

NEXT-GENERATION FAILURE ANALYSIS AND MACHINERY DIAGNOSTICS

"Master advanced diagnostic tools and failure analysis methods to maximize machinery reliability and performance."

Schedule

Date	Venue	Fees (Face-to-Face)
13 - 17 Jul 2026	London - UK	USD 3495 per delegate

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

Introduction

This cutting-edge course equips maintenance, reliability, and engineering professionals with the latest tools and techniques in machinery diagnostics and failure analysis. Participants will learn how to detect early signs of failure, diagnose root causes, and implement solutions that prevent costly breakdowns and downtime.

The program emphasizes next-generation diagnostic technologies, case-based learning, and practical workshops to ensure participants can confidently apply advanced strategies within their organizations.

Objectives

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

- Understand modern approaches to machinery diagnostics and failure analysis
- Apply advanced condition monitoring and data analysis techniques
- Identify early indicators of mechanical failure and their root causes
- Implement corrective and preventive actions to enhance equipment reliability
- Integrate diagnostic insights into maintenance planning and decision-making

Why Attend

- Learn from global best practices in failure analysis and diagnostics
- Gain hands-on experience with cutting-edge diagnostic tools and software
- Improve equipment uptime, reduce maintenance costs, and extend asset life
- Enhance your organization's maintenance strategies using data-driven insights
- Build expertise that strengthens your role in maintenance and reliability teams

Target Audience

This program is designed for:

- Maintenance and reliability engineers and technicians
- Mechanical engineers and plant engineers
- Equipment and asset managers
- Condition monitoring specialists
- Anyone involved in machinery diagnostics, maintenance planning, or failure investigation

Individual Benefits

Key competencies that will be developed include:

- Advanced skills in machinery condition monitoring and diagnostics
- Practical ability to perform comprehensive failure analysis
- Root cause identification and problem-solving techniques
- Integration of diagnostic data into maintenance decisions
- Confidence to implement proactive and predictive maintenance strategies

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Enhanced machinery reliability and operational efficiency
- Reduced unexpected failures and associated downtime
- Optimized maintenance processes based on diagnostic insights
- Strengthened technical expertise across maintenance teams
- Improved return on investment for maintenance activities and technologies

Instructional Methodology

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

- Expert Presentations - In-depth exploration of diagnostic tools and failure analysis methods
- Hands-On Workshops - Practical exercises using diagnostic equipment and software
- Real-World Case Studies - Examples of machinery failures, diagnostics, and solutions
- Interactive Discussions - Peer exchange on challenges and success stories
- Technical Resources - Access to checklists, diagnostic templates, and best-practice guidelines

MAWA EVENTS

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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: Foundations of Machinery Diagnostics

- Module 1: Overview of Modern Diagnostics (07:30 – 09:30)
 - Principles of machinery health monitoring
 - Evolution of diagnostic technologies
- Module 2: Understanding Failure Mechanisms (09:45 – 11:15)
 - Common mechanical and operational failures
 - Analyzing failure modes and effects
- Module 3: Workshop: Machinery Assessment (11:30 – 01:00)
 - Identifying critical assets and failure risks

Day 2: Condition Monitoring Tools

- Module 4: Vibration Analysis and Ultrasonics (07:30 – 09:30)
 - Techniques for early fault detection
 - Data interpretation and diagnostic insights
- Module 5: Advanced Lubrication and Wear Analysis (09:45 – 11:15)
 - Oil analysis and tribology fundamentals
 - Detecting contamination and wear patterns
- Module 6: Workshop: Diagnostic Tool Application (11:30 – 01:00)
 - Hands-on use of monitoring instruments

Day 3: Advanced Data Analysis and Diagnostics

- Module 7: Data-Driven Diagnostics (07:30 – 09:30)
 - Leveraging diagnostic software and algorithms
 - Data visualization for decision support
- Module 8: Root Cause Analysis (09:45 – 11:15)
 - Systematic approaches to identifying underlying causes
 - Using RCA tools and methodologies
- Module 9: Workshop: Failure Investigation (11:30 – 01:00)
 - Analyzing a real-world failure scenario

Day 4: Designing Preventive Solutions

- Module 10: Corrective and Preventive Actions (07:30 – 09:30)
 - Developing effective action plans
 - Implementing solutions for long-term reliability
- Module 11: Integrating Diagnostics into Maintenance Planning (09:45 – 11:15)
 - Aligning diagnostic findings with maintenance strategies
 - Continuous improvement practices
- Module 12: Workshop: Maintenance Optimization Plan (11:30 – 01:00)
 - Drafting a proactive maintenance roadmap

Day 5: Final Review and Certification

- Module 13: Comprehensive Review (07:30 – 09:30)
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Recap of key learning points and tools

- Module 14: Group Presentation: Diagnostic Solutions (09:45 - 11:15)
- Team sharing of diagnostics and maintenance plans
- Module 15: Certification and Closing (11:30 - 01:00)
- Presentation of certificates and closing remarks

Certification

Participants will receive a Certificate of Completion in Next-Generation Failure Analysis and Machinery Diagnostics, signifying advanced competence in modern diagnostic practices and failure prevention.

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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