

Bearings and Gears Faults Analysis

Course Objectives:

All rotating and reciprocating machinery uses bearings to support the load and maintain the clearances between rotating and stationary machinery elements. To determine bearing health, the faults diagnosis of rolling and journal bearing is essential to avoid the risk of catastrophic failure. Gearboxes are typically one of the most important pieces of rotating machinery in processing industry. They are also one of the most challenging types of equipment to monitor. There are a number of reasons a gearbox may fail, and thus a number of fault conditions that we must be able to detect.

Detailed topic list:

Roller Bearings Faults Analysis

- ✚ Why do they fail?
- ✚ Bearing fault frequencies
- ✚ Outer & inner race faults
- ✚ Spectrum analysis
- ✚ Time waveform analysis
- ✚ High frequency vibration
- ✚ 'Stress waves & Shock Pulse'
- ✚ Friction and minor impacts
- ✚ High frequency techniques
- ✚ Acoustic emission

Journal bearings Fault Analysis

- ✚ Eddy current probes
- ✚ Key-phasors
- ✚ Analyzing the waveforms
- ✚ Orbit Analysis
- ✚ Diagnosing fault conditions
- ✚ Orbits Analysis
- ✚ Diagnosing unbalance
- ✚ Diagnosing misalignment
- ✚ Loose rotating part

Gears Fault Analysis

- ✚ Gear terminology and Faults
- ✚ Time waveform analysis

- ✚ Gear backlash
- ✚ Eccentric gear
- ✚ Misaligned gear

Course Duration

- The course consists of Two full days of training & 1-hour exam

Hours

- 9.00 am to 4.00 pm (Days 1-2)
- Exam: 1 hour - end of Day 2

Who should attend

- ☞ Maintenance Professionals
- ☞ Plant/Rigs Supervisors
- ☞ R & D Personnel
- ☞ QA/QC Supervisors
- ☞ Equipment designers
- ☞ HVAC Engineers
- ☞ Plant Technicians
- ☞ Vibration Engineer
- ☞ Inst. Technicians
- ☞ Maintenance Technicians
- ☞ Equipment Operators
- ☞ Reliability Engineers
- ☞ Industrial Engineers
- ☞ Operations Managers



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Practical Applications of Training Course

This course provides unique opportunities to study Vibration principles beyond the textbook.

Learning Outcomes

- ❖ Correctly undertake vibration data collection