INSTITUTE of QUALITY

Confederation of Indian Industry

TPM CLUB INDIA

masterclass

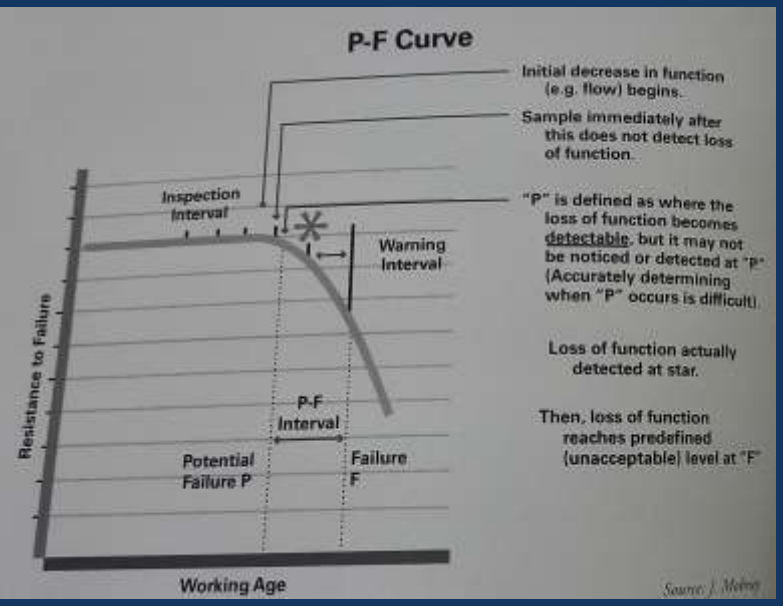
PREDICTIVE MAINTENANCE TECHNOLOGIES - PdM

This masterclass would be 100% applicable for TPM practicing plants (from excellence to world class level) and non-TPM practicing companies also - general engineering & process industries

SAVE THE DATE

27 September Chennai

In today's scenario of manufacturing with Industry 4.0 in the background, the technique " Predictive Maintenance " has become universal and ubiquitous. PdM 4.0 is the latest version of this technique that leverages Data Analytics and IoT to make the Plant Engineering function more effective and accurate. Organisations involved in Product Manufacturing utilizes machineries of multiple ranges and there is an imperative need for them to be exceptionally reliable, to stay competitive. The added benefit of deploying Predictive Maintenance technologies in addition to maximising reliability is the maintenance and inspection cost reduction by around 20 %.



PdM has evolved from manual inspections to sensor data and machine- learning based predictions and the industrial IoT. The evolution of Edge Analytics ,involving analysing data at the source to quickly detect potential failures in the machineries, is phenomenally contributing for the industry, in maximising Equipment reliability.

Currently, PdM (Condition Based Monitoring), is extensively used in Automotive, Power Generation, Industries making ~ Steel , Glass , Chemicals , Textiles , Rubber , Ceramics , Pharma , Fertilizers, Paper, Paints, Fibres, Cement, Lubricants, Turbines, Abrasives, home appliances, FMCGs etc to name a few, to the best advantage of maximising the service life of Critical machinery components which have a direct bearing on Safety / Environment / Operations. (Quality, Delivery, productivity & Cost)

The Master Class on PREDICTIVE MAINTENANCE TECHNOLOGIES , is being organised to focus the attention on the various methods and techniques deployed in the area of Plant Engineering (Maintenance), with the objective of improving industry performance and profitability

MEASURING THE SUCCESS

To measure the success of predictive maintenance , metrics that could be successfully deployed and compared with before and after PdM , are

MTBF

Measures the average amount of time that passes between equipment failures ~ PdM phenomenally increses MTBF

MTTR

Measures the average amount of time to repair equipment after failure - PdM drastically reduces MTTR

OEE

Measures the overall equipment effectiveness ~ PdM optimises equipment performance and increases OEE

CASE STUDY 1

Lubrication Management for Reliability and Sustainability of Process Industries

Lubrication management plays a crucial role in driving reliability and sustainability in process industries, particularly those that rely on machinery and equipment. Effective lubrication practices can significantly impact the performance, lifespan, and energy efficiency of equipment, leading to improved reliability and reduced environmental impact. Here are some ways in which lubrication management drives reliability and sustainability:

COURSE CONTENT

1. Introduction to Lubrication Management:
- Importance of lubrication in industrial operations
- Role of lubrication in equipment reliability and sustainability
- Overview of lubrication techniques and practices

2. Lubricants and Lubrication Basics:
- Types of lubricants and their properties
- Lubrication principles and mechanisms
- Lubricant selection criteria for different applications

3. Lubrication Management Best Practices:
- Lubrication planning and scheduling
- Proper lubricant storage, handling, and dispensing
- Lubricant contamination control
- Lubrication maintenance and inspection techniques

4. Lubrication for Equipment Reliability:
- Effects of friction and wear on equipment performance
- Lubrication strategies for reducing wear and preventing failures
- Lubrication interval optimization for different equipment types

5. Lubrication and Energy Efficiency:
- Impact of lubrication on energy consumption
- Factors affecting energy efficiency in lubrication

6. Environmental Sustainability in Lubrication:
- Sustainable lubricant options and their benefits
- Minimizing lubricant waste and disposal considerations
- Spill prevention and response measures

7. Lubrication Performance Monitoring and Analysis:
- Lubricant condition monitoring techniques
- Oil analysis methods and interpretation of results

8. Lubrication Training and Team Development:
- Developing a lubrication training program
- Lubrication management in the context of a reliability-centered maintenance (RCM) program

9. Case Studies and Real-World Examples:
- Success stories of organizations implementing effective lubrication management practices
- Lessons learned from failures due to improper lubrication

10. Emerging Trends and Technologies in Lubrication:
- Advances in lubricant formulation and additives
- Smart lubrication systems and condition monitoring technologies
- Predictive maintenance and artificial intelligence applications in lubrication management

FACULTY

K. N. V. Subrahmanyam

Mechanical Engineer and done his Exe.MBA (Oil & Gas Management) from National Institute of Business Management. Certified International trainer in the field of Machinery lubrication and Oil Analysis.

KNV's core expertise is with Lubrication Program Development, Complete fluid condition monitoring, Reliability improvements through used oil analysis. 23 years of hands on experience in lubrication Management, Fluid Condition Monitoring and lubrication Program Development experience and has worked with many reputed oil analysis and oil condition monitoring laboratories. Diversified experience and exposure with various industrial segments like cement, steel, power, chemical, manufacturing, Petrochemical, mining and refineries. NORIA Certified trainer for Oil Analysis & Machinery Lubrication in Asian region since 2012, conducted more than 200 ISO 18436-4 complaint Oil Analysis trainings across India, Middle East, Saudi, Bangladesh and Sri Lanka and helped several companies in developing their world class best lubrication standards.

CASE STUDY 2

Condition Based Maintenance

COURSE CONTENT

Maintenance Practices

Why do assets fail – understanding failure modes?

- Run to failure maintenance
- Condition-based maintenance
- Preventive maintenance
- Proactive maintenance

Condition Monitoring

Condition monitoring: the whole picture

- Vibration analysis
- Ultrasound (Airborne and structure-borne ultrasound)
- Infrared thermography.
- Electric motor testing
- Oil analysis
- Wear particle analysis
- Motion Magnification(Video Based Analysis)

C Ravi Varma

- Trained around 800 students, which includes ISO and Non - ISO Courses
- Having 15 years of practical experience in Condition Monitoring and Reliability
- Mobius Institute Cat-III certified in 2017
- ARP Cat-I certified in 2019
- ARP Cat-II certified in 2021
- Approved instructor for Vibration Analysis Cat- I, II&III
- Mobius Approved instructor for ARP Cat- I & II

Delegate Fee for Masterclass

CII Member: INR 9500 + 18% GST

Non CII Member: INR 11,500 + 18% GST

- Pre registration is mandatory
- 10% discount for 3 or more nominations from the same organization
- Complimentary TPM Club Individual membership for 1 year

Venue

Hotel Westin

154, Velachery Rd,
TN Police Housing Colony,
Velachery, Chennai,
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