

Knowledge is the foundation
requirements in all skills

Learn...

**Preventive Maintenance
Best Practices through
class-room lecture,
exercises, and group
participation**



This workshop is "activity based" (hands on) with
focus on
"Best Practices in Preventive Maintenance"

**Cost: One Attendee: \$950.00
Two Attendees: \$750.00 each
Three or more: \$650.00 each**

Who should attend this course:

- > Maintenance Supervisors
- > Senior Maintenance Technicians
(influential techs)
- > Maintenance Managers
- > Maintenance Engineers
- > Reliability Engineers
- > TPM Coordinators / SME

Preventive Maintenance (PM)

Actions performed on a time- or machine-run-based schedule that detect, preclude or mitigate degradation of a component or system with the aim of sustaining or extending its useful life through controlling degradation to an acceptable level.

Source: SMRP Best Practices

The Course Objectives

LEARN MORE ABOUT ...

- Preventive Maintenance Known Best Practices
- Create an PM Dashboard to manage PM Effectiveness and Efficiency
- What is the number of times a PM inspection should identify a defect
- When to use a GEMBA Walk to Optimize Preventive Maintenance
- Definition of Preventive Maintenance
- Maintenance and Operator PM Alignment
- Top 10 Reasons why Preventive Maintenance does not meet expectations
- How PM Compliance can be misleading
- Learn how write an Effective PM Procedure
- Create a Continuous Improvement Process for Preventive Maintenance
- Learn how to know if a PM is effective or not
- Learn how to evaluate effectiveness and efficiency of PM Program
- Define how “Known Best Maintenance and Reliability Practices”
- Describe the Objective of Preventive Maintenance
- Execute in a group environment Preventive Maintenance “hands on” exercises
- Learn how to Measure if a Preventive Maintenance Function is effective
- How to engage Production to execute simple PMs
- Create a Proactive Preventive Maintenance Workflow Model which will assist in managing asset and process reliability
- Create Leading and Lagging Preventive Maintenance Metrics
- Define how to transition from current state to a Proactive Preventive Maintenance Function
- Define how to measure and manage change
- Learn to implement a new way of thinking by plant staff
- Gain first steps in how to Manage Change
- Create a Master Plan, with timeline for Proactive Preventive Maintenance Implementation
- Failure Modes and how to manage and mitigate them in a Proactive Environment
- ... and so much more

Preventive Maintenance Leading and Lagging KPIs

Leading KPIs:

- PM Compliance (using 20% Rule)
- % of PMs with Step by Step Instructions
- % of PMs evaluated monthly

Lagging KPIs:

- Maintenance Cost
- Production Capacity
- Emergency/Urgent Labor Hours
- Stockouts
- MTBF – Mean Time Between Failures
- MTTR – Mean Time To Restore

“Leading KPIs Lead to the Results, Lagging KPIs are the Results”

Training Schedule

Day 1: Introduction to Preventive Maintenance Best Practices

- Instructor and Attendee Introductions
- Expectations from each attendee
- Expectations from instructor
- Course Objectives
- Daily Training Schedule
- Why Preventive Maintenance is not working in most organizations (Top 10 Reasons)
- Proactive Maintenance Workflow Model/Process
- World Class Maintenance Case Study (Alumax/Alcoa Mt Holly – John Day PE)
- Definition of:
 - Maintenance
 - Reliability
 - Work Identification
 - Preventive Maintenance
 - Predictive Maintenance
 - Maintenance Planning
 - Maintenance Scheduling
 - Maintenance Backlog
 - Work Execution
 - Work Order Close Out
 - FRACAS – Failure Reporting, Analysis and Corrective Action System
- Preventive Maintenance Definition and Expectations
- Group Discussion – How does Preventive Maintenance Actually Work
- Expectations from PM and PdM
- What are the expectations from PM
- Failure Modes mitigation strategies
- Developing and Managing an Effective Preventive Maintenance Program
- Preventive Maintenance Workflow Process
- Steps required to develop an Effective PM Program
- Best Practice PM Procedures Example
- Preventive Maintenance Roles and Responsibilities (RACI)
- Managing a Preventive Maintenance Program
- Preventive Maintenance Leading and Lagging KPIs
- Preventive Maintenance Dashboards

Exercise: Create Definitions for Maintenance, Reliability, Preventive Maintenance, Predictive Maintenance, Maintenance Planning, Maintenance Scheduling

Group Question: 1 thing each person learned today

Day 2: Preventive Maintenance Best Practices

- Review of Day 1
- Proactive Maintenance Planning and Scheduling Process and why it is critical for a successful PM Program
- Requirements of Preventive Maintenance
- Criteria for an Effective PM Procedure
- How to create Repeatable PM and CM Procedure
- Parts Requirements/Kitting Process for PM
- Definition of Kitting
- How to establish a Kitting Process
- Parts Ordered from Vendor vs Storeroom Stock
- Security of Scheduled Work Parts/Material used in Preventive Maintenance
- Requirements of Maintenance Scheduling of Preventive Maintenance
- Leaderships expectations of Preventive Maintenance
- Developing a PM Workflow process
- Preventive Maintenance Roles and Responsibilities

Exercise: Create a PM Process Map

- Best Practices
- Hydraulic Maintenance Best Practices
- Bearing Maintenance Best Practices
- Operator Care Inspections

Exercise: Create a Repeatable Procedure for Inspection of the production line Provided

Exercise: Create Preventive Maintenance Vision and Mission

- Developing an effective Maintenance Scheduling process
- Maintenance Scheduling Roles and Responsibilities
- Maintenance Scheduling Leading and Lagging KPIs
- How to Create Leading and Lagging KPIs for Maintenance Scheduling

Exercise: Creating a Process Map for Preventive Maintenance

- Creating a RACI Chart for Maintenance Scheduling
- Lessons Learned from Day 1 and 2
- Preliminary plan to implement what you learned from the past 2 days

Day 3: Preventive Maintenance Optimization

- Review of Day 2
- Two things you plan to do different when you return
- Change Management (Cultures) issues one may face when they return with new ideas about resistance to Change

Preventive Maintenance Optimization Options:

- Option 1: Maintenance Technician Review of PMs
- Option 2: Maintenance/Reliability Engineer Review of PMs
- Option 3: PM Continuous Improvement Process

Group Exercise: Option 1 Exercise

Group Exercise: Option 2 Exercise

Group Exercise: Option 3 Exercise

- Failure Modes and Failure Codes
- ISO 14224 Maintainability and Reliability Data and Dissemination
- Individual Exercise: Each Attendee Creates a PM Dashboard with Leading and Lagging KPIs
- Individual Exercise: Each Attendee Creates a Plan to optimize their PM program at their site when one returns
- Course Close Out / Course Evaluation

Preventive Maintenance Guiding Principles

- Preventive Maintenance is the most important routine function that maintenance personnel can accomplish.
- The reactive, breakdown maintenance mode "**Will Never**" be gotten away from if PMs are not performed consistently and effectively on a regularly scheduled basis.
- Preventive Maintenance must be measured and managed using the right Leading and Lagging KPIs.
- PMs must be evaluated for effectiveness if equipment failures are occurring.

Preventive Maintenance Leading and Lagging KPIs

Leading KPIs:	Lagging KPIs:
<ul style="list-style-type: none"> • PM Compliance (using 20% Rule) • % of PMs with Step by Step Instructions • % of PMs evaluated monthly 	<ul style="list-style-type: none"> • Maintenance Cost • Production Capacity • Emergency/Urgent Labor Hours • Stockouts • MTBF – Mean Time Between Failures • MTTR – Mean Time To Restore

"Leading KPIs Lead to the Results, Lagging KPIs are the Results"