Training Course on Implementing Effective Preventive and Predictive Maintenance Programmes

Professional Development Training Course Outline

Category	Development	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today’s fast-paced industrial landscape, organizations must go beyond reactive maintenance approaches and embrace intelligent asset management strategies. This intensive training course on Implementing Effective Preventive & Predictive Maintenance Programmes empowers participants with cutting-edge techniques, tools, and digital insights to reduce equipment downtime, extend asset life cycles, and improve operational efficiency. Through real-time case studies, hands-on strategies, and data-driven frameworks, participants will learn to implement a robust maintenance culture backed by Industry 4.0 technologies.

With an increasing emphasis on cost efficiency, smart diagnostics, and performance reliability, this course is designed to bridge the gap between traditional maintenance and predictive intelligence. Maintenance professionals, engineers, and plant managers will explore integrated approaches using condition monitoring, CMMS software, reliability-centered maintenance (RCM), and IoT-based solutions to drive equipment optimization and strategic maintenance decision-making.

Programme Curriculum

Training Course on Implementing Effective Preventive & Predictive Maintenance Programmes

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Course Objectives

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

1. Understand the fundamentals of preventive and predictive maintenance.
2. Implement asset reliability strategies using RCM and TPM principles.
3. Utilize data analytics for predictive diagnostics and real-time asset monitoring.
4. Apply CMMS and EAM systems to streamline maintenance workflows.
5. Perform Failure Modes and Effects Analysis (FMEA) for critical assets.
6. Integrate vibration analysis, thermography, and oil analysis for condition monitoring.
7. Improve maintenance KPIs like MTBF, MTTR, and OEE.
8. Identify root causes of frequent failures and apply RCA techniques.
9. Optimize spare parts inventory and maintenance budgeting.
10. Implement Industry 4.0 and IoT tools for predictive maintenance solutions.
11. Design a structured maintenance planning and scheduling system.
12. Strengthen safety compliance and risk mitigation in maintenance operations.
13. Develop maintenance dashboards for real-time monitoring and decision support.

Organizational Benefits

- Minimized unplanned equipment downtime and production loss.
- Enhanced asset performance, reliability, and lifecycle management.
- Reduced operational and maintenance costs through predictive strategies.
- Improved maintenance team efficiency and strategic task prioritization.
- Strengthened data-driven decision-making and reporting accuracy.

Target Participants

1. Maintenance Engineers
2. Reliability Engineers
3. Plant Managers
4. Asset Management Professionals
5. Operations Managers
6. Facility Engineers
7. Maintenance Planners
8. Industrial Equipment Technicians

Course Outline

Module 1: Introduction to Maintenance Management

- Types of maintenance strategies
- Reactive vs proactive maintenance
- Role of maintenance in operations
- Maintenance evolution and trends
- Importance of planned maintenance

Module 2: Preventive Maintenance Fundamentals

- PM scheduling and intervals
- Creating PM checklists
- Maintenance task standardization
- Cost-benefit analysis of PM
- Tracking and reporting PM activities

Module 3: Predictive Maintenance Technologies

- IoT and sensors in PdM
- Data-driven maintenance strategies
- Real-time condition monitoring
- Integration of PdM tools
- Predictive analytics overview

Module 4: Reliability-Centered Maintenance (RCM)

- RCM principles and tools
- Identifying failure modes
- Criticality assessment
- Decision logic for asset care
- Building RCM frameworks

Module 5: Computerized Maintenance Management Systems (CMMS)

- Key CMMS features and selection
- CMMS implementation roadmap
- Work order management
- Inventory and asset tracking
- Maintenance documentation

Module 6: Condition Monitoring Tools & Techniques

- Vibration analysis
- Infrared thermography
- Ultrasonic testing
- Lubrication and oil analysis
- Machine diagnostics

Module 7: Failure Modes and Effects Analysis (FMEA)

- Steps in conducting FMEA
- Identifying and ranking risks
- Developing mitigation actions
- FMEA documentation
- Case study exercises

Module 8: Root Cause Analysis (RCA)

- RCA tools and methodologies
- 5 Whys, Fishbone diagrams
- Identifying chronic failures
- Corrective action planning
- RCA implementation framework

Module 9: Maintenance Planning and Scheduling

- Maintenance backlog control
- Work prioritization techniques
- Daily/weekly scheduling
- Resource allocation
- Planning tools and software

Module 10: Maintenance KPIs and Performance Metrics

- MTBF, MTTR, and OEE explained
- Setting performance benchmarks
- KPI dashboards and scorecards
- Data visualization techniques
- Continuous improvement focus

Module 11: Spare Parts Management

- Spare part classification
- Inventory optimization
- Lead time and critical spares
- Stock replenishment models
- Supplier evaluation

Module 12: Budgeting and Cost Control

- Maintenance cost categories
- Budget development strategies
- ROI analysis of maintenance investments
- Tracking budget variance
- Financial reporting tools

Module 13: Digital Transformation in Maintenance

- Industry 4.0 applications
- Smart maintenance systems
- Augmented reality and AI tools
- Integration of digital twins
- Future trends and case examples

Module 14: Safety and Risk Management in Maintenance

- Safety audits and checklists
- Hazard identification (HAZOP)
- Compliance with safety standards
- Permit to work systems

- Emergency maintenance protocols

Module 15: Designing a Preventive & Predictive Maintenance Program

- Structuring a comprehensive plan
- Aligning goals with asset strategy
- Engaging stakeholders
- Training and capacity building
- Review and continuous improvement

Training Methodology

- Instructor-led sessions with interactive discussion
- Real-world case studies and group exercises
- Hands-on software demos (e.g., CMMS, PdM tools)
- Simulation-based learning scenarios
- Pre- and post-training assessments

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org **or call** *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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