MAWA EVENTS

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

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PLANT LIFE CYCLE ASSET MANAGEMENT & RELIABILITY ANALYSIS

"Maximizing Asset Performance, Reliability, and Longevity through Strategic Management and Analysis"

Schedule

Date	Venue	Fees (Face-to-Face)
06 – 10 Dec 2026	Manama – Bahrain	USD 3495 per delegate

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

Introduction

Asset management and reliability analysis are critical components for maximizing the performance, safety, and efficiency of industrial plants. Effective plant life cycle management ensures the sustainability of operations, minimizes downtime, reduces maintenance costs, and enhances equipment reliability. With the increasing complexity of industrial operations and the need for long-term profitability, plant managers must adopt data-driven decision-making tools and strategies.

This 5-day intensive course provides participants with a comprehensive understanding of plant life cycle management, covering reliability-centered maintenance (RCM), failure analysis, risk-based strategies, and predictive techniques. It is designed for professionals who wish to optimize asset performance, reduce operational risk, and implement best practices in asset management.

Objectives

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

- Understand the principles of asset life cycle management and reliability engineering
- Develop and implement reliability-centered maintenance (RCM) strategies
- Analyze failure modes and apply root cause failure analysis (RCFA) techniques
- Use predictive maintenance and risk-based analysis tools to extend asset life
- Optimize asset performance through data-driven insights and reliability modeling

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Why Attend

- Strengthen asset reliability and reduce unexpected downtime in plant operations
- Gain hands-on knowledge of RCM and asset reliability techniques that directly impact the bottom line
- Learn how to make informed, data-driven decisions in asset management
- Improve your understanding of predictive maintenance technologies and condition monitoring
- Enhance your ability to conduct effective failure analysis and mitigate risks

Target Audience

This program is designed for:

- Plant managers and operations managers
- Maintenance managers and engineers
- Reliability engineers and analysts
- Asset managers and performance improvement specialists
- Safety and risk management professionals in industrial settings

Individual Benefits

Key competencies that will be developed include:

- Asset life cycle analysis and maintenance strategy development
- Failure analysis and reliability improvement techniques
- Predictive maintenance techniques and tools
- Risk assessment and mitigation in asset management
- Data analysis and decision-making in maintenance optimization

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Increased asset reliability and reduced operational disruptions
- Improved maintenance strategies, reducing downtime and costs
- A more proactive approach to risk management and asset performance
- Enhanced operational efficiency and resource optimization
- Stronger alignment between asset management, maintenance, and overall business goals

Instructional Methodology

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

- Strategy Briefings: Overview of asset management principles, RCM, and reliability engineering
- Case Studies: Real-world examples of asset management success and failure
- Workshops: Practical exercises in failure analysis, risk-based decision-making, and reliability modeling
- Peer Exchange: Group discussions on challenges and best practices across industries
- Tools: Asset management templates, RCM worksheets, reliability metrics, and risk assessment models

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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 Asset Life Cycle and Reliability Engineering

- Module 1: Understanding Asset Life Cycle Management (07:30 – 09:30) • Definition and principles of asset life cycle management • Phases of asset management: acquisition, operation, maintenance, and decommissioning • Key performance indicators (KPIs) for asset life cycle management
- Module 2: Introduction to Reliability-Centered Maintenance (RCM) (09:45 – 11:15) • Core principles of RCM and its application in plant operations • Developing maintenance strategies using RCM • Benefits of RCM in improving asset reliability and reducing costs
- Module 3: Risk-Based Asset Management (11:30 – 01:00) • Understanding risk-based decision-making in asset management • Risk assessment and prioritization techniques • Tools for evaluating asset risk and reliability
- Workshop – Asset Management Planning (02:00 – 03:30) • Develop an asset life cycle management plan for a sample plant • Group discussion and feedback

Day 2: Failure Modes and Root Cause Failure Analysis (RCFA)

- Module 1: Understanding Failure Modes (07:30 – 09:30) • Types of failures: functional, mechanical, and electrical • Failure modes analysis techniques • Failure mode effects and criticality analysis (FMECA)
- Module 2: Root Cause Failure Analysis (RCFA) Techniques (09:45 – 11:15) • Steps in conducting RCFA • Tools for identifying root causes: 5 Whys, Fishbone diagram, Fault Tree analysis • Case studies of RCFA in plant operations
- Module 3: Corrective and Preventive Actions (11:30 – 01:00) • Developing corrective actions based on RCFA • Implementing preventive actions to mitigate future failures • Measuring the effectiveness of corrective actions
- Workshop – Conducting a Root Cause Failure Analysis (02:00 – 03:30) • Practice conducting RCFA on a hypothetical failure scenario • Group review and action plan development

Day 3: Predictive Maintenance and Condition Monitoring

- Module 1: Introduction to Predictive Maintenance (07:30 – 09:30)
- • Overview of predictive maintenance and its advantages • Predictive maintenance technologies: vibration analysis, thermography, ultrasonic testing • Selecting the right predictive maintenance tools for your facility
- Module 2: Condition Monitoring and Data Analysis (09:45 – 11:15) • Using condition monitoring techniques to assess asset health • Data analysis and interpretation for predictive maintenance • Setting thresholds and alarms for proactive maintenance
- Module 3: Implementing Predictive Maintenance Programs (11:30 – 01:00) • Building a predictive maintenance program • Integration of condition monitoring into maintenance schedules • Case studies of successful predictive maintenance programs
- Workshop – Predictive Maintenance Strategy (02:00 – 03:30) • Develop a predictive maintenance plan for a sample piece of equipment • Group feedback and improvement suggestions
- Day 4: Reliability Modeling and Optimization Techniques Module 1: Reliability Analysis Tools and Techniques (07:30 – 09:30) • Reliability block diagrams, Monte Carlo simulations • Weibull analysis for predicting asset life • Failure distribution and mean time between failure (MTBF)
- Module 2: Asset Performance Optimization (09:45 – 11:15) • Techniques for optimizing asset performance and efficiency • Reliability optimization models • Balancing maintenance and operational performance
- Module 3: Integrating Reliability into Business Operations (11:30 – 01:00) • Aligning asset reliability goals with business objectives • Leveraging reliability data for strategic decision-making • Building a culture of reliability in the organization
- Workshop – Reliability Modeling and Optimization (02:00 – 03:30) • Apply reliability models to optimize a plant asset • Group discussion and strategy refinement

Day 5: Implementing Asset Management Programs and Continuous Improvement

- Module 1: Designing an Asset Management Program (07:30 – 09:30) • Key elements of an effective asset management program • Aligning asset management with ISO 55000 standards • Setting up asset management governance and responsibilities
- Module 2: Monitoring and Continuous Improvement (09:45 – 11:15) • Monitoring asset performance through KPIs • Implementing a continuous improvement process in asset management • Reviewing and refining asset management practices over time
- Module 3: Managing Change in Asset Management (11:30 – 01:00) • Handling asset life cycle changes and upgrades • Managing obsolescence and asset replacement strategies • Integrating emerging technologies into asset management
- Final Workshop – Asset Management Improvement Plan (02:00 – 03:30) • Develop a comprehensive asset management improvement plan for a plant • Group presentations and final feedback

Certification

Participants will receive a Certificate of Completion in Plant Life Cycle Asset Management & Reliability Analysis, demonstrating their ability to manage and optimize plant assets throughout their life cycle while improving reliability and minimizing risk.

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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