ASSET PERFORMANCE MANAGEMENT

BENTLY NEVADA™ FUNDAMENTALS OF VIBRATION

This foundation course teaches the basics of vibration monitoring and maintenance strategies. Participants learn key vibration terminology, the parameters and units used to measure vibration motion, and the principles of vibration transducer operation. Workshops include identifying amplitude, frequency, and phase from time base and spectrum plots.

Format

Duration: 14 hours **Schedule:** 2 Day(s) **Delivery:** Classroom

Who should attend

- Technicians with limited experience on vibration machinery
- Technicians who work on vibration control with condition monitoring program
- Engineers involved in condition monitoring
- Technicians in preventive maintenance

Objectives

- Explain the reasons for vibration monitoring and maintenance strategies.
- Identify key components and describe vibration motion in a measurement plane.
- Define the parameters used to measure vibration motion and state the units used to express each parameter.
- Describe the principles of vibration transducer operation, the benefits and disadvantages of each type, and typical scale factor of output signal.
- Apply selection criteria to choose a usable vibration transducer for a specific machine vibration.
- Read values of amplitude, frequency, phase and recognize sources of vibration indicated by waveform and spectrum plots.

Program Outline

Day 1:

- Machinery monitoring: history, benefits, and strategies; typically monitored machines and considerations
- Basic vibration concepts: definition, understanding relationships of vibration displacement, velocity, acceleration, units of amplitude and meaning of vibration amplitude in analysis
- Defining frequency, units of frequency, and
- frequency in analysis, defining phase and measuring relative and absolute phase, understanding natural frequencies

Day 2:

- Vibration transducers: theory of accelerometer operation, theory of Velomitor operation, theory of proximity transducer system operation

- Exercises on identifying amplitude, frequency, and phase from time-based and spectrum plots
- Exercises on transducers and monitoring systems
- for given machine scenarios