

Training - Rotating Machinery Vibration Analysis



PAVIB-EN-P



Face-to-face only



4 days

This course assesses the cause and evolution of mechanical failures by analysis of vibration signals. It emphasizes the implementation of an efficient predictive maintenance program.

Level

Skilled

Public

Engineers, supervisors and technicians involved in the technical inspection and maintenance of rotating equipment.

Objectives

Attendees will be able to implement the following skills:

- Identify the signals to be searched for a given mechanical fault and how to visualize them
- Implement devices to show characteristic images
- Identify vibration images representing a number of typical mechanical defects
- Implement a maintenance plan for each machine based on the criticality

Pedagogical & technical resources

- Study of industrial cases
- Various illustrations of actual systems
- Use of professional measurement tools & software and/or test benches
- The practical approach makes the course suitable for full-time vibration specialists

Assessment of achievements

Quiz

Prerequisites

No prerequisites are necessary to follow this course.

Responsible

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world.

Program

BASIC DEFINITIONS - OVERALL MEASUREMENTS

0.75 day

Frequency and amplitude. Displacement, velocity, acceleration.

Different types of vibration: periodic, random, shocks.

Overall measurements: limitations, severity charts, high frequency techniques for anti-friction bearings, practical recommendations.

RESONANCE

0.5 day

Simple system behavior: amplitude and phase. Actual rotor and bearings systems. Critical speeds.

Using phase to study resonance. Identifying and solving problems.

TOOLS FOR DIAGNOSIS

0.5 day

FFT analyzers: Fourier transforms and actual plots. Accelerometers, fixation methods.

Selecting analysis parameters: scales, units, windows. Using special functions: zoom, cepstrum, envelope detection.

Using non-contacting probes for monitoring large machinery running on plain or tilt-pad bearings.

MACHINERY DEFECTS & VIBRATION SIGNATURE

2 days

Unbalance. Shaft and coupling misalignment.

Antifriction bearings - Typical defects.

Plain or tilt pad bearings instabilities.

Mechanical looseness, cracks, friction between rotor and static parts. Gear failures.

Electromagnetic defects of induction electric motors.

Drive belt vibration.

PRACTICAL MACHINERY VIBRATION MONITORING

0.25 day

Vibration control policy: machinery improvement program. Different policies according to the type of machinery and its criticality.

Developing an effective program.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.

Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com