



ISO Category III / ASNT Level II

Course description

The Vibration Specialist [Category III] Advanced course is intended for personnel who have at least 2 years vibration analysis experience and a good understanding of vibration theory and terminology. The course provides an in-depth study of diagnostic measurement techniques, a wide range of analysis techniques, and the steps required to manage a successful condition monitoring program.



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 III standard, and the ASNT SNT-TC-1A Level II standard (part 2).
- 4 > You take away the award winning iLearnVibration [Student Edition] vibration training CD, a course book, reference guide and mouse pad.

Review of condition monitoring technologies

Principles of vibration

- Very quick review of fundamentals
- Waveform, spectrum, phase, vectors and orbits
- Transients, pulses, modulation, beating, sum/difference
- Force, response, damping, and stiffness
- Cepstrum analysis

Data acquisition

- Planning routes, test locations and programs

Signal processing

- Sampling, resolution, Fmax, averaging, windowing, dynamic range, signal-to-noise ratio
- A/D conversion: constant and variable sampling rate

Vibration analysis

- Spectral, time waveform and envelope analysis

Detailed fault analysis

- Natural frequencies and resonances
- Imbalance, eccentricity and bent shaft
- Misalignment, cocked bearing and soft foot
- Mechanical looseness, rubs and instabilities
- Rolling element bearing analysis
- Analysis of turbo-machinery and sleeve bearings
- Analysis of AC, DC and variable frequency drives
- Analysis of gears and belt driven machines
- Analysis of pumps, compressors and fans
- Lots of case studies and exercises for participants

Equipment testing and diagnostics

- Impact testing (bump tests)
- Phase analysis: bubble diagrams and ODS
- Transient analysis
- Operating deflection shape analysis
- Introduction to modal analysis
- Cross channel measurements
- Orbit and shaft centerline analysis

Corrective action

- Balancing and shaft alignment
- Resonance control, isolation and damping

Successful condition monitoring program

- Alarms, reports, management, finances

Acceptance testing and ISO standards

Course cost (five days): \$2480 + GST
Certification exam on fifth day

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