

COURSE DESCRIPTION

Condition Monitoring

Course Objectives

On completion the delegate will be able to:

- Understand the characteristics of vibrations (frequency, amplitude and phase), the useful frequency ranges for the amplitude parameters
- Understand the effects of resolution on the signal processing and data collection times
- Understand the basic theory, characteristics and operation of the accelerometer, the velocity transducer, the displacement transducer (both contact and non-contact types) and the different types of instrument that are available
- Understand the high frequency processes of Spike Energy and ESP
- Develop a systematic approach to vibration problems and analyse these problems based on the frequencies and amplitudes present in the spectra, along with phase relationships
- Set-up meaningful spectral bands and band alarms for applying to machine categories

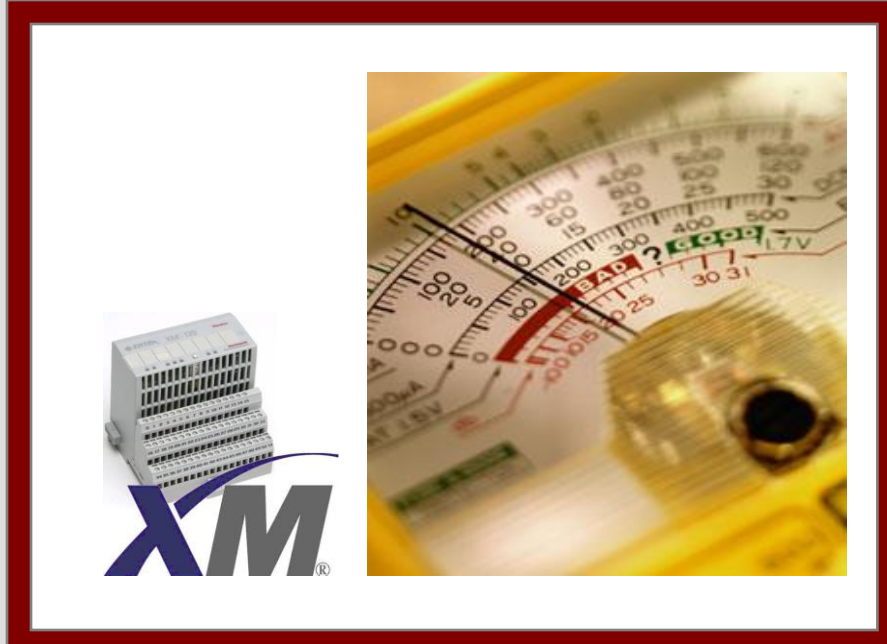
Topical Outline

- What is & why measure vibration?
- Introduction to maintenance strategies
- Changes in equipment and practices
- Value of baseline signatures in present & future analysis
- Characteristics of vibration (frequency and amplitude with practical exercises)
- Basic theory of operation and characteristics of accelerometers
- Comparison of instrument types (FFT data collectors Vs overall vibration meters)
- Introduction to signal processing and compromising between resolution, time and accuracy
- Analysis of mechanical problems based on frequency to determine machines operating condition
- Using Case history
- City & Guilds certified examination (this is a closed book exam; formulae sheets provided for use; this is an optional course for the group award of City & Guilds in Equipment Condition Monitoring)

Duration

5 Days

Vibration Analysis Level 1



COURSE NUMBER: EK-ICM201

Course Purpose

This intensive course concentrates on the theory behind vibrations, their characteristics and how these characteristics are used to analyse problems in equipment. Day one covers the theory and characteristics of vibration. Day two looks at the types of instruments and transducers that are available, and will begin the systematic approach to Vibration Analysis and how to analyse vibration spectra. Day three will complete the analysis of spectra and show how to set-up spectral bands and alarm values, and day four is a series of case histories that delegates must analyse and report on their findings. On day five, there is a written exam which lasts for two and a half-hours. The course material is generic and applies to all vendors' equipment. Delegates will be required to bring a scientific calculator with them to the course.

Who Should Attend

This course is intended for vibration analysts with six to nine month's experience of data collection and who wish to expand their analytical and problem solving skills.

Prerequisites

There are no formal pre-requisites to this course

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Power, Control and Information Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846