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Course Name

Rotating Equipment Performance & Troubleshooting

Sector Name

Mechanical Engineering

Document Type

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Rotating Equipment Performance & Troubleshooting

Course Introduction

Rotating equipment operates at the heart of many industrial processes, where changes in load, speed, alignment, vibration, lubrication, or mechanical condition can quickly affect equipment performance and operational stability. When abnormal behavior appears, the visible symptom does not always reveal the real source of the problem. Excessive vibration, temperature rise, unusual noise, reduced output, or repeated component damage may result from several interacting mechanical and operating conditions.

Boost Consulting & Training offers this course to develop a systematic engineering approach to understanding and troubleshooting rotating equipment performance. Participants learn to connect operating behavior with mechanical condition, recognize abnormal performance patterns, investigate vibration and alignment issues, evaluate bearings, lubrication, couplings, and mechanical transmission components, and use equipment evidence to narrow down potential causes. Practical cases emphasize diagnosis before corrective action rather than relying on repeated adjustments or component replacement.

The **main concept of this course** is to read the mechanical and operating behavior of rotating equipment as connected evidence

and use it to identify the most credible source of performance problems.

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Target Audience

- ✓ Mechanical and rotating equipment engineers
- ✓ Plant and technical engineers
- ✓ Mechanical supervisors and technical specialists
- ✓ Engineers involved in equipment performance and troubleshooting

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Rotating Equipment Performance & Troubleshooting

Learning Objectives

- ✓ Explain the fundamental operating behavior of common rotating equipment.
- ✓ Recognize mechanical and operational indicators of deteriorating equipment performance.
- ✓ Distinguish between symptoms, contributing conditions, and underlying mechanical problems.
- ✓ Evaluate the effects of alignment, balance, loading, and mechanical transmission on equipment behavior.
- ✓ Interpret vibration, temperature, noise, and other equipment observations during troubleshooting.
- ✓ Diagnosing common problems involving bearings, couplings, shafts, and lubrication.
- ✓ Apply a structured troubleshooting process to abnormal rotating equipment conditions.
- ✓ Develop appropriate engineering responses based on diagnostic evidence.

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Rotating Equipment Performance & Troubleshooting

Course Outline

✓ Day 01

Reading Rotating Equipment Behavior

Understanding the Rotating Equipment System

- ✓ Examine the interaction between driver, driven equipment, shafts, couplings, bearings, and supporting structure.
- ✓ Understand how speed, torque, load, and operating conditions influence mechanical behavior.
- ✓ Recognize how a problem in one element can create symptoms elsewhere in the equipment train.

Recognizing Abnormal Performance

- ✓ Identify changes in vibration, temperature, noise, load, speed, and equipment output.
- ✓ Distinguish gradual deterioration from sudden mechanical abnormalities.
- ✓ Build Equipment **Behavior Profile** from operating and mechanical observations.

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Course Outline

✓ Day 02

Investigating Mechanical Alignment and Motion

Diagnosing Alignment Problems

- ✓ Understand angular, parallel, and combined shaft misalignment.
- ✓ Connect alignment problems with vibration, coupling behavior, bearing loading, and temperature.
- ✓ Evaluate operating factors that can change alignment after equipment installation.

Identifying Imbalance, Looseness, and Mechanical Instability

- ✓ Recognize common sources and symptoms of rotating imbalance.
- ✓ Investigate mechanical looseness, soft foot, structural movement, and foundation-related effects.
- ✓ Complete a **Mechanical Symptom Diagnosis Challenge** using contrasting equipment cases.

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Course Outline

✓ Day 03

Evaluating Critical Mechanical Components

Understanding Bearing and Lubrication Behavior

- ✓ Recognize common rolling-element and journal-bearing operating problems.
- ✓ Connect lubrication condition, contamination, temperature, and loading with bearing behavior.
- ✓ Distinguish bearing damage symptoms from problems originating elsewhere in the machine.

Assessing Shafts, Couplings, and Mechanical Transmission

- ✓ Examine coupling problems, shaft behavior, mechanical runout, and transmitted loads.
- ✓ Identify how installation and operating conditions influence component performance.
- ✓ Conduct a **Rotating Equipment Component Investigation** using inspection and operating evidence.

Rotating Equipment Performance & Troubleshooting

Course Outline

✓ Day 04

Using Equipment Signals for Diagnosis

Interpreting Vibration and Condition Evidence

- ✓ Understand how vibration patterns can indicate imbalance, misalignment, looseness, and bearing problems.
- ✓ Combine vibration observations with temperature, sound, lubrication, and operating information.
- ✓ Avoid diagnosing equipment condition from a single measurement or symptom.

Narrowing Down the Problem

- ✓ Develop possible causes from observed equipment behavior.
- ✓ Test competing explanations against available mechanical and operating evidence.
- ✓ Run a **Rotating Equipment Diagnostic Simulation** from initial symptom to probable cause.

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Course Outline

✓ Day 05

Solving Complex Rotating Equipment Problems

Applying Structured Troubleshooting

- ✓ Define the problem before changing equipment settings or replacing components.
- ✓ Trace relationships between operating conditions, mechanical components, and observed symptoms.
- ✓ Determine the additional inspections or measurements needed when evidence remains incomplete.

Making Engineering Decisions

- ✓ Evaluate whether the problem requires adjustment, repair, component replacement, operating change, or deeper investigation.
- ✓ Verify whether corrective action has restored expected equipment behavior.
- ✓ Complete a **Rotating Equipment Troubleshooting Case** requiring participants to diagnose and resolve a multi-symptom equipment problem.

Rotating Equipment Performance & Troubleshooting

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Dec. 7, 2026	Dec. 11, 2026	5 days	4250.00 \$	UAE , Dubai

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