

MRT – MAINTENANCE AND RELIABILITY TECHNICIAN CERTIFICATION



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Introduction

Equipment failure costs organizations time, money, and production capacity. The MRT Maintenance and Reliability Technician Certification Training Course prepares maintenance technicians and engineers to prevent failure rather than simply react to it. Participants learn how to plan and schedule maintenance work, apply condition monitoring techniques, perform root cause analysis, and manage assets across their full lifecycle. Furthermore, the programme aligns with the Certified Maintenance & Reliability Professional (CMRP) body of knowledge and ISO 55000 asset management principles. As a result, technicians build the practical skills that keep plants running safely and reliably.

MRT Maintenance and Reliability Technician Certification Course Objectives

- Apply preventive, predictive, and corrective maintenance strategies.
- Use condition monitoring methods such as vibration analysis and thermography.
- Perform root cause analysis with tools including the 5 Whys and fishbone diagrams.
- Build maintenance work orders, planning packages, and schedules.
- Calculate reliability metrics such as MTBF, MTTR, and OEE.
- Apply Failure Mode and Effects Analysis (FMEA) to critical assets.
- Implement Total Productive Maintenance (TPM) and 5S practices.
- Align asset management with ISO 55000 standards.
- Interpret CMMS data to improve maintenance decisions.
- Develop lubrication, alignment, and balancing practices that extend equipment life.

Course Methodology

- Hands-on workshops using maintenance planning templates.

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- Case studies from manufacturing, oil and gas, and utilities.
- Practical demonstrations of condition monitoring instruments.
- Reliability data exercises with CMMS sample datasets.
- Group problem-solving sessions on real failure scenarios.
- Action planning to apply reliability practices on return to work.

Who Should Take This Course

- Maintenance technicians and supervisors.
- Reliability engineers and asset management specialists.
- Mechanical, electrical, and instrumentation engineers.
- Plant and production engineers.
- Maintenance planners and schedulers.
- CMMS administrators and operations managers.

MRT Maintenance and Reliability Technician Certification Course Outlines

Day 1: Maintenance Strategy and Reliability Foundations

- Maintenance types: reactive, preventive, predictive, and proactive.
- Cost of failure versus cost of prevention.
- Reliability terminology: MTBF, MTTR, availability, and reliability.
- Introduction to asset criticality analysis.
- Total Productive Maintenance (TPM) pillars and 5S.



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- Maintenance maturity models and benchmarking.
- Setting a maintenance strategy for your plant.

Day 2: Preventive and Predictive Maintenance Techniques

- Building preventive maintenance (PM) plans and task lists.
- Vibration analysis fundamentals and severity limits.
- Infrared thermography for electrical and mechanical assets.
- Ultrasound inspection and lubricant analysis basics.
- Condition-based maintenance triggers and alarm settings.
- Choosing the right technique for each asset class.
- Recording and trending condition monitoring data.

Day 3: Maintenance Planning, Scheduling, and Work Management

- Work order lifecycle from request to close-out.
- Job planning packages: scope, labor, tools, and spares.
- Scheduling with weekly and shutdown planning cycles.
- Backlog management and priority setting.
- Spare parts and inventory control for maintenance.
- Using CMMS software such as SAP PM and Maximo.
- Key performance indicators for the maintenance team.

Day 4: Root Cause Analysis and Failure Elimination



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- Failure modes and effects analysis (FMEA) in practice.
- Root cause analysis with 5 Whys, fishbone, and fault trees.
- Reliability-centred maintenance (RCM) decision logic.
- Weibull analysis concepts and failure patterns.
- Corrective actions and defect elimination programmes.
- Precision maintenance: alignment, balancing, and torque.
- Lubrication management and contamination control.

Day 5: Asset Management, Metrics, and Continuous Improvement

- ISO 55000 asset management principles and framework.
- Overall Equipment Effectiveness (OEE) calculation and use.
- Life cycle costing and capital replacement decisions.
- 10Reporting reliability performance to management.
- Building a reliability improvement roadmap.
- Auditing maintenance practices and closing gaps.
- Personal action plan for the next maintenance cycle.

Conclusion

By successfully completing the MRT Maintenance and Reliability Technician Certification Training Course, participants will have acquired the knowledge to plan, monitor, and improve maintenance operations using proven reliability methods. They will understand how to apply condition monitoring, root cause analysis, and CMMS data to reduce downtime and extend asset life. In addition, they will carry practical templates back to their workplace. Gentex Training Center delivers this programme with trainers who bring real plant experience.





FAQs

Q1 What is the "MRT Maintenance and Reliability Technician Certification" course about?

It is a five-day programme that teaches the core practices of maintenance and reliability engineering. It covers maintenance strategies, condition monitoring, work planning, root cause analysis, and asset management, preparing technicians to keep equipment available and cost-effective.

Q2 What are the key benefits of the "MRT Maintenance and Reliability Technician Certification" course?

Participants reduce unplanned downtime, extend equipment life, and lower maintenance cost. In addition, they improve planning accuracy, make better repair-or-replace decisions, and gain a shared reliability language that strengthens communication between maintenance, operations, and management.

Q3 What skills will I gain from the "MRT Maintenance and Reliability Technician Certification" course?

You will gain maintenance planning and work management, condition monitoring and predictive diagnostics, root cause analysis and failure elimination, and reliability metrics and asset performance measurement. These four skills form the technical core of the reliability technician role.



Q4 What tools, methods, or standards are covered in the "MRT Maintenance and Reliability Technician Certification" course?

The course covers vibration analysis, infrared thermography, ultrasound, lubricant analysis, FMEA, Weibull analysis, Reliability-Centred Maintenance, Total Productive Maintenance, 5S, MTBF and MTTR metrics, OEE, the ISO 55000 asset management framework, and CMMS platforms such as SAP PM and Maximo.

Q5 How is the "MRT Maintenance and Reliability Technician Certification" course applied in real-world practice?

Technicians apply it by writing preventive task lists, routing condition monitoring rounds, planning and scheduling work orders in the CMMS, running root cause investigations after failures, and reporting MTBF, MTTR, and OEE to management. Every technique is practised on realistic scenarios during the course.