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Intermediate Vibration Training

ISO Category II / ASNT Level IIA

Course Description

The Vibration Analyst "Intermediate" course is intended for personnel who have at least six months vibration analysis experience and a thorough understanding of vibration theory and terminology. The course provides an in-depth study of machinery faults and their associated spectrum, time waveform and phase characteristics. Additional topics covered include: signal processing, data collection, and corrective actions.

Four Unique Benefits:

- 1 >** When you register for this course, you will receive the iLearnVibration CD and pre-study guide. *Prepare and you will succeed!*
- 2 >** Our course utilizes modern slides, animations, innovative simulations, and live case studies - all delivered by certified instructors.
- 3 >** You can take the optional certification exam. The training course and exam follows the ISO 18436.2 Category II standard, and the ASNT SNT-TC-1A Level II standard (part 1).
- 4 >** You take away the award winning iLearnVibration vibration training CD, a course book, reference guide and mouse pad.

Course Summary

*Duration: four days & exam
Prerequisites: six months field experience*

Review of maintenance practices

Review of condition monitoring technologies

Principles of vibration

- Complete review of basics
- Waveform, spectrum (FFT), phase and orbits
- Understanding signals

Data acquisition

- Transducer types, selection, and mounting
- Measurement point selection
- Following routes, and test planning
- Common measurement errors

Signal processing

- Filters, sampling, aliasing, dynamic range, windowing

- Resolution, Fmax, data collection time, averaging

Vibration analysis

- Spectrum analysis methodology
- Time waveform analysis (introduction)
- Orbit analysis (introduction)
- Phase analysis: bubble diagrams and ODS
- Enveloping, shock pulse, spike energy, Peak Vue

Fault analysis

- Natural frequencies and resonances
- Imbalance, eccentricity and bent shaft
- Misalignment, cocked bearing and soft foot
- Mechanical looseness
- Rolling element bearing analysis
- Analysis of induction motors, gears, belts, pumps, compressors, and fans
- Lots of case studies and exercises for participants

Equipment testing and diagnostics

- Impact testing (bump tests)
- Phase analysis

Corrective action

- General maintenance repair activities
- Review of the balancing process
- Review of shaft alignment procedures

Running a successful condition monitoring program

- Setting baselines and alarm limits
- Setting goals and expectations
- Report generation, reporting success stories

Acceptance testing

Review of ISO standards