LDI TRAINING
"Leading Edge Courses for Professionals" ™

An LDI Training Course

Preventive and Predictive Maintenance

by

Prof. Dr. Rachman Setiawan

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:

1. Understand the concepts and practices of preventive and predictive maintenance
2. Implement preventive and predictive maintenance management in your workplace
3. Develop your competency and confidence in executing preventive maintenance
4. Improve your machice availability and equipment lifetime
5. Reduce the frequency of equipment failure
6. Reduce the duration of equipment downtime
7. Learn how to improve your maintenance information flow
8. 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***
  Analisys 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 Charateristic 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

INSTRUCTOR's PROFILE

Prof. Dr. Rachman Setiawan is a professor in Design for Reliability and Safety. He earned his Bachelor of Engineering degree from Mechanical Engineering Dept. ITB in 1996, and continued his study in 1998 to achieve his M. Sc. Degree in Mechanical Engineering Design From UMIST, UK in 1999 and Ph. D degree in University of Southampton, UK, for the research in Computational Engineering Design.

He currently lectures in Fac. Mechanical and Aerospace Engineering ITB on a number of subjects, including Strength of materials, Numerical methods, Risk-based Asset Integrity, Maintenance Engineering, Design of piping, pipeline, pressure vessels, material handling equipment.

His engineering concultancy experiences include, among which with, PT Timah (Tbk.), PT Pertamina (and its subsidiaries), PT. Kereta Api Indonesia (Persero) and PT Pertamina (Persero), PT KPC, etc., in the areas of: Mechanical engineering design, Structural crashworthiness, Optimisation, Piping/pipeline, Maintenance Technology and Management, etc.

As an instructor, he has been involved in a number of Industrial Training, among which are: Piping and Pipeline technology, Maintenance Management, Mechanical design, and Tank and Pressure vessel technology.

This course is presented by LDITraining.

For information about LDI Training please visit www.lditraining.com
If you have any question about our courses, please email your enquiry to lditrain@indo.net.id or contact to: 021- 6326911 / 0811 812857

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