (07:30 – 09:30)
- Module 2: GC Components – Inlets, Columns, Detectors (09:45 – 11:15)
- Module 3: GC Carrier Gas Selection & Flow Optimization (11:30 – 01:00)
- Module 4: Sample Preparation & Injection Techniques (02:00 – 03:30)

DAY 2 – INTRODUCTION TO MASS SPECTROMETRY

- Module 1: Basic MS Principles – Ionization and Detection (07:30 – 09:30)
- Module 2: Quadrupole, Time-of-Flight, and Ion Trap Technologies (09:45 – 11:15)
- Module 3: MS Interface with GC Systems (11:30 – 01:00)
- Module 4: Mass Spectral Interpretation and Peak Identification (02:00 – 03:30)

DAY 3 – GC-MS OPERATION, METHOD SETUP & OPTIMIZATION

- Module 1: Operating Software and Instrument Control (07:30 – 09:30)
- Module 2: Creating and Editing GC-MS Methods (09:45 – 11:15)
- Module 3: Compound Libraries and Calibration (11:30 – 01:00)
- Module 4: Data Acquisition, Processing, and Reporting (02:00 – 03:30)

DAY 4 – TROUBLESHOOTING & MAINTENANCE

- Module 1: Identifying System Failures and Baseline Noise (07:30 – 09:30)
- Module 2: Diagnosing Problems – Column, Injector, Detector (09:45 – 11:15)
- Module 3: Maintenance of Inlet Liners, Septa, and Columns (11:30 – 01:00)
- Module 4: Cleaning, Leak Testing, and MS Tuning (02:00 – 03:30)

DAY 5 – APPLICATIONS & HANDS-ON SIMULATIONS

- Module 1: GC-MS in Environmental, Food & Forensic Testing (07:30 – 09:30)
- Module 2: Hands-On: Running Samples and Interpreting Results (09:45 – 11:15)
- Module 3: Preventive Maintenance Plans & Logbooks (11:30 – 01:00)
- Module 4: Final Review, Assessment & Certificate Wrap-Up (02:00 – 03:30)

Certification

Participants will be awarded a Certificate of Completion in Gas Chromatography–Mass Spectrometry (GC-MS) upon successful participation, attendance, and completion of the final assessment and practical exercises.

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**