XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

Couplings and Shaft Alignment Training Course

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
4 – 8 Jan 2027	Barcelona	Classroom	€4,800
28 Jun – 2 Jul 2027	Live online	Online (live)	€1,200
6 – 10 Dec 2027	Live online	Online (live)	€1,200

Register or ask a question

Online: staging.x8ti.com/course/couplings-and-shaft-alignment-training-course/

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Couplings and Shaft Alignment Training Course

Introduction

Course Overview

Misalignment is one of the main causes of vibration in rotating equipment. This leads to increased maintenance and reduced machine life. Appropriate alignment could save maintenance and operational costs for the organization. Misalignment of shafts causes stresses on the rotating and stationary components.

Even if couplings do not fall under such conditions, bearings and seals most definitely will. Shaft alignment includes positioning of the rotational centers of two or several shafts so that they are collinear when the machines are running under normal operating conditions. Ball and rolling bearings can operate under proper conditions when lubricated.

The lubricant reduces friction between the internal service of both the bearing components. Lubrication, especially circulating oil, helps remove heat from the bearings.

Vibration analysis refers to the process of checking vibration levels and frequencies of industrial machinery to determine the health of the machinery. It aims to reduce maintenance costs and machine downtime.

This Xcelerate Training Institute course will empower you with a complete understanding of all critical aspects related to industrial machinery, that is, precision shaft alignment, bearing lubrication and vibration analysis. Through this course, you will handle any challenge concerning industrial machinery, thus enhancing your professional portfolio and inviting several opportunities for career progression.

Learning Objectives

- complete understanding and knowledge of precision shaft alignment, bearing lubrication and vibration analysis
- the confidence and skill to not only oversee shaft alignment but practically do it when necessary, thus making one dynamic in his or her role
- the understanding and experience of bearing lubrication to choose the appropriate lubricant and detect problems related to bearing lubrication
- the analytical skills and capabilities to conduct vibration analyses and determine the maintenance required and decide on replacement of the machine, thereby influencing maintenance and operational costs in a positive way with timely action
- the confidence and knowledge to train other professionals on shaft alignment, bearing lubrication and vibration analysis
- the capabilities to contribute to organizational development by reducing maintenance and operational costs through regular audits of machines to check machine health and increase machine longevity
- the experience and knowledge to ensure that all operations and activities within the plant are carried out in compliance with laws and regulations
- the dynamic skill set and capabilities to handle all major responsibilities related to machine health, that

is, shaft alignment, bearing lubrication and vibration analysis, thus making one dynamic and enhancing one's professional portfolio for greater opportunities across industries

Training Methodology

All courses at Xcelerate Training Institute are customizable to suit the audience to the closest degree possible. Thus, before the commencement of each training program, the courses are thoroughly reviewed to check for relevance to the professional backgrounds of the training audience.

Training is delivered by an experienced professional, using audio-visual presentations. Group assignments, projects, role-plays and active case study discussions foster trainee participation too.

Benefits for Your Organization

- Better maintenance of machines and eradication or timely detection of problems of shaft alignment, bearing lubrication and vibration because of management by trained and experienced professionals
- Greater machine life and hence lesser maintenance and operational costs, in turn, contributing to greater savings
- Regular training of new and existing employees on handling machines to avoid shaft alignment, bearing lubrication and vibration issues, and troubleshooting effectively in case of issues
- Prevention of occupational hazards through appropriate repair measures
- Organizational growth and development because of better machines and reduced costs
- Application of advanced methods and techniques for shaft alignment, bearing lubrication and vibration analysis to ensure that issues do not recur
- Adherence to international standards and guidelines for maintenance of machines

Benefits for You

- Detailed knowledge and understanding of shaft alignment, bearing lubrication and vibration analysis
- Increased confidence and knowledge to train other professionals on best practices of shaft alignment, bearing lubrication and vibration analysis
- Greater understanding of advanced techniques and concepts for shaft alignment, bearing lubrication and vibration analysis
- Increased confidence and experience to regularly audit and inspect machines to ensure optimal capacity and efficiency and take action, if needed, on time
- Greater exposure and information to ensure that organizational processes and systems are in alignment with international standards
- Increased ability to contribute to organizational savings through reduced operational and maintenance costs, thereby contributing to organizational growth and development
- Enhanced skill to ensure proper shaft alignment, bearing lubrication and vibration analysis, if needed, to prolong machine life and prevent occupational hazards
- Enhanced, dynamic skillset and capabilities to handle all major issues occurring about shaft alignment, bearing lubrication and vibration, thereby increasing one's potential to assume higher responsibilities within or outside one's organization

Target Audience

- Engineers and other employees working on processes of shaft alignment, bearing lubrication and

vibration analysis

- Managers and leaders overseeing end-to-end operations at plants
- Senior members of the management of an organization responsible for decisions about finance of the organization for expenses on machinery
- Finance and accounts managers responsible for managing expenses and releasing or holding costs incurred by the organization
- Compliance officers and quality checkers responsible for ensuring that all operations and machinery meet international standards and benchmarks
- Any other professional interested in knowing more about shaft alignment, bearing lubrication and vibration analysis

Course Outline

Different Alignment Parameters

- Angularity
- Offset
- Gap

Types of Alignment Conditions

- Horizontal angularity
- Horizontal offset
- Vertical angularity
- Vertical offset

Errors Minimized by Roughing

- Radial stresses in shafts and couplings
- Reduced clearances in bearings
- Assembly errors in coupling
- Imparting strain in mechanical systems

Benefits of Precision Shaft Alignment

- Reduced energy consumption
- Reduced incidence of repairs
- Longer machine life

Types of Bearings

- Deep groove ball bearings
- Angular contact ball bearings
- Self-alignment ball bearings
- Thrust ball bearings
- Spherical roller ball bearings
- Cylindrical roller ball bearings
- Tapered roller ball bearings
- Needle roller ball bearings

Overview of Bearing Lubrication

- Concept
- Oil lubrication
- Grease lubrication

Advantages of Oil Lubrication

- Easy to distribute
- Lubes with other components
- Less drag
- Easier to drain out and change
- Better for high temperature

Advantages of Grease Lubrication

- Remains in place
- Does not leak out easily
- Improves sealing
- Does not require monitoring

Types of Vibration

- Free vibration
- Forced vibration
- Damped vibration

Overview of Vibration Analysis

- Concept and principles
- Time–waveform analysis
- Phase analysis

Types of Vibration Monitoring

- Motor vibration monitoring
- Bearing condition monitoring
- Gearbox vibration monitoring
- Rotor vibration analysis

Steps in Vibration Analysis

- Calculate the expected vibration spectrum
- Establish the baseline
- Digitize the signal
- Convert to frequency space
- Review harmonics

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Registration Form

Couplings and Shaft Alignment Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

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Payment

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Signature: ..... Date: .....

Call
+491631686678

Email this form
info@x8ti.com

Register online
Open the course page