BLACKBIRD FOR TRAINING

Reliability Excellence, Asset Integrity & Risk-Based Maintenance

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Reliability Excellence, Asset Integrity & Risk-Based Maintenance

Introduction

This advanced one-week course provides an integrated approach to improving equipment reliability, asset integrity, and maintenance effectiveness. It focuses on Reliability-Centered Maintenance RCM, Risk-Based Inspection RBI, FMEA/FMECA, equipment criticality, bad-actor elimination, Root Cause Analysis RCA, predictive maintenance, reliability KPIs, and asset integrity governance.

Course Objectives

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

- Apply Reliability-Centered Maintenance RCM principles.
- Develop risk-based maintenance and inspection strategies.
- Apply RBI methodologies to critical assets.
- Conduct FMEA/FMECA and identify failure modes.
- Identify and eliminate bad actors.
- Apply Root Cause Analysis to recurring failures.
- Develop predictive and condition-based maintenance strategies.
- Assess equipment criticality.
- Improve MTBF and reduce MTTR.
- Develop and monitor reliability KPIs.
- Strengthen asset integrity governance.
- Develop reliability improvement programs.

Course Outline - 1 Week

Day 1 - Reliability Strategy & Equipment Criticality

- Reliability management fundamentals.
- Reliability strategy and business objectives.
- Equipment criticality assessment.
- Criticality ranking and risk prioritization.
- Failure consequences and functional failures.
- Reliability KPIs.
- MTBF, MTTR, availability, and reliability.
- Developing a reliability improvement strategy.



Day 2 - RCM, FMEA/FMECA & Maintenance Strategy

- Reliability-Centered Maintenance RCM.
- RCM principles and methodology.
- Failure modes and failure effects.
- FMEA and FMECA.
- Failure consequence analysis.
- Selecting appropriate maintenance tasks.
- Preventive, predictive, and condition-based maintenance.
- Developing optimized maintenance strategies.

Day 3 - RBI, Asset Integrity & Risk Management

- Risk-Based Inspection RBI.
- Asset integrity management principles.
- Risk identification and assessment.
- Probability and consequence of failure.
- Inspection planning and prioritization.
- Integrity threats and degradation mechanisms.
- Risk-based maintenance decisions.
- Asset integrity governance and assurance.

Day 4 - Bad Actors, RCA & Reliability Improvement

- Identifying and prioritizing bad actors.
- Bad-actor elimination strategies.
- Root Cause Analysis RCA.
- Failure investigation techniques.
- Recurring failure analysis.
- Corrective and preventive actions.
- Reliability improvement projects.
- Predictive maintenance and condition monitoring.
- Improving MTBF and reducing MTTR.

Day 5 - Reliability Performance, KPIs & Continuous Improvement



- Reliability performance management.
- Reliability and maintenance KPIs.
- Equipment availability and performance.
- Predictive maintenance performance.
- Benchmarking reliability performance.
- Reliability data analysis and decision-making.
- Asset integrity performance indicators.
- Lessons learned and knowledge capture.
- Reliability improvement roadmap.
- Building a culture of reliability excellence.

Why Attend This Course?

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- Improved equipment reliability.
- Reduced recurring failures.
- Better equipment criticality decisions.
- Optimized maintenance strategies.
- Improved RCM and RBI application.
- Stronger asset integrity management.
- Increased MTBF.
- Reduced MTTR.
- Better predictive maintenance performance.
- Improved reliability KPIs.
- Reduced maintenance and operational risk.

Potential Losses Without These Capabilities

- Recurring equipment failures.
- Poor maintenance task selection.
- Ineffective inspection strategies.
- Uncontrolled asset integrity risks.
- High MTTR and low MTBF.
- Excessive corrective maintenance.
- Persistent bad actors.
- Poor reliability performance.
- Increased downtime and production losses.

Conclusion



This course provides managers and reliability professionals with an integrated framework for improving **reliability, asset integrity, maintenance effectiveness, and risk management**, using proven approaches including **RCM, RBI, FMEA/FMECA, RCA, criticality analysis, predictive maintenance, and reliability performance management**.

Frequently Asked Questions FAQ

Who should attend?

Reliability Managers, Asset Integrity Managers, Maintenance Managers, Reliability Engineers, Maintenance Engineers, Inspection Engineers, and senior technical professionals.

Is it an advanced course?

Yes. It is designed for experienced reliability, maintenance, inspection, and asset integrity professionals.

What is the duration?

1 week, 4 hours per day — 20 training hours.

Does it cover RCM and RBI?

Yes. Both RCM and RBI are core components of the course.

Does it cover FMEA/FMECA and RCA?

Yes. The course covers both failure-mode analysis and Root Cause Analysis.

Does it cover predictive maintenance?

Yes. Predictive and condition-based maintenance strategies are covered, including their role in improving reliability and reducing failures.

