XCELERATE TRAINING INSTITUTE
your learning & development partner

MECHANICAL ENGINEERING

Bearing Lubrication and Vibration Analysis Training Course

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
1 – 5 Mar 2027	Live online	Online (live)	€1,200
13 – 17 Sep 2027	Live online	Online (live)	€1,200
11 – 15 Oct 2027	Amman	Classroom	€4,800

Register or ask a question

Online: x8ti.com/course/bearing-lubrication-and-vibration-analysis-training-…
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Bearing Lubrication and Vibration Analysis Training Course

Introduction

Introduction

This Xcelerate Training Institute course will present and introduce different backgrounds to basics of Tribology of gears and gearboxes, bearings, and lubrication's. The course will offer the participants the knowledge required to properly maintain, service, inspect, select and repair a variety of industrial gearboxes.

How do you lubricate bearings? Bearing is often one of the major challenge for every maintenance engineer. Participants will get a robust technical and practical understanding of the lubrication systems of different equipment. This Bearing Lubrication and Vibration Analysis course will specifically lay emphasis on the working principle of bearings, types, application of each type, and the maintenance of bearings.

This Xcelerate Training Institute course will cover every aspect and characteristic of bearing selection, maintenance including lubrication systems, function of lubrication, and lubrication system components. The course also offers experiential learning in the gear boxes working principle and component maintenance & repair.

Learning Objectives

- Identify and recognize different bearing components including plain bearing, ball or roller bearings, cage assembly and others
- Classification, categorization and the components of each type (design of each type)
- Identify shaft and housing fits of bearings
- Conduct and manage failure analysis, condition monitoring and proper handling to preserve bearing life
- Demonstrate proper precision alignment, mounting and dismounting procedures
- Estimate bearing life and find the causes of immediate bearing failures

Training Methodology

- Lectures
- Seminars & Presentations
- Group Discussions
- Assignments
- Videos & General Discussions
- Case Studies & Functional Exercises

Benefits for Your Organization

- Estimate the progress and improvement in bearing materials and designs
- Enumerate different bearing types and their applications
- Perform bearing installation and inspect bearing lubrication's

- Analyze the lead, speed, life and tolerance of bearings and evaluate the reasons for bearing failure and failures caused by internal radial clearance

Benefits for You

- Bearing failure – symptoms of failure and the reason of each failure
- Gear box: Function, components
- Different and distinctive types of gear boxes, and different designs of gears
- Failure, symptoms and analysis of failure in Gear box
- Gear backlash and teeth contact checks
- Lubrication: Function, selection, systems and failure analyses

Target Audience

- Mechanical Engineers, Superintendents, Supervisors, Foremen & Technicians
- Hydraulics Engineers, Superintendents, Supervisors, Foremen & Technicians
- Plant Engineers, Superintendents, Supervisors, Foremen & Technicians
- Materials Engineers, Superintendents, Supervisors, Foremen & Technicians

Course Outline

Bearings

- Function and purpose of bearings
- Classification; friction, non-friction and magnetic bearings
- Factors affecting selection of type of bearing
- Bearing identifications
- Friction bearings; oil film lubrication, influence of oil parameters on bearing behavior, defining oil whirl; types of friction bearings like plain journal, offset, multi lobe & tilting pad radial bearings
- Tapered land & tilting pads thrust bearings
- Magnetic bearings
- Journal bearing material
- Friction-less bearings; Categorization and classification: ball, deep groove, angular contact, roller, barrel, needle, thrust etc.

Failure Analysis of Anti-Friction Bearing

- Failure analysis of plain bearings
- Bearing mounting and bearing housings
- Lubrication & lubricants:
- Wear, friction & fatigue
- Viscosity & viscosity index; pour & flash point
- The role of lubrication
- Principle of hydro-static, hydrodynamic & squeeze film lubrication
- Mineral and synthetic lube oils; specifications, application, applicable standards & differences
- Greases; specifications, types, classification, application & standards
- Additives for oil and grease

Lubrication System

- Special lubricant: composite, graphite, PTFE, molybdenum sulfide etc. and their application
- General and common rules on limitation for use of lube oil/grease for lubrication
- Lubricating Systems and Features; mist, circulation, splash, drop, oiler, spray etc.
- Fundamentals of lube oil analysis and it’s use for trending
- Lubrication system of centrifugal compressors
- Lubrication system of reciprocating compressors
- Lubrication system of diesel and gas engines
- Lubrication system of gas turbine

Gears & Gearboxes

- Gearing Fundamentals
- The function of gear box in the plant
- Types of gears, application of each type
- Gear backlash
- Tooth contact
- Gearbox Selection Requirements
- Types of gears and purpose; spur, helical, Herringbone, worm, rack and pinion, internal gears etc.
- Gear ratio and gear trains with basic calculation
- Gearboxes: Purpose and key components, speed reducers/increases, planetary gearboxes
- Gearbox construction designs
- Parameters and load factor

Gearbox Maintenance

- Failure analysis of gears and gear boxes
- Gear Element Failure Modes
- Typical gear failure patterns
- Basic installation procedure
- Maintenance and overhauling of gearboxes
- Gearbox maintenance: strip down and required inspection
- Gearbox Lubrication and Principles
- Diagnosis of Gear problems
- Gear Mesh Frequencies
- Misalignment/Eccentricity of gears
- Diagnosis Mechanical looseness problems
- Post Test

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Registration Form

Bearing Lubrication and Vibration Analysis 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): .....

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

Email: .....

Payment

☐ Please invoice me ☐ Please invoice my company

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

Call
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Email this form
info@x8ti.com

Register online
Open the course page