RMS Reliability Institute

Vibration Analysis Introduction Training:

Quick facts

How would you like to have a one-day overview seminar on vibration analysis delivered on your site? How would you feel, and how much better would your work go if everyone had an idea of what you did, and they all believed in the vibration analysis technology. Using our simulators and animations is sure to get the message across.

Course description

Duration: 1 day

Description:

Vibration analysis can tell you a great deal about the health of rotating machinery. But if you have a program, or you use consultants, then all of the terms and jargon can see very confusing and misleading. Here is a chance to end all of that. With this one-day course you will learn the vibration fundamentals which will demystify the terms and concepts, and you will see how spectrum analysis can be used to diagnose faults, which is sure to make you a true believer.

Who should attend:

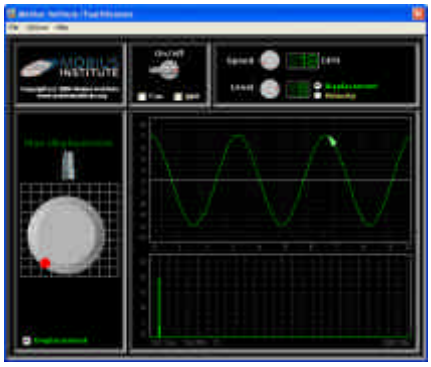
If you need to understand vibration analysis but don't have the time or desire to learn the details. If you have a consultant that presents reports that are impossible to understand, or an internal group that presents recommendations that are just as confusing, then this course will help to make sense of it all. And if you do not really trust that vibration analysis can accurately detect or diagnose faults, then you really need this course.

What is unique about this course?

RMS makes it unique. Vibration analysis can be confusing and very difficult to remember. Our courses are unforgettable in every sense of the word. Rather than making it theoretical (and boring), we take a very animated approach. Our 3D animations, Flash simulators, software simulators, and library of live case studies make the topics come alive. You will enjoy the experience, and you will find yourself saying "Ah ha, now I understand" again and again.

Topics:

An introduction to vibration analysis



- A brief explanation of why it is important to know the condition of the machine
- A quick demonstration of vibration measurements and samples of data that indicate machine faults

Vibration fundamentals

- Where does vibration come from?
- How do the forces in a machine due to unbalance, worn bearings, and other conditions generate vibration
- Relating the vibration waveform to the vibration you feel on a machine
- Introducing frequency: Hz, RPM, CPM, and orders
- Introducing vibration amplitude: IPS, mils, and G's

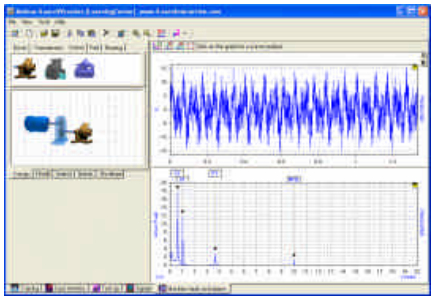
- Introducing rms, peak, and peak readings
- What is the vibration spectrum
- Relating the peaks in the spectrum to rotating elements in the machine
    - Introducing forcing frequencies
    - A few basic calculations
    - A quick introduction to harmonics and sidebands

Using spectrum analysis to diagnose fault conditions

- Relating the spectrum patterns and amplitude to the fault condition and severity
- Diagnosing fault conditions:
    - Unbalance
    - Misalignment
    - Looseness
    - Resonance
    - Gearbox faults
    - Electric motor faults
    - Pump, fan and compressor faults

A brief overview of high frequency vibration analysis

- What are PeakVue, Shock Pulse, Spike Energy, Demodulation/enveloping, and HFD techniques?
- Diagnosing rolling element bearing faults



A brief overview of orbit analysis

- Detecting faults in journal bearings
- Detecting faults in turbines and compressors

A quick overview of time waveform analysis

A quick overview of phase analysis

Lots of case studies will be presented using historical graphs and live data recordings that make you feel as if you are standing next to the machine