

COURSE OVERVIEW RE0062
ISO 18436 Category I

Basic Vibration Analyst Training & Certification

Course Title

ISO 18436 Category I: *Basic Vibration Analyst Training & Certification*

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 maintenance practices comprising of breakdown 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.

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.

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**



- (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.

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Haward Technology Middle East
Continuing Professional Development (HTME-CPD)

CEUs
Page 1 of 1

CEU Official Transcript of Records

TOR Issuance Date: 21-Mar-19

HTME No. PAR182287

Participant Name: Wael Al Hashim

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
RE0801-4D-IH	ISO 18436 Category II: Intermediate Vibration Analyst Training & Certification	March 18 - 21, 2019	22	2.2
Total No. of CEU's Earned as of TOR Issuance Date				2.2

TRUE COPY



Maricel De Guzman
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by










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Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-

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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.

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 Techniques, Advanced Vibration Analysis, Machinery 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
0830 – 0930	Maintenance Practices What is Breakdown Maintenance & When Should it be Employed? • What is Preventive (Calendar Based) Maintenance, & What are its Major Flaws?



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

0730 – 0930	Principles of Vibration Introduction to Vibration Measurement • 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

0730 – 0930	Data Acquisition (cont'd) A Quick Introduction to Mounting the Accelerometer & Surface Preparation • Naming Conventions
0930 – 0945	Break
0945 – 1100	Data Acquisition (cont'd) 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

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



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

Day 5

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

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

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org