

MAINTENANCE & RELIABILITY BEST PRACTICES TRAINING COURSE



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TRAINING CENTER



Introduction

Maintenance & Reliability Best Practices Training Course equips maintenance and engineering professionals with the methods that keep assets available, safe, and cost-effective across their full life. Poor maintenance practice shows up as unplanned downtime, excessive spare parts spend, and safety incidents that trace back to deferred work. This program addresses those causes with proven practice. It covers maintenance strategy selection, work management, planning and scheduling, condition monitoring, and reliability engineering. As a result, participants learn to move from reactive repair to planned, data-informed maintenance. Furthermore, the course covers reliability-centred maintenance, root cause analysis, and continuous improvement.

Maintenance & Reliability Best Practices Course Objectives

- Apply maintenance strategy selection using RCM decision logic.
- Distinguish reactive, preventive, predictive, and proactive maintenance.
- Build and manage the work order process efficiently.
- Apply planning and scheduling best practices with backlog control.
- Use criticality analysis to prioritise assets and work.
- Apply condition monitoring techniques: vibration, thermography, oil analysis.
- Measure performance with MTBF, MTTR, availability, and OEE.
- Conduct root cause failure analysis with the 5 Whys and fishbone diagrams.
- Apply FMEA and failure mode analysis to critical equipment.
- Build a maintenance improvement plan using the PDCA cycle.

Course Methodology

- Facilitated sessions built around real maintenance cases.

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- Workshops in RCM decision logic and criticality analysis.
- Group exercises in planning, scheduling, and backlog control.
- Role-play of work order review and shift handover meetings.
- Case studies from manufacturing, utilities, and facilities operations.
- Simulation of a shutdown and turnaround planning round.
- Peer review, reflection, and a personal reliability action plan.

Who Should Take This Course

- Maintenance managers, engineers, and supervisors.
- Reliability engineers and asset management specialists.
- Planners, schedulers, and maintenance coordinators.
- Plant, facility, and utilities operations managers.
- Mechanical, electrical, and instrumentation technicians moving up.
- CMMS administrators and data custodians.
- Consultants advising on asset and maintenance performance.

Maintenance & Reliability Best Practices Course Outlines

Day 1: Maintenance Strategy and Reliability Foundations

- Defining maintenance and reliability clearly.
- Reactive, preventive, predictive, and proactive strategies.
- The bathtub curve and failure pattern research.



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- Maintenance maturity models and assessment.
- The cost of poor maintenance: downtime, spares, and safety.
- Reliability-centred maintenance principles and decision logic.
- Case study: a plant that cut downtime through strategy change.

Day 2: Work Management, Planning, and Scheduling

- The work order lifecycle from request to close-out.
- Work prioritisation and criticality analysis.
- Planning: scope, tasks, materials, and labour estimation.
- Scheduling: weekly, daily, and shutdown scheduling.
- Backlog management and work-in-progress control.
- Shift handover and work permitting practice.
- Workshop: building a weekly schedule with priorities.

Day 3: Preventive and Predictive Maintenance

- Building preventive maintenance programs and intervals.
- Condition-based maintenance and monitoring technologies.
- Vibration analysis, thermography, and oil analysis basics.
- Ultrasound and motor current signature analysis.
- Lubrication management and contamination control.
- Spare parts strategy and critical spares management.
- Simulation: selecting the right maintenance strategy per asset.

Day 4: Reliability Engineering and Failure Analysis

- Reliability metrics: MTBF, MTTR, availability, and OEE.



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- FMEA and failure mode analysis for critical equipment.
- Root cause failure analysis with the 5 Whys and fishbone diagrams.
- Fault tree analysis and Pareto analysis of failures.
- Defect elimination and bad actor management.
- Reliability data collection and CMMS discipline.
- Workshop: conducting a root cause failure analysis.

Day 5: Improvement, Shutdowns, and Sustained Reliability

- Shutdown and turnaround planning and execution.
- Contractor management and job quality assurance.
- Continuous improvement with the PDCA cycle and Kaizen.
- Key performance indicators and maintenance dashboards.
- Building a reliability culture and capability.
- Creating a personal maintenance improvement plan.
- Capstone: presenting a maintenance and reliability roadmap.

Conclusion

By successfully completing Maintenance & Reliability Best Practices Training Course, participants will have acquired the knowledge to select maintenance strategies with RCM logic, manage work through disciplined planning and scheduling, apply preventive and predictive techniques, analyse failures with structured methods, measure performance with reliability metrics, and lead continuous improvement. They will also understand how to build reliability into daily practice rather than treating it as a project. Gentex Training Center delivers this program through applied workshops and expert facilitation, helping teams keep assets productive and safe.





FAQs for the Maintenance & Reliability Best Practices course

Q1 What is the "Maintenance & Reliability Best Practices" course about?

It is a training program that teaches proven maintenance and reliability methods for industrial and facility assets. It covers maintenance strategy selection, work management, planning and scheduling, condition monitoring, reliability engineering, and failure analysis.

Q2 What are the key benefits of the "Maintenance & Reliability Best Practices" course?

Participants gain a structured approach to reducing unplanned downtime, controlling spare parts spend, and prioritising work by criticality. Organizations benefit from higher asset availability, lower maintenance cost per unit of output, safer operations, and longer equipment life.

Q3 What skills will I gain from the "Maintenance & Reliability Best Practices" course?

Participants build maintenance strategy selection and RCM application, work management, planning, and scheduling discipline, preventive and predictive maintenance practice, and reliability measurement, failure analysis, and continuous improvement.



Q4 What tools, methods, or standards are covered in the "Maintenance & Reliability Best Practices" course?

The course covers reliability-centred maintenance decision logic, the bathtub curve, maintenance maturity models, criticality analysis, work order processes, backlog control, preventive maintenance programs, vibration analysis, thermography, oil analysis, ultrasound, MTBF, MTTR, availability, OEE, FMEA, fault tree analysis, the 5 Whys, fishbone diagrams, Pareto analysis, the PDCA cycle, and Kaizen.

Q5 How is the "Maintenance & Reliability Best Practices" course applied in real-world practice?

Learners apply it by building a criticality-ranked asset list, selecting the right strategy per asset, running a weekly schedule with a controlled backlog, monitoring condition data, investigating failures with root cause analysis, and tracking MTBF, availability, and OEE on a maintenance dashboard.