Optimization of Preventive and Predictive Maintenance

Dubai (UAE)

15 - 19 December 2024

UK Traininig
PARTNER

Optimization of Preventive and Predictive Maintenance

Code: OG28   From: 15 - 19 December 2024   City: Dubai (UAE)   Fees: 4600   Pound

Introduction

This course is designed to equip participants with the knowledge and skills needed to optimize preventive and predictive maintenance practices within their organization. The focus is on enhancing the efficiency and effectiveness of maintenance activities to reduce downtime, extend asset lifespan, and minimize operational costs. Participants will learn the principles, tools, and techniques associated with both preventive and predictive maintenance, with a strong emphasis on integrating these strategies into a comprehensive maintenance management system.

Course Objectives

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

- Understand the differences between preventive and predictive maintenance and how to optimize their use.
- Develop and implement customized preventive and predictive maintenance strategies for their organization.
- Utilize data-driven tools and techniques to predict failures and optimize maintenance schedules.
- Use performance indicators and maintenance management software to track and improve maintenance outcomes.
- Integrate preventive and predictive maintenance into a unified asset management strategy.

Course Outlines

Day 1: Introduction to Preventive and Predictive Maintenance

- Overview of Maintenance Strategies: Understanding the various maintenance strategies⬜corrective, preventive, predictive, and reliability-centered maintenance.
- Preventive Maintenance PM Basics: Defining preventive maintenance, its goals, and its essential components.
- Predictive Maintenance PdM Basics: Introduction to predictive maintenance, its objectives, and how it differs from preventive maintenance.
- Benefits of Preventive and Predictive Maintenance: How both strategies help minimize unplanned downtime, enhance asset reliability, and extend equipment life.
- Choosing the Right Maintenance Strategy: How to select and integrate preventive and predictive maintenance strategies based on equipment, resources, and operational requirements.

Day 2: Developing a Preventive Maintenance Program

- Establishing Maintenance Schedules: Determining the frequency and scope of preventive maintenance tasks.
- Task Identification and Prioritization: Identifying critical equipment and prioritizing tasks for preventive

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maintenance.

- Resource Allocation for PM: Assigning the right resources personnel, tools, and equipment to ensure efficient preventive maintenance execution.
- Documentation and Compliance: The importance of maintaining detailed records of preventive maintenance tasks, compliance requirements, and inspections.
- Measuring the Effectiveness of Preventive Maintenance: Key performance indicators KPIs for evaluating the success of a preventive maintenance program.

Day 3: Implementing Predictive Maintenance

- Introduction to Condition Monitoring Techniques: Overview of condition-based monitoring tools like vibration analysis, infrared thermography, and ultrasound.
- Data Collection and Analysis: Techniques for gathering and analyzing data to predict equipment failures e.g., wear patterns, operational data.
- Using Predictive Analytics: Leveraging data analysis and predictive algorithms to anticipate failures before they occur.
- Integration of PdM with CMMS Computerized Maintenance Management Systems: How to integrate predictive maintenance data with CMMS to trigger alerts and actions.
- Best Practices for Predictive Maintenance: Designing and implementing an effective predictive maintenance program, including sensor placement and data interpretation.

Day 4: Optimization Techniques for Maintenance Programs

- Optimization of Maintenance Schedules: Fine-tuning schedules for preventive and predictive maintenance based on data, equipment reliability, and operational needs.
- Condition-Based Maintenance vs. Time-Based Maintenance: When to choose condition-based maintenance over traditional time-based schedules.
- Resource Optimization: Ensuring tasks are performed at the optimal time with the right personnel, tools, and spare parts.
- Performance Monitoring and Feedback Loops: Using performance data to continuously refine maintenance practices for maximum efficiency.
- Cost Optimization in Maintenance: Balancing maintenance costs with operational performance, and optimizing the mix of preventive, predictive, and corrective maintenance.

Day 5: Integrating and Sustaining Optimized Maintenance Practices

- Developing a Comprehensive Maintenance Strategy: Integrating preventive, predictive, and corrective maintenance strategies into a unified maintenance management framework.
- Maintenance Optimization Software: How to use software tools to plan, execute, and track preventive and predictive maintenance activities.
- Creating a Maintenance Culture: Building a proactive maintenance culture within the organization by training staff and promoting the benefits of both preventive and predictive approaches.
- Continuous Improvement in Maintenance Practices: Using techniques like root cause analysis and failure mode analysis to continually improve maintenance strategies.
- Future Trends in Maintenance: Exploring the impact of emerging technologies like AI, machine learning, and IoT on the future of predictive and preventive maintenance.

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