Haward Technology Middle East

COURSE OVERVIEW RE0626
Certified Machine Lubricant Analyst (MLA) Level-II
ISO 18436-4/ICML Certification

Course Title
Certified Machine Lubricant Analyst (MLA) Level-II: *ISO 18436-4/ICML Certification*

Course Reference
RE0626

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

Sessions	Date	Venue
1	January 26-30, 2025	Oryx Meeting Room, Double Tree by Hilton Al Saad, Doha, Qatar
2	April 20-24, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
3	Jule 14-18, 2025	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
4	October 12-16, 2025	Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Certified Machine Lubricant Analyst (MLA) Level-II. It covers the lubricant roles and functions including base oil, additive functions, synthetic lubricants and lubrication regimes; the oil analysis maintenance strategies and the fundamental aspects of reliability-centered maintenance (RCM) and condition-based maintenance (CBM); and the oil sampling and objectives for lube oil sampling, equipment specific sampling, sampling methods, managing interference and sampling process management.

During this interactive course, participants will learn the lubricant health monitoring, lubricant failure mechanisms, oxidative and thermal degradation; the additive depletion or degradation; testing for wrong or mixed lubricants; the fluid properties test methods and measurement units; the lubricant contamination measurement and control covering particle contamination, moisture contamination, glycol coolant contamination, soot contamination, fuel contamination and air contamination; and the wear debris monitoring and analysis comprising of common wear mechanisms, detecting abnormal wear and wear debris analysis.

Course Objectives

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

- Get certified as a *"Machine Lubricant Analyst (MLA) Level - II"* from the International Council for Machinery Lubrication (ICML) in accordance with the ISO 18436-4 standard
- Discuss lubricant roles and functions including base oil, additive functions, synthetic lubricants and lubrication regimes
- Carryout oil analysis maintenance strategies and recognize the fundamental aspects of reliability-centered maintenance (RCM) and condition-based maintenance (CBM)
- Perform oil sampling and describe the objectives for lube oil sampling, equipment specific sampling, sampling methods, managing interference and sampling process management
- Apply lubricant health monitoring and determine lubricant failure mechanisms, oxidative and thermal degradation as well as additive depletion or degradation
- Test for wrong or mixed lubricants and identify the fluid properties test methods and measurement units
- Employ lubricant contamination measurement and control covering particle contamination, moisture contamination, glycol coolant contamination, soot contamination, fuel contamination and air contamination
- Implement wear debris monitoring and analysis comprising of common wear mechanisms, detecting abnormal wear and wear debris analysis

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course is providing an overview of all significant aspects and considerations of machine lubrication analysis for plant engineers, reliability engineers, condition monitoring specialist, plant managers, operations managers, plant operators and lubrication and maintenance technical staff.

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.

Exam Eligibility & Structure

Exam Candidates shall have the following minimum prerequisites:-

- **Education and/or Experience** - Candidate must have 24 months experience in the field of lubricant-analysis-based machinery condition monitoring (based on 16 hours minimum per month of experience). This represents a minimum of 384 hours spread consistently over two years.
- **Complete one of these requirements:**
    - Hold Level I Machine Lubricant Analyst (MLA) certification

      OR

    - Qualify as a Mature Entry Candidate (without Level I MLA certification) by submitting documentation of:
        - At least 576 hours additional work experience in the field of lubricant-analysis-based machinery condition monitoring. This brings total work hours to 960 when combined with the 384 hours already listed above.
        - Minimum 24 hours training relevant to the MLA I Body of Knowledge, accumulated through any combination of instructor-led events (such as workshops, seminars, or classes) and/or specific hands-on practice or observation.
- **Training** - Candidate must have received 24 hours of documented formal training as outlined in the Body of Knowledge of the MLA II. For online or recorded training, exercises, lab tasks, practice exams, and review exercises may be included in the training time total but shall not exceed four hours of the required course time. These 24 hours are in addition to the previous 24 hours of training required for MLA I or Mature Candidate Entry, for a total cumulative training of 48 hours. Candidate shall be able to provide a record of this training to ICML that shall include the candidate's name, the name and signature of the instructor, the dates of the training, and the number of hours spent in the training.
- **Examination** - Each candidate must successfully pass a 100-question multiple choice examination that evaluates the candidate's knowledge of the topic. Candidates have three hours to complete the closed-book examination. A score of 70% is required to pass the examination and achieve certification.

Course Certificate(s)

(1) ICML certificates will be issued to participants who have successfully completed the course and passed the exam. Successful candidate will be certified as *"Machine Lubricant Analyst (MLA) Level - II*".

International Council for Machinery Lubrication

Martin Williamson

has satisfactorily fulfilled the requirements established by the Council for professional attainment in

Machinery Lubricant Analysis

and, is therefore designated by the Council as a:

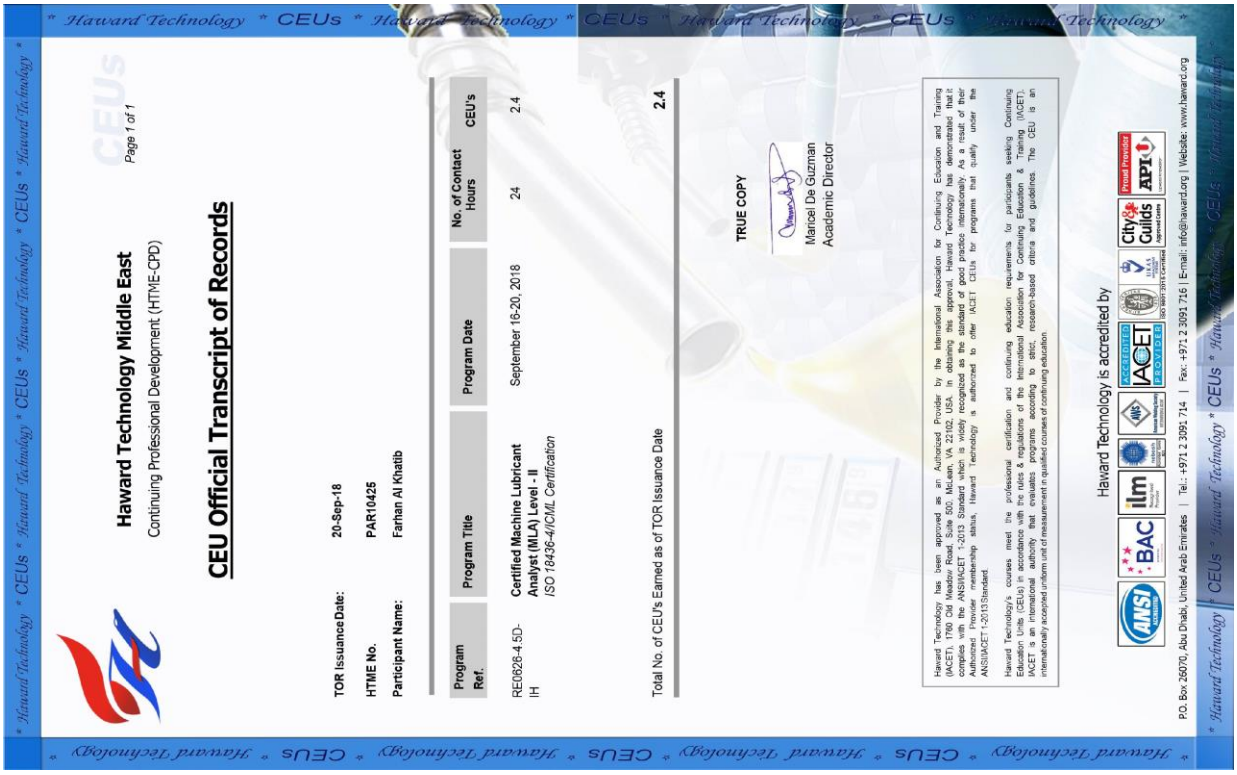
Certified Level II Machinery Lubricant Analyst
ISO Equivalency: ISO 18436-4, Category II

Certification Number: MLA II-002415
Certification Date: 6/15/2005
Re-certify By: 6/15/2017

Leslie Fish
Certification Director

By issuing this certificate, ICML attests to the qualification of the holder as defined in ISO 18436-4, Category II but does not give any authority to perform machinery lubricant sampling or analysis

(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.



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

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CEU Official Transcript of Records

TOR Issuance Date: 20-Sep-18
HTME No. PAR10425
Participant Name: Farhan Al Khatib

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
RE0626-4.5D-IH	Certified Machine Lubricant Analyst (MLA) Level - II *ISO 18436-4/ICML Certification*	September 16-20, 2018	24	2.4

Total No. of CEU's Earned as of TOR Issuance Date: 2.4

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), 1760 Old Meadow Road, Suite 500, McLean, VA 22102, 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

P.O. Box 26076, Abu Dhabi, United Arab Emirates | Tel.: +971 2 3091 714 | Fax: +971 2 3091 716 | E-mail: info@haward.org | Website: www.haward.org

Certificate Accreditations

Haward Technology is accredited by the following international accreditation organizations:-

- International Council for Machinery Lubrication (ICML)

  This Machine Lubricant Analyst Certification course complies with the **ICML** (**International Council for Machinery Lubrication**) regulation and is designed to certify successful participant as a Machine Lubricant Analyst (MLA).

- 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.

- 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.

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. Martin Williamson, PE, BSc, CMRP, MLE, MLA III, MLT II, is an **International Authority** in **Machinery Lubrication**, **ICML Certification** and **ISO 18436 Standards** with over **30 years** of practical experience. He is an **ICML Authorized Instructor & Consultant**. His wide expertise covers **Machinery Lubrication**, **ICML Certification**, **ISO 18436-4**, **ISO Standards Development**, **Condition Monitoring**, **Vibration & Oil Analysis**, **Contamination Monitoring, Tribology**, **Reliability Engineering** and **Scheduling Design**. He is currently the **Managing Director** of **KEW Engineering Ltd**. and a **Co-Director** of **Uptime 101 Pte Ltd**. that provides reliability and maintenance best practices engineering consulting and training services to the **petrochemical**, **oil**, **gas** and allied industries in **Europe**, **Australia**, **North America**, the **Middle East**, **Asia** and **South African** regions.

For the last 20 years, Mr. Williamson has been presenting training classes and undertaking consulting projects on an international level on behalf of **Noria Corporation** and other key clients such as **BP**, **Dow Corning**, **Marathon Oil** and **Cargill**. Since he attained his **CMRP** (Certified Maintenance & Reliability Professional) status, he has been involved with **ICML** (International Council for Machinery Lubrication) as an **ICML Authorized Instructor & Consultant** and is working on various related **ISO** working groups. Prior to this, he gained his remarkable experience for being the **General Manager** in Noria UK Limited (UK), **Oil Analysis Product Manager** in Rockwell Automation Entek (UK), **Senior Technical Support Engineer** in Pall Europe Limited (UK) and **Mechanical Engineer** in ISCOR Ltd.

Mr. Williamson is a **Professional Engineer** and has a **Bachelor's** degree in **Mechanical Engineering**. Further, he is a **Member** of the **Board** of the **ICML**, a **Certified CMRP** (Maintenance & Reliability Professional) from the Society of Maintenance & Reliability Professionals (**SMRP**) and a **Certified MLA III** (Machinery Lubricant Analyst), a **Certified MLT II** (Machinery Lubricant Technician) and a **Certified MLE I** (Machine Lubricant Expert) from the International Council for Machinery Lubrication (**ICML**). He is also a **Certified Instructor/Trainer** and a **Certified Trainer** for **BOSIET** (Basic Off-Shore Safety Induction and Emergency Training) and **HUET** (Helicopter Underwater Evacuation Training). He has further delivered numerous trainings, courses, seminars, workshops and conference internationally.

Accommodation

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

Training Fee

Dubai	**US$ 7,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	**US$ 7,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	**US$ 7,500** per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	**US$ 7,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Exam Fee

US$ 320 per Delegate + **VAT**.

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 – 0835	*Registration, coffee, welcome & introduction*
0835 – 0845	***PRE-TEST***
0845 - 1015	***Lubricant Roles & Functions*** *Base Oil (Functions, Properties) ● Additive Functions (Surface Active Additives & their Functions; Bulk Oil Active Additives & their Functions)*
1015 – 1030	*Break*
1030 – 1130	***Lubricant Roles & Functions (cont'd)*** *Synthetic Lubricants (Synthetic Lubricant Types, Conditions Dictating their Use) ● Lubrication Regimes (Hydrodynamic, Elasto-Hydrodynamic, Boundary))*
1130 – 1230	***Oil Analysis Maintenance Strategies*** *Fundamental Aspects of Reliability-Centered Maintenance (RCM)*
1230 – 1245	*Break*
1245 – 1420	***Oil Analysis Maintenance Strategies (cont'd)*** *Fundamental Aspects of Condition-Based Maintenance (CBM) (Predictive Maintenance Strategies, Proactive Maintenance Strategies)Fundamental Aspects of Reliability-Centered Maintenance (RCM)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 - 1015	***Oil Sampling*** *Objectives for Lube Oil Sampling ● Equipment Specific Sampling (Gearboxes with Circulating Systems, Engines, Single & Multi-Component Circulating Oil Systems with Separate Reservoirs, Hydraulic Systems, Splash, Ring and Collar Lubricated Systems)*
1015 – 1030	*Break*

1030 – 1130	***Oil Sampling (cont'd)*** *Sampling Methods (Non-Pressurized Systems, Pressurized Systems – Low, Pressurized Systems – High)*
1130 – 1230	***Oil Sampling (cont'd)*** *Managing Interference (Bottle Cleanliness & Management, Flushing, Machine Conditions Appropriate for Sampling)*
1230 – 1245	*Break*
1245 – 1420	***Oil Sampling (cont'd)*** *Sampling Process Management (Sampling Frequency, Sampling Procedures, Sample Processing)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 3

0730 - 1015	***Lubricant Health Monitoring*** *Lubricant Failure Mechanisms ● Oxidative Degradation (The Oxidation Process, Causes of Oxidation, Effects of Oxidative Degradation) ● Thermal Degradation (The Thermal Failure Process, Causes of Thermal Failure, Effects of Thermal Degradation)*
1015 – 1030	*Break*
1030 – 1130	***Lubricant Health Monitoring (cont'd)*** *Additive Depletion/Degradation (Additive Depletion Mechanisms, Additives at Risk for Depletion/Degradation by the Various Mechanisms) ● Testing for Wrong or Mixed Lubricants (Baselining Physical and Chemical Properties Tests, Additive Discrepancies)*
1130 – 1230	***Lubricant Health Monitoring (cont'd)*** *Fluid Properties Test Methods and Measurement Units (Kinematic Viscosity (ASTM D445), Absolute (Dynamic) Viscosity (ASTM D2983), Viscosity Index (ASTM D2270), Acid Number (ASTM D974 et al), Base Number (ASTM D974 et al), Fourier Transform Infrared (FTIR) Analysis, Rotating Pressure Vessel Oxidation Test (ASTMD2272), Atomic Emission Spectroscopy)*
1230 – 1245	*Break*
1245 – 1420	***Lubricant Contamination Measurement & Control*** *Particle Contamination (Effects on the Machine, Effects on the Lubricant, Methods and Units for Measuring Particle Contamination, Techniques for Controlling Particle Contamination)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 4

0830 - 1015	***Lubricant Contamination Measurement & Control*** *Moisture Contamination (Effects on the Machine, Effects on the Lubricant, States of Coexistence, Methods and Units for Measuring Moisture Contamination, Demulsibility Measurement, Techniques for Controlling Moisture Contamination)*
1015 – 1030	*Break*
1030 – 1130	***Lubricant Contamination Measurement & Control (cont'd)*** *Glycol Coolant Contamination (Effects on the Machine, Effects on the Lubricant, Methods and Units for Measuring Glycol Contamination, Techniques for Controlling Glycol Contamination)*

1130 – 1230	***Lubricant Contamination Measurement & Control (cont'd)*** *Soot Contamination (Effects on the Machine, Effects on the Lubricant, Methods and Units for Measuring Soot Contamination, Techniques for Controlling Soot Contamination)*
1230 – 1245	*Break*
1245 – 1420	***Lubricant Contamination Measurement & Control (cont'd)*** *Fuel Contamination (Fuel Dilution in Oil) (Effects on the Machine, Effects on the Lubricant, Methods and Units for Measuring Fuel Contamination, Techniques for Controlling Fuel Contamination)*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 5

0730 - 1015	***Lubricant Contamination Measurement & Control (cont'd)*** *Air Contamination (Air in Oil) (Effects on the Machine, Effects on the Lubricant, States of Coexistence, Methods for Assessing Air Contamination [Air Release Characteristics (ASTM D3427); Foam Stability Characteristics (ASTM D892)], Techniques for Controlling Air Contamination)*
1015 – 1030	*Break*
1030 – 1130	***Wear Debris Monitoring & Analysis*** *Common Wear Mechanisms (Abrasive Wear [Two-body; Three-body]; Surface Fatigue (Contact Fatigue) [Two-body; Three-body]; Adhesive Wear; Corrosive Wear; Cavitation Wear)*
1130 – 1230	***Wear Debris Monitoring & Analysis (cont'd)*** *Detecting Abnormal Wear (Atomic Emission Spectroscopy Methods [Inductively Coupled Plasma (ICP) Spectroscopy; Arc-spark Emission Spectroscopy]; Wear Particle Density Measurement)*
1230 – 1245	*Break*
1245 – 1335	***Wear Debris Monitoring & Analysis (cont'd)*** *Wear Debris Analysis (Ferrogram Preparation; Filtergram Preparation; Light Effects; Magnetism Effects; Heat Treatment; Basic Morphological Analysis)*
1345 – 1400	***Course Conclusion***
1420 - 1430	***POST TEST***
1430	*Lunch & End of Course*

MOCK Exam

Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK Exam during the 30 days following the course completion. Each participant has only one trial for the MOCK exam within this 30-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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