

# CONDITION MONITORING & RELIABILITY TRAININGS

YOU CAN LEARN YOUR WAY



		COURSE LENGTH	COURSE LOCATION			PAGE	
			PUBLIC	ONSITE	ONLINE		
<b>VIBRATION DIAGNOSTICS</b>							
◦	<b>FUNDAMENTALS (VIMS-WI1)</b>		1 day/ 2 days	✓	✓	7	
◦	<b>ADVANCED (VIMS-WI2)</b>		2 days	✓	✓	8	
<b>VIBRATION ANALYSIS - MOBIUS INSTITUTE <sup>1) 3)</sup></b>							
◦	<b>BASIC (VCAT I) CERTIFICATION ISO MOBIUS INSTITUTE</b>		4 days	✓	✓	✓	9
◦	<b>INTERMEDIATE (VCAT II) CERTIFICATION ISO MOBIUS INSTITUTE</b>		5 days	✓	✓	✓	10
◦	<b>ADVANCED (VCAT III) CERTIFICATION ISO MOBIUS INSTITUTE</b>		5 days	✓	✓	✓	11
<b>DYNAMIC BALANCING</b>							
◦	<b>BASIC (VIMS-WD)</b>		1 day	✓	✓	12	
<b>INFRARED THERMOGRAPHY</b>							
◦	<b>FUNDAMENTALS - (VIMS-TD)</b>		1 day / 2 days	✓	✓	14	
<b>INFRARED THERMOGRAPHY - MOBIUS INSTITUTE <sup>3)</sup></b>							
◦	<b>BASIC I (IRTCAT I) CERTIFICATION ISO MOBIUS INSTITUTE</b>		4 days	✓	✓	✓	15
<b>ULTRASOUND ANALYSIS</b>							
◦	<b>FUNDAMENTALS - (VIMS-UD)</b>		1 day / 2 days	✓	✓	17	
<b>ULTRASOUND ANALYSIS - MOBIUS INSTITUTE <sup>3)</sup></b>							
◦	<b>BASIC (UCAT I) CERTIFICATION ISO MOBIUS INSTITUTE</b>		4 days			✓	18
<b>MAINTENANCE</b>							
◦	<b>CONDITION-BASED MAINTENANCE (VIMS-CB)</b>		1 day	✓	✓	20	
◦	<b>MAINTENANCE (VIMS-UR)</b>		2 days	✓	✓	21	
<b>ASSET RELIABILITY - MOBIUS INSTITUTE <sup>3)</sup></b>							
◦	<b>RELIABILITY ADVOCATE (ARP-A) <sup>2)</sup> CERTIFICATION ISO MOBIUS INSTITUTE</b>		4 days	✓	✓	✓	22
◦	<b>RELIABILITY ENGINEER (ARP-E) CERTIFICATION ISO MOBIUS INSTITUTE</b>		5 days			✓	23
◦	<b>RELIABILITY LEADER (ARP-L) CERTIFICATION ISO MOBIUS INSTITUTE</b>		5 days			✓	24
<b>MOTION AMPLIFICATION®</b>							
◦	<b>MOTION AMPLIFICATION® CERTIFICATION RDI TECHNOLOGIES™</b>		3 days		✓	26	

<sup>1)</sup> Open courses unavailable in Germany (only Poland, Austria, Czech Republic).

<sup>2)</sup> Open and closed courses only in Poland.

<sup>3)</sup> Online courses available in English.

# WELCOME TO THE VIMS RELIABILITY ACADEMY

## TRAINING FOR SUCCESSFUL RELIABILITY IMPROVEMENT STRATEGIES

Thank you for your interest, we hope you will find everything you need to dynamize your professional development in the following pages.

If you have any questions, you can contact the training team.

For a personalized quote, fill out the form on the website or send an email to: [info@vims.pl](mailto:info@vims.pl).

If you want to know how to prevent sudden failures, however, you feel insecure in machine diagnostics, take advantage of our proprietary training courses, during which you will supplement your knowledge, be able to plan a further path to improve your skills, but also already be able to identify what you lack and what your needs are in the process of achieving operational excellence, know how often and how to inspect the condition of machines and installations, what diagnostic technologies are most suitable for you and how to define reliability-oriented strategies with the associated processes and procedures.

Training courses are conducted by our diagnosticians and trainers certified in the field of machine diagnostics, and the classes will use interactive methods of knowledge transfer, dedicated instructional videos, models, real examples, and presentations. The courses are enriched with many exercises carried out on test benches using professional diagnostic tools.

The process of achieving operational excellence of the plant/plant/enterprise will have no secrets for you!

✓ Vibration Analysis

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✓ Dynamic Balancing

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✓ Thermography

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✓ Ultrasound Analysis

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✓ Maintenance

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✓ Motion Amplification®

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## REFERENCES

„The training was very, very good because of the detailed information and the practical instructions. Basic knowledge was provided in a real good manner.”

-BASF

„The training was conducted in a professional and reliable manner with an individual approach to the needs of each participant. We recommend VIMS as a professional specialized company in modern technologies for maintenance departments.”

- Bunge

“The initial training provided by VIMS® Company is proper mix of theory and exercises. The trainer is well rounded within his field of expertise and provided our technicians with deep knowledge of the IRIS M™ and IRIS MX™ systems. ”

- Orlen Unipetrol

“The course material was clear and understandable to everyone. The instructor was very effective in achieving the course objectives. The practical examples during the training were very helpful. The online certification exam was conducted in a professional manner. There were no questions that were not understood by the students. It was a pleasant week with Vims trainer.”

- Nuclearelectrica

# MOBIUS INSTITUTE™

## TRAININGS CERTIFIED BY MOBIUS INSTITUTE

Are you striving for professional excellence? Do you want to be recognized in the job market and on a global scale? Take advantage of the opportunity to attend Mobius Institute™ courses organized by VIMS.

We are an authorized partner of Mobius Institute™. We have a coaching team of diagnosticians and maintenance specialists whose knowledge and practical experience is formally certified. As a Mobius Institute™ partner, we offer a number of courses in the field of diagnostics and maintenance that meet the international requirements set forth in ISO/IEC 17024, and we are authorized to conduct examinations and issue certificates signed by Mobius Institute™ confirming the attainment of the relevant authorizations.

Mobius Institute™ is an internationally recognized training company that supports condition monitoring, maintenance and asset reliability practitioners, business leaders and strategic partners in reaching the next level on the path of professional development through state-of-the-art training programs, accredited certification processes, innovative conferences and broad dissemination of technical knowledge. The activities conducted allow for a proper and in-depth understanding of strategy and technology, which consequently paves the way to success, both personally and professionally.

- ✓ Vibration Analysis

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- ✓ Thermography

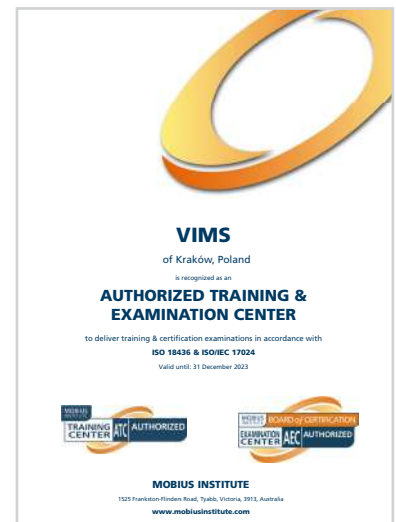
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- ✓ Ultrasound Analysis

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- ✓ Asset Reliability Practitioner (ARP)

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## COURSES FORMAT / ORGANIZATION

- Open - organized in the form of a class by the VIMS company (usually at the company's headquarters or a location designated by the company), minimum class size of 6 people, course administration and organization of infrastructure (lecture hall) on the side of the VIMS, the course ends with a certification exam for those who take it and have the required experience.
- Closed - organized on the order of a specific entity for a group from one plant/company/organization not less than less than 4 people; organization of training infrastructure on the part of the ordering party; the course ends with an exam certification exam for those who take it and have the required experience.
- Online (self-paced "distance" learning using online tools) - a course ordered and self-paced within a specified time frame; the license provides access to the course and materials training materials for one user for up to 4 months; online courses provide the same professional level of transferred knowledge as the courses conducted stationary, use the same 3D animations and simulators; upon completion of the online course, a participant with the required professional experience can take the certification exam at Mobius competence centers (companies cooperating and authorized by the Mobius Institute) or such an exam (physically supervised by a person authorized to do so) can be organized at an agreed location.



# MOBIUS INSTITUTE™

## CERTIFICATION RECOGNIZED AROUND THE WORLD

Mobius Institute™ courses are widely recognized and respected, and are accredited to the international standard ISO/IEC 17024, confirming that the highest standards are met in terms of course quality, content independence and integrity of the examination process.

The certification we offer through the Mobius Institute™ Board of Certification™ (MIBoC) , is internationally recognized and meets the highest standards recognized and confirmed through the ISO/IEC 17024 accreditation process.

Mobius Institute™ certified individuals enjoy invaluable personal and professional benefits:

- ✓ Have independently validated professional skills

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- ✓ Obtain higher value in the labor market

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- ✓ Fulfill requirements that add value to the career path professional career

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- ✓ Are recognized in the labor market as fully professional

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- ✓ Are a valued and desirable "expert resource" internationally

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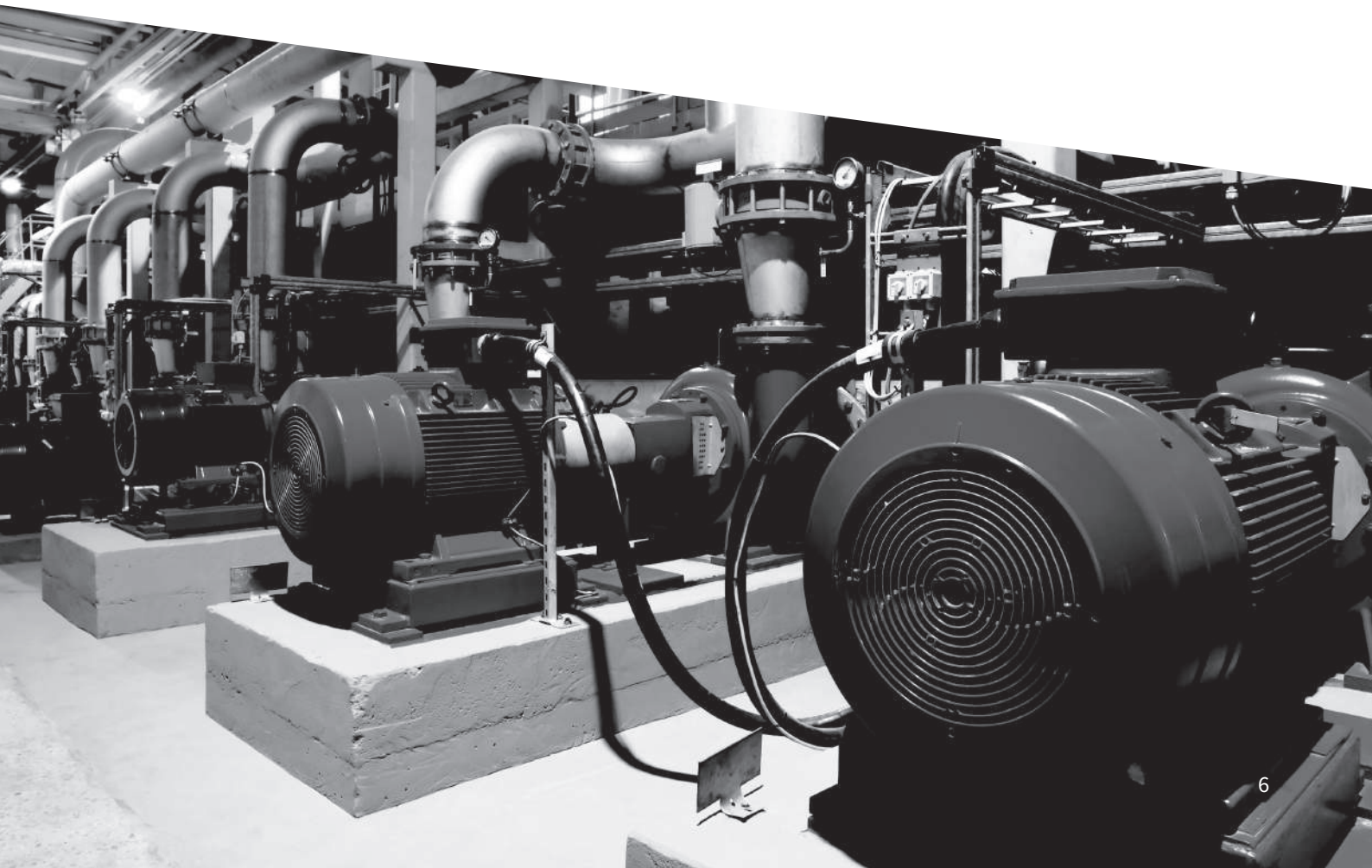
- ✓ They expand their network of contacts with experts around the world

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- ✓ They become a member of an international community within which it is possible to solve complex problems, continue to learn learn and share experiences



# VIBRATION DIAGNOSTICS





# VIBRATION DIAGNOSTICS (VIMS-WI1)

## FUNDAMENTALS

The course is intended for people who want to broaden their knowledge in the field of vibration diagnostics carried out in an industrial environment (mechanical devices, rotating machines, process installations).

### DESCRIPTION:

Students in this course will gain knowledge of the basics of vibration diagnostics, understand how to properly take measurements and analyse captured data.

Pierwszy dzień szkoleniowy:

- Fundamentals of predictive maintenance
- Overview of predictive technologies
- Identification of the vibration source
- Vibrations - vibration sources, vibration signal, vibration signal parameters (terminology)
- Time waveform and frequency spectrum
- Fundamentals of machine kinematics
- Vibration sensors - construction, operation, parameters
- Rules for the correct selection of measuring equipment, determination of measurement points
- Typical machine faults and methods of their detection
- ISO-10816 / ISO-20816 standard and its use in vibration technology
- Selected practical exercises - detection of typical faults in rotating machines

Second training day (in the case of a two-day course):

- Portable vibration analyser - functionality, parameters, configuration and parameterization, routes, performing and recording measurements
- Installation, configuration and use of analytical software
- Practical exercises with the use of a test stand (rotor kit)

*Remarks:*

*Sets “vibration analyser - analytical software” will be made available during the training (students should bring their own computer equipment - a laptop with the Windows 10 operating system or higher with the rights to install external software)*

### DURATION:

- Public/Private - 1-day course (fundamentals) or 2-days course (extended by practical exercises)

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION

Course completion certificate will be provided

# VIBRATION DIAGNOSTICS (VIMS-WI2)

## ADVANCED LEVEL

The course is intended for people who have mastered the basics of vibration diagnostics and want to deepen their knowledge in the field of correct data collection, analyser configuration, diagnosing various faults and understanding balancing, alignment, structural stiffness analysis, natural frequency analysis. Issues related to the diagnostics of low-speed machines and the diagnostics of electric motors will also be presented.

### DESCRIPTION:

Students of this course will gain high competences and skills in the field of vibration signal processing, analysis of the time waveform, frequency spectrum and phase, cross-channel analysis, natural frequency measurements of machines and structures, and error correction. Advanced diagnostic techniques will be presented as well.

#### First training day:

- General overview of vibration diagnosis concepts: time course and FFT spectrum, amplitude modulation, phase of the vibration signal
- Faults recognition of rotating machines – imbalance, misalignment, damage of mechanical gears, resonance, cavitation, damage of rolling bearings, low-speed machines (ACMT technique), lubrication problems, belt gears
- Vibration analysis and electrical current analysis in faults diagnostics of AC motors
- Advanced diagnostic techniques and their application - order tracking, diagnostics of variable-speed machines, multi- and cross-channel analysis, low and high frequency analysis, synchronous averaging (Enveloping, Demodulation, others), introduction to ODS

#### Second training day:

- Advanced multi-channel portable vibration analyser with advanced functional modules: multi-channel analyser, run-up/coast-down, digital signal recorder, bump tests, analysis of motor current signature
- Online diagnostic system
- Practical exercises with the use of a test stand (rotor kit)

#### Remarks:

Sets “vibration analyser - analytical software” will be made available during the training (students should bring their own computer equipment - a laptop with the Windows 10 operating system or higher with the rights to install external software)

### DURATION:

- Public/Private - 2-days course (extended by practical exercises)

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION

Course completion certificate will be provided

More information:  
[www.vims.pl](http://www.vims.pl)



# VIBRATION ANALYSIS (VCAT I)

## BASIC COURSE AND MOBIUS INSTITUTE CERTIFICATION

The ISO 18436 VA CAT-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 Maintenance.

### DESCRIPTION:

Students will come away from this course with a very good understanding of vibration analysis fundamentals, understanding of how to take good measurements and analyse vibration spectra.

Additionally they acquire the knowledge relating to:

- The benefits of performing condition monitoring and improving reliability
- The condition monitoring technologies: acoustic emission, infrared analysis (thermography), oil analysis, wear particle analysis, motor testing
- How machines work – via supplementary self-study using the “Equipment Knowledge” section
- How vibration measurements can tell about the condition of the machine
- How to collect good, repeatable measurements
- What the F max, resolution, averaging and other analyser settings mean
- How to analyse vibration spectra, and the basics of fault diagnosis: unbalance, misalignment, looseness, rolling element bearings faults, resonance, and other conditions
- An introduction to setting alarm limits

### DURATION:

- Public/Private - 4-day course including review and exam
- Online – set of training videos 30 hours, additional time for online exam

### FORMAT:

- Public
- Online self-paced (using internet tools)
- Private onsite

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 60 questions, 2 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 6 months of relevant experience is required for ISO certification.

# VIBRATION ANALYSIS (VCAT II)

## INTERMEDIATE LEVEL AND MOBIUS INSTITUTE CERTIFICATION

The ISO 18436 VA CAT-II course is intended for people who have mastered the basics but who need to be able to take good data, and decide how the data collector should be set up, analyse a range of fault conditions, and understand balancing & alignment.

### DESCRIPTION:

Students will come away from this course with a very good understanding about signal processing, time waveform and phase analysis, crosschannel testing, machine dynamics, and fault correction, especially:

- How a well-designed program and a reliability centred maintenance approach improve the OEE
- The CM technologies: acoustic emission, infrared analysis (thermography), oil analysis, wear particle analysis, & motor testing
- How machines work; via supplementary self-study using the “Equipment Knowledge” section
- How to select the correct measurement location and axis, and collect good, repeatable measurements
- What the Fmax, resolution, averaging and other analyser settings mean, and how to select the optimum settings for a wide variety of machine types
- How to analyse vibration spectra, time waveforms, envelope (demodulation), and phase measurements
- How to diagnose: unbalance, eccentricity, misalignment, bent shaft, cocked bearing, looseness, rolling element bearings faults, journal bearing faults, gearbox faults, resonance, and other conditions
- How to set alarm limits manually and with statistics
- How to balance and align a machine, and correct a resonance condition

### DURATION:

- Public/Private - 5-day course including review and exam
- Online – set of training videos 38 hours, additional time for online exam

### FORMAT:

- Public
- Online self-paced (using internet tools)
- Private onsite

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 100 questions, 3 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

A valid CAT-I is not required for attending the training course or taking the examination, but 18 months of relevant experience is required for ISO certification.

# VIBRATION ANALYSIS (VCAT III)

## ADVANCED COURSE AND MOBIUS INSTITUTE CERTIFICATION

The ISO 18436 VA CAT-III course is for people who are confident with spectrum analysis but who wish to push on and learn more about signal processing, time waveform and phase analysis, cross-channel testing, machine dynamics, and fault correction.

### DESCRIPTION:

Students will come away from this course with a very good understanding of vibration analysis fundamentals, you will understand how to take good measurements, and you will be ready to begin analysing vibration spectra, especially:

- How to select the correct measurement location and axis, and collect good, repeatable measurements
- What the Fmax, resolution, averaging and other single channel and cross-channel analyser settings mean, and how to select the optimum settings
- How to analyse vibration spectra, time waveform, envelope, and phase measurements
- How to diagnose a wide range of fault conditions
- How mass, stiffness & damping affects the natural frequency of a structure
- How to use phase readings, bump tests, impact tests, negative averaging, peak-hold averaging, transient, ODS, modal analysis to determine natural frequencies and visualize machine movement
- How to balance and align a machine, correct a resonance conditions, and employ isolation

### DURATION:

- Public/Private - 5-day course including review and exam
- Online – set of training videos 38 hours, additional time for online exam

### FORMAT:

- Public
- Online self-paced (using internet tools)
- Private onsite

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 100 questions, 4 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required to attend training, but certification requires 36 months experience and CAT-II certification, or a minimum of 60 months experience in lieu of CAT-II certification.



# DYNAMIC BALANCING (VIMS-WD)

## INTRODUCTION TO DYNAMIC BALANCING

The course is intended for people who, having basic knowledge of vibration diagnostics of rotating machines, want to broaden their knowledge and gain competence in dynamic balancing of machines in their own bearings.

### DESCRIPTION:

Students of the dynamic balancing course will gain knowledge and practical skills in the field of machines balancing in their own bearings and will be able to answer a number of questions that determine the appropriate corrective actions:

- Theoretical basis of balancing
- How to recognize if balancing is necessary
- Symptoms of unbalance - spectrum and time waveform of an unbalanced machine
- Balancing planes and measurement points
- When balancing fails and why, despite following the correct balancing procedure
- When to abandon balancing and what to do to make balancing possible
- Preparation of the balancing project, defining the view of the machine, direction of rotation, rotor parameters, measured values
- Balancing a rotating machine in practice
- What it means that balancing has been done. Checking the balancing effect, re-balancing
- Balancing standards
- Balancing vectors
- Balance report

### DURATION:

- Public/Private - 1-day course (with practical exercises)

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION:

Course completion certificate will be provided

# INFRARED THERMOGRAPHY



# INFRARED THERMOGRAPHY (VIMS-TD)

## FUNDAMENTALS

The course is intended for people who want to broaden their knowledge in the field of infrared thermography diagnostics carried out in an industrial environment (mechanical devices, rotating machines, electrical devices, process installations).

### DESCRIPTION:

Students in this course will gain knowledge of the basics of infrared thermography, understand how to properly take measurements and analyse the data.

#### One-day course program:

- Fundamentals of predictive maintenance
- Overview of predictive technologies
- Principles of infrared thermography
- Thermography cameras and data acquisition basics (based on FLIR/FOTRIC cameras)
- General image interpretation (image processing, fault classification)
- Selected practical applications – electrical, mechanical, civil, process

#### Second training day (in the case of a two-day course):

- Selected thermography cameras will be available at the training
- Preparing the cameras for work
- Images acquisition, storage, processing and management
- Installation, configuration and use of analytical software
- Reporting
- Practical exercises on the object with the use of the thermography cameras (in the case of a course conducted in the plant and making the object available)

### DURATION:

- Public - 1-day course (fundamentals)
- Private – 1-day or 2-days course (practical exercises with IR cameras)

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION

Course completion certificate will be provided



# INFRARED THERMOGRAPHY (IRTCAT I)

## MOBIUS INSTITUTE CERTIFICATION

The ISO 18436-7 Thermography CAT-I course is intended for those operating thermal imaging cameras under different conditions and for various purposes. You will be able to do IR inspections and reporting.

### DESCRIPTIONS:

Students will come away from this course with a very good understanding of Thermography fundamentals, with understanding how to take good measurements, and be ready to begin analysing IR data, and especially:

- An understanding of thermography and the history of the camera technology development
- An explanation of the camera operation and how it works
- An understanding of infrared theory and the scientific laws relating to conduction, convection, radiation, blackbodies, transmission emissivity, reflectivity and calibration.
- An understanding of atmospheric and environmental considerations including distance, humidity, air temperature and reflected apparent temperature. How to measure them and setup the camera correctly
- An understanding of temperature definition and measurement, thermodynamics, heat and temperature, heat transfer, conduction, convection and radiation
- A look at cross hair measurement, area box /circle, colour alarms and specific dew point and insulation alarms
- Hands-on camera experience throughout the course; practice using portable simulated labs; integration of images with reporting software; creation of reports

### DURATION:

- Public/Private - 4-day course including review and exam
- Online – set of training videos 32 hours, additional time for online exam

### FORMAT:

- Public
- Online self-paced (using internet tools)
- Private onsite

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 50 questions, 2 hours, 75% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 12 months of relevant experience is required for ISO certification. Additionally, candidates should have their colour perception assessed by the Ishihara 24 plate test.

# ULTRASOUND ANALYSIS



# ULTRASOUND ANALYSIS (VIMS-UD)

## FUNDAMENTALS

The course is intended for people who want to broaden their knowledge in the field of ultrasonic diagnostics carried out in an industrial environment (mechanical devices, rotating machines, electrical devices, process installations).

### DESCRIPTION:

Students in this course will gain knowledge of the basics of ultrasonic analysis, understand how to properly take measurements and analyse ultrasonic data.

One-day course program:

- Fundamentals of predictive maintenance
- Overview of predictive technologies
- Ultrasonic detectors - types, principles of operation
- Identification of the sound source
- Analysis of recorded ultrasonic waveforms
- Detection methods and types of faults: inspection of compressed air and special gases leaks, inspection of valves and traps, inspection of electrical cabinets, genesis of electrical discharges, verification of the technical condition of rolling bearings
- UE series ultrasonic detector - construction, functionality, configuration, parameterization
- Selected practical exercises on the object with the use of the ultrasound detector (in the case of a course conducted in the plant and making the object available)

Second training day (in the case of a two-day course):

- Preparing the detector for work: configuration and parameterization, configuring the measurement route, sending the measurement route to the detector, performing and recording measurements, uploading data to the software for further analysis
- Installation, configuration and use of analytical software
- Practical exercises on the object with the use of the ultrasound detector (in the case of a course conducted in the plant and making the object available)

### DURATION:

- Public - 1-day course (fundamentals)
- Private – 1-day or 2-days course (practical exercises with UE detector)

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION:

Course completion certificate will be provided



# ULTRASOUND ANALYSIS (UCAT-I)

## BASIC COURSE AND MOBIUS INSTITUTE CERTIFICATION

The ISO 18436 UA CAT-I course is intended for the “practitioner” seeking to advance their knowledge in airborne/structure borne ultrasound inspection on rotating, static and electrical equipment.

### DESCRIPTION:

Students will come away from this course with a very good understanding of ultrasound analysis fundamentals, will understand how to take good measurements, and be ready to begin analysing ultrasound data, especially:

- Practice the operation of the Ultraprobe
- Use software for analysis and trending
- Set up groups of points to test
- Upload points into the Ultraprobe
- Establish baseline readings on a “Pilot” group
- Download and organize the pilot group
- Record and store sound files in the pilot group
- Practice correct data acquisition techniques
- Use spectralyzer software
- View and import sound files
- Create a database, take baseline and subsequent readings
- Download information into software and generate a report

### DURATION:

- Public/Private - 4-day course including review and exam
- Online – set of training videos 32 hours, additional time for online exam

### FORMAT:

- Public – coming soon
- Online self-paced (using internet tools)
- Private onsite – coming soon

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 2 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 6 months of relevant experience is required for ISO certification; plus a hearing test.

# MAINTENANCE



# CONDITION-BASED MAINTENANCE (VIMS-CB)

## CONDITION-BASED MAINTENANCE

This course is designed to provide knowledge of condition-based maintenance and introduce the basic diagnostic techniques most prevalent in the industry: vibration analysis, infrared thermography, ultrasound analysis, oil analysis and electric motor diagnostics. After completing the course, participants will understand the capabilities of individual technologies for monitoring the technical condition of devices, will be able to select the technology adequate to the needs and implement it correctly.

### DESCRIPTION:

Course agenda:

- Predictive maintenance (PdM) - basics
- Overview of predictive techniques
- Prevention and prediction - optimal relationship
- CbM - maintenance based on the knowledge of the technical condition of devices - basics
- CbM vs PdM - is it the same?
- Efficient and reliable machine park - monitoring the technical condition of machines
- Diagnostic techniques (basics) - selection, implementation, identification of machine failures
  - ✓ Vibrodiagnostics
  - ✓ Ultrasonic diagnostics
  - ✓ Oil diagnostics
  - ✓ Thermography
  - ✓ Diagnostics of electric motors
- Diagnostic equipment - portable equipment and continuous operation systems

### DURATION:

- Public/Private - 1-day course

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION

Course completion certificate will be provided



# MAINTENANCE (VIMS-UR)

## RELIABILITY OF MACHINES, PLANTS AND PROCESSES

The course covers issues related to improving the reliability of equipment, production lines and industrial plants. Students will gain basic but also diverse knowledge in the field of planning, building and implementing a reliability-oriented maintenance strategy, which should be included in the strategy of the entire enterprise at all its levels. The issues learned will allow students to "find a common language" and use concepts that are present in the environment of planners, diagnosticians, lubrication engineers, managers responsible for maintenance and operation.

### DESCRIPTION:

Students will learn the fundamentals of asset reliability, including how to build, support, and implement the processes that make up a "culture of reliability".

In particular, the following topics will be discussed:

- Reliability - what does it mean? A reliable plant?
- Techniques supporting maintenance
- Benefits of implementing reliability practices
- Cultural changes in the organization
- Maintenance strategies - types, advantages, selection criteria
- Machine failure models
- Integrated design/implementation of reliability improvement strategies
- Asset strategy development process:
  - ✓ Criticality analysis
  - ✓ Resource criticality ranking (building, use)
  - ✓ Optimization of the preventive strategy
- Management of work processes
- Spare parts, warehouses
- Efficient and reliable machine park - monitoring the technical condition of machines
- Diagnostic techniques (basics):
  - ✓ Vibrodiagnostics
  - ✓ Ultrasonic diagnostics
  - ✓ Oil diagnostics
  - ✓ Thermography
  - ✓ Diagnostics of electric motors
- Diagnostic equipment
- Substantive support in building a strategy focused on reliability - audits, training, process optimization
- Artificial intelligence (AI) in maintenance – the future or the present
- Artificial intelligence in failure prediction
- Continuous improvement process
- Implementation of the strategy, use of the CMMS system

### DURATION:

- Public/Private - 2-day course

### FORMAT:

- Public (at VIMS location)
- Private onsite

### LEARNING MATERIALS:

- Course Materials - printed and/or in electronic format

### CERTIFICATION

Course completion certificate will be provided

More information:  
[www.vims.pl](http://www.vims.pl)

# ASSET RELIABILITY PRACTITIONER (ARP-A)

## ASSET RELIABILITY PRACTITIONER: ADVOCATE

The course is intended for everyone working within an organization, who in any way influences the management, design, engineering, procurement, maintenance, or operation of an organization that involves critical rotating machinery and electrical equipment. Whether your organization manufactures products (appliances, automobiles, etc.) or a commodity (mining, oil & gas, etc.), provides an essential service (e.g. water, sewage, power); relies on machinery/electrical equipment (facilities, shipping), this course details how to improve reliability and performance.

### DESCRIPTION:

Students will come away from this course with a very good understanding of Asset Reliability fundamentals including how reliability advocates support overall improvement and the way of development of “culture of reliability”.

Especially students will understand:

- Why improvements are desired
- What benefits are possible to achieve
- Why failures occur (understanding of failures)
- How to make changes
- What can be done for improvement (elimination of defects, development and implementation of asset reliability strategies, management of work processes, management of spare parts and warehouses)
- What diagnostic techniques are available and how to choose them (method of implementation, use of analysis results)
- What it is and how to implement a continuous asset reliability improvement process

### DURATION:

- Public/Private - 4-day course including review and exam
- Online – set of training videos 16 hours, additional time for online exam

### FORMAT:

- Public
- Online self-paced (using internet tools)
- Private onsite

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 60 questions, 2 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 6 months of relevant experience is required for ISO certification.

# ASSET RELIABILITY PRACTITIONER (ARP-E)

## ASSET RELIABILITY PRACTITIONER: ENGINEER

The Asset Reliability Practitioner – Reliability Engineer (ARP-E) course is intended for industrial reliability engineers charged with helping the organization improve reliability and performance, and for anyone else in the organization who desires to have an in-depth knowledge of the reliability and performance improvement process. The reliability engineer has a critically important but challenging role. In most organizations there are almost infinite opportunities for improvement but understanding what to change and how to change it is difficult. Analysis is not enough. Action must be taken.

### DESCRIPTION:

The course covers the A-Z of reliability improvement. Students will gain the solid knowledge in all areas related to reliability to be a valued partner to planners/schedulers, condition monitoring analysts, lubrication engineers, managers responsible for maintenance and operation.

Especially students will obtain the deep knowledge regarding:

- Reliability strategy development and implementation
- People management
- Defect elimination
- Reliability engineering
- Asset strategy development
- Work and spares management
- Precision skills (precision and proactive maintenance)
- Condition monitoring
- Continuous improvement process

### DURATION:

- Public/Private - 5-day course including review and exam
- Online – set of training videos 32 hours, additional time for online exam

### FORMAT:

- Public – coming soon
- Online self-paced (using internet tools)
- Private onsite – coming soon

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 100 questions, 3 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 24 months of relevant experience is required for ISO certification.



# ASSET RELIABILITY PRACTITIONER (ARP-L)

## ASSET RELIABILITY PRACTITIONER: LEADER

The Asset Reliability Practitioner - Program Leader (ARP-L) course is intended for those who have taken the lead role in the reliability and performance improvement program. Great responsibility comes with this great opportunity, and the aim of this course is to set you up for success. Whether your organization manufactures products or a commodity; provides an essential service; relies on machinery/electrical equipment, this course will provide a memorable explanation of how and why to improve reliability and performance.

### DESCRIPTION:

Students will come away from this course with a very good understanding of Asset Reliability fundamentals including how reliability advocates support overall improvement.

Students will obtain the deep knowledge regarding:

- Reliability strategy development and implementation
- People management
- Defect elimination
- Reliability engineering
- Asset strategy development
- Work and spares management
- Precision skills (precision and proactive maintenance)
- Condition monitoring
- Continuous improvement process
- Leading the people, frequently and clearly communication
- Budget and project management
- Development clear vision of how the program will benefit the business and its employees,
- Development a detailed plan, with milestones on how those goals will be achieved.
- Understanding of the nature of the challenges which will be faced and development a proactive strategy for overcoming those challenges.

### DURATION:

- Public/Private - 5-day course including review and exam
- Online – set of training videos 32 hours, additional time for online exam

### FORMAT:

- Public – coming soon
- Online self-paced (using internet tools)
- Private onsite – coming soon

### LEARNING MATERIALS:

- Public/Private Course Pre-study - access to the Mobius Institute Learning Zone before the class and for 4- months after course completion.
- Online Learning - access to the Mobius Institute LMS for a period of 4-months.
- Course Materials - printed and/or online

### EXAMINATION:

MIBoC Certification examination, 100 questions, 3 hours, 70% passing grade

### CERTIFICATION PREREQUISITE:

Prior experience is not required for attending the training course or taking the examination, but 48 months of relevant experience is required for ISO certification.

# MOTION AMPLIFICATION®



# MOTION AMPLIFICATION® (VIMS-MA)

## OPENING UP THE WORLD OF THE UNSEEN

The certified Motion Amplification® course is a theoretical and practical training in the use of IRIS M™ and IRIS MX™ motion amplification systems.

Motion Amplification® is a revolutionary video processing technology with software that detects the slightest movement and amplifies it to the level visible to the naked eye. By turning every pixel in the camera into a sensor, it takes millions of measurements in a fraction of a second and does it without physical contact with your machine or installation. All the user has to do is point the camera at the asset, grab the video data, and then press a button to amplify the motion. Thanks to this, it opens the world of the invisible.

### DESCRIPTION:

During the three-day course, students will learn the basics of using IRIS M™, delve into the software's features and practice their new skills with certified trainers through a series of hands-on exercises.

Students will obtain the deep knowledge regarding:

- Motion Amplification® technology
- Configuration of MA cameras, selection of lenses and image acquisition parameters, selection of lighting, photography/ image acquisition techniques
- Motion Studio software
- Image acquisition techniques (selection of acquisition parameters)
- Selection of motion amplification, stabilization and filtering parameters
- Analysis of the collected footage, taking into account the analysis tools available in the Motion Studio software (time courses, spectral characteristics, orbits, motion vectors, frequency filtering and others)
- Making reports using the conversion of original film materials into MP4 files and single photos containing descriptions, charts, annotations
- Introduction to Motion Studio

### DURATION:

- Private - 3-day course (1-2 days theory, 3-day practical exercises and exam)

### FORMAT:

- Private onsite or in VIMS location

### LEARNING MATERIALS:

- Course Materials - printed and/or online

### EXAMINATION:

RDI Technologies certification exam, 50 questions, 1 hour, 80% passing grades. The exam is conducted in electronic form on a computer/laptop with a browser and access to the Internet. We use an online exam service called ClassMarker. Each participant will receive a link to the exam on the last day of the training.

### CERTIFICATION PREREQUISITE:

The course is intended for users of the Motion Amplification® system. Participants are required to attend practical classes and pass a certification test.

More information:

[www.vims.pl](http://www.vims.pl), [www.motionamplification.de](http://www.motionamplification.de)





# MEET THE TEAM

LONG YEARS OF EXCELLENCE SOLUTIONS WITH QUALITY AT IT'S BEST!

VIMS is a company that, based on the many years of experience of its team and cooperation with international partners, provides support for the widely understood predictive maintenance. Our mission is to provide solutions and assistance in the implementation of proven methods for effective detection of damage at a very early stage of its occurrence and optimal planning of industrial machinery downtime. We tailor products, solutions and services to the specifics of each customer. In the era of Industry 4.0 and the increasingly common IoT and M2M class solutions, an excess of data is as detrimental as its absence. Therefore, in our activities we strive to make effective use of the collected information, and implement the results of their analysis in the implemented solutions consistent with the Plug&Predict® policy.

VIMS Training Academy specializes in training for industries - mining, food, oil and gas, mineral and metal processing, energy, chemical, water supply, rail transportation and pharmaceutical.

Classes are taught by specialists in maintenance and reliability techniques with many years of experience.

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