

ROTATING EQUIPMENT RELIABILITY

"Ensuring Peak Performance and Longevity of Rotating Equipment"

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

Rotating equipment plays a critical role in the operation of industrial plants, and its reliability directly impacts operational efficiency, safety, and maintenance costs. This course offers a deep dive into the principles of rotating equipment reliability, emphasizing condition monitoring, fault detection, maintenance strategies, and lifecycle management.

The program is designed for professionals seeking to enhance their knowledge and skills in maintaining and optimizing the performance of pumps, compressors, turbines, and other critical rotating equipment. Practical insights, hands-on exercises, and case studies will provide participants with actionable knowledge to improve equipment reliability and minimize downtime.

Objectives

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

- Understand the fundamental principles of rotating equipment reliability
- Implement effective condition monitoring techniques for critical machinery
- Identify and troubleshoot common failure modes in rotating equipment
- Develop predictive maintenance strategies to enhance equipment lifespan
- Evaluate the performance of rotating equipment through vibration analysis, thermography, and oil analysis

Why Attend

- Improve the reliability and performance of rotating equipment
- Gain hands-on experience with monitoring tools and diagnostic techniques
- Learn to reduce unplanned downtime and optimize maintenance schedules
- Understand advanced fault detection methods for rotating machinery
- Enhance problem-solving skills for common rotating equipment issues

Target Audience

This program is designed for:

- Maintenance engineers and technicians
- Reliability engineers and plant operators
- Mechanical engineers specializing in rotating machinery
- Equipment managers and asset management professionals
- Consultants and professionals involved in plant optimization and maintenance

Individual Benefits

Key competencies that will be developed include:

- Advanced understanding of rotating equipment behavior and performance metrics
- Ability to implement predictive and preventive maintenance techniques
- Expertise in vibration analysis, lubrication management, and condition monitoring
- Improved troubleshooting skills for fault detection and equipment repair
- Confidence in making data-driven decisions to extend equipment life

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Increased equipment uptime and operational efficiency
- Reduced maintenance costs and frequency of unplanned shutdowns
- Enhanced ability to identify and resolve equipment performance issues
- Improved asset management and overall plant reliability
- Strengthened safety protocols by minimizing equipment failure risks

Instructional Methodology

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

- Strategy Briefings - In-depth coverage of reliability strategies, maintenance plans, and industry standards
- Case Studies - Real-world examples of equipment reliability issues and their solutions
- Workshops - Hands-on sessions using diagnostic tools to assess and monitor rotating equipment
- Peer Exchange - Group discussions on challenges faced in rotating equipment maintenance
- Tools - Access to diagnostic tools for condition monitoring and failure analysis

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: Fundamentals of Rotating Equipment Reliability

- Module 1: Introduction to Rotating Equipment (07:30 – 09:30)
 - Key types of rotating equipment (pumps, compressors, turbines, etc.)
 - Overview of equipment reliability concepts and terminology
 - Importance of reliability in industrial operations
- Module 2: Reliability Engineering Principles (09:45 – 11:15)
 - Basics of reliability engineering and failure modes
 - Reliability-centered maintenance (RCM) strategies
 - The role of maintenance strategies in enhancing equipment reliability
- Module 3: Condition Monitoring Techniques (11:30 – 01:00)
 - Introduction to condition monitoring and its benefits
 - Overview of monitoring techniques: vibration analysis, thermography, oil analysis
 - Key performance indicators (KPIs) for rotating equipment reliability

Day 2: Vibration Analysis and Fault Detection

- Module 4: Basics of Vibration Analysis (07:30 – 09:30)
 - Principles of vibration and its relation to equipment performance
 - Identifying vibration signatures and common fault patterns
 - Setting up vibration monitoring systems
- Module 5: Interpreting Vibration Data (09:45 – 11:15)
 - Analyzing vibration data for fault detection
 - Frequency analysis and fault identification methods
 - Using data to predict maintenance needs and avoid failures
- Module 6: Advanced Fault Detection Techniques (11:30 – 01:00)
 - Diagnostic techniques for mechanical, electrical, and system faults
 - Integration of vibration data with other condition monitoring methods
 - Case studies of successful fault detection in rotating equipment

Day 3: Lubrication Management and Thermal Imaging

- Module 7: Importance of Lubrication in Rotating Equipment (07:30 – 09:30)
 - The role of lubrication in preventing wear and tear
 - Best practices for lubrication management and oil analysis
 - Common lubrication-related issues and how to address them
- Module 8: Using Thermal Imaging for Condition Monitoring (09:45 – 11:15)
 - Principles of thermal imaging for machinery diagnostics
 - Identifying overheating issues in bearings, motors, and other components
 - Case studies of using thermal imaging in rotating equipment monitoring
- Module 9: Case Studies on Lubrication and Thermal Imaging (11:30 – 01:00)
 - Real-world examples of lubrication failures and resolution strategies
 - Analyzing thermal images to identify faults and inefficiencies
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Group discussions on advanced lubrication and thermal imaging techniques

Day 4: Predictive and Preventive Maintenance Strategies

- Module 10: Predictive Maintenance Techniques (07:30 – 09:30)
- Principles of predictive maintenance and condition-based monitoring
- Implementing predictive maintenance programs in plants
- Key tools for predictive maintenance and failure forecasting
- Module 11: Preventive Maintenance and Reliability-Centered Strategies (09:45 – 11:15)
- Preventive maintenance versus corrective maintenance
- Developing a reliability-centered maintenance plan
- Effective scheduling and implementation of preventive maintenance
- Module 12: Optimizing Maintenance Strategies (11:30 – 01:00)
- Balancing predictive and preventive maintenance for optimal performance
- Cost-benefit analysis of different maintenance strategies
- Ensuring sustainability through continuous improvement

Day 5: Troubleshooting and Reliability Improvement

- Module 13: Troubleshooting Rotating Equipment (07:30 – 09:30)
- Common troubleshooting techniques for rotating equipment failures
- Systematic approach to fault isolation and root cause analysis
- Using diagnostic tools for accurate problem resolution
- Module 14: Enhancing Equipment Reliability (09:45 – 11:15)
- Strategies to extend the lifespan of rotating equipment
- Implementing corrective actions for recurring reliability issues
- Key performance metrics for assessing equipment reliability
- Module 15: Group Project and Wrap-Up (11:30 – 01:00)
- Group exercise: Developing a reliability improvement plan
- Presentation of key takeaways and solutions
- Certificate ceremony and course closure

Certification

Participants will receive a Certificate of Completion in Rotating Equipment Reliability, validating their expertise in improving the performance, maintenance, and reliability of rotating equipment in industrial environments.

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Please contact us:

TEL:

+601116373203

EMAIL:

info@mawaevents.net

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