Maintenance KPI Systems in Manufacturing 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

Modern manufacturing industries are rapidly transforming through Industry 4.0, smart factories, predictive maintenance, and data-driven operations. In this environment, organizations can no longer rely on reactive maintenance approaches; instead, they must adopt Maintenance KPI Systems that provide real-time visibility, measurable performance indicators, and actionable insights. Maintenance KPI Systems in Manufacturing Training Course is designed to equip professionals with the knowledge and tools required to build, manage, and optimize maintenance performance dashboards, OEE (Overall Equipment Effectiveness), asset reliability metrics, and downtime reduction strategies. Participants will gain deep expertise in leveraging KPIs to enhance equipment uptime, cost efficiency, and operational excellence.

Effective maintenance KPI systems are the backbone of high-performing manufacturing plants. They enable organizations to track MTTR (Mean Time to Repair), MTBF (Mean Time Between Failures), predictive maintenance analytics, and asset lifecycle performance. By implementing structured KPI frameworks, companies can significantly reduce unplanned downtime, improve production throughput, and optimize maintenance scheduling. This course integrates practical methodologies, real-world case studies, and digital tools such as CMMS (Computerized Maintenance Management Systems), IoT-enabled monitoring, and AI-based predictive maintenance platforms to ensure participants can drive measurable improvements in manufacturing performance.

Programme Curriculum

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Course Duration

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Course Objectives

1. Understand Maintenance KPI Framework Design in Smart Manufacturing
2. Master OEE (Overall Equipment Effectiveness) Optimization Techniques
3. Implement Predictive Maintenance Strategies using Industrial IoT
4. Analyze MTTR and MTBF Performance Indicators
5. Develop Real-Time Maintenance Dashboard Systems
6. Apply Data-Driven Asset Reliability Improvement Models
7. Reduce Unplanned Equipment Downtime in Production Lines
8. Integrate CMMS-Based Maintenance Tracking Systems
9. Enhance Manufacturing Productivity through KPI Analytics
10. Improve Cost Efficiency in Maintenance Operations
11. Deploy AI-Powered Predictive Maintenance Solutions
12. Build Lean Maintenance and Continuous Improvement Systems
13. Establish Benchmarking Standards for Manufacturing KPIs

Target Audience

1. Maintenance Managers and Supervisors
2. Manufacturing Engineers and Plant Engineers
3. Reliability Engineers and Asset Managers
4. Production Managers and Operations Leaders
5. Industrial Engineers and Process Improvement Specialists
6. CMMS Administrators and Data Analysts
7. Quality Assurance and Continuous Improvement Teams
8. Technical Consultants in Manufacturing Optimization

Course Modules

Module 1: Introduction to Maintenance KPI Systems

- Fundamentals of KPI-driven maintenance
- Importance of performance measurement in manufacturing
- Key maintenance metrics (OEE, MTTR, MTBF)
- KPI hierarchy and alignment with business goals
- Digital transformation in maintenance systems
- **Case Study:** Automotive assembly plant improving uptime using KPI dashboards

Module 2: OEE Optimization in Manufacturing

- Understanding Availability, Performance, and Quality
- Loss analysis and bottleneck identification
- Real-time OEE tracking systems
- Lean manufacturing integration with OEE
- KPI visualization techniques
- **Case Study:** FMCG production line increasing OEE from 62% to 85%

Module 3: Predictive Maintenance and IoT Integration

- IoT sensors and machine condition monitoring
- Predictive analytics and failure prediction models
- Vibration, thermal, and oil analysis techniques
- AI-driven maintenance forecasting
- Integration with CMMS systems
- **Case Study:** Steel manufacturing plant reducing breakdowns by 40%

Module 4: MTTR and MTBF Analysis

- Calculating and interpreting MTTR & MTBF
- Root cause failure analysis (RCFA)
- Reliability-centered maintenance (RCM)
- Data collection and reporting systems
- Performance benchmarking techniques
- **Case Study:** Power plant improving MTBF by implementing structured failure tracking

Module 5: CMMS and Digital Maintenance Systems

- Overview of CMMS platforms
- Work order management and scheduling
- Spare parts inventory tracking
- Automated maintenance reporting
- Integration with ERP systems
- **Case Study:** Pharmaceutical plant reducing maintenance costs by 25%

Module 6: Maintenance Dashboard and KPI Visualization

- Designing real-time dashboards
- KPI reporting structures and automation
- Data visualization tools (BI integration)
- Mobile-enabled maintenance tracking
- Executive reporting systems
- **Case Study:** Food processing company implementing live KPI dashboards

Module 7: Lean Maintenance and Continuous Improvement

- Lean principles in maintenance operations
- Waste reduction strategies in maintenance
- Kaizen and continuous improvement cycles
- Standard work and SOP development
- Performance audit systems
- **Case Study:** Electronics manufacturing plant achieving 30% downtime reduction

Module 8: AI, Automation, and Future of Maintenance KPIs

- AI-based predictive maintenance systems
- Machine learning for failure prediction
- Robotics and automation in maintenance
- Digital twins in manufacturing
- Future trends in smart factories
- **Case Study:** Semiconductor industry using AI to predict equipment failures with 92% accuracy

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