TRANSFORMATIONAL
PERFORMANCE SOLUTIONS

Predictive maintenance & Condition monitoring

This development course is available in both virtual and in-person, instructor-led formats, it is a two offering in the fundamentals of Predictive maintenance & Condition monitoring applicable to facilities and manufacturing production lines. With ever increasing demands from senior leaders to accomplish more work and decreasing operating costs, investing in predictive maintenance and condition monitoring tools makes more sense today than ever before.

Description:

While many organizations still rely heavily on time-based, preventive maintenance, it's a proven fact that condition-based monitoring increases personnel productivity, reduces equipment downtime and saves money. Predictive Maintenance (PdM) & Condition Monitoring will provide team members with a framework to make the right decisions on what equipment needs condition monitoring, what technologies to use to meet their needs and how to measure the effectiveness of their decisions. In addition to exposing students to the principles and options for a program, they will learn about real world applications that have benefited other successful maintenance programs.

Course Outline:

Day One – Topics

Introductions and Establishing Seminar Goals

Understanding Maintenance Program Types & Their Effectiveness

1. Break down
2. Preventive
3. Predictive
4. Proactive

The Need to Identify Critical Equipment

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Root Cause Analysis Tools; Examining In-House Processes

Elements of Root Cause Analysis (RCA)

Applying the "How-Can?" Tool

The Ishikawa (Fishbone) Diagram

Root Cause Analysis Data Collection Forms

What Happened? How? Why?

How to do Cause/Effect Charting for RCPE

1. Implementation Steps

How to Sell Root Cause Analysis to Management

1. Building the Analysis Team
2. Preserving Evaluation Data
3. Analyzing the Data
4. Communication of Findings and Recommendations
5. Tracking Cost Savings
6. Calculating Bottom Line Results

Four Foundations for Improving Reliability

1. Developing and Fostering the Culture of Reliability
2. Product Mission
3. Reliability Specifications

Dr. W. Edwards Deming & The Shift to Quality

1. The Need to Consider Quality vs. Cost Controls
2. Success in Post-1945 Japan
3. Success in American (late-1970's Ford Motor Company)

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Cost/Benefit Analysis Tools
Exercise: Comparing Maintenance Strategies Based on Costs/Availability with "Truck Fleet Case History"

1. Run to Failure
2. Scheduled Repair/Parts Replacement/On-Condition Inspections
3. Applying Reliability Centered Maintenance
4. A Positive Financial Impact

Day Two – Topics

Determining Overall Equipment Efficiency (OEE)

1. Another Metric for Equipment Performance
2. Focusing the Process Improvement Effort

Understanding Return on Investment (ROI)

Predictive Maintenance (PdM) Tools

1. Vibration
2. Oil Analysis
3. Infrared
4. Ultrasound

How PdM Technologies Integrate with RCM-Reliability Centered Maintenance

On-Line Monitoring for Instant Machine Condition Diagnostics

1. Monitoring Machine Conditions
2. How to Make Recommendations for Maintenance/Repair
3. The Future of PdM

Introducing FMEA (Failure Modes and Effects Analysis) and FMECA (Failure Modes and Effects with Cause Analysis)

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1. The “Flip Side” of Root Cause Analysis
2. Recovering CMMS Data
3. Basic FMEA Steps & Application

The Maintenance-Operations Planning Meeting:

1. Facility-Wide Inputs; Gather your Subject Matter Experts
2. Prioritizing Critical Equipment
3. Equipment Availability
4. Labor Utilization
5. Final Maintenance Schedule Recommendation

Using Maintenance Log Data

1. Times-To-Failure
2. Suspension Time
3. MTTR -Mean Time to Repair
4. MTBF - Mean Time Between Failures

Review of Seminar Goals and Addressing Remaining Questions

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