**MAWA EVENTS**

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

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# FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR) - 5 DAYS INHOUSE

*"Master the Power of FTIR Spectroscopy for Accurate Chemical Identification and Material Characterization."*

## Schedule

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

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

## Introduction

This comprehensive in-house training course on Fourier Transform Infrared Spectroscopy (FTIR) is designed to equip participants with both the theoretical understanding and practical competencies needed to effectively operate FTIR instruments, interpret spectra, troubleshoot analytical issues, and apply FTIR techniques to a wide range of materials and samples. The course combines lectures, case studies, and hands-on demonstrations to reinforce key concepts in vibrational spectroscopy, method development, and data validation.

## Objectives

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

- Understand the principles of IR spectroscopy and the Fourier Transform technique
- Operate and calibrate FTIR spectrometers with confidence
- Interpret IR spectra for qualitative and semi-quantitative analysis
- Troubleshoot instrument and spectral issues effectively
- Apply FTIR in various fields including polymers, pharmaceuticals, forensics, and environmental analysis

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## Why Attend

FTIR is a versatile and powerful tool in analytical labs across industries. This training will give you hands-on experience and the confidence to use FTIR for routine analysis, method development, and problem-solving applications.

## Target Audience

- Laboratory Technicians and Chemists
- QC/QA Professionals
- Research Scientists
- Environmental Analysts
- Professionals in Pharmaceuticals, Polymers, and Forensics
- Anyone involved in material identification or contamination analysis

## Individual Benefits

- Gain practical experience with FTIR instrumentation
- Improve spectral interpretation and problem-solving skills
- Enhance your value as a lab professional
- Be able to troubleshoot spectral anomalies confidently

## Organizational Benefits

- Improve testing turnaround times with skilled personnel
- Reduce errors in material identification and reporting
- Increase lab efficiency and reduce instrument downtime
- Enable data-driven decision-making in quality and R&D

## Instructional Methodology

- Hands-on instrument training using real sample matrices
- Interactive theory sessions with visual aids and animations
- Case study evaluations and group discussions
- Spectral interpretation workshops with real-world examples

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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 – FUNDAMENTALS OF IR & FTIR SPECTROSCOPY**

- Module 1: Introduction to Vibrational Spectroscopy & Molecular Absorption (07:30 – 09:30)
- Module 2: Principles of FTIR: Interferometry & Signal Conversion (09:45 – 11:15)
- Module 3: Overview of Instrument Components: Source, Interferometer, Detector (11:30 – 01:00)
- Module 4: Safety, Good Lab Practices & Instrument Setup (02:00 – 03:30)

**DAY 2 – OPERATION, CALIBRATION & SAMPLE PREPARATION**

- Module 1: FTIR Instrumentation: Startup, Background Collection, and Calibration (07:30 – 09:30)
- Module 2: Sample Handling: Solids, Liquids, Gases – ATR vs Transmission Techniques (09:45 – 11:15)
- Module 3: Calibration Verification and Performance Qualification (11:30 – 01:00)
- Module 4: Practical Lab Demo: Sample Run and Spectrum Capture (02:00 – 03:30)

**DAY 3 – SPECTRAL INTERPRETATION & LIBRARY SEARCHING**

- Module 1: Understanding Peak Positions, Intensities & Functional Groups (07:30 – 09:30)
- Module 2: Common Spectral Regions & Characteristic Bands (09:45 – 11:15)
- Module 3: Spectral Library Matching & Unknown Identification (11:30 – 01:00)
- Module 4: Workshop: Interpreting Real Spectra (02:00 – 03:30)

**DAY 4 – APPLICATIONS & TROUBLESHOOTING**

- Module 1: FTIR in Material Identification, Contaminant Analysis & QA/QC (07:30 – 09:30)
- Module 2: Method Development & Validation in FTIR (09:45 – 11:15)
- Module 3: Instrumental and Spectral Troubleshooting Techniques (11:30 – 01:00)
- Module 4: Case Studies: Polymers, Pharma, Environmental, and Forensics (02:00 – 03:30)

**DAY 5 – REVIEW, PRACTICAL ASSESSMENT & WRAP-UP**

- Module 1: Review of Spectroscopy Theory & Instrument Functions (07:30 – 09:30)
- Module 2: Guided Practice: Running & Interpreting Complex Samples (09:45 – 11:15)
- Module 3: Group Discussion & Problem-Solving Simulation (11:30 – 01:00)
- Module 4: Final Practical Test, Feedback, and Certification Wrap-Up (02:00 – 03:30)

## Certification

Participants who complete the full course and assessment will receive a Certificate of Proficiency in Fourier Transform Infrared Spectroscopy (FTIR), confirming their competence in operating, troubleshooting, and interpreting FTIR instrumentation and data.

## 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**<br>Interested in running this course for your team?<br>Please contact us: | TEL:<br><br>**+601116373203** | EMAIL:<br><br>**info@mawaevents.net** |