



2KG TRAINING

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CONDITION MONITORING AND RELIABILITY

Presenter: Riaan Breedt

ABOUT THE PRESENTER: Riaan Breedt



Riaan Breedt has a BSc Eng (Mech) from Pretoria University followed by a 20 career perfecting rotordynamic design and developing high speed test equipment. Riaan founded the company Vibrakon in 1984 that mainly dealt with machine rotordynamic design; the development of high-speed test equipment; the solving of related machine dynamic problems, and vibration analysis of industrial equipment.

From 1990 to 1997 Riaan was involved in the introduction of "SKF Condition Monitoring" to the South African market with Vibrakon (his company founded in 1984) responsible for marketing, sales; implementation and training of the then newly introduced SKF products. A team of eight people were involved with this task with Riaan responsible for the installation and commissioning of the first on-line vibration monitoring system on a paper machine in South Africa at Mondi Kraft, Richards Bay.

1997–2009 have been spent rendering consulting services to clients, with the emphasis on implementation, training and operating reliability programs as part of their maintenance strategies. The platform for introducing these reliability programs is the Design Maintenance Systems Inc. (DMSI) software (Maintelligence), marketed in South Africa by Vibrakon.

Number of days: 3

Cost: \$2100

CPD Points: 3

DESCRIPTION

Reliability is the ability of a system to perform its required function under stated conditions for a specified period of time. In real life however, actual plant reliability is almost always lower than it was designed for and built to achieve. Research shows that only 11% of failures are age related with 89% due to random failure.

The following are the main causes for these failures:

Poor design, poor quality manufacture, Incorrect installation, Incorrect commissioning, Incorrect operation, Unnecessary routine maintenance, Excessively invasive maintenance, Bad workmanship

This course addresses these reasons for not achieving this 'design reliability' It presents a typical reliability program; the implementation thereof and trains attendees in the key areas of plant reliability with particular focus on the differences that can be achieved by focusing at shop floor level.

WHO SHOULD ATTEND

Plant Engineers, Reliability Engineers, Consulting Engineers, Maintenance Managers, Instrumentation Technicians, Pump Operators, Artisans, Mechanical Foremen, Process Engineers, Equipment Specialists

COURSE OUTLINE

RELIABILITY FUNDAMENTALS

1. Introduction to Reliability

- Reliability Definition & Terminology
- Reliability Relationships
 - ISO 55000
 - Maintenance
 - Business
 - Risk
- Reliability Vision (for the Enterprise)

2. How, why and when equipment fail & available strategies

RELIABILITY CENTERED MAINTENANCE

3. RCM Methodology

- RCM Background
- RCM Fundamentals
- Asset Prioritization
- Maintenance Optimization
- RCM Facilitation
- RCM Implementation
- RCM Benefits

4. RCM Outcomes

- **Time Based Maintenance (PM)**
 - General PM Definition
 - Optimize Work Procedures & Implementation
 - Workforce Maturity Development
- **Condition Based Maintenance (CBM)**
 - General CBM Definition
 - Condition Monitoring Introduction
 - Asset Basic Care Inspections
 - Vibration Monitoring
 - Oil Analysis
 - IR Thermography
 - Ultrasound
 - Motor Current Analysis

- **Pro-Active Maintenance (PAM)**

- RCM Mechanics (Installation/Laser Alignment/Balance)
- RCT (Lubrication Application/Contamination Control)

- **Improvement Maintenance (IM)**

- Incident management
- Pareto Data
- FRACAS
- RCFA
- Redesign

RELIABILITY ASSURANCE

5. Reliability Audit

6. Live Reliability System

- EAM
- Strategy Development
- Incident Management
- Downtime Data Management

RELIABILITY MANAGEMENT

7. Reliability Indicators

- Reliability Metrics
 - MTBF/MTTF/MTTR/Availability
 - KPIs
- Reliability Portal

8. Life Cycle Costing

9. Live RCM system

Condition monitoring techniques are described in detail including the latest trends in Vibration and Oil Analysis and Infrared Thermography.