MAWA EVENTS

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

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

RISK-BASED INSPECTION, MAINTENANCE & REPAIR

"Optimizing Asset Integrity through Prioritized Inspection and Maintenance Strategies"

Schedule

Date	Venue	Fees (Face-to-Face)
05 - 09 Apr 2026	Manama, Bahrain	USD 3495 per delegate

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

Introduction

In today\'s asset-intensive industries, traditional time-based maintenance approaches often result in either under-maintenance or over-maintenance, leading to inefficiencies, safety risks, or unnecessary costs. Risk-Based Inspection (RBI) and maintenance strategies enable organizations to focus resources on the highest-risk assets, extending asset life and ensuring safe, compliant, and cost-effective operations.

This course provides in-depth knowledge and hands-on techniques for implementing risk-based inspection, maintenance, and repair programs in accordance with global standards such as API 580/581. Participants will learn to assess risk, develop mitigation plans, and apply condition-based monitoring and decision-making to optimize inspection and repair schedules.

Objectives

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

- Understand the principles and methodologies of RBI and risk-based maintenance
- Apply risk assessment models to prioritize inspections and repairs
- Integrate RBI with asset integrity and maintenance management systems
- Use inspection data and degradation mechanisms for fitness-for-service evaluations
- Comply with international RBI standards (API 580/581, ISO 55000)
- Implement effective repair and mitigation strategies based on risk ranking

MAWA EVENTS

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

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

Why Attend

- Optimize inspection intervals and reduce unnecessary maintenance
- Extend the life of critical assets through condition-based risk assessments
- Meet regulatory compliance while improving operational uptime
- Learn how to quantify risk and allocate resources based on data-driven insights
- Reduce failures and costly unplanned shutdowns through predictive strategies

Target Audience

This program is designed for:

- Inspection, Maintenance, and Reliability Engineers
- Asset Integrity and Plant Managers
- Mechanical and Process Engineers
- Health, Safety, and Risk Assessment Professionals
- Anyone responsible for planning inspections and managing maintenance activities

Individual Benefits

Key competencies that will be developed include:

- Understanding of RBI framework and standards
- Ability to conduct qualitative and semi-quantitative risk assessments
- Selection of appropriate inspection techniques and intervals
- Integration of failure modes and degradation mechanisms into maintenance planning
- Design and evaluation of risk mitigation and repair programs

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved asset performance through prioritized inspections
- Reduction in maintenance cost and downtime
- Compliance with international risk-based inspection regulations
- Data-driven maintenance strategies integrated into CMMS/EAM systems
- Improved safety and reliability of equipment and infrastructure

Instructional Methodology

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

- Strategy Briefings – RBI methodology, standards, and industry use cases
- Case Studies – Risk assessments and inspection planning for pressure systems and rotating assets
- Workshops – Failure mode analysis, RBI matrix creation, repair planning
- Peer Exchange – Real-world applications of RBI in refining, petrochemical, and utility sectors
- Tools – RBI software models, inspection forms, FFS evaluation templates

MAWA EVENTS

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

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

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: RBI Fundamentals and Standards

- Module 1: Introduction to Risk-Based Inspection and Maintenance (07:30 – 09:30) • Why RBI? Evolution from time-based to risk-based strategies
- Module 2: Regulatory Frameworks and Industry Standards (09:45 – 11:15) • API 580/581, ISO 14224, ISO 55000, ASME
- Module 3: Key Elements of RBI Methodology (11:30 – 01:00) • Consequence, probability, risk ranking
- Module 4: Workshop – Map RBI into Your Maintenance Strategy (02:00 – 03:30) • Define current vs ideal inspection planning model

Day 2: Risk Assessment and Asset Prioritization

- Module 5: Identifying and Evaluating Risk Drivers (07:30 – 09:30) • Failure modes, degradation mechanisms, damage factors
- Module 6: Quantitative and Qualitative RBI Models (09:45 – 11:15) • Scoring systems, thresholds, matrix approaches
- Module 7: Asset Criticality and Prioritization Techniques (11:30 – 01:00) • Risk matrices, FMECA, reliability analysis
- Module 8: Workshop – Develop a Risk Matrix for a Sample Asset (02:00 – 03:30) • Evaluate a pressure vessel, pump, or pipeline segment

Day 3: Inspection and Condition Monitoring

- Module 9: Inspection Techniques and Their Application (07:30 – 09:30) • UT, RT, AE, VT, MFL, thermography, drones
- Module 10: NDT Selection Based on Failure Risk (09:45 – 11:15) • Defect sizing, access, reliability, and inspection intervals
- Module 11: Condition Monitoring Integration (11:30 – 01:00) • Vibration, oil analysis, corrosion probes, online monitoring
- Module 12: Workshop – Design an Inspection Strategy Based on Risk Ranking (02:00 – 03:30) • Select NDT and schedule for high-priority assets

Day 4: Fitness-for-Service and Repair Planning

- Module 13: Fitness-for-Service Principles (07:30 – 09:30) • ASME FFS-1/API 579 overview, defect assessment
- Module 14: Determining Remaining Life and Repair Decisions (09:45 – 11:15) • Crack growth, corrosion rates, degradation models
- Module 15: Repair Techniques and Decision Criteria (11:30 – 01:00) • Welding, composite repairs, sleeve installations
- Module 16: Workshop – Evaluate and Recommend Repairs (02:00 – 03:30) • Participants use case data to recommend repair strategies

Day 5: Program Implementation and Continuous Improvement

- Module 17: Implementing and Sustaining RBI Programs (07:30 – 09:30) • Change management, CMMS integration, training
- Module 18: Key Performance Indicators and RBI Audit (09:45 – 11:15) • Backlog, compliance, inspection effectiveness
- Module 19: Case Study – RBI-Driven Turnaround Success (11:30 – 01:00) • Operational benefits and lessons learned
- Module 20: Final Workshop – Build a Risk-Based Maintenance Roadmap (02:00 – 03:30) • Participants develop a plan for phased RBI deployment

Certification

Participants will receive a Certificate of Completion in Risk-Based Inspection, Maintenance & Repair, validating their ability to apply RBI principles, perform risk assessments, and align inspection and repair decisions with industry best practices for asset integrity and operational safety.

MAWA EVENTS

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

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

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**