

ADVANCED VIBRATION ANALYSIS FOR PREDICTIVE MAINTENANCE

"Mastering Vibration Analysis Techniques for Enhanced Predictive Maintenance"

Schedule

Date	Venue	Fees (Face-to-Face)
20 - 24 Jul 2026	London - UK	USD 3495 per delegate

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

Introduction

Advanced Vibration Analysis is an essential technique for predictive maintenance, enabling organizations to identify mechanical faults and prevent unexpected equipment failures. This course offers an in-depth understanding of vibration analysis principles and methodologies, focusing on real-world applications. Participants will learn to detect and diagnose issues such as misalignment, imbalance, bearing wear, and resonance, helping to optimize equipment performance and reduce maintenance costs. By combining theory with practical analysis, this training prepares professionals to leverage vibration analysis as a key tool in a predictive maintenance strategy.

With a blend of theoretical insights and hands-on experience, this course will equip participants with the necessary skills to interpret vibration data, perform accurate diagnoses, and implement effective maintenance strategies to enhance reliability and extend the lifespan of critical machinery.

Objectives

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

- Understand the core principles of vibration analysis and its role in predictive maintenance
- Apply advanced vibration analysis techniques to detect and diagnose common machinery faults
- Interpret vibration data and identify patterns indicative of potential failures
- Utilize vibration analysis tools to monitor equipment performance and prevent unscheduled downtime
- Implement effective predictive maintenance strategies based on vibration data analysis

Why Attend

- Enhance your ability to predict and prevent equipment failures using advanced vibration analysis
- Gain practical experience with vibration analysis tools and techniques
- Learn to optimize maintenance schedules and reduce costs through predictive maintenance
- Improve the reliability and lifespan of critical machinery by identifying faults early
- Equip yourself with industry-leading knowledge to stay ahead in the field of predictive maintenance

Target Audience

This program is designed for:

- Maintenance engineers and technicians responsible for machinery upkeep and reliability
- Reliability engineers and managers focused on implementing predictive maintenance programs
- Mechanical engineers involved in the analysis and maintenance of rotating equipment
- Asset managers and supervisors seeking to optimize equipment reliability and performance
- Technical professionals interested in advanced vibration analysis and diagnostic techniques

Individual Benefits

Key competencies that will be developed include:

- Advanced understanding of vibration analysis and its role in predictive maintenance
- Skills to identify and diagnose mechanical faults using vibration data
- Proficiency in using vibration analysis tools for real-time monitoring and fault detection
- Ability to design and implement predictive maintenance strategies based on vibration data
- Enhanced capability to extend the lifespan of machinery and reduce unscheduled downtime

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Ability to implement a robust predictive maintenance program using vibration analysis
- Enhanced capability to monitor and maintain equipment, reducing breakdowns and downtime
- Improved operational efficiency and reduced maintenance costs
- A proactive approach to equipment reliability, leading to increased productivity and cost savings
- Expertise in diagnosing and addressing mechanical issues before they result in failures

Instructional Methodology

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

- Strategy Briefings - Overview of vibration analysis principles and predictive maintenance methodologies
- Case Studies - Real-world examples of vibration analysis used for successful fault detection and diagnosis
- Workshops - Hands-on exercises and practical demonstrations using vibration analysis tools
- Peer Exchange - Group discussions on challenges and experiences in implementing predictive maintenance
- Tools - Utilization of vibration analysis software and diagnostic tools for real-world applications

MAWA EVENTS

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

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



Course Outline

Detailed 5-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: Introduction to Vibration Analysis and Maintenance Strategy

- Module 1: Fundamentals of Vibration Analysis (07:30 – 09:30)
 - Basic principles of vibration analysis and its significance in predictive maintenance
 - Types of vibrations and common sources of mechanical faults
 - Introduction to vibration measurement tools and equipment
- Module 2: Frequency and Time Domain Analysis (09:45 – 11:15)
 - Understanding frequency and time domain analysis methods
 - Analyzing vibration waveforms to detect machinery issues
 - Case studies on frequency domain and time domain data analysis
- Module 3: Developing a Predictive Maintenance Strategy (11:30 – 01:00)
 - Introduction to predictive maintenance concepts and techniques
 - How vibration analysis integrates with predictive maintenance programs
 - Establishing effective maintenance schedules based on vibration data

Day 2: Advanced Vibration Analysis Techniques

- Module 4: Fault Diagnosis and Detection (07:30 – 09:30)
 - Identifying common faults using vibration data (e.g., misalignment, imbalance)
 - Advanced techniques for diagnosing complex mechanical issues
 - Hands-on analysis of vibration data to detect and diagnose faults
- Module 5: Vibration Signature Analysis (09:45 – 11:15)
 - Techniques for analyzing vibration signatures and patterns
 - How to interpret abnormal vibration signatures and diagnose faults
 - Using spectral analysis to identify machinery problems
- Module 6: Workshop: Practical Vibration Analysis (11:30 – 01:00)
 - Hands-on session with vibration analysis equipment and software
 - Practical exercises in fault detection and diagnosis using vibration data
 - Group analysis and discussion of real-world vibration case studies

Day 3: Tools and Software for Vibration Analysis

- Module 7: Vibration Analysis Software and Tools (07:30 – 09:30)
 - Overview of popular vibration analysis software and tools
 - How to use vibration analysis software for data collection and diagnostics
 - Best practices for interpreting and visualizing vibration data
- Module 8: Predictive Maintenance Using Vibration Monitoring (09:45 – 11:15)
 - Continuous vibration monitoring techniques and equipment
 - How to set up a vibration monitoring program in your organization
 - Real-time monitoring and early fault detection using vibration analysis
- Module 9: Workshop: Implementing Vibration Monitoring Systems (11:30 – 01:00)
 - Setting up vibration monitoring systems and sensors
 - Practical exercise in implementing a predictive maintenance strategy using vibration data
 -

Discussion of best practices for ongoing monitoring and data analysis

Day 4: Data Interpretation and Advanced Fault Diagnosis

- Module 10: Analyzing Complex Vibration Data (07:30 – 09:30)
- Techniques for analyzing complex vibration signals and patterns
- How to identify hidden faults in machinery using advanced data interpretation methods
- Case studies on diagnosing difficult-to-detect faults
- Module 11: Troubleshooting and Root Cause Analysis (09:45 – 11:15)
- How to troubleshoot vibration-related issues using root cause analysis
- Techniques for isolating and solving vibration-related problems
- Case examples of successful troubleshooting using vibration analysis
- Module 12: Workshop: Advanced Fault Diagnosis (11:30 – 01:00)
- Hands-on session for diagnosing advanced faults in rotating equipment
- Group analysis of complex vibration data and fault identification
- Peer discussion on real-world troubleshooting techniques

Day 5: Final Assessment and Certification

- Module 13: Review and Q&A (07:30 – 09:30)
- Recap of key concepts and techniques covered during the course
- Open session for participant questions and clarifications
- Module 14: Final Group Exercise: Predictive Maintenance Strategy Implementation (09:45 – 11:15)
- Group exercise to develop a predictive maintenance strategy using vibration analysis
- Peer review and feedback on implementation plans
- Module 15: Certification and Closing Remarks (11:30 – 01:00)
- Distribution of certificates of completion
- Final remarks and next steps for applying vibration analysis in predictive maintenance

Certification

Participants will receive a Certificate of Completion in Advanced Vibration Analysis for Predictive Maintenance, validating their ability to apply advanced vibration analysis techniques for fault detection, diagnostics, and the implementation of predictive maintenance strategies.

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