ZENCO VIBRATION EXPERTS | On-Site Training and Vibration Program Audits

ISO 18436-2 Category 2 Vibration Analysis

4 Days. Optional certification exam on day 5

The category II vibration course meets or exceeds requirements of ISO 18436-2. It is intended for students who will be involved in the day to day testing and analysis of machinery vibration data.

Overview of Course Contents

• Maintenance Practices • Condition Monitoring Technologies • Principles of Vibration • Data Acquisition • Signal Processing • Fault Analysis • Corrective Action	• Equipment Knowledge • Acceptance Testing • Equipment testing and Diagnostics • ISO Reference Standards • Reporting and Documentation • Fault Severity Determination • Running a Successful Program

Finally! Training you can afford! On-site or online

Ask for a quote today!

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"Alan is an expert at explaining technical concepts to non technical people. He takes the time to make sure everyone's questions are answered. Ample animations and videos make the concepts easier to understand. You will be surprised at how much you learn in this course!"

Alan Friedman is the founder and CEO of Zenco, a provider of vibration monitoring program audits and training and the author of "Audit it. Improve it: Getting The Most from Your Vibration Monitoring Program."

Alan has more than 29 years experience in helping people set up and manage vibration monitoring programs in every industry type, worldwide. From 1991 – 2006, Alan was a senior engineer at DLI Engineering (now SymphonyAI) where he was involved in product development, training, training course development and writing, publishing and presenting technical papers at tradeshows. In 2007, Alan joined the Mobius Institute and has taught vibration analysis in accordance with ISO18436-2 Categories I, II, III and IV to thousands of personnel worldwide. He is CRL, CMRP and ISO18436-2 Category IV certified and he speaks English and Spanish.

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Upon completion of this course, students will have a good grasp of vibration analysis concepts and they will be able to set up machine tests and routes, analyze data, use relevant standards and create reports.

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Detailed Topics List - Meets or exceeds ISO 18436-2

Principles of Vibration

- Sine wave
- Simple vibration
- Adding waves, beating
- Amplitude (pk, pk-pk, RMS)
- Frequency and Period
- Vibration units / conversions / Integration
- Crest factor
- Phase
- Forcing frequencies
- Orders
- Resonance

Data Acquisition

- Instrumentation
- Sensors
- Orbits, centerline diagrams, Keyphasor
- Sensor mounting / natural frequency
- Triggers
- Test procedure
- Data formats
- Uploading the route
- Recognizing bad data

Signal Processing

- A/D Conversion
- Filters (high, Low, Band Pass)
- Data Collector settings
- FFT
- Windows / leakage
- Sampling, aliasing and Fmax
- Lines of Resolution
- Resolution ad Bandwidth
- Noise reduction
- Averaging
- Dynamic range / S/N Ratio

Understanding Signals

- Harmonics
- Noise, modulation, beats etc

Fault Analysis

- Unbalance
- Misalignment
- Looseness / rubs
- Belts
- Journal bearings
- Bearings
- Enveloping
- Motors
- Gears
- Pumps, fans and compressors
- TWF Analysis
- Resonance
- Etc.

Corrective Action

- Alignment + Tolerances
- Balancing (vectors, trial weights, single plane)
- No phase balancing
- Balance standards
- Safety
- Resonance (impact test, forced response)

Equipment Knowledge

- Motors, generators, gears, pumps, fans, compressors, belts, turbines, machine tools, piping and structures
- Applicable ISO standards

Acceptance Testing

- Test procedure
- Standards
- Reporting

Standards, Alarms and Reporting

- ISO, IEC, API etc.
- Alarm types
- Fault severity determination
- Trending
- Acting on reports

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