



Work Identification

WI213

Vibration Analysis III

Recommended for

Plant personnel requiring a comprehensive understanding of intensive analytical methodologies for determining the condition of machinery and to correct malfunctions, (allowing them to obtain optimum performance, availability, and product and process quality); including rotating machinery specialists and consultants, advanced mechanics and mechanical engineers, and advanced technicians.

Course objective

At the end of this course, participants will be able to perform effective diagnostics and make appropriate recommendations for problem machines, bearings, gears, and electric motors. Participants will be able to isolate and identify causes of excessive vibration and help predict bearing and gearbox failures for efficient scheduling of maintenance at appropriate times. In addition, participants will be able to evaluate machinery condition for acceptance, expected level of continued operation, or overhaul maintenance.

Course description

An intensive study of special vibration analysis techniques used to diagnose critical machinery and problem machines. Study of narrow band spectral enveloping and alarming techniques to isolate, identify, and correct difficult machinery problems, including those with unknown component description, variable operating speeds, and multiple harmonic frequencies. Effective monitoring techniques for electric motor problems are presented. Includes do's and don'ts of meaningful enveloping, effective management reporting for success, and real-world case histories.

- Brief review of Vibration Analysis II topics
 - Review of Illustrated Vibration Diagnostic Chart
 - Alarm and spectral band alarm level specification
 - High frequency enveloping spectral analysis
 - Phase measurement and analysis techniques
- Frequency and amplitude interpolation and why these techniques are important to accurate vibration spectrum analysis and machine condition evaluation

- Diagnoses of a bearing, gear, or electrical problem with unknown components (i.e. number of rolling elements, gear teeth, or rotor bars)
- Do's and don'ts of meaningful narrow band spectral alarm envelope measurements
- Machine acceptance testing, including criteria for new and/or overhauled machinery
- Tracking rolling bearing condition using vibration spectrum analysis, high frequency enveloping, and SEE™ Technology spectrum analysis
- Analyzing variable-speed machinery on a one-time basis or within a regularly scheduled condition monitoring program
- Effective predictive maintenance program management reporting techniques to keep program success visible, and to ensure proper corrective actions are performed
- Presentation of real-world case histories describing major topics covered during the course

Prerequisites

12 to 24 months full-time condition monitoring program experience; SKF courses Vibration Analysis I (WI211) and Vibration Analysis II (WI212) or commensurate field experience; knowledge of basic sensors, monitoring instrumentation, and analysis equipment.

2009 course schedule

March 31–April 3	Charlotte, NC
May 19–22	Denver, CO
June 23–26	Myrtle Beach, SC
Aug. 25–28	Myrtle Beach, SC
Oct. 20–23	Dallas, TX

2009 tuition

Public classes	\$1,695
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 – \$500 per person. Successful completion of the written exam results in Level III Vibration Analysis Certification.

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