

RISK-BASED INSPECTION, MAINTENANCE & REPAIR

“Prioritize Inspection and Maintenance with Risk-Based Strategies to Maximize Safety and Asset Integrity.”

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

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

Introduction

This advanced course equips engineers and asset managers with comprehensive tools and methodologies to implement Risk-Based Inspection (RBI) and Maintenance (RBM) programs aligned with international standards (API 580/581, ISO 55000). Participants will gain skills to assess asset condition, assign risk rankings, and develop optimal inspection and repair strategies. Emphasis is placed on balancing safety, reliability, and cost through risk-informed decision-making across various industrial environments.

Objectives

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

- Understand RBI/RBM principles and frameworks (API 580/581)
- Conduct qualitative and quantitative risk assessments
- Identify critical assets based on likelihood and consequence of failure
- Develop and optimize inspection plans based on risk ranking
- Make informed decisions about repair and mitigation actions
- Support continuous improvement in asset integrity programs

Why Attend

Traditional inspection and maintenance methods can lead to over- or under-servicing of assets. RBI/RBM provides a structured way to maximize resource utilization, improve reliability, and enhance operational safety while maintaining regulatory compliance.

Target Audience

- Inspection and Integrity Engineers
- Maintenance and Reliability Professionals
- Asset Managers and Plant Engineers
- Corrosion Engineers and Safety Officers
- QA/QC, Risk, and Compliance Managers

Individual Benefits

- Gain hands-on experience in risk analysis and RBI planning
- Improve decision-making on inspection and repair priorities
- Build competency aligned with API 580/581 certification standards
- Enhance your contribution to asset integrity and safety programs

Organizational Benefits

- Reduce unplanned downtime and maintenance costs
- Increase reliability and availability of critical equipment
- Improve regulatory compliance and risk visibility
- Optimize inspection schedules and extend asset life

Instructional Methodology

- Case-based learning using real-world RBI implementations
- RBI and RBM planning tools, worksheets, and risk matrix modeling
- Hands-on exercises using qualitative and quantitative techniques
- Interactive team simulations and group workshops
- Final exam and course wrap-up for certification

Course Outline

DETAILED 5-DAY COURSE OUTLINE (CUSTOMIZABLE)

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: Fundamentals of Risk-Based Methodologies

- Module 1: Introduction to RBI and RBM – Key Concepts and Drivers (07:30 – 09:30)
- Module 2: Overview of Industry Standards (API 580/581, ISO 55000) (09:45 – 11:15)
- Module 3: Asset Integrity and Risk-Based Program Structure (11:30 – 01:00)
- Module 4: Case Study: Traditional vs Risk-Based Maintenance (02:00 – 03:30)

Day 2: Risk Assessment – Likelihood & Consequence Evaluation

- Module 1: Defining Risk – Failure Modes, Mechanisms, and Scenarios (07:30 – 09:30)
- Module 2: Likelihood of Failure – Degradation Rates and Condition Data (09:45 – 11:15)
- Module 3: Consequence of Failure – Safety, Environmental, and Financial Impact (11:30 – 01:00)
- Module 4: Developing Risk Matrices and Ranking Critical Assets (02:00 – 03:30)

Day 3: Planning and Optimization of Inspections

- Module 1: Risk-Based Inspection Planning and Documentation (07:30 – 09:30)
- Module 2: Inspection Techniques and NDT Options Based on Risk (09:45 – 11:15)
- Module 3: Inspection Frequency and Coverage Determination (11:30 – 01:00)
- Module 4: Workshop – RBI Plan for Sample Asset Group (02:00 – 03:30)

Day 4: Maintenance, Mitigation, and Repair Strategy

- Module 1: Risk-Based Maintenance Strategy Development (07:30 – 09:30)
- Module 2: Selecting Mitigation Measures – Repair, Replace, Rerate (09:45 – 11:15)
- Module 3: Maintenance Task Prioritization and Budgeting (11:30 – 01:00)
- Module 4: Group Exercise: Integrating RBI into CMMS (02:00 – 03:30)

Day 5: Monitoring, Review & Program Improvement

- Module 1: Continuous Monitoring and Risk Reassessment (07:30 – 09:30)
- Module 2: Auditing, KPIs, and Reporting Performance (09:45 – 11:15)
- Module 3: Lessons Learned, Updates, and Living RBI Programs (11:30 – 01:00)
- Module 4: Final Exam, Certification Wrap-Up, and Action Planning (02:00 – 03:30)

Certification

Participants who complete the training and pass the final exam will receive a Certificate of Completion – Risk-Based Inspection, Maintenance & Repair. This course supports CPD hours and is aligned with global RBI standards such as API 580/581.

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

© Material published by MAWA Events shown here is copyrighted. All rights reserved. Any unauthorized copying, distribution, use, dissemination, downloading, storing (in any medium), transmission, reproduction or reliance in whole or any part of this course outline is prohibited and will constitute an infringement of copyright.