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Principles of Vibration
Measurement and Analysis

Introduction
Course outline and Objectives

Introduction to Vibration
Basic Terminology
Important parameters – displacement / velocity / acceleration / phase
Single degree of freedom system
Level descriptors
Engineering Units vs dB notation
Time & Frequency domain concepts
Frequency Analysis - FFT

Measurement Instrumentation
The measurement chain
Vibration transducers – Principle of operation and applications
Signal conditioning
Data acquisition methods
Level vs Frequency – Scaling
FFT – Real-time?
Windows and averaging methods

Application Examples
- Product / Machinery Vibration
  Rotating machinery fault diagnosis
  Rolling element bearing defects
  Cepstrum & Envelope analysis
- Structural Analysis
  System vs Signal analysis
  Frequency response function
  Modal parameters – natural frequency / damping / shape

Human Vibration
Effects of Vibration on man

Who Should Attend
The course will be of particular interest to engineers and technicians with responsibility for correct measurement, analysis, diagnosis, and reporting of their data. Persons considering the procurement of a measurement platform will gain insight into current hardware and software features.

Registration
Registration closes two weeks before the course. Late registration will be accepted based on available space. The course fee includes lunch, coffee breaks, and a complete materials package.
Xscala reserves the right to cancel any course in the event of insufficient registration.

Location & Time
Course location will be in your confirmation package two weeks prior to course.
Registration starts at 0800h with class starting at 0830h – 1630h

Fee: $425.00 CAD + GST

Partnered with Brüel & Kjær