



Course Outline

Preventive and Predictive Maintenance

OBJECTIVES

This course is designed to teach the participants the processes and applications of preventive and predictive maintenance. It covers topics on maintenance information flow, preventive and predictive maintenance management, parameter monitoring and analysis, and maintenance budget estimation.

By attending this workshop the maintenance technicians, engineers and supervisors will be able to implement and apply the preventive and predictive maintenance technology to manage the maintenance activities that will improve machine availability, equipment lifetime, productivity, overall plant performance and profits.

Benefits of attending this workshop are:

Understand the concepts and practices of preventive and predictive maintenance

Implement preventive and predictive maintenance management in your workplace

Develop your competency and confidence in executing preventive maintenance

Improve your machine availability and equipment lifetime

Reduce the frequency of equipment failure

Reduce the duration of equipment downtime

Learn how to improve your maintenance information flow

Reduce overall maintenance costs and improve company profits

COURSE CONTENT

Maintenance

Maintenance Philosophy and Goals, Product Life Cycle, Scope of Maintenance, Planned & Unplanned Maintenance, Pareto Law.

Maintenance Terms

Preventive Maintenance, Corrective Maintenance, Predictive Maintenance, Condition Monitoring, On-Condition Maintenance, Reactive Maintenance, Overhaul, Servicing, Centralized Maintenance, Field Maintenance, Area Maintenance, Shop Maintenance, Total Maintenance, Maintenance Management.

Preventive Maintenance

Goals, Preventive Maintenance Characteristics, PM Flowchart, PM Facilities, PM Tasks, Levels of PM, Failure Definition, Time Definition in Maintenance, Maintenance Performance Indicators.

Maintenance Information Flow.

Typical Benchmarks, Maintenance Work Order, Design of Work Order, The Four Types of Work Order Forms

Managing Preventive Maintenance

Understanding PM, Examples of Critical Wear, Appropriate PM Strategy, Justifying PM Expenditures, Installing PM Systems, Access to Equipment, PM frequency and its Effect on Breakdown, PM Frequency Determination, Common Tasks, Staffing the PM Efforts, Strategies to Get PM Done, Steps to Install a PM System and Survey

Estimating Maintenance Budget

Elements of maintenance budget, formula to estimate maintenance budget, Case Study

Predictive Maintenance

Advantages of Predictive Maintenance, Failure in Mechanical Equipment/Component, Predictive Maintenance Techniques, Vibration Monitoring, Broadband Trending, Narrowband Trending, Signature Analysis, Implementation of Vibration Monitoring, Thermography, Energy Emission, Implementation, Tribology, Oil Analysis Report, Common Test for Lubricant, Wear Particles Analysis, Wear Type According to Particle Classification, Process Parameters, Visual Inspection, Ultrasonic Monitoring, Other Techniques.

Optimum Predictive Maintenance Program

Predictive Maintenance Systems, Microprocessor-Based System, Selection Criteria for Microprocessor-Based System, Training and Technical Support

Predictive Maintenance Program Implementation

Management Support, Dedicated and Accountable Personnel, Efficient Data-Collection and Analysis Procedures, Equipment Regrouping

Parameters Monitoring

Mechanical Equipment, Machine-train component, Bearing and Bearing Type, Gears and Gearboxes, Gear-Mesh Frequency, Backlash, Gear Excitation, Running Speed, Mode Shape and Resonance, Preloads and induced Loads, Process Variables, Blades and Vanes, Belt Drive.

Diagnostic and Analysis

Analysis using RMS Data, Analysis Method Using RMS Data, Analysis using Full-Signature (FFT), Analysis Method Using FFT Data, Comparative Analysis Trending, Failure-Mode Analysis, Root-Cause analysis, A Case Study

Diagnostic Monitoring

Failure Analysis, Signal Processing, Frequency Domain, Coherency, Vibration Characteristic of Rotary Components, Signal Characteristic of Unbalanced Mass, Misalignment, ISO Standard for Shaft Misalignment, Analysis of Mechanical Vibration Signal, ***A Case Study***

WHO SHOULD ATTEND

Maintenance Technicians and supervisors

Production operators and Supervisors

Mechanical Engineers

Electrical Engineers

Service engineers and supervisors

For more information about the course, please visit lditraining.com or contact LDI Training at HYPERLINK "mailto:lditrain@indo.net.id" lditrain@indo.net.id

