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 & LUBRICATION

""Maximizing Machinery Reliability Through Component Integrity and Precision Maintenance""

Schedule

Date	Venue	Fees (Face-to-Face)
26 – 30 Jan 2026	Dubai, UAE	USD 3495 per delegate

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

Introduction

Seals, couplings, bearings, and lubrication systems are the unsung heroes of mechanical reliability. When properly specified, maintained, and monitored, these components extend asset life, improve energy efficiency, and reduce downtime. When neglected, they are often the root cause of costly failures, misalignment, and equipment degradation.

This intensive five-day course offers a practical and engineering-based approach to understanding and maintaining critical rotating equipment components. Participants will gain hands-on knowledge of how these systems interact, why they fail, and how to prevent recurrence through precision maintenance and root cause thinking.

Objectives

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

- Understand the functions and failure modes of seals, bearings, and couplings.
- Apply proper selection, installation, and alignment techniques.
- Diagnose early warning signs of wear, imbalance, and misapplication.
- Implement best practices in lubrication management.
- Analyze component performance and drive proactive maintenance decisions.
- Improve machinery reliability, uptime, and safety performance.

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Why Attend

- Learn hands-on techniques to maintain and extend the life of mechanical components.
- Prevent recurring machinery breakdowns linked to wear and misalignment.
- Improve reliability and asset performance through better maintenance practices.
- Strengthen your role as a technician, engineer, or reliability leader.
- Apply engineering logic to reduce reactive maintenance and downtime.

Target Audience

This program is designed for:

- Mechanical, maintenance, and reliability engineers
- Rotating equipment technicians and specialists
- Asset and plant engineers
- Condition monitoring and maintenance planners
- Field service personnel and workshop technicians

Individual Benefits

Key competencies that will be developed include:

- Mechanical troubleshooting and diagnosis
- Component inspection and reliability techniques
- Root cause failure understanding
- Lubrication program implementation
- Communication with vendors and OEMs

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Reduced component failure rates and unplanned outages
- Longer equipment lifespans through precision maintenance
- Lower maintenance and lubrication-related costs
- Better documentation of failure history and corrective actions
- Increased technical confidence across the maintenance team

Instructional Methodology

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

- Illustrated Lectures – Engineering drawings and failure visuals
- Component Demonstrations – Real-world samples of seals, couplings, bearings
- Practical Exercises – Diagnosis, installation, and inspection activities
- Case Studies – Real-life failures and successful maintenance interventions
- Templates – Condition reports, inspection checklists, and alignment logs
- Peer Exchange – Experience-sharing across sectors and roles

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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: Component Function and Failure Fundamentals

- **Module 1: Overview of Seals, Couplings, Bearings & Lubrication (07:30 – 09:30)**
- Role in rotating machinery reliability
- Failure consequences and interaction among components
- Overview of design and material types
- **Module 2: Common Failure Modes and Case Examples (09:45 – 11:15)**
- Wear, fatigue, fretting, overheating, contamination
- Misalignment, overloading, improper fit
- Visual indicators and interpretation
- **Module 3: Introduction to Precision Maintenance Principles (11:30 – 01:00)**
- Clearance, fits, tolerances, and thermal expansion
- Importance of flatness, squareness, and proper fasteners
- Storage, transport, and handling considerations
- **Module 4: Workshop – Component Identification and Failure Mapping (02:00 – 03:30)**
- Hands-on activity with component samples
- Failure analysis discussion and report preparation

Day 2: Seals and Couplings – Selection, Use, and Care

- **Module 5: Seal Types and Application (07:30 – 09:30)**
- Mechanical, labyrinth, lip, and dynamic seals
- Pressure, temperature, and chemical compatibility
- Installation tips and failure case study
- **Module 6: Coupling Types and Troubleshooting (09:45 – 11:15)**
- Rigid, flexible, grid, gear, and elastomeric couplings
- Misalignment impacts and vibration signals
- Balancing torque capacity and flexibility
- **Module 7: Alignment and Vibration Considerations (11:30 – 01:00)**
- Laser alignment overview
- Soft foot detection and correction
- Effects of misalignment on seals and bearings
- **Module 8: Field Inspection Exercise – Coupling & Seal Health (02:00 – 03:30)**
- Visual inspections and troubleshooting simulation

Day 3: Bearings – Selection, Mounting, and Inspection

- **Module 9: Types of Bearings and Their Applications (07:30 – 09:30)**
- Ball, roller, thrust, spherical, tapered
- Load directions, speeds, and fit design
- Bearing numbers, tolerances, and fit standards
- **Module 10: Mounting, Dismounting, and Inspection Techniques (09:45 – 11:15)**
- Cold mounting vs. thermal expansion techniques
- Pullers, heaters, and fitting tools
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Shaft and housing condition checks

- **Module 11: Early Detection of Bearing Problems (11:30 – 01:00)**
- Vibration, temperature, and lubrication indicators
- Spalling, brinelling, corrosion, and creep
- RCA of bearing failures in rotating equipment
- **Module 12: Exercise – Bearing Failure Diagnosis and Reporting (02:00 – 03:30)**
- Teams assess samples and propose corrective actions

Day 4: Lubrication Engineering and Application

- **Module 13: Lubricant Types and Selection Criteria (07:30 – 09:30)**
- Oils, greases, synthetic and mineral types
- Viscosity, additives, compatibility
- Manufacturer recommendations and selection tools
- **Module 14: Lubrication Storage and Contamination Control (09:45 – 11:15)**
- Oil handling, drums, desiccants, filtration
- ISO cleanliness codes and moisture control
- Lube room best practices
- **Module 15: Lubrication Systems and Best Practices (11:30 – 01:00)**
- Manual, centralized, and automated lubrication systems
- Lubrication intervals and volume calculations
- Inspection and lube technician roles
- **Module 16: Field Case Review – Lubrication Errors and Impacts (02:00 – 03:30)**
- Breakdown scenarios linked to poor lubrication
- Lessons learned and preventive changes

Day 5: Reliability Improvement and Action Planning

- **Module 17: Integrating Precision Maintenance into Reliability (07:30 – 09:30)**
- Role of these components in asset management strategies
- RCFA, CMMS integration, and reliability-centered maintenance
- KPIs and performance tracking
- **Module 18: Improving SOPs, Checklists and PM Tasks (09:45 – 11:15)**
- Inspection routines and measurable standards
- Component-specific SOP enhancements
- Ownership and team accountability
- **Module 19: Vendor and OEM Collaboration (11:30 – 01:00)**
- Working with suppliers for technical support
- Lifecycle cost discussions and failure reviews
- Warranties and field failure documentation
- **Module 20: Final Workshop – Reliability Roadmap and Course Wrap-Up (02:00 – 03:30)**
- Participant presentations and instructor coaching
- Action planning and certification briefing

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Certification

Participants who complete the program will receive a Certificate of Completion in **Seals, Couplings, Bearings & Lubrication,** recognizing their capability to improve equipment reliability through deep component understanding and application of best maintenance 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.

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