MAWA EVENTS

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

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DIAGNOSTIC SKILLS & ADVANCED VIBRATION ANALYSIS MONITORING

"Master Advanced Diagnostic Techniques for Machinery Health and Predictive Maintenance through Precision Vibration Analysis"

Schedule

Date	Venue	Fees (Face-to-Face)
12 – 13 Feb 2026	Dubai, UAE	USD 1995 per delegate
04 – 05 Jun 2026	Dubai, UAE	USD 1995 per delegate
08 – 09 Jul 2026	Manama, Bahrain	USD 1995 per delegate
16 – 17 Sep 2026	Doha, Qatar	USD 1995 per delegate
04 – 05 Oct 2026	Kuwait	USD 1995 per delegate

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

Introduction

Advanced vibration analysis is one of the most powerful tools for detecting, diagnosing, and preventing mechanical failures in rotating equipment. With machinery reliability directly impacting safety, production, and cost, engineers and technicians must be able to interpret complex vibration signals and use that data to make accurate maintenance decisions.

This practical 2-day training provides in-depth knowledge of advanced vibration techniques, signal analysis, fault detection, and diagnostic strategies. Participants will learn to evaluate machine conditions using real-world data and improve reliability through proactive diagnostics.

Objectives

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

- Interpret complex vibration signatures for rotating machinery
- Identify advanced fault patterns such as resonance, looseness, and gear mesh issues
- Apply diagnostic tools such as FFT, envelope analysis, and time waveform analysis
- Analyze trending vibration data and set condition-based alarm thresholds
- Use vibration analysis results to recommend corrective actions and avoid critical failures

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Why Attend

- Strengthen your diagnostic skills in interpreting machinery faults
- Learn how to apply advanced vibration tools and techniques
- Reduce downtime and maintenance costs by catching problems early
- Validate findings using real case data and analysis simulations
- Improve predictive maintenance effectiveness and asset reliability

Target Audience

This program is designed for:

- Vibration analysts and condition monitoring specialists
- Maintenance engineers and reliability professionals
- Mechanical and rotating equipment engineers
- Plant operations and maintenance managers
- Technical staff involved in predictive maintenance programs

Individual Benefits

Key competencies that will be developed include:

- Advanced signal analysis and fault identification
- Critical thinking in troubleshooting complex machinery issues
- Enhanced ability to validate diagnostic findings with data
- Confident application of predictive maintenance technologies
- Greater understanding of failure modes and dynamic behavior

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved machine uptime and reduced maintenance-related shutdowns
- Better maintenance planning through accurate condition assessments
- Enhanced asset management through early fault identification
- Reduction in catastrophic failure risks and associated costs
- Stronger in-house diagnostic capability and reliability culture

Instructional Methodology

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

- Strategy Briefings – Key concepts in signal diagnostics, fault patterns, and spectral techniques
- Case Studies – Industrial failures resolved through advanced vibration diagnostics
- Workshops – Hands-on analysis of vibration data sets and machine health scenarios
- Peer Exchange – Discussion of diagnostic challenges and equipment behavior
- Tools – Vibration reference charts, signal analysis checklists, and fault diagnosis templates

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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 Buffet: 01:00 – 02:00

Day 1: Advanced Vibration Theory and Signal Interpretation

- Module 1: Fundamentals of Advanced Signal Analysis (07:30 – 09:30) • Recap of vibration principles: displacement, velocity, acceleration • Understanding the significance of frequency, amplitude, and phase • Introduction to FFT, waveform, and envelope analysis
- Module 2: Interpreting Complex Spectral Data (09:45 – 11:15) • Identifying multiple fault frequencies and harmonics • Using spectrum patterns to detect misalignment, imbalance, and gear issues • Overlapping signals and sidebands – what they reveal
- Module 3: Time Waveform and Envelope Techniques (11:30 – 01:00) • Using waveform analysis to detect mechanical looseness and impacts • Applying envelope detection for bearing defect identification • When and how to switch between spectral and waveform views
- Module 4: Hands-On Workshop – Signal Pattern Recognition (02:00 – 03:30) • Practice exercises using real vibration datasets • Interactive interpretation of FFT and time signals

Day 2: Diagnosing Faults and Building Predictive Strategy

- Module 1: Common Machinery Fault Patterns (07:30 – 09:30) • Identifying signs of resonance, structural looseness, rubs, and soft foot • Diagnosing unbalance, misalignment, bearing wear, and rotor instability • Fault signatures in pumps, compressors, gearboxes, and motors
- Module 2: Alarm Levels and Trending (09:45 – 11:15) • Setting baseline values and defining alarm thresholds • Long-term trending and condition severity indicators • Tools for vibration data visualization and trend reporting
- Module 3: Corrective Action and Recommendations (11:30 – 01:00) • Deciding when to act based on severity • Matching faults with mechanical repair actions • Communicating findings to non-technical stakeholders
- Module 4: Final Case Study and Action Plan (02:00 – 03:30) • Team-based analysis of a real diagnostic case • Presentation of findings and repair recommendations

Certification

Participants will receive a Certificate of Completion in Diagnostic Skills & Advanced Vibration Analysis Monitoring, confirming their advanced knowledge in diagnosing rotating machinery issues and applying vibration data to enhance equipment reliability.

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.

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