

SHAFT ALIGNMENT MASTERCLASS - COUPLING ALIGNMENT / DIAL GAUGE ALIGNMENT / LASER ALIGNMENT

“Achieve Precision in Rotating Machinery Alignment Using Industry-Proven Methods and Advanced Diagnostic Tools”

Schedule

Date	Venue	Fees (Face-to-Face)
16 - 20 Feb 2026	Dubai, UAE	USD 3495 per delegate

Introduction

Shaft misalignment is a hidden culprit behind premature equipment failure, excessive vibration, energy losses, and unplanned downtime. Accurate alignment of coupled rotating machines—using traditional and modern methods—is essential for achieving long-term asset reliability and operational efficiency.

This 5-day masterclass delivers deep, hands-on training in coupling alignment, dial gauge techniques, and laser alignment systems. The course blends theory with extensive practical workshops to ensure participants master the skills required to align machinery with precision, troubleshoot issues in the field, and apply reliability-centered maintenance practices.

Objectives

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

- Identify and differentiate types of misalignment and their effects on equipment performance
- Perform shaft alignment using coupling, dial indicator, and laser alignment methods
- Diagnose and correct soft foot, pipe strain, and thermal expansion issues
- Utilize laser alignment tools to achieve precise results within tolerance standards
- Interpret alignment data and document corrective actions for reliability tracking
- Establish in-house shaft alignment practices as part of a preventive maintenance program

Why Attend

- Develop hands-on proficiency in all major alignment techniques
- Improve rotating machinery reliability through precise shaft alignment
- Prevent chronic equipment failures linked to poor alignment practices
- Learn to use and interpret results from modern laser alignment systems
- Receive practical instruction in troubleshooting alignment-related faults

Target Audience

This program is designed for:

- Maintenance engineers and technicians
- Mechanical and rotating equipment engineers
- Reliability professionals and field service personnel
- Plant supervisors and asset integrity staff
- OEM engineers and contractor maintenance teams

Individual Benefits

Key competencies that will be developed include:

- Skilled use of alignment tools and interpretation of measurement results
- Strong understanding of misalignment symptoms and failure prevention
- Confidence in solving real-world shaft alignment problems
- Application of standards and tolerance charts for precision maintenance
- Better communication with OEMs, vendors, and internal teams

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Fewer machine failures due to improved alignment practices
- Longer mean time between failure (MTBF) for critical assets
- Reduced vibration, seal leaks, and bearing wear
- Optimized maintenance planning and reduced repair costs
- Higher asset availability and reliability

Instructional Methodology

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

- Strategy Briefings - Core alignment theory, misalignment types, and measurement concepts
- Case Studies - Analysis of alignment failures and successful corrections
- Workshops - Hands-on alignment using coupling, dial gauges, and laser tools
- Peer Exchange - Team diagnostics, field problem-solving, and feedback sessions
- Tools - Alignment charts, tolerance tables, checklists, and documentation templates

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: Shaft Alignment Principles and Equipment Overview

- Module 1: Introduction to Shaft Alignment (07:30 - 09:30) • Importance of alignment in rotating equipment • Basic terms: offset, angularity, thermal growth, runout • Types of misalignment and failure indicators
- Module 2: Effects of Misalignment on Machinery (09:45 - 11:15) • Bearing, seal, and coupling damage mechanisms • Energy losses and vibration issues • Case histories of misalignment-related failures
- Module 3: Overview of Alignment Tools and Equipment (11:30 - 01:00) • Coupling alignment kits, dial gauges, and laser alignment tools • Tool calibration, setup, and safety
- Module 4: Workshop - Shaft Misalignment Simulation (02:00 - 03:30) • Practice identifying misalignment scenarios on training rigs

Day 2: Dial Indicator Alignment Techniques

- Module 1: Dial Gauge Theory and Application (07:30 - 09:30) • Rim and face vs. reverse dial methods • Calculating misalignment from readings • Setup accuracy and bracket installation
- Module 2: Reading and Interpreting Dial Measurements (09:45 - 11:15) • Recording and calculating vertical/horizontal corrections • Identifying axial play and backlash errors
- Module 3: Performing Precision Alignment with Dial Gauges (11:30 - 01:00) • Reading indicator travel and determining shim adjustments • Tolerance acceptance and repeatability verification
- Module 4: Workshop - Dial Gauge Alignment Practice (02:00 - 03:30) • Full alignment cycle using reverse dial method

Day 3: Laser Alignment Tools and Practices

- Module 1: Understanding Laser Alignment Systems (07:30 - 09:30) • Working principles, alignment targets, and live move functionality • System components and software overview
- Module 2: Setup, Measurement, and Result Interpretation (09:45 - 11:15) • Vertical and horizontal readings • Shimming and sliding corrections in real time
- Module 3: Advanced Laser Features and Troubleshooting (11:30 - 01:00) • Soft foot detection, thermal growth compensation • Graphs, reports, and automated diagnostics
- Module 4: Workshop - Laser Alignment Simulation (02:00 - 03:30) • Participant-led laser alignment using demo equipment

Day 4: Coupling Alignment and Real-World Challenges

- Module 1: Coupling Types and Alignment Impact (07:30 - 09:30) • Flexible, rigid, gear, grid, and disc couplings • Misalignment tolerance by coupling type
- Module 2: Solving Soft Foot, Pipe Strain, and Structural Issues (09:45 - 11:15) • Base flatness, mounting problems, and piping-induced stress • Soft foot detection and correction procedure
- Module 3: Field Diagnostics and Case Troubleshooting (11:30 - 01:00) • Identifying persistent alignment issues • Fault trees and vibration data correlation
- Module 4: Workshop - Coupling Alignment Case Study (02:00 - 03:30) • Group troubleshooting on misaligned pump-motor unit

Day 5: Program Implementation and Final Review

- Module 1: Building a Shaft Alignment Program (07:30 - 09:30) • Integrating alignment into PM and Pd.M. strategies • Frequency, documentation, and KPIs
- Module 2: Documentation and Alignment Reporting (09:45 - 11:15) • Alignment logs, tolerances, acceptance criteria • Tools for tracking trends and reliability
- Module 3: Final Skills Assessment & Best Practice Review (11:30 - 01:00) • Knowledge review and participant quiz • Field alignment checklist and alignment tool selection guide
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Module 4: Wrap-up, Feedback & Certification (02:00 – 03:30) • Final Q/A and participant project presentation • Summary and certificate ceremony

Certification

Participants will receive a Certificate of Completion in Shaft Alignment Masterclass, verifying their technical competency in performing precision alignment using coupling, dial, and laser methods in accordance with industry standards and reliability best practices.

Why Choose MAWA Events

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