COURSE OVERVIEW RE0617
Certified Machine Lubricant Analyst (MLA) Level I
ISO 18436-4/ICML Certification

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

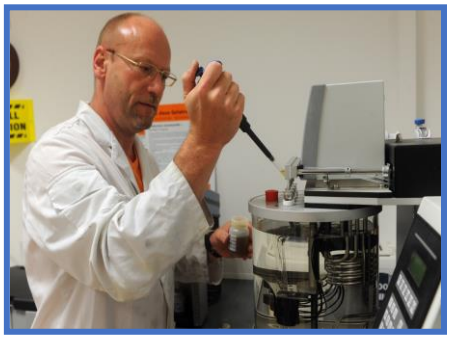
Course Date/Venue
August 10-14, 2025/Olivine Meeting Room, Fairmont Nile City, Cairo, Egypt

Course Reference
RE0617

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

Online Exam Window
As per ICML Schedule

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.

In the severe weather of the Middle East, lubrication is a major challenge to every maintenance department. High operating costs, downtime, and wear-out of equipment make the life of every maintenance professional in the Middle East very difficult. Bearing in mind that the process plant is usually losing approximately 7% of its entire maintenance budget simply due to poor lubrication practices, it is vital that the maintenance practices become more optimized and proper lubricant analysis be implemented.

Using lubricant analysis to monitor condition and diagnose faults in machinery is a key activity in predictive maintenance programmes for most industries. Other non-intrusive technologies including thermography, vibration analysis, acoustic emission and motor current analysis are used as complementary condition analysis tools. Those in the process industry who have diligently and consistently applied these techniques have experienced a return on investment far exceeding their expectations. However, the effectiveness of these programmes depends on the capabilities of individuals who perform the measurements and analyse the data.

This course is desigend to provide participants with a detailed and up-to-date overview of Certified Machine Lubricant Analyst (MLA) Level I. It covers the maintenance strategies, machine failure and the impact of poor maintenance on company profits; the role of effective lubrication in failure avoidance; the lube routes and scheduling, oil analysis and technologies to assure lubrication effectiveness; the equipment tagging and identification; the lubrication theory/fundamentals covering tribology, functions of a lubricant, hydrodynamic lubrication, etc; the lubricant selection comprising of viscosity selection, base-oil type selection, additive system selection, machine specific lubricant requirements and application and environment related adjustments; and the lubricant application and basic calculations for determining required lubricant volume, re-lube and change frequencies.

During this interactive course, participants will learn the selection of oil and grease; the effective use of manual delivery techniques and automatic delivery systems; deciding when to employ automated lubricators and maintain automated lubrication systems in a professional manner; the lube storage and management, lubricant receiving procedures and proper storage and inventory management using lube storage containers; the proper storage of grease-guns and other lube application devices including the maintenance of automatic grease system and health and safety assurance; the lube condition control, oil sampling and lubricant health monitoring; the wear debris monitoring and analysis; and the common machine wear mechanisms.

Course Objectives

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

- Get certified as a *"Machine Lubricant Analyst (MLA) Level - I"* from the International Council for Machinery Lubrication (ICML) in accordance with the ISO 18436-4 standard
- Carryout maintenance strategies and discuss machine failure and the impact of poor maintenance on company profits
- Identify the role of effective lubrication in failure avoidance as well as apply lube routes and scheduling, oil analysis and technologies to assure lubrication effectiveness and equipment tagging and identification
- Explain lubrication theory/fundamentals covering tribology, functions of a lubricant, hydrodynamic lubrication and etc.
- Apply lubricant selection comprising of viscosity selection, base-oil type selection, additive system selection, machine specific lubricant requirements and application and environment related adjustments
- Employ lubricant application including the basic calculations for determining required lubricant volume and basic calculations to determine re-lube and change frequencies
- Select oil and grease and recognize the effective use of manual delivery techniques and automatic delivery systems
- Decide when to employ automated lubricators and maintain automated lubrication systems in a professional manner
- Implement lube storage and management, lubricant receiving procedures and proper storage and inventory management using lube storage containers
- Carryout proper storage of grease-guns and other lube application devices including the maintenance of automatic grease system and health and safety assurance
- Apply lube condition control, oil sampling and lubricant health monitoring
- Perform wear debris monitoring and analysis and identify the common machine wear mechanisms

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 provides a wide understanding and deeper appreciation of machine lubrication analysis in accordance with the international standards. This includes all maintenance and reliability professionals who are seeking ICML certification. Further, maintenance engineers, reliability engineers, lubricant analysts, lubrication technicians, craftsmen and millwrights, equipment operators, maintenance supervisors, predictive maintenance technicians, lubricant industry professionals and laboratory analysts will also benefit from this course.

Accommodation

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

Exam Eligibility & Structure

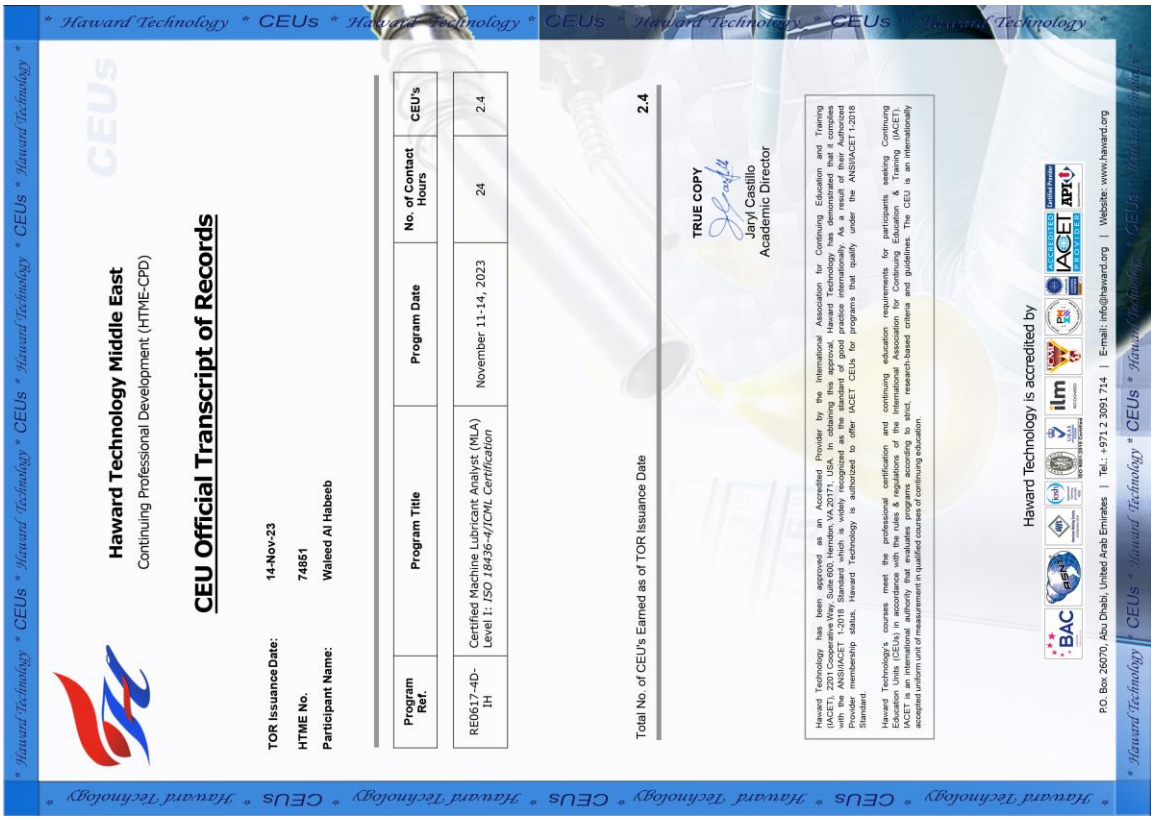
Exam candidates shall have the following minimum pre-requisites:

- **Education and/or Experience** - Candidates must have at least 12 months experience in the field of lubricant-analysis-based machinery condition monitoring (based on 16 hours minimum per month of experience).
- **Training** - Candidate must have received 24 hours of documented formal training as outlined in the Body of Knowledge of the MLA I. 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. 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 a *"Machine Lubricant Analyst (MLA) Level - 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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rtificate Accreditations

Certificates are 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) Level-I.

- 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.

Course Fee

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**.

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 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: ***Sunday, 10th of August 2025***

0730 – 0800	*Registration & Coffee*
0800 - 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Maintenance Strategies*** *Why machines Fail • The Impact of Poor Maintenance on Company Profits • The Role of Effective Lubrication in Failure Avoidance*
0930 – 0945	*Break*
0945 – 1215	***Maintenance Strategies (cont'd)*** *Lube Routes and Scheduling • Oil Analysis and Technologies to Assure Lubrication Effectiveness • Equipment Tagging and Identification*
1215 - 1230	*Break*
1230 – 1330	***Lubrication Theory / Fundamentals*** *Fundamentals of Tribology • Functions of a Lubricant • Hydrodynamic Lubrication (Sliding Friction)*
1330 - 1420	***Lubrication Theory / Fundamentals (cont'd)*** *Elasto-Hydrodynamic Lubrication (Rolling Friction) • Mixed-Film Lubrication*
1420 – 1430	***Recap*** *Using this Course Overview, the instructor(s)will Brief Participants about the Topics that were Discussed Today and Advice Them of the Topics to be Discussed Tomorrow*
1430	*End of Day One*

Day 2:	Monday, 11th of August 2025
0730 – 0930	***Lubrication Theory / Fundamentals (cont'd)*** *Base-Oils ● Additives and their Functions*
0930 – 0945	*Break*
0945 – 1100	***Lubrication Theory / Fundamentals (cont'd)*** *Oil Lubricant Physical, Chemical and Performance Properties and Classifications ● Grease Lubrication*
1100 – 1230	***Lubricant Selection*** *Viscosity Selection ● Base-Oil Type Selection ● Additive System Selection*
1230 – 1245	*Break*
1245 – 1420	***Lubricant Selection (cont'd)*** *Machine Specific Lubricant Requirements ● Application and Environment Related Adjustments*
1420 – 1430	***Recap*** *Using this Course Overview, the instructor(s)will Brief Participants about the Topics that were Discussed Today and Advice Them of the Topics to be Discussed Tomorrow*
1430	*End of Day Two*

Day 3:	Tuesday, 12th of August 2025
0730 – 0930	***Lubricant Application*** *Basic Calculations for Determining Required Lubricant Volume*
0930 – 0945	*Break*
0945 – 1100	***Lubricant Application (cont'd)*** *Basic Calculations to Determine Re-Lube and Change Frequencies*
1100 – 1230	***Lubricant Application (cont'd)*** *When to Select Oil; When to Select Grease ● Effective Use of Manual Delivery Techniques*
1230 – 1245	*Break*
1245 – 1420	***Lubricant Application (cont'd)*** *Automatic Delivery Systems*
1420 – 1430	***Recap*** *Using this Course Overview, the instructor(s)will Brief Participants about the Topics that were Discussed Today and Advice Them of the Topics to be Discussed Tomorrow*
1430	*End of Day Three*

Day 4:	Wednesday, 13th of August 2025
0730 – 0930	***Lubricant Storage & Management*** *Lubricant Receiving Procedures ● Proper Storage and Inventory Management ● Lube Storage Containers*
0930 – 0945	*Break*
0945 – 1100	***Lubricant Storage & Management (cont'd)*** *Proper Storage of Grease-Guns and other Lube Application Devices ● Maintenance of Automatic Grease Systems ● Health and Safety Assurance*
1100 – 1230	***Lube Condition Control*** *Filtration and Separation Technologies ● Filter Rating*
1230 – 1245	*Break*

1245 – 1330	***Lube Condition Control (cont'd)*** *Filtration System Design and Filter Selection*
1330 – 1430	***Recap*** *Using this Course Overview, the instructor(s)will Brief Participants about the Topics that were Discussed Today and Advice Them of the Topics to be Discussed Tomorrow*
1430	*End of Day Four*

Day 5: ***Thursday, 14th of August 2025***

0730 – 0930	***Oil Sampling*** *Objectives for Lube Oil Sampling ● Sampling Methods*
0930 – 0945	*Break*
0945 – 1015	***Oil Sampling (cont'd)*** *Managing Interference*
1015 – 1100	***Lubricant Health Monitoring*** *Lubricant Failure Mechanisms*
1100 - 1215	***Lubricant Health Monitoring (cont'd)*** *Testing for Wrong or Mixed Lubricants*
1215 - 1230	*Break*
1230 - 1300	***Lubricant Health Monitoring (cont'd)*** *Fluid Properties Test Methods and Measurement Units – Applications and Limitations*
1300 – 1345	***Wear Debris Monitoring & Analysis*** *Common Machine Wear Mechanisms*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
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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