Introduction to Planned Maintenance (PM)

What is Planned Maintenance?

Planned maintenance, within the context of Total Productive Maintenance (TPM), refers to the systematic scheduling and execution of maintenance activities on machinery, equipment, and facilities to ensure their optimal performance, reliability, and longevity. Unlike reactive maintenance, which addresses breakdowns as they occur, planned maintenance involves proactive measures aimed at preventing failures and minimizing downtime.

In TPM, planned maintenance is often referred to as "PM" or "Preventive Maintenance." It encompasses a range of tasks such as routine inspections, lubrication, calibration, and parts replacement based on predetermined schedules or condition-based assessments. The primary objectives of planned maintenance are to identify and address potential issues before they escalate into major problems, improve equipment efficiency, enhance safety, and extend asset lifespan.

The vision for PM is zero failures at minimum maintenance costs as well as to improve technology, equipment reliability, and maintenance skills.

PM responsibility areas:

Planned maintenance is responsible for:

- Creating and documenting machine knowledge and setting standards.
- Training, coaching, and supporting operators in their pursuit of their autonomous maintenance goals.

PM Implementation

There are 6 steps for PM implementation.

1. **Assessment and Planning:**

- Evaluate the current maintenance practices and performance metrics.
- Identify critical equipment and assets requiring maintenance interventions.
- Define maintenance objectives, including goals for reducing downtime, improving equipment reliability, and optimizing resource utilization.
- Develop a comprehensive maintenance plan outlining the tasks, schedules, and responsibilities.

2. **Restore Deterioration and Correct Weaknesses:**

- Conduct a detailed analysis of equipment performance, failure patterns, and maintenance history.
- Prioritize equipment based on factors such as criticality, frequency of use, impact on production, and historical failure data.
- Determine the appropriate maintenance strategies (e.g., preventive maintenance, predictive maintenance) for each asset.

3. **Build an Informational Management System:**

- Failure Data management system
- Computerized Maintenance Budget System
- Spare parts and material control system
- Technical information and drawing control system.

4. **Build a Periodic Maintenance System**

- Define standardized maintenance procedures for each type of maintenance activity (e.g., inspections, lubrication, parts replacement).
- Specify the tools, materials, and resources required to perform maintenance tasks effectively.
- Develop documentation, including work instructions, checklists, and job plans, to guide maintenance technicians.

5. **Build a Predictive Maintenance System**

In this step, proactive maintenance techniques are integrated into the maintenance program (thus introducing the TPM concept of Planned Maintenance).

- Identify all components that are candidates for proactive maintenance.
- Establish initial proactive maintenance intervals.
- Create a feedback system for optimizing the maintenance intervals.

6. **Evaluate the Planned Maintenance System**

Evaluate improvement on

- Reliability
- Maintainability
- Maintenance cost savings

- Fine-tuning and improving procedures.
- Filling in gaps and fortifying successful procedures
- Utilizing data from sensors, work orders, and digital reports
- Identifying strengths and weaknesses
- Uncovering opportunities for improvement
- Embracing preventive maintenance
- Creating a continuous improvement loop
- Refining preventive maintenance based on failure analysis.
- Involving all stakeholders (technicians, operations, reliability engineers)
- Digital profiles and forums for team collaboration
- Scheduling feedback sessions and problem-solving meetings
- Reviewing flagged issues
- Review the whole system.