



Work Identification

WI210

Vibration Analysis Entry Level – ISO Category I

Recommended for

Plant personnel requiring an introduction to vibration analysis techniques and technologies used in a condition predictive maintenance program. Including maintenance supervisors, rotating machinery engineers, predictive maintenance technicians and coordinators, reliability engineers, and multi-skilled mechanics.

Course objective

Introduce a novice to basic vibration analysis by using a variety of PdM instrumentation and software. To find how vibration analysis and related technologies can best be integrated to successfully implement such programs from hands-on demonstration. Teach vibration terminology and measurement conventions needed, not only by coverage of seminar text material, but also by performing “button pushing” demonstration to maximize the learning experience.

Course description

The basics of performing vibration analysis to get started within a condition monitoring program. Various techniques used to understand machinery condition are introduced.

- Introduction to predictive maintenance and machine vibration:
 - Definitions of PdM and condition monitoring
 - How PdM compares with other maintenance systems
 - Goals of a PdM program
 - The critical role of vibration analysis in PdM
- Machine vibration—basic theory and analysis:
 - Characteristics of vibration (frequency & period)
 - Amplitude – magnitude of vibratory motion
 - RMS peak and peak-to-peak conversations
 - Frequency – how often the vibration occurs
 - Phase – how one machine component or support frame vibrates relative to another
 - Basics of a time waveform versus a spectrum

- Preparation for data collection:
 - Types of vibration transducers
 - Choosing the optimum transducer location
 - Effects of transducer mounting on its performance, accuracy and repeatability
 - Choosing the optimum FFT data collector
- Introduction to data collection systems:
 - Setting up a PdM database (plants, trains, machines and points)
 - Choosing the proper parameter (vibration, acceleration, velocity and/or displacement)
 - Selecting the proper parameters
 - Setting up the optimum PdM routes and schedules
 - Printing out the proper reports after uploading
- Introduction to problem recognition:
 - How to recognize abnormal conditions
 - How to identify hardware versus software faults
 - How to identify good versus bad data
 - How to detect common machine problems

Prerequisites

Basic machine maintenance skills and experience. General computer and calculating skills are helpful. Little or no previous vibrating experience required.

2009 course schedule

Jan. 13-16	Charlotte, NC
Feb. 3-6	Orlando, FL
Feb. 17-20	San Diego, CA
March 10-13	Charlotte, NC
April 14-17	Dallas, TX
May 5-8	Myrtle Beach, SC
June 2-5	Myrtle Beach, SC
June 9-12	Seattle, WA
July 7-10	Myrtle Beach, SC
Aug. 4-7	Myrtle Beach, SC
Aug. 25-28	Toronto, ON
Sept. 29-Oct. 2	Dallas, TX
Oct. 20-23	Charlotte, NC
Dec. 1-4	Charlotte, NC
Dec. 8-11	Houston, TX

2009 tuition

Public classes \$1,195

On-site
Tuition on request based on number of students

3.5 days – optional certification test on day 4

A written examination is available for this course. Test Fee – \$250 per person. Successful completion of the written exam results in Entry Level Vibration Analysis Certification.