MAWA EVENTS

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

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

SEALS, COUPLINGS, BEARINGS, AND LUBRICATION: ADVANCED MAINTENANCE TECHNIQUES

"Maximizing Equipment Reliability Through Precision Maintenance of Critical Components"

Schedule

Date	Venue	Fees (Face-to-Face)
19 – 23 Oct 2026	London, UK	USD 3495 per delegate

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

Introduction

Seals, couplings, bearings, and lubrication systems are critical to the performance and longevity of rotating equipment. Failures in these components can lead to catastrophic breakdowns, production downtime, and costly repairs. This advanced course provides maintenance professionals with the knowledge and practical skills to ensure optimal performance, prevent failures, and extend equipment life.

Combining theory with hands-on workshops, the course covers inspection, diagnostics, failure analysis, and precision installation techniques. Participants will also explore the latest technologies and best practices for condition monitoring, lubrication management, and component alignment to support a proactive maintenance strategy.

Objectives

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

- Diagnose and prevent common failure modes in seals, bearings, and couplings
- Apply best practices in precision lubrication and contamination control
- Select appropriate sealing and coupling solutions for different applications
- Perform proper alignment and installation techniques for rotating components
- Integrate predictive maintenance tools to monitor component health

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Why Attend

- Enhance the reliability and efficiency of rotating machinery
- Reduce unplanned downtime caused by component wear or misalignment
- Gain confidence in handling advanced maintenance tasks and diagnostics
- Align your maintenance practices with ISO and OEM standards
- Build technical expertise for asset performance management and uptime

Target Audience

This program is designed for:

- Maintenance engineers and mechanical technicians
- Rotating equipment and reliability engineers
- Asset integrity and condition monitoring professionals
- Plant supervisors and technical inspectors
- Anyone involved in maintaining pumps, motors, compressors, turbines, or gearboxes

Individual Benefits

Key competencies that will be developed include:

- Failure analysis of bearings, seals, and couplings
- Precision installation and shaft alignment techniques
- Lubrication system diagnostics and optimization
- Contamination control and oil analysis interpretation
- Integration of condition monitoring into maintenance planning

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Higher equipment availability and operational efficiency
- Lower maintenance costs and extended asset life cycles
- Improved safety and reduced risk of equipment failures
- Standardized maintenance procedures and best practices
- Greater confidence in predictive maintenance and RCA activities

Instructional Methodology

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

- Strategy Briefings – Advanced maintenance theory and component design
- Case Studies – Equipment failures and maintenance improvement examples
- Workshops – Hands-on inspection, lubrication setup, and installation
- Peer Exchange – Sharing real-world problems and reliability solutions
- Tools – Diagnostic kits, alignment tools, datasheets, and checklists

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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: Fundamentals of Component Function and Failure

- Module 1: Overview of Rotating Equipment Components (07:30 – 09:30) • Roles of bearings, seals, and couplings in machinery reliability • Common applications and operating environments
- Module 2: Root Causes of Mechanical Failures (09:45 – 11:15) • Material fatigue, misalignment, lubrication failures • Case examples of premature component failure
- Module 3: Introduction to Predictive Maintenance (11:30 – 01:00) • Vibration analysis, infrared thermography, oil analysis basics • Choosing the right tools for the component
- Module 4: Workshop – Failure Identification (02:00 – 03:30) • Participants review worn and failed components for diagnosis

Day 2: Bearings – Selection, Installation & Diagnostics

- Module 1: Bearing Types and Applications (07:30 – 09:30) • Roller, ball, thrust, journal, and specialty bearings • Load types, speed ratings, and material selection
- Module 2: Installation and Alignment of Bearings (09:45 – 11:15) • Clearance, fit, and pre-load techniques • Heated mounting and bearing pullers
- Module 3: Condition Monitoring for Bearings (11:30 – 01:00) • Analyzing bearing frequencies and signal patterns • Interpreting vibration and noise signatures
- Module 4: Workshop – Mounting and Inspecting Bearings (02:00 – 03:30) • Hands-on demo of proper installation and removal

Day 3: Seals and Couplings – Selection and Troubleshooting

- Module 1: Sealing Technologies and Materials (07:30 – 09:30) • Static vs. dynamic seals, mechanical seals, and gaskets • Material compatibility and wear characteristics
- Module 2: Troubleshooting Seal Failures (09:45 – 11:15) • Leaks, cracking, extrusion, and thermal degradation • Seal lifecycle and inspection routines
- Module 3: Coupling Types and Application Guidelines (11:30 – 01:00) • Flexible, rigid, fluid, and grid couplings • Torsional vibration and misalignment tolerance
- Module 4: Workshop – Seal and Coupling Replacement (02:00 – 03:30) • Field replacement practice with demo components

Day 4: Lubrication & Contamination Control

- Module 1: Lubrication Methods and Selection (07:30 – 09:30) • Grease vs. oil systems, base oil types, and additives • Viscosity selection and re-lubrication schedules
- Module 2: Lubrication System Design and Delivery (09:45 – 11:15) • Centralized vs. manual lubrication • Automatic lubrication systems and reliability
- Module 3: Oil Analysis and Contamination Monitoring (11:30 – 01:00) • Analyzing wear metals, moisture, oxidation, and soot • Interpreting lab reports and setting corrective actions
- Module 4: Workshop – Oil Sample Review and Greasing Techniques (02:00 – 03:30) • Live demo on proper greasing and contamination avoidance

Day 5: Advanced Techniques, Integration & Certification

- Module 1: Precision Maintenance and Alignment Tools (07:30 – 09:30) • Laser alignment, dial indicators, and soft foot correction • Benefits of precision tolerances on asset life
- Module 2: Building a Proactive Maintenance Program (09:45 – 11:15) • PM, PdM, and CBM planning • Linking maintenance KPIs to reliability
- Module 3: Final Group Case Study (11:30 – 01:00) • Diagnosis, planning, and execution of component reliability improvement
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Module 4: Certification Wrap-Up & Action Planning (02:00 – 03:30) • Participant implementation plans and certificate handover

Certification

Participants will receive a Certificate of Completion in Seals, Couplings, Bearings & Lubrication – Advanced Maintenance, validating their expertise in critical rotating component maintenance and reliability-enhancing practices.

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**