

The Certified Maintenance & Reliability Professional CPD Training Course

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Overview

Industrial operations face downtime losses and escalating budgets when equipment failure modes remain unaddressed. The Certified Maintenance & Reliability Professional CPD training course equips practitioners to align physical asset management, predictive technologies, and planning workflows with corporate goals. Participants examine reliability-centred maintenance methodologies, Weibull failure analysis, precision maintenance practices, and spare parts optimization strategies. Teams leave with practical roadmaps to reduce unscheduled stoppages and elevate operational performance. This course is delivered by Agile Leaders Training Center.

Who Should Attend

- Engineers responsible for plant equipment reliability, condition monitoring, and asset lifecycle analysis.
- Supervisors responsible for maintenance scheduling, routine work execution, and contractor coordination.
- Operations managers responsible for production availability, overall equipment effectiveness, and capacity planning.
- Planners responsible for maintenance backlog tracking, spare parts inventory, and work order management.
- Continuous improvement leaders responsible for root cause analysis and asset defect elimination programmes.

Departments and Industries

This course serves technical operations and maintenance teams across capital-intensive processing and manufacturing environments.

- Mechanical and Electrical Maintenance Departments in Oil and Gas Refineries
- Plant Reliability and Integrity Teams in Chemical and Petrochemical Facilities
- Engineering and Facilities Management Divisions in Power Generation Utilities
- Operations and Asset Care Units in Mining and Mineral Processing Operations
- Equipment Maintenance and Planning Groups in Heavy Manufacturing Plants

Learning Objectives

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

- Apply ISO 55001 asset management principles to align maintenance objectives with organisational performance.
- Evaluate equipment failure patterns using Weibull analysis and life-cycle cost models.
- Build maintenance task plans using classical reliability-centred maintenance logic and failure mode analysis.
- Prioritise work backlogs and turnaround activities through risk-based criticality matrix assessments.
- Diagnose chronic asset breakdowns using 5-Why protocols and Ishikawa root cause analysis diagrams.
- Analyse overall equipment effectiveness data to eliminate production bottlenecks and reduce maintenance rework.

Course Agenda

Day 1: Strategic Asset Management and Reliability Governance

- Strategic Asset Management Plan Alignment with ISO 55001 Framework Requirements
- Asset Criticality Ranking Matrix using Risk-Based Consequence Severity Scoring
- Life-Cycle Costing Models for Capital Asset Procurement and Replacement
- Overall Equipment Effectiveness Calculation Worksheets for Production Assets
- Key Performance Indicator Cascades for Maintenance and Reliability Operations

Day 2: Process Reliability and Failure Data Modelling

- Equipment Failure Data Cleansing and Structuring using ISO 14224 Standards
- Failure Distribution Fitting and Shape Parameter Interpretation via Weibull Analysis
- Crow-AMSAA Growth Modelling for Asset Fleet Reliability Tracking
- Process Bottleneck Identification using Theory of Constraints Analysis
- Mean Time Between Failures and Mean Time to Repair Metrics Computation

Day 3: Equipment Reliability and Maintenance Strategy

- Reliability-Centred Maintenance Decision Logic based on SAE JA1011 Standards
- Failure Mode, Effects, and Criticality Analysis Worksheets for Rotating Machinery
- Condition Monitoring Technology Selection Matrix across Vibration and Oil Analysis
- Precision Maintenance Practices and Shaft Alignment Tolerance Standards
- Operator Asset Care Checklists aligned with Total Productive Maintenance Protocols

Day 4: Work Management and Planning Execution

- Work Order Lifecycle Governance from Notification to Technical Closeout
- Planner Capacity Estimating and Maintenance Job Package Documentation
- Backlog Health Indexing Worksheets and Priority Code Grading Systems
- Bill of Materials Scrubbing and MRO Spare Parts Inventory Optimization Models
- Shutdown, Turnaround, and Outage Critical Path Scheduling Techniques

Day 5: Defect Elimination and Continuous Improvement Practice

- Chronic Breakdown Investigation using Ishikawa Root Cause Analysis Trees
- Root Cause Failure Analysis Action Item Tracking and Validation Protocols
- Defect Elimination System Implementation using Cross-Functional Reliability Teams
- Reliability Program Maturity Audit Scoring using Industry Benchmark Rubrics
- Capstone Simulation: Developing an Integrated Plant Reliability Roadmap

Practical Exercises

Participants apply reliability principles through practical tasks and structured asset scenarios across each module.

- Suggested activity: Construct an asset criticality ranking matrix for a processing pumping train.
- Suggested activity: Perform a Weibull analysis on historical component failure logs.
- Suggested activity: Draft an equipment failure mode and effects analysis worksheet.
- Suggested activity: Formulate an integrated maintenance planning and backlog management routine.

FAQs

What baseline technical background is beneficial for this programme?

A basic grounding in plant operations, mechanical or electrical equipment, or maintenance supervisory workflows is beneficial. The curriculum structures concepts step by step to accommodate engineering, planning, and operations professionals alike.

How are international standards integrated into the sessions?

Instruction references standard frameworks including ISO 55001 for asset management, SAE JA1011 for reliability-centred maintenance processes, and ISO 14224 for reliability and maintenance data collection.

Does the course include hands-on analytical exercises?

Yes. Participants complete structured activities including asset criticality ranking, failure distribution analysis, failure mode documentation, and work management workflow drafting using realistic plant datasets.

How does this course support continuous professional development?

The course delivers verifiable training hours aligned with maintenance and reliability engineering disciplines, equipping practitioners with transferable methods to strengthen plant uptime and maintenance governance.

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Conclusion

Participants return to their plants with practical frameworks to eliminate chronic defects, structure planned work routines, and optimize asset reliability. By applying international asset management standards and data-driven maintenance strategies, teams protect equipment availability, reduce reactive expenditures, and sustain long-term operational performance across all operating assets.

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