



Introduction to Conditioning Monitoring (Conforming to ISO 17359:2011)

Introduction

The course provides skills which will allow attendees to understand the application and integration of basic predictive maintenance technologies. It is designed to teach the fundamental principles of the five predictive maintenance technologies most prevalent in industry: vibration analysis, infrared thermography, airborne and structure-borne ultrasonic, oil analysis and motor circuit analysis. This course will enable the candidates to have an understanding of the capabilities of the technologies along with the common traps that may be encountered during application. This course is based on ISO 17359:2011 Condition monitoring and diagnostics of machines general guidelines. It is designed to introduce the benefits and opportunities of Condition Based Maintenance and covers a range of techniques.

Who Should Attend?

Managers, Engineers, Planners, Analysts, Supervisors, Technicians and Operators who wish to learn about the benefits and techniques of applying condition monitoring in the areas of Operations, Maintenance, Engineering, Reliability and Condition Monitoring.



Course Objectives:

By the end of this course delegates will learn about:

- Gaining invaluable insights into the benefits of CBM
- Understanding the reasons for selecting particular maintenance strategies
- Understanding effective methodologies for implementing Condition Monitoring Techniques
- Identifying the optimum maintenance strategy for different types of equipment
- Gaining practical approaches to minimize the risk of plant and machinery breakdowns
- Awareness of International Standards covering asset management (course based on ISO 17359:2011)
- How to strike the right balance between PM and PdM
- How to evaluate your PM program and eliminate unnecessary work
- The principles of PdM and the reasons why it's so powerful
- The business case and value proposition for PdM
- Where the resources will come from: 3 different strategies to consider and the pros and cons of each
- How PdM reduces overtime and emergency work
- How PdM can increase the capacity of your plant without a dollar of capital investment
- How much PdM is enough and what you can learn from best practice organizations and benchmarks
- How to use LEAN tools to make your PdM program self-funding every step of the way and without increasing head count
- How to recognize when you have achieved best practice
- How to convert to the proactive workflow model and the key advantages it offers vs. the traditional model
- Asset health and what it is and how to measure it
- The right way to use assessments to measure the effectiveness of your program



- How to identify mechanical, electrical, and stationary failure modes using PdM technologies
- How to identify the common traps of each technology
- How to build a comprehensive Asset Health Matrix
- Why PM is not enough and the surprising truth behind 80% of all equipment failures
- The common language of PdM and key terms and definitions you should know
- How to balance workflow maturity with coverage
- How to apply benchmark data and asset criticality to design the coverage and model

Course Outline:

- Developing a Maintenance Strategy
- 7-Step Implementation Procedure
- Managing Condition Based Maintenance
- Implementing Condition Monitoring Techniques
- Introduction to Thermography
- Introduction to Lubricant Management
- Introduction to Wear Debris Analysis
- Introduction to Monitoring Oil Condition
- Introduction to Vibration Monitoring
- Striking the balance between PM and PdM
- Defining the P-F Curve
- Weibull shapes, correlation models
- Explain how to perform a Preventive Maintenance Evaluation
- Define how to measure Asset Health
- Quantifying Mechanical Asset Health
- Infrared Thermography
- Oil Analysis
- Airborne and Structure-borne Ultrasonics
- Vibration Analysis
- On-line Motor Circuit Analysis
- Quantifying Electrical Asset Health
- Infrared Thermography
- Oil Analysis
- Airborne and Structure-borne Ultrasonics



- Vibration Analysis
- Off-line Motor Circuit Analysis
- Quantifying Stationary Asset Health
- Infrared Thermograph
- Airborne and Structure-borne Ultrasonics
- Pulse Echo Ultrasound
- Magnetic Particle Testing
- Penetrant Testing
- Visual Inspection
- RADiographic Testing
- Eddy Current Testing
- Identifying and Mapping the Proactive and Reactive Maintenance Workflow Model