



CAT-IV

ISO 18436 Category IV

Master Vibration Analyst Training & Certification

Hybrid Online Learning & Public Classroom Training

Learn vibration analysis from the world's leading provider of training & certification. At Mobius Institute, we offer the most understandable and interesting training available. Our Crystal Clear™ training methodology is unique, using hundreds of 3D animations and software simulations that make complex concepts easier to understand. We offer ISO 18436 Category I to IV training via public venue courses as well as online through the Mobius Institute website.

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.



CAT-IV Course **Overview**

Category IV is challenging, but the rewards are great. There is a lot to learn and only the best vibration analysts will take on the challenge to master these important topics. But regardless of how much training you have had in the past, and how much you have learned from years of experience, learning these complex topics in a classroom environment can prove to be difficult. Everyone needs time to let the theory, concepts, and mathematics sink in. Everyone should have the option of reviewing what they have learned, applying that knowledge, and then reviewing the topics again until there is clarity. For that reason we have adopted a new form of training:

Online learning component

Now the entire Category IV course can be viewed over the Internet on video. All of the topics covered in the training as specified in ISO 18436-2 are taught in videos using the famous Mobius Institute animations and simulations. These lessons are taught by the founder of Mobius Institute, Jason Tranter, and one of the most respected people in the vibration community, Bob Eisenmann.

While you watch the videos you can also attempt the “worked examples”. These questions are practical in nature and are designed to not only test your knowledge and understanding, but also provide a way for you to test whether you are likely to be able to successfully complete the Category IV exam. You can take the lessons via video as many times as you like. You will see and hear the animations and simulations which make everything easier to understand. And you will hear Bob Eisenmann’s case studies where the theory is put into practice.

Public classroom course component

The aim of the classroom session is to combine education, review and question practice. Attendees will learn and attendees will be tested. The session will be very interactive with ample opportunity to ask questions. As we review the topics covered in the on-line videos we will also challenge you with exam standard practical questions. We will also utilize the polling devices for spot quizzes.

Day One & Two:

We will focus on advanced signal processing, structural dynamics, corrective action (isolation, resonance correction, etc.), ODS, and modal analysis. Along with the topic review we will go through the worked examples and students will be given poll questions to test their knowledge.

Day Three & Four:

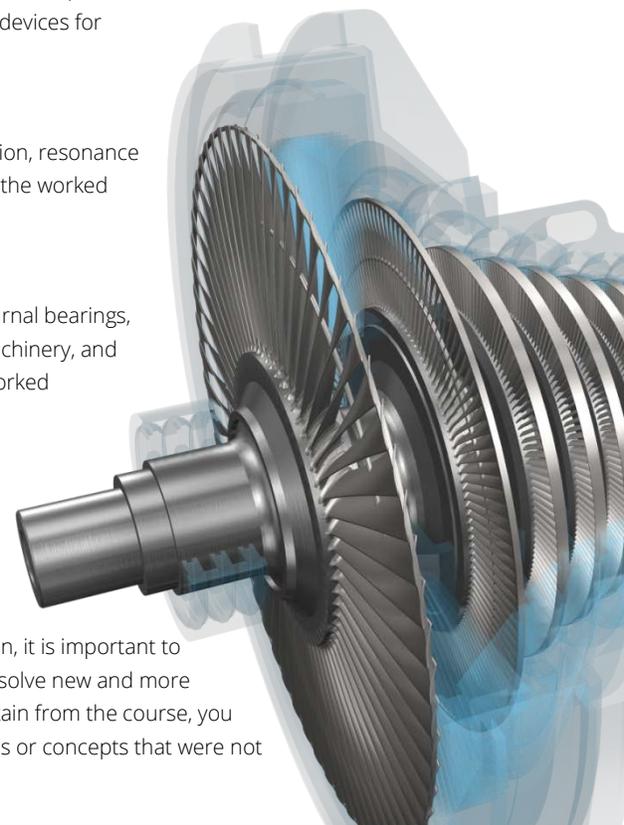
We will focus on proximity probe measurements, conventions, orbits, centerline plots, journal bearings, rotordynamics, diagnosing common faults associated with journal bearings and turbo-machinery, and flexible rotor balancing. Once again, along with the topic review we will go through the worked examples and students will be given poll questions to test their knowledge.

Day Five:

You will take the five-hour Category IV exam. The exam will start early in the morning so that you should be able to leave the venue by 14:00.

Post course

Although most attendees are focused on achieving the prestigious Category IV certification, it is important to focus on the educational opportunities. Our goal is to make you a better analyst; able to solve new and more difficult problems. In order to support your on-going education and improve what you retain from the course, you can continue to access the videos for six months after the course. If there were any topics or concepts that were not perfectly crystal clear, jump on to your computer, log-in, and click play!



Our public courses are conducted by an experienced, certified Mobius Institute instructor at Mobius Institute authorized training centers in 50 countries throughout the world. See the Mobius institute website at www.mobiusinstitute.com to see the courses scheduled in your area. All of our training courses are also offered at your site, so if you have several people to train, we can come to your location.

CAT-IV Course **Description**

Format: 42 hours of online learning via the web, plus 4 days (education, course review and exam question practice) at a public classroom course venue.

Optional: 1 day review & certification examination (given at the end of the course), 70% passing grade.

Compliance: ISO 18436 Category IV – Vibration Analyst.

Online Learning: Registered students are given access to the Mobius Institute online training materials for a period of 6 months to provide ample time to learn the material and prepare for the public classroom course & certification exam.

Public Course Prerequisite: The online training component must be completed before you may attend the public classroom course.

Certification Prerequisite: Both the online and classroom training components must be completed. Prior experience is not required for attending the training course, but you must have 60 months of verifiable experience and Category III certification by an accredited certification body to qualify for Category IV exam and certification.

Outcome: You will come away from this course qualified to lead condition monitoring teams and will have a deep understanding of machine dynamics and failure modes.

Category IV - Candidate Profile:

- You have at least five years of vibration analysis experience
 - You want to be the chief diagnostic analyst or consultant
 - You want to understand all of the advanced measurement and analysis options
 - You want to understand fluid-film bearings, flexible rotors, their modeling, their testing and their potential fault conditions
 - You want to be able to diagnose and correct a wide range of conditions
 - You want to be able to balance rigid and flexible rotors using a range of techniques
- You are seeking to become certified to international standards (ISO-18436) by an accredited certification body

Topics covered:

- Advanced signal processing including cross-channel measurements (phase, coherence, transfer functions, etc)
- Structural dynamics (resonance, mass/stiffness/damping)
- Resonance correction and isolation
- Operating deflection shape analysis
- Modal analysis
- Balancing rigid and flexible rotors
- Fluid film bearings
- Proximity probe and keyphasor measurements
- Orbits and centerline diagrams
- Polar, Bode, and Full spectrum plots
- Rotordynamics and modeling
- Fault conditions: unbalance, preload, misalignment, oil whip and whirl, rubs and looseness
- Standards (ISO, IEC, API)



It is highly recommended that student purchase a copy of Robert Eisenmann's book "*Machinery Malfunction Diagnosis and Correction*". The book examines the technology of analyzing process machinery malfunctions. It begins with fundamental concepts of mechanical motion, and expands the basic models into acceptable simulations of real machines. Relationships between the actual machinery, the analytical model, and the vibration characteristics are examined. Specifically, steam and gas turbines, gear boxes, centrifugal and reciprocating compressors, plus motors and generators are analyzed from different perspectives. It is extensively illustrated, and it contains detailed examples with sample calculations. The book also includes 45 case histories that cover the entire scenario from problem definition, through investigation, plus the final corrective solutions. You may purchase the book on Amazon.com.

CAT-IV 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 our website and provides each analyst with a certification confirmation webpage.

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.



Get started today

Go to our website to learn more about our public and online learning courses, view the public course schedule for your area. Don't hesitate to email your questions to learn@mobiusinstitute.com or contact an authorized training center in your region.

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