MAWA EVENTS

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

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ENGINEERING MAINTENANCE APPROACHES FOR DETECTING & PREVENTING BREAKDOWN

""Applying Predictive, Preventive, and Reliability-Centered Maintenance Strategies to Reduce Downtime""

Schedule

Date	Venue	Fees (Face-to-Face)
21 – 23 Apr 2026	Doha, Qatar	USD 2495 per delegate
02 – 04 Sep 2026	Dubai, UAE	USD 2495 per delegate

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

Introduction

Breakdowns in critical equipment can disrupt operations, compromise safety, and increase maintenance costs. In modern industrial environments, reactive maintenance is no longer sufficient—organizations must adopt engineering-based strategies that anticipate failure and extend asset life.

This hands-on 3-day course focuses on proactive maintenance approaches used to detect early warning signs of mechanical issues and prevent unscheduled downtime. Participants will explore tools such as predictive maintenance, root cause analysis, condition monitoring, and reliability-centered maintenance (RCM), enabling them to lead performance-driven maintenance programs in their facilities.

Objectives

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

- Identify common causes of equipment breakdown and failure.
- Apply predictive and preventive maintenance techniques to mitigate risk.
- Use condition monitoring tools such as vibration, oil, and thermal analysis.
- Implement reliability-centered maintenance (RCM) for critical assets.
- Perform root cause failure analysis (RCFA) and recommend corrective actions.
- Design a breakdown prevention strategy aligned with operational goals.

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Why Attend

- Move from reactive firefighting to structured, proactive maintenance.
- Reduce unplanned downtime and improve equipment reliability.
- Learn how to select and apply condition monitoring tools effectively.
- Extend asset life through smarter planning and maintenance optimization.
- Gain a competitive advantage through improved asset performance and safety.

Target Audience

This program is designed for:

- Maintenance engineers and technicians
- Mechanical, electrical, and reliability engineers
- Maintenance planners and supervisors
- Asset and operations managers
- Professionals responsible for equipment performance and reliability

Individual Benefits

Key competencies that will be developed include:

- Failure mode identification and mitigation
- Predictive and preventive maintenance planning
- Root cause problem solving
- Use of diagnostic tools and analysis
- Maintenance strategy development

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Lower maintenance costs and improved uptime
- Fewer emergency repairs and equipment failures
- Greater efficiency in planning and resourcing maintenance
- Safer, more compliant operating environments
- A culture of continuous improvement in asset management

Instructional Methodology

- Technical Briefings – Maintenance concepts and tools
- Templates – Failure logs, RCM worksheets, maintenance plans
- Case Studies – Equipment failure investigations and lessons learned
- Group Exercises – Maintenance diagnostics and solution design
- Simulations – Condition monitoring review and predictive strategies
- Tools – OEE calculators, FMEA formats, RCFA templates

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Course Outline

Training Hours: 7:30 AM – 3:30 PM

Daily Format : 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Fundamentals of Maintenance and Failure Prevention

- **Module 1: Overview of Maintenance Approaches (07:30 – 09:30)**
- Reactive, preventive, predictive, and proactive strategies
- The maintenance maturity model
- Aligning maintenance goals with business needs
- **Module 2: Common Equipment Failures and Root Causes (09:45 – 11:15)**
- Mechanical, electrical, hydraulic, and control-related failures
- Wear, fatigue, misalignment, and overheating
- Analysis of failure modes and effects
- **Module 3: Condition-Based Maintenance (CBM) Basics (11:30 – 01:00)**
- Vibration monitoring, thermography, oil analysis, and ultrasonics
- CBM data collection and analysis
- Choosing the right technique for the right equipment
- **Module 4: Workshop – Failure Mode Identification (02:00 – 03:30)**
- Participants identify risks and failure types in sample asset profiles

Day 2: Predictive Maintenance and Root Cause Analysis

- **Module 5: Predictive Maintenance Tools and Applications (07:30 – 09:30)**
- Predictive vs. preventive models
- Early warning systems and smart sensors
- Digital transformation in maintenance
- **Module 6: Root Cause Failure Analysis (RCFA) (09:45 – 11:15)**
- RCFA process: data collection, cause mapping, corrective action
- Fishbone diagrams, 5 Whys, and failure trees
- Case study: failure investigation in a plant environment
- **Module 7: Reliability-Centered Maintenance (RCM) (11:30 – 01:00)**
- RCM principles and asset criticality
- Developing a maintenance task selection logic
- Prioritizing resources based on functional consequences
- **Module 8: Simulation – RCFA and Predictive Plan Development (02:00 – 03:30)**
- Teams analyze a failure scenario and build a predictive maintenance strategy

Day 3: Planning, Optimization, and Continuous Improvement

- **Module 9: Maintenance Planning and Scheduling (07:30 – 09:30)**
- Work order process and backlog management
- PM task standardization and inspection routes
- Spare parts and material forecasting
- **Module 10: Monitoring Performance and Optimization (09:45 – 11:15)**
- KPIs: MTBF, MTTR, OEE, and asset utilization
- Tracking maintenance effectiveness
- Visual controls and daily performance reviews
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Module 11: Culture, Safety, and Change in Maintenance (11:30 – 01:00)

- Operator involvement and autonomous maintenance
- Maintenance safety principles
- Building a reliability culture
- **Module 12: Final Workshop – Breakdown Prevention Strategy (02:00 – 03:30)**
- Participants design a breakdown prevention plan and present to the group

Certification

Participants who complete the program will receive a **Certificate of Completion in Engineering Maintenance Approaches for Detecting & Preventing Breakdown** , validating their ability to design and lead effective maintenance strategies that reduce failures and improve asset performance.

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**