BlackBird
FOR TRAINING

Predictive Maintenance Planning

Sharm El-Sheikh (Egypt)

16 - 20 March 2025

UK Traininig
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Predictive Maintenance Planning

Introduction

This training program provides a comprehensive introduction to Predictive Maintenance PdM, an advanced maintenance approach leveraging data-driven insights to predict and prevent equipment failures. The course emphasizes the principles, tools, and techniques essential for implementing an effective predictive maintenance strategy. Participants will explore predictive analytics, sensor technologies, and condition-monitoring tools to plan and optimize maintenance schedules, minimize unplanned downtime, and extend equipment lifespan.

Course Course

By completing this course, participants will:

- Grasp the fundamentals of predictive maintenance and how it contrasts with traditional maintenance approaches.
- Apply predictive maintenance techniques using condition-monitoring tools and data analytics.
- Design a predictive maintenance plan that integrates with existing workflows.
- Utilize software and tools to enhance maintenance efficiency and reduce costs.
- Evaluate and refine predictive maintenance efforts for continuous improvement.

Course Outlines

Day 1: Foundations of Predictive Maintenance

- Introduction to PdM: Definition, principles, and benefits.
- Comparative Maintenance Strategies: Differences between predictive, preventive, and corrective maintenance, and their applications.
- Data as a Foundation: Importance of data collection, sensors, and condition monitoring in PdM.
- Maintenance Strategy Evolution: A historical overview of maintenance practices.
- Key PdM Technologies: Overview of sensors, IoT, vibration analysis, thermography, and ultrasound testing.

Day 2: Tools and Techniques for Predictive Maintenance

- Condition Monitoring Technologies: Tools such as vibration sensors, infrared thermography, and oil analysis.
- Data Acquisition Methods: Techniques for collecting machine and system data for PdM analysis.
- Selecting PdM Techniques: Choosing suitable methods based on equipment types and potential failure modes.
- Data Analysis Basics: Interpreting data trends to predict failures using statistical and machine learning methods.
- System Integration: Incorporating PdM tools with CMMS and ERP systems for seamless operation.

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Day 3: Crafting a Predictive Maintenance Plan

- Asset Criticality Assessment: Identifying high-priority assets for PdM.
- Strategy Development: Creating a roadmap for implementing PdM.
- Scheduling Maintenance Activities: Establishing schedules informed by predictive insights.
- Hybrid Maintenance Approaches: Combining PdM with preventive maintenance for optimal results.
- Risk and Failure Mode Management: Analyzing risks and failure modes to support PdM planning.

Day 4: Advanced Software and Analytics for PdM

- Overview of PdM Software: Features and advantages of predictive maintenance software solutions.
- CMMS Integration: Merging predictive data with CMMS for streamlined processes.
- Predictive Models and Analytics: Utilizing analytics tools to predict failures and optimize operations.
- Automation in PdM: Enhancing PdM efficiency through automation.
- Case Studies: Real-world examples of successful PdM applications across industries.

Day 5: Performance Evaluation and Continuous Improvement

- KPIs for Success: Key metrics for evaluating predictive maintenance performance, such as uptime and cost efficiency.
- Program Performance Monitoring: Conducting audits and reviews to assess PdM effectiveness.
- Root Cause Analysis RCA: Investigating failure causes to refine PdM strategies.
- Driving Continuous Improvement: Implementing feedback loops to enhance PdM systems.
- Final Project and Review: Participants will develop a predictive maintenance plan, applying the course concepts to a real-world or hypothetical scenario.

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