



VCAT

ISO 18436 Vibration Analysis CATEGORY I, II & III

Distance Learning (On-line) Training

Learn from the world's leading provider of vibration analysis training & certification. Mobius Institute on-line courses are the most understandable and interesting training available.



The Mobius Crystal Clear™ training methodology is unique, using hundreds of 3D animations and software simulations that make complex concepts easier to understand. Mobius Institute is ISO/IEC 17024 and ISO 18436-1 accredited, meaning that you are assured that your certification meets the highest global standards, and our training teaches you everything you need to know according to the ISO 18436 standard for vibration analyst training. There is no more highly regarded training & certification available.



As an authorized Mobius Training Partner, Reliability Institute of Australia is your local provider of Distance Learning (on-line) courses in Reliability and Condition Monitoring.



Online Course Delivery

Mobius On-Line training is accessed within an LMS (Learning Management System), that keeps track of your progress and shows what is completed and yet to be completed.

The material is made up of professional videos of short studio recordings, presented by Jason Tranter, the renowned Mobius founder.

Mobius vibration analysis training is unique - using 3D animations and many software simulators that completely demystify vibration analysis. While vibration training courses have traditionally been very theoretical and difficult to understand, you will be captivated by the Mobius training methods, and you will enjoy the practical approach.

A colour bound printed course manual is provided to follow the course and for study and reference purposes.

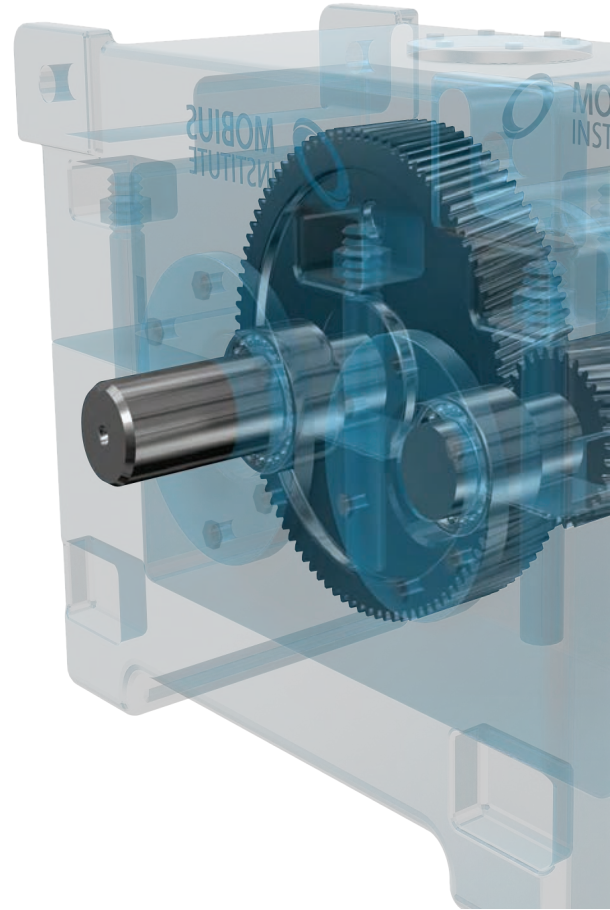
The standard time to complete the distance learning course is four (4) months or the access can be extended for an additional fee.

The course is for a single user and once started, it is not transferable to another person.

Certification Exam:

Although there may be a time limit on completing the course, there is no time limit on when to sit the exam, if the whole course has been completed.

The certification exam must be taken at a MIBoC Authorised Examination centre or with other students on the final day of a public classroom course. Mobius can assist with locations and available dates



Course	VCAT I	VCAT II	VCAT III
Minimum Study Hours	30	38	38
Exam Time	2 hours	3 hours	4 hours
Questions	60	100	100
Pass Grade	70%	70%	70%
Prerequisite experience	6 months	18 months	36 months + VCAT II

Post-study:

Continue learning, without charge, on MOBIUS CONNECT® via mobiusconnect.com

VCAT I

The **VCAT I** course is the ideal starting place for new vibration analysts, people collecting vibration data, and those who want a better understanding of vibration analysis and condition monitoring. If you are ready to start in vibration analysis and condition monitoring, this course is for you. You will come away with a solid understanding of the benefits of monitoring the condition of rotating machinery, the importance of improved reliability, and how vibration can be successfully measured and analyzed to provide an early warning of a wide range of fault conditions.

Topics Covered

- Maintenance practices
- Condition monitoring
- Principles of vibration
- Introduction to vibration measurement
- An introduction to the time waveform
- An introduction to the spectrum
- An introduction to forcing frequencies
- Explaining the different vibration units
- A brief introduction to phase
- Data acquisition
- How do we measure vibration?
- Where to place the sensor on the machine
- Axial, radial, vertical, and horizontal readings
- Mounting accelerometers & surface preparation
- Naming conventions
- What are “routes” and how do you create them?
- Signal processing
- A quick tour of the vibration analyzer
- Spectral averaging
- Vibration analysis
- The spectrum analysis process
- What is resonance?
- Diagnosing common fault conditions
- Setting alarm limits

VCAT II

The **VCAT II** course is intended for people who have mastered the basics but who need to be able to take good data, analyze a range of fault conditions, and understand balancing and alignment. Students learn how to test machines correctly, how to diagnose faults accurately, perform additional diagnostic tests for verification, how to set vibration alarm limits, and how to correct certain types of faults. You will learn why the vibration signatures change the way they do and how to use time waveform analysis and phase analysis to verify the fault condition. You will take away skills that you can immediately apply to your job, and you will truly understand what you are doing.

Topics Covered

- Review of maintenance practices
- Review of condition monitoring technologies
- Principles of vibration; Review of basics, waveform, spectrum (FFT), phase and orbits
- Understanding modulation, beating, sum/ difference
- Data acquisition
- Signal processing
- Vibration spectrum analysis
- An introduction to time waveform analysis
- An introduction to orbit analysis
- Phase analysis: bubble diagrams and ODS
- Enveloping (demodulation), shock pulse, spike energy, PeakVue™
- Fault analysis
- Equipment testing and diagnostics including impact testing (bump tests) and phase analysis
- Corrective action
- Running a successful condition monitoring program
- Acceptance testing
- Review of ISO standards

VCAT III

The **VCAT III** course is intended for people who are confident with spectrum analysis but who wish to learn more about signal processing, time waveform and phase analysis, cross-channel testing, machine dynamics, and fault correction. You will learn to diagnose all the common fault conditions with rolling element and sleeve bearing machines, by utilizing time waveforms, phase readings and other techniques to diagnose faults. You will also learn machine dynamics (natural frequencies, resonance, etc.) and how to perform resonance testing and correct resonance problems. After completing the CAT-III course, you will be able to set and run a successful vibration program and mentor the less experienced analysts in the team.

Topics Covered

- Review of condition monitoring technologies
- Signal processing and data acquisition
- Time waveform analysis
- Phase analysis
- Dynamics (natural frequencies and resonance)
- Testing for natural frequencies
- Operating Deflection Shape (ODS) analysis
- Modal analysis and intro to FEA
- Correcting resonances
- Rolling element bearing fault detection
- Journal bearing fault detection
- Electric motor testing
- Pumps, fans and compressors
- Gearbox fault detection
- Corrective action
- Running a successful condition monitoring program
- Acceptance testing
- Review of ISO standards

MIBoC Certification

The BEST Analysts are MOBIUS Trained™

Training is to ISO 18436-2 and ISO 17836-3
Certification is to ISO 18436-1, ISO/IEC 17024

For more information about Mobius Institute's accreditation, and the recognition of your certification by the ISO 18436 standard, please visit www.mobiusinstitute.com/certification.

All Mobius certified analysts receive personalized logos with their certification number and name for their own professional use.

Mobius Institute also maintains a listing of all certified analysts on their website and provides each analyst with a certification confirmation webpage.



To enroll or find more information, go to:
<https://reliabilityinstitute.com.au>



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Reliability Institute of Australia
is an Authorized Mobius Training Partner & Examination Centre

