

# INTRODUCTION TO MACHINERY VIBRATIONS (IMV) VIBRATION ANALYST CERTIFICATION CATEGORY (I) ISO 18436-2:2014 CAT (I)

 **Course Period : 4 Consecutive Days**

 **VCAT I Exam : 4<sup>th</sup> Day**

HRDC CLAIMABLE COURSE



CERTIFICATION BY





# INTRODUCTION



**INTRODUCTION TO MACHINERY VIBRATION (IMV)** is an entry-level training course designed to equip participants with the foundational knowledge and practical skills necessary to perform basic machinery vibration condition monitoring and diagnostic activities. This course is ideal for individuals new to the field and serves as partial **preparation** for the **Vibration Analyst Category I Certification Exam**, meeting the **30-hour training requirement** outlined in **ISO 18436-2:2014**. Participants will gain an understanding of vibration fundamentals, including sources and effects of vibration, measurement concepts, predictive maintenance principles, vibration sensors, and basic analysis techniques. The course is designed to be interactive and engaging, with instructor-led demonstrations, guided exercises, and real-world case examples that bring theoretical concepts to life. Each chapter includes structured learning activities and knowledge checks to help reinforce understanding. Throughout the course, participants are encouraged to actively participate in discussions and scenario-based problem solving, promoting deeper comprehension and practical readiness for both the certification exam and on-the-job application.

The Vibration Institute's Certification Program for Vibration Analysts is an ANAB - accredited personnel certification program that meets the highest international standards for impartiality and technical competence. As a third-party certification body defined under ISO/IEC 17000, the Institute conducts independent conformity assessments in vibration condition monitoring and diagnostics. Accredited to ISO/IEC 17024 by the ANSI National Accreditation Board (ANAB), the program also complies with ISO 18436-1 and ISO 18436-2. Widely recognized as a benchmark of professional excellence, it is the only vibration analyst certification program accredited by ANAB, setting the standard for credibility, industry relevance, and trust in the field.



*ANSI National Accreditation Board*

**A C C R E D I T E D**

**ISO/IEC 17024**

**PERSONNEL CERTIFICATION  
BODY**



# TRAINING OBJECTIVE

## CATEGORY I CERTIFIED PERSONS



shall be able to:

- Safely collect routine, single-channel vibration data using a data collector
- Understand the basic principles of mechanical vibration
- Recognize and apply units of measurement used in machinery condition monitoring
- Perform reliable, pre-determined vibration measurements
- Compare collected data against pre-established alarm limits
- Identify and correct errors in collected data
- Report visual observations on the condition of machinery
- Transfer collected data to a computer-based system for further analysis



# COURSE OUTLINE<sub>1</sub>

01

## VIBRATION SOURCES AND USE

Definitions, Units, Properties, Measurements, Motions, Time, Frequency, and Amplitude.

02

## BASIC MACHINERY VIBRATION

Conversions, Analysis, Excitation, Natural Frequencies, Resonance and Critical Speeds.

03

## DATA COLLECTION AND ANALYSIS

Physical Observations, Sensors, Frequency Spans, Measures, Triggering, Sensor Mounting, Sensor Location and Instruments.

04

## MACHINE CHARACTERISTICS

Fault Sources, Frequencies, Design, Function, Acceptance Testing, Fault and Condition Analysis.





# COURSE OUTLINE<sub>2</sub>

05

## VIBRATION INSTRUMENTS

Meters, Oscilloscopes, Data Collectors, Analyzers and Virtual Instruments.

06

## VIBRATION TESTING

Periodic Monitoring, Data Collection, Transducer Positioning, Alarms and Reports.

07

## BASIC ANALYSIS

Mass Unbalance, Misalignment, Looseness, Rolling Element Bearings, Blade Pass, Vane Pass And Gear Mesh.

08

## VIBRATION SEVERITY

Bearing Housing Evaluation, Shaft Vibration, Gears, Bearings, Charts And Graphs.



# HOW TO BECOME A CERTIFIED VIBRATION ANALYST CAT-I

## Education

No formal education is required, but candidates should be computer literate, able to use a basic scientific calculator, and **understand simple algebra**. A high school education is recommended.

## Examination

The exam has **63 multiple-choice** questions to be completed **in 2 hours**, covering concepts from ISO 18436-2. It is **closed-book**, with no reference materials or scrap paper allowed. A basic, non-programmable calculator is recommended. **Passing scores** vary by exam and are set using the **Angoff Method**. Some questions may be unscored beta items.

## Experience

Candidates must have a **minimum of 6 months** of experience in machinery vibration condition monitoring and diagnostics. Proof of experience is required to sit for the certification exam.

## Training

Candidates must complete a **minimum of 30 hours** of formal training based on the ISO 18436-2 **Body of Knowledge**. Training must be conducted by a provider compliant with ISO 18436-3, and documented evidence of completion is required to sit for the exam.





- Maintenance & reliability personnel in CBM



- Mechanical fitters and technicians



- Engineers overseeing machinery health



- Newcomers to vibration analysis



- Anyone seeking basics in vibration & CBM




- Those preparing for Category I certification exam


# WHO SHOULD ATTEND



# REGISTER NOW

## Contact Us

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