



# COURSE OVERVIEW RE0628 Certified Machinery Lubrication Technician (MLT) Level -I

ICML-MLT Certification

## **Course Title**

Certified Machinery Lubrication Technician (MLT) Level -I: *ICML-MLT Certification* 

# **Course Date/Venue**

November 24-28, 2024/Trama Meeting Room, Al Bandar Rotana - Creek, Dubai, UAE

**Online Exam Window** 

As per ICML Schedule



**RE0628** 



<u>Course Duration/Credits</u> Five days/3.0 CEUs/30 PDHS

# **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 lubrication program be implemented.



This course will introduce and establish the role of precision lubrication and analysis for improving machine reliability. It will provide an overview of lubricant construction and the general principles involved in lubricant selection for common plant machinery. Handling and application practices for both oils and gases will be reviewed.























The course will introduce contamination control strategies as a way to improve machine perforance. It will provide a thorough introduction to the principles of lubricant analysis and introduce appropriate methods to collect samples as the first step in lubricant based machine condition assessment.

# **Course Objectives**

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

- Get certified as a "Machinery Lubrication Technician (MLT) Level I" from the International Council for Machinery Lubrication (ICML)
- Carryout maintenance strategy as well as discuss the lubrication theory covering tribology fundamentals, functions of a lubricant, hydrodynamic lubrication, elastohydrodynamic lubrication and mixed-film lubrication
- Describe lubricants comprising of base-oils, additives and their functions, physical, chemical, performance properties and classifications of oil lubricant and grease lubricant, grease lubrication, thickener types and thickener compatibility
- Employ lubricant selection, lubricant application, preventive and predictive maintenance
- Apply lube condition control for filtration and separation technologies, filter rating, filtration system design and filter selection
- Perform lube storage and management and implement lubricant receiving procedures, proper storage, inventory management, lube storage containers, proper storage of grease-guns and other lube application devices, maintenance of automatic grease systems as well as health and safety assurance

# 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, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a Tablet PC.

#### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of machine lubrication for all maintenance and reliability professionals including maintenance engineers, reliability engineers, lubricant analysts, lubrication technicians, craftsmen and millwrights, equipment operators, maintenance supervisors, predictive maintenance technicians, lubricant industry professionals and laboratory analysts.





















# **Exam Eligibility & Structure**

Exam candidates shall have the following minimum pre-requisites:

- Education and/or Experience Candidates must have at least two years education (post-secondary) or on-the-job training in one or more of the following fields: machine lubrication, engineering, mechanical maintenance and/or maintenance trades.
- Training Candidate must have received 16 hours of documented formal training in machinery lubrication as outlined in the Body of Knowledge of the MLT I. For online or recorded training, exercises, practice exams, and review exercises may be included in the training time total but shall not exceed three 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, multiplechoice 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) Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.
- (2) ICML certificates will be issued to participants who have successfully completed the course and passed the exam at the end of the course. Successful candidate will be certified as a "Machinery Lubrication Technician (MLT) Level - I".

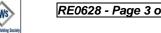






















(3) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.



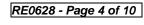
























## **Certificate Accreditations**

Haward Technology is accredited by the following international accreditation



# International Council for Machinery Lubrication (ICML)

This Machinery Lubrication Technician Certification course complies with the ICML (International Council for Machinery Lubrication) regulation and is designed to certify successful participant as a Machinery Lubrication Technician (MLT).

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.



# **British Accreditation Council (BAC)**

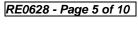
Haward Technology is accredited by the British Accreditation Council for Independent Further and Higher Education as an International Centre. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited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





















# **Course 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.

#### **Training Fee**

**US\$ 7,000** per Delegate + **VAT** This rate includes H-STK<sup>®</sup> (Haward Smart Training Kit), buffet lunch, coffee, tea on arrival, morning & afternoon of each day.

#### **Exam Fee**

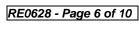
US\$ 320 per Delegate + VAT.





















# **Training Methodology**

All our Courses are including Hands-on Practical Sessions using equipment, Stateof-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.

#### Accommodation

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

# **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:

Sunday, 24th of November 2024 Day 1

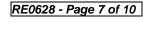
Day 1	Sunday, 24 Of November 2024
0730 - 0800	Registration & Coffee
0800 - 0815	Welcome & Introduction
0815 - 0830	PRE-TEST
0830 - 0930	Maintenance Strategy
	Why Machines Fail • The Impact of Poor Maintenance on Company Profits
0930 - 0945	Break
0945 - 1015	Maintenance Strategy (cont'd)
	The Role of Effective Lubrication in Failure Avoidance
1015 - 1130	Lubrication Theory
	Fundamentals of Tribology • Functions of a Lubricant
1130 – 1230	Lubrication Theory (cont'd)
	Hydrodynamic Lubrication (Sliding Friction) ● Elasto-Hydrodynamic Lubrication
	(Rolling Friction)
1230 - 1245	Break
1245 - 1330	Lubrication Theory (cont'd)
	Mixed-Film Lubrication
1330 - 1420	Lubricants
	Base-Oils ● Additives & their Functions
1420 - 1430	Recap
1430	Lunch & End of Day One





















Day 2 Monday, 25 <sup>th</sup> of November	er 2024
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0730 - 0930	Lubricants (cont'd)Oil Lubricant Physical, Chemical & Performance Properties & Classifications
0930 - 0945	Break
0945 – 1130	Lubricants (cont'd) Grease Lubrication (How Grease is Made?, Thickener Types, Thickener Compatibility, Grease Lubricant Physical, Chemical & Performance Properties & Classifications)
1130 - 1230	Lubricant Selection Viscosity Selection   ■ Base-Oil Type Selection
1230 – 1245	Break
1245 - 1420	Lubricant Selection (cont'd)  Additive System Selection ● Machine Specific Lubricant Requirements (Hydraulic Systems, Rolling Element Bearings, Journal Bearings, Reciprocating Engines, Gearing & Gearboxes)
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3 Tuesday, 26th of November 2024

Day 3	ruesuay, 20 Or November 2024
0730 - 0930	Lubricant Selection (cont'd)
	Application & Environment Related Adjustments
0930 - 0945	Break
0945 - 1130	Lubricant Application
	Basic Calculations for Determining Required Lubricant Volume
1130 - 1230	Lubricant Application (cont'd)
	Basic Calculations to Determine Re-Lube & Change Frequencies
1230 - 1245	Break
1245 - 1420	Lubricant Application (cont'd)
	When to Select Oil; When to Select Grease?
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4 Wednesday, 27<sup>th</sup> of November 2024

0730 - 0930	Lubricant Application (cont'd)
	Effective Use of Manual Delivery Techniques
0930 - 0945	Break
0945 – 1100	Lubricant Application (cont'd)
	Automatic Delivery Systems (Automated Deliver Options: Automated Grease
	Systems, Oil Mist Systems, Drip & Wick Lubricators; Deciding When to Employ
	Automated Lubricators; Maintenance of Automated Lubrication Systems)
1100 - 1230	Preventive & Predictive Maintenance
	Lube Routes & Scheduling ● Oil Analysis & Technologies to Assure Lubrication
	Effectiveness
1230 - 1245	Break
1245 - 1420	Preventive & Predictive Maintenance (cont'd)
	Equipment Tagging & Identification
1420 – 1430	Recap
1430	Lunch & End of Course





















Day 5 Thursday, 28 <sup>th</sup> of Nov	vember 2024
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Day 3	Thursday, 20 Of November 2024
0730 - 0930	Lube Condition Control  Filtration & Separation Technologies ● Filter Rating
0930 - 0945	Break
0945 - 1100	Lube Condition Control (cont'd) Filtration System Design & Filter Selection
1100 - 1230	Lube Storage & ManagementLubricant Receiving Procedures• Proper Storage & Inventory ManagementLube Storage Containers
1230 - 1245	Break
1245 - 1330	Lube Storage & Management (cont'd)Proper Storage of Grease-Guns & Other Lube Application DevicesMaintenance of Automatic Grease Systems ● Health & Safety Assurance
1330 – 1400	Course Conclusion Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
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:-



<u>Course Coordinator</u>
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