

COURSE OVERVIEW RE0062 ISO 18436 Category I

Basic Vibration Analyst Training & Certification

Course Title

ISO 18436 Category I: Basic Vibration Analyst Training & Certification

O CEUS

(30 PDHs)

Course Reference RE0062

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Date/Venue



| Session(s) | Date | Venue |
|------------|----------------------|--|
| 1 | December 08-12, 2024 | Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey |
| 2 | December 22-26, 2024 | Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE |

Course Description









This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state- of-the art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of vibration analysis in accordance with ISO 18436 standards. It covers the practices comprising of breakdown maintenance maintenance, preventive (calendar based) maintenance, predictive (condition based) maintenance and proactive (reliability centered) maintenance: the condition monitoring for acoustic emission (ultrasound), thermography, oil analysis, wear particle analysis, motor testing and vibration analysis; and the principles of vibration covering vibration measurement, time waveform and spectrum.

During this interactive course, participants will learn the forcing frequencies and different vibration units; the data acquisition, vibration, sensor on the machine, axial radial, vertical and horizontal readings; the accelerometer mounting and surface preparation; the signal processing, quick tour of analyzer and spectral averaging; the vibration analysis, spectrum analysis process and diagnosing common fault conditions; and setting alarm limits.

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Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Get prepared for the next Vibration Analyst exam and have enough knowledge and skills to pass such exam in order to get certified as "*Vibration Analyst: Category I*" in accordance with ISO 18436 standards from Mobius Institute
- Carryout maintenance practices covering breakdown maintenance, preventive (calendar based) maintenance, predictive (condition based) maintenance and proactive (reliability centered) maintenance
- Employ condition monitoring for acoustic emission (ultrasound), thermography, oil analysis, wear particle analysis, motor testing and vibration analysis
- Discuss the principles of vibration covering vibration measurement, time waveform and spectrum
- Interpret forcing frequencies, different vibration units and introduction to phase
- Review data acquisition and measure vibration as well as determine sensor on the machine, axial radial, vertical and horizontal readings
- Apply accelerometer mounting and surface preparation
- Illustrate signal processing including the quick tour of analyzer and spectral averaging
- Carryout vibration analysis, spectrum analysis process and diagnosing common fault conditions
- Set alarm limits and discuss the ISO standard for setting alarms as well as band alarms and envelope alarms

Who Should Attend

This course provides an overview of all significant aspects and considerations of vibration analysis in accordance with ISO 18436 standards for those who are new to vibration monitoring and analysis and for personnel who have limited vibration analysis experience.

Exam Eligibility & Structure

Exam candidates shall have the following minimum prerequisites:-

• Recommended for candidates with 6 months of experience

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures

20% Practical Workshops & Work Presentations

30% Hands-on Practical Exercises & Case Studies

20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.



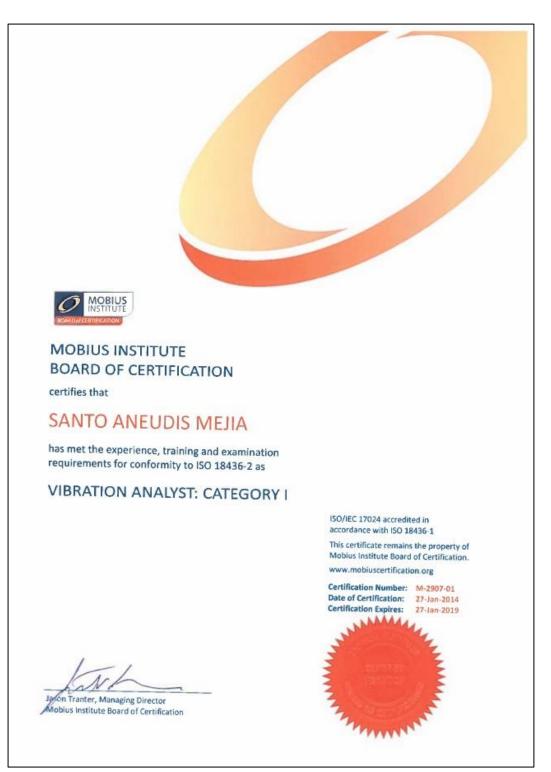
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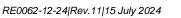
Course Certificate(s)

- (1) Internationally recognized certificates will be issued to all participants of the course.
- (2) Mobius Institute will certify the participants who will pass the examination for *Vibration Analyst: Category I*





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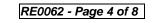




(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.











Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-

The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

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 - British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Fee

| Istanbul | US\$ 7,000 per Delegate + VAT . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day. |
|----------|---|
| Dubai | US\$ 6,500 per Delegate + VAT . This rate includes H-STK [®] (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day. |



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Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Kushal Solanki, BSc, VA, ASNT-NDT, is a Senior Mechanical Engineer with extensive years of industrial experience within the Oil & Gas, Refinery and Petrochemical industries. His expertise widely covers in the areas of Vibration Advanced Techniques, Vibration Analysis, Machinerv Balancing, Precision Machinery Alignment, Laser Alignment, Asset Reliability & Lubrication, AIV & FIV, Condition Monitoring & Asset Management, Magnetic Particle Testing, Ultrasonic Testing, Acoustic & Flow

Induced Vibration, Thermal Imaging Technology, RBI Assessment, Criticality Assessment, FMEA, Root Cause Analysis, Defect Elimination, Ultrasound Technology, Design Engineering System, Protection & Monitoring System, Static Equipment, Shutdown & Turnaround, Thermal Imaging, Static Risk Assessment, Baseline Survey Analysis, Machinery Maintenance, Oil Testing & Analysis, Borescope Inspection, Rockwell Automation, Azima, IT Concept, Metric Vibration, CTC Sensors, Artesis MCSA, Pipeline Corrosion Loops, Offshore Safety Induction & Emergency and Energy & Waste Management. Currently, he is the Senior Industrial Engineer and CMB Engineer wherein he is in-charge in developing and operating condition monitoring programs.

During his career life, Mr. Kushal has gained his practical and field experience through his various significant positions and dedication as the **Application Engineer**, **Senior Mechanical Engineer**, **Mechanical Engineer**, **Engineer** and **Graduate Engineer Trainee** for various companies such as the Samer Odeh and Sons Trading LLC, RAK TECH LLC and Ultratech Cement.

Mr. Kushal has a **Bachelor's** degree in **Mechanical Engineering**. Further, he is a **Certified Vibration Analysis Category III ISO 18436-2 Instructor** from the **Mobius Institute Board** of **Certification**, a **Certified Level II ASNT Non-Destructive Testing** for **Ultrasonic Testing (UT)** and **Magnetic Particle Testing Level II** and held certificates in ISO OSHAS 18001:2007 and ISO QMS 9001:2008. He has further delivered numerous trainings, courses, seminars, conferences and workshops internationally.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

| Day 1 | |
|-------------|---|
| 0730 – 0800 | Registration & Coffee |
| 0800 - 0815 | Introduction & Welcome |
| 0815 - 0830 | PRE-TEST |
| | Maintenance Practices |
| 0830 - 0930 | What is Breakdown Maintenance & When Should it be Employed? • What is |
| | Preventive (Calendar Based) Maintenance, & What are its Major Flaws? |



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| 0930 - 0945 | Break |
|-------------|---|
| 0945 – 1100 | Maintenance Practices (cont'd) |
| | What is Predictive (Condition Based) Maintenance, & What are its Benefits? • |
| | What is Proactive (Reliability Centered) Maintenance, and What are its Benefits? |
| 1100 – 1230 | Condition Monitoring |
| | Acoustic Emission (Ultrasound) • Thermography • Oil Analysis |
| 1230 - 1245 | Break |
| 1300 - 1420 | Condition Monitoring (cont'd) |
| | Wear Particle Analysis • Motor Testing • Vibration Analysis |
| 1420 - 1430 | Recap |
| 1430 | Lunch & End of Day One |

Day 2

| Day Z | 1 |
|-------------|--|
| 0730 – 0930 | <i>Principles of Vibration</i> <i>Introduction to Vibration Measurement</i> • An Introduction to the Time Waveform • An Introduction to the Spectrum |
| 0930 - 0945 | Break |
| 0945 - 1100 | Principles of Vibration (cont'd) An Introduction to Forcing Frequencies • Explaining the Different Vibration Units • A Brief Introduction to Phase |
| 1100 – 1230 | Data Acquisition A Quick Review of Data Acquisition • How do we Measure Vibration? |
| 1230 - 1245 | Break |
| 1300 - 1420 | Data Acquisition (cont'd) Where to Place the Sensor on the Machine • Understanding Axial, Radial, Vertical, & Horizontal Readings |
| 1420 - 1430 | Recap |
| 1430 | Lunch & End of Day Two |

Day 3

| | Data Acquisition (cont'd) |
|-------------|--|
| 0730 – 0930 | A Quick Introduction to Mounting the Accelerometer & Surface Preparation • |
| | Naming Conventions |
| 0930 - 0945 | Break |
| 0045 1100 | Data Acquisition (cont'd) |
| 0945 – 1100 | What are "Routes" & How do you Create Them? |
| 1100 – 1230 | Signal Processing |
| | A Quick Tour of your Analyzer |
| 1230 - 1245 | Break |
| 1300 - 1420 | Signal Processing (cont'd) |
| | Spectral Averaging |
| 1420 - 1430 | Recap |
| 1430 | Lunch & End of Day Three |

Day 4

| Day 4 | |
|-------------|--|
| 0730 – 0930 | Vibration Analysis |
| | The Spectrum Analysis Process • What is Resonance – A Quick Introduction |
| 0930 - 0945 | Break |
| 0945 - 1100 | Vibration Analysis (cont'd) |
| | Diagnosing Common Fault Conditions |



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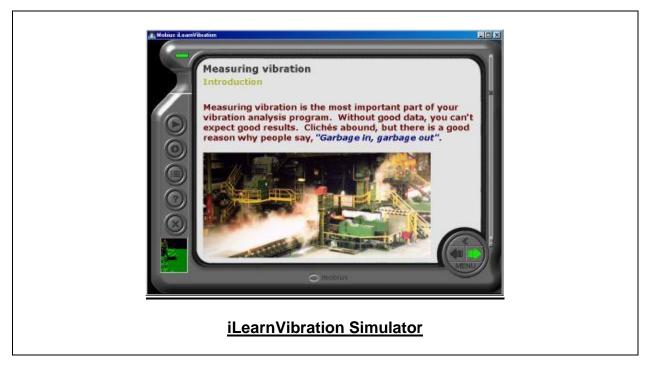
| 1100 - 1230 | Setting Alarm Limits The Iso Standard for Setting Alarms • Band Alarms |
|-------------|---|
| 1230 – 1245 | Break |
| 1300 - 1420 | Setting Alarm Limits (cont'd) Envelope Alarms |
| 1420 - 1430 | Recap |
| 1430 | Lunch & End of Day Four |

Day 5

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|-------------|-------------------------------------|
| 0730 - 0930 | Review & MOCK EXAM |
| 0930 - 0945 | Break |
| 0945 – 1130 | Mobius COMPETENCY EXAM |
| 1130 – 1145 | Break |
| 1145 – 1300 | Mobius COMPETENCY EXAM (cont'd) |
| 1300 - 1415 | Mobius COMPETENCY EXAM (cont'd) |
| 1415 – 1430 | Presentation of Course Certificates |
| 1430 | Lunch & End of Course |

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the state-of-the-art simulator "iLearnVibration".



Course Coordinator

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