MAWA EVENTS

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

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

PUMPS FUNDAMENTALS - OPERATION, MAINTENANCE & MONITORING BASICS

"Maximizing pump reliability and performance through operational excellence and proactive maintenance."

Schedule

Date	Venue	Fees (Face-to-Face)
23 – 27 Aug 2026	Manama, Bahrain	USD 3,495 per delegate
06 – 10 Sep 2026	Doha, Qatar	USD 3,495 per delegate

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

Introduction

Pumps are essential assets in virtually every industrial process. Improper selection, operation, or maintenance can lead to frequent failures, energy inefficiency, and significant production losses. This course is designed to provide a comprehensive understanding of pump types, functions, operation principles, failure modes, and preventive maintenance techniques.

Through practical insights, real-world case studies, and hands-on simulations, participants will build the capabilities needed to operate pumps efficiently, diagnose common problems, and implement best practices to extend pump life and reliability.

Objectives

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

- Identify different types of pumps and their applications
- Understand pump performance curves and selection criteria
- Diagnose common pump problems and failure causes
- Apply preventive and predictive maintenance practices
- Monitor and improve pump performance using key indicators
- Ensure safety and reliability in pump operations

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Why Attend

- Improve pump efficiency and reduce energy costs
- Minimize unplanned downtime and maintenance expenses
- Learn proven troubleshooting techniques
- Apply real-world maintenance strategies
- Develop skills in pump performance monitoring and failure analysis

Target Audience

This program is designed for:

- Maintenance and mechanical engineers
- Reliability engineers and technicians
- Pump operators and supervisors
- Plant engineers and utility managers
- Anyone involved in rotating equipment or fluid handling systems

Individual Benefits

Key competencies that will be developed include:

- Understanding of pump mechanics and hydraulics
- Maintenance planning and lubrication techniques
- Root cause analysis for pump failures
- Performance monitoring using vibration and temperature indicators
- Safe handling and inspection procedures

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Higher equipment uptime and reliability
- Reduced maintenance and repair costs
- Improved operator competency and safety
- Better asset performance and lifecycle management
- Enhanced monitoring and fault detection practices

Instructional Methodology

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

- Strategy Briefings – Pump types, operating principles, and maintenance strategies
- Case Studies – Real-world pump failures and troubleshooting examples
- Workshops – Hands-on exercises on pump inspection, alignment, and diagnostics
- Peer Exchange – Discussion on pump performance challenges
- Tools – Checklists, performance tracking forms, failure analysis templates

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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: Introduction to Pumps and System Design

- Module 1: Pump Classifications and Applications (07:30 – 09:30)
- Centrifugal, positive displacement, submersible, and others
- Selection criteria based on process needs
- Module 2: Pump Components and Construction
- Impellers, seals, bearings, shafts, and casings
- Material selection and specifications
- Module 3: Pumping System Layouts
- Suction and discharge systems
- Pipe sizing, NPSH, and system curves

Day 2: Operation and Performance Analysis

- Module 1: Pump Performance Curves
- Head, flow rate, efficiency, and power relationships
- Reading and interpreting manufacturer curves
- Module 2: Cavitation and Hydraulic Issues
- Causes, effects, and prevention of cavitation
- Module 3: Pump Start-Up and Shut-Down Procedures
- Safe operating practices and checklist usage

Day 3: Maintenance Planning and Lubrication

- Module 1: Preventive and Predictive Maintenance Techniques
- Scheduling, planning, and maintenance documentation
- Module 2: Lubrication and Seal Management
- Greasing intervals, oil systems, seal failure analysis
- Module 3: Pump Alignment and Balancing
- Laser alignment, soft foot correction, vibration prevention

Day 4: Troubleshooting and Root Cause Analysis

- Module 1: Common Pump Faults and Indicators
- Noisy operation, overheating, low flow, and vibration
- Module 2: Root Cause Analysis Methods
- Failure patterns and diagnostics tools (5 Whys, fishbone, FMEA)
- Module 3: Maintenance Case Studies
- Analyzing and resolving real pump performance issues

Day 5: Monitoring, Optimization & Wrap-Up

- Module 1: Condition Monitoring Techniques
- Vibration analysis, thermography, pressure testing
- Module 2: Energy Efficiency and Performance Optimization
- Reducing energy consumption through pump tuning
- Module 3: Final Workshop and Action Plan
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Simulation: Creating a pump maintenance and monitoring plan

- Individual improvement roadmap

Certification

Participants will receive a Certificate of Completion in Pumps Fundamentals – Operation, Maintenance & Monitoring Basics, demonstrating their expertise in pump systems operation and maintenance best 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**