MERCURY

Vibration Analysis ISO Category II (VCAT 2) Course

17 – 21 October 2027
Istanbul (Turkey)



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Ref: 15974_1084701 **Date:** 17 – 21 October 2027 **Location:** Istanbul (Turkey) **Fees:** 4900 Euro

Introduction to Vibration Analysis ISO Category II VCAT 2:

The Vibration Analysis ISO Category II VCAT 2 course offers an advanced exploration into vibration analysis methods, focusing on condition monitoring and predictive maintenance strategies. By aligning with ISO 18436-2 standards, this training empowers participants with the capabilities to perform sophisticated vibration data collection, perform fault diagnostics, and plan corrective actions for rotating machinery. Participants will enhance their expertise in signal processing, spectral analysis, and identifying common machinery issues such as misalignment, imbalance, bearing defects, and resonance.

This Level 2 Vibration Analysis ISO Category II VCAT 2 training course is excellent for engineers, maintenance professionals, and reliability specialists who want to enhance their skills in assessing and optimizing machine health. By blending theoretical learning with practical case studies, attendees will acquire the competencies to implement comprehensive vibration analysis programs and bolster asset reliability in industrial environments.

The Vibration Analysis ISO Category II VCAT 2 course is for professionals seeking advanced expertise in vibration analysis. It covers the principles of vibration analysis, including methods, tools, and equipment used in industrial settings. Participants will gain a deep understanding of vibration analysis, its importance, and its benefits in predictive maintenance. It aligns with ISO standards for vibration analysis, preparing attendees for Vibration Analysis ISO Cat 2 certification.

This Vibration Analysis ISO Category II VCAT 2 training course focuses on industrial vibration analysis. It equips a vibration analysis engineer with solutions to diagnose machine faults accurately. Cat 2 Level 2 vibration analysis enhances expertise in condition monitoring, ensuring reliability and efficiency in industrial operations. By mastering vibration analysis ISO standards, professionals will gain a competitive edge in the field.

Targeted Groups for VCAT 2 Training:

This Vibration Analysis ISO Category II VCAT 2 training course is designed for:

- Vibration analysts pursuing Cat 2 vibration analysis certification under ISO standards.
- Maintenance and reliability engineers seeking advanced skills in vibration analysis solutions.
- Condition monitoring specialists aiming for growth in industrial vibration analysis.
- Predictive maintenance technicians focused on understanding vibration analysis principles.
- Mechanical and rotating equipment engineers exploring the importance of vibration analysis.
- Asset management professionals in charge of leveraging vibration analysis tools for better performance.
- Plant and maintenance supervisors interested in exploring the benefits of vibration analysis in operation.

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• Industrial and manufacturing engineers dedicated to improving machinery health assessment.

Course Objectives for Vibration Analysis ISO Category II:

Upon completing the Vibration Analysis ISO Category II VCAT 2 course, participants will gain the ability to:

• Grasp the core principles of vibration analysis and condition monitoring.
• Execute advanced vibration data collection and insightful interpretation.
• Analyze spectra, waveforms, and time signals for effective fault detection.
• Diagnose common machinery faults such as misalignment, unbalance, and bearing defects.
• Apply sophisticated signal processing techniques to boost data accuracy.
• Implement strategic predictive maintenance strategies to ensure asset reliability.
• Develop thoughtful corrective action plans based on comprehensive vibration analysis findings.
• Conform to the ISO standards for vibration analysis and meet Category II certification requirements.

Targeted Competencies in VCAT 2:

At the end of this Vibration Analysis ISO Category II VCAT 2 training, the participant's competencies will:

• Mastery of advanced vibration data collection and analysis techniques.
• Proficiency in fault diagnosis and troubleshooting of machinery.
• Expertise in signal processing and spectral analysis for industrial applications.
• Capability in executing condition monitoring programs successfully.
• Skilled in machinery health assessment and optimization strategies.
• Strategic development of predictive maintenance methodologies.
• Identification of common machinery faults.
• Corrective action planning for rotating equipment.

Principles of Vibration Analysis:

Understanding vibration analysis is pivotal to enhancing machinery maintenance practices and optimizing performance. Grasping the principles of vibration analysis equips professionals with the knowledge to address mechanical issues proactively, ensuring smoother operations and prolonged equipment life.

This foundation is crucial for those advancing in vibration analysis training, ensuring they possess robust skills for industrial demands. By integrating these strategies and skills, participants in this Vibration Analysis ISO Category II VCAT 2 course will be well-prepared to leverage vibration analysis's advantages in their respective industries, ensuring they contribute valuably to machinery health and operational efficiency.

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Course Content:

Unit 1: Fundamentals of Vibration Analysis:

- Review of vibration principles and terminology.
- Understanding frequency, amplitude, and phase relationships.
- Basics of waveform, spectral, and envelope analysis.
- Vibration measurement techniques and transducers.
- Units of measurement and signal conversion.
- Introduction to ISO 18436-2 standards.

Unit 2: Data Collection and Signal Processing:

- Best practices for vibration data collection.
- Selection and placement of vibration sensors.
- Common errors in data collection and how to avoid them.
- Understanding time and frequency domain analysis.
- Application of Fast Fourier Transform FFT in vibration analysis.
- Advanced filtering techniques for noise reduction.

Unit 3: Fault Diagnosis and Machinery Health Assessment:

- Identifying common machinery faults using vibration analysis.
- Diagnosing unbalance, misalignment, and resonance issues.
- Detecting rolling element bearing and gear defects.
- Recognizing looseness, soft foot, and lubrication issues.
- Interpreting spectrums and phase data for accurate fault analysis.
- Practical case studies on real-world fault diagnosis.

Unit 4: Predictive Maintenance and Reliability Strategies:

- Developing and implementing condition monitoring programs.
- Role of vibration analysis in predictive maintenance.
- Integrating vibration analysis with other reliability tools.
- Setting alarm limits and establishing trend analysis.
- Using key performance indicators KPIs for asset health monitoring.
- Case studies on successful predictive maintenance applications.

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Unit 5: Corrective Actions and Reporting:

- Developing corrective action plans based on vibration analysis findings.
- Best practices for machinery balancing and alignment.
- Maintenance planning and decision-making using vibration data.
- Effective report writing and communication of analysis results.
- Compliance with ISO standards and industry best practices.