Manufacturing Cost Engineering Training Course

Professional Development Training Course Outline

Category	Manufacturing	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Maintenance cost optimization in manufacturing is a strategic discipline focused on reducing total asset lifecycle costs while improving equipment reliability, uptime, and operational efficiency. In today's competitive industrial landscape, organizations are increasingly adopting predictive maintenance, AI-driven asset management, lean maintenance strategies, and Industry 4.0 technologies to minimize downtime and eliminate unnecessary maintenance expenditure. Maintenance Cost Optimization in Manufacturing Training Course is designed to equip professionals with practical tools, frameworks, and data-driven approaches to transform maintenance from a cost center into a value-generating function.

Manufacturing industries face rising pressure from energy costs, aging equipment, supply chain disruptions, and digital transformation demands, making maintenance optimization a critical priority. This course integrates modern methodologies such as Reliability-Centered Maintenance (RCM), Total Productive Maintenance (TPM), condition-based monitoring, and CMMS optimization. Participants will learn how to leverage KPIs, analytics, and root cause analysis to drive continuous improvement, reduce operational waste, and enhance asset reliability across production environments.

Programme Curriculum

Maintenance Cost Optimization in Manufacturing Training Course

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Course Duration

5 days

Course Objectives

1. Understand Maintenance Cost Reduction Strategies in modern manufacturing systems
2. Apply Predictive Maintenance & AI Analytics for failure prevention
3. Implement Total Productive Maintenance (TPM) Excellence Framework
4. Optimize Asset Lifecycle Cost Management (ALCM) techniques
5. Improve Equipment Reliability & OEE (Overall Equipment Effectiveness)
6. Conduct Root Cause Failure Analysis (RCFA) for cost elimination
7. Utilize CMMS (Computerized Maintenance Management Systems) Optimization
8. Design Condition-Based Monitoring (CBM) Systems
9. Reduce downtime using Lean Maintenance Principles
10. Develop Spare Parts Inventory Optimization Strategies
11. Integrate Industry 4.0 Smart Maintenance Technologies
12. Enhance Energy Efficiency through Maintenance Optimization
13. Build Data-Driven Maintenance Decision-Making Models

Target Audience

- Maintenance Engineers and Technicians
- Plant Managers and Production Supervisors
- Reliability Engineers
- Operations and Facility Managers
- Industrial Engineers
- Asset Management Professionals
- Manufacturing Consultants
- Engineering Students & Technical Trainees

Course Modules

Module 1: Fundamentals of Maintenance Cost Optimization

- Understanding maintenance cost structures
- Direct vs indirect maintenance costs
- Cost drivers in manufacturing systems
- Introduction to optimization frameworks
- Maintenance maturity models
- **Case Study:** Cost breakdown analysis in an automotive assembly plant

Module 2: Predictive Maintenance & AI Integration

- Basics of predictive maintenance
- Machine learning in failure prediction
- Sensor-based monitoring systems
- Data analytics for maintenance forecasting
- Digital twin applications
- **Case Study:** AI-based predictive maintenance in a steel manufacturing plant

Module 3: Total Productive Maintenance (TPM)

- TPM pillars and implementation
- Autonomous maintenance systems
- Operator involvement strategies
- Zero breakdown culture
- Continuous improvement (Kaizen) integration
- **Case Study:** TPM success in a FMCG production facility

Module 4: Reliability-Centered Maintenance (RCM)

- RCM methodology and logic trees
- Failure mode and effects analysis (FMEA)
- Critical asset identification
- Maintenance task optimization
- Risk-based maintenance planning
- **Case Study:** RCM deployment in a power generation plant

Module 5: CMMS Optimization & Digital Transformation

- CMMS system configuration
- Work order management efficiency
- Maintenance data accuracy improvement
- KPI dashboards and reporting
- Integration with ERP systems
- **Case Study:** CMMS optimization in a pharmaceutical plant

Module 6: Spare Parts & Inventory Optimization

- Inventory classification (ABC analysis)
- Just-in-time spare parts strategy
- Stockout vs overstock balancing
- Vendor-managed inventory models
- Cost reduction techniques
- **Case Study:** Spare parts optimization in a cement manufacturing company

Module 7: Lean Maintenance & Waste Elimination

- Lean principles in maintenance
- Identifying maintenance waste
- Value stream mapping
- 5S implementation in maintenance areas
- Continuous improvement cycles
- **Case Study:** Lean maintenance transformation in an electronics factory

Module 8: Industrial Analytics & Performance Optimization

- Maintenance KPI development
- OEE improvement strategies
- Downtime analysis techniques
- Predictive analytics dashboards
- Decision-making using big data
- **Case Study:** Analytics-driven maintenance optimization in a food processing plant

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com