



COURSE OVERVIEW LE0512 Lube Oil Testing & Analysis

Course Title

Lube Oil Testing & Analysis

Course Date/Venue

Session 1: April 07-11, 2025/ Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: September 28-October 02, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

LE0512



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This hands-on, highly-interactive course includes real-life case studies 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 lube oil testing. It covers the lubricant testing and performance analysis; the viscosity, flash/fire point, pour, cloud point and foam; the air release properties, neutralization number, acid number, base number and filterability; and the oxidation stability, turbine oil oxidation test, rotary pressure vessel oxidation test, rust and corrosion tests, turbine oil rust test and copper strip corrosion.



During this interactive course, participants will learn the anti-wear tests, four ball wear test, vickers wear pump test and SRV test; the extreme pressure; the four ball EP test, timken extreme pressure test, falex EP/wear test and FZG four square gear test rig; the demulsibility, grease consistency, dropping point of grease, mechanical stability of greases and rolling stability of greases; and the water washout test for greases, water spray test for greases, rolling bearing rust test, koppers centrifugal stability test, oil separation in grease storage and oxidation stability-greases.





Course Objectives

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

- Apply and gain a comprehensive knowledge on lubricant oil and grease testing and analysis
- Carryout lubricant testing and performance analysis
- Discuss viscosity, flash/fire point, pour, cloud point and foam
- Identify the air release properties, neutralization number, acid number, base number and filterability
- Apply oxidation stability, turbine oil oxidation test, rotary pressure vessel oxidation test, rust and corrosion tests, turbine oil rust test and copper strip corrosion
- Perform anti-wear tests, four ball wear test, vickers wear pump test and SRV test
- Recognize extreme pressure and illustrate four ball EP test, timken extreme pressure test, falex EP/wear test and FZG four square gear test rig
- Determine demulsibility, grease consistency, dropping point of grease, mechanical stability of greases and rolling stability of greases
- Employ water washout test for greases, water spray test for greases, rolling bearing rust test, koppers centrifugal stability test, oil separation in grease storage and oxidation stability-greases

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 an overview of all significant aspects and considerations of lube oil testing for chemical engineers, chemists, mechanical engineers, scientists and other 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.






Course Certificate(s)


Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

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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.

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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.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

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





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. Karl Thanasis, PEng, MSc, MBA, BSc, is an International Expert in Analytical Laboratory & Senior Water Engineer with over 30 years of practical experience within the Laboratory Equipment, Oil, Gas, Refinery, Petrochemical, Utilities and related industries. His expertise widely includes in the areas of Lab Safety & Health, Internal Quality Control for Microbiologists, Analytical Techniques, Laboratory Quality Management Systems (ISO 17025 and ISO 15189), Thermo Scientific Equipment, Laboratory Instruments Calibration & Troubleshooting Techniques, Laboratory-Oil & Gas, Laboratory Information Management System (LIMS) Good Laboratory Practice (GLP) and Safety Procedure in Laboratories Water Distribution System, Water Reservoir, Water Tanks, Water Pumping Station, Water Network System, Water Pipes & Fittings, Water Hydraulic Modelling, Water Network Hydraulic Simulation Modelling, Water Balance Modelling, Water Distribution Network, Water Network System Design, Water Network System Analysis, Water Forecasts Demand, Water Network System Extension, Water Network System Replacement & Upgrade, Water Networks Optimization, Water Distribution Systems & Pumping Stations, Reservoirs & Pumping Stations Design & Operation, Water Reservoirs & Pumping Stations, Water Storage Reservoir, Pumping Systems, Interconnecting Pipelines, Pump Houses & Booster Pumping Stations, Water Pipelines Materials & Fittings, Waste Water Effluent Treating Facilities, Sewage & Industrial Waste Water Treatment & Environmental Protection Best Practices, Oily Water Treatment Technology, Water Equipment Selection & Inspection, Effluent Treatment & Slurry Handling, Water Testing & Commissioning Techniques, Wastewater Treatment, Water Supply Design, Potable Water Transmission, Districts Meters Areas (DMAs), Water Supply & Desalination Plants Rehabilitation, Water Supply & Distribution Systems Efficiency & Effectiveness, Water Treatment Technology, Reverse Osmosis, MSF Plants, Industrial Water Treatment in Refineries & Petrochemical Plants, Piping System, Water Movement, Water Filtering, Mud Pumping, Sludge Treatment and Drying, Aerobic Process of Water Treatment that includes Aeration, Sedimentation and Chlorination Tanks. His strong background also includes Design and Sizing of all Waste Water Treatment Plant Associated Equipment such as Sludge Pumps, Filters, Metering Pumps, Aerators and Sludge Decanters.

Mr. Thanasis has acquired his thorough and practical experience as the **Water Engineer, Project Manager, Plant Manager, Area Manager - Equipment Construction, Construction Superintendent, Project Engineer, Design Engineer, Mechanical Engineer, Maintenance Engineer and Senior Instructor/Lecturer.** His duties covered **Plant Preliminary Design, Plant Operation, Write-up of Capital Proposal, Investment Approval, Bid Evaluation, Technical Contract Write-up, Construction and Sub-contractor Follow up, Lab Analysis, Sludge Drying and Management of Sludge Odor and Removal.** He has worked in various companies worldwide in the **USA, Germany, England and Greece.**

Mr. Thanasis is a **Registered Professional Engineer** in the **USA and Greece** and has a **Master's and Bachelor's degree in Mechanical Engineering with Honours** from the **Purdue University and SIU in USA** respectively as well as an **MBA** from the **University of Phoenix in USA.** Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management (ILM)** and delivered numerous courses, trainings, conferences, seminars 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	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0900	Lubricant Testing & Performance Analysis
0900 – 0930	Viscosity
0930 – 0945	Break
0945 – 1030	Flash/Fire Point
1030 – 1100	Pour ASTM D97/Cloud Point ASTM D2500
1100 – 1230	Foam ASTM D892
1230 – 1245	Break
1245 – 1330	Air Release Properties ASTM D3247-99
1330 – 1420	Neutralization Number
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0800	Acid Number ASTM D 664/D974
0800 – 0830	Base Number ASTM D 974/D2896
0830 – 0930	Filterability ISO 13357
0930 – 0945	Break
0945 – 1030	Oxidation Stability
1030 – 1100	Turbine Oil Oxidation Test ASTM D943
1100 – 1230	Rotary Pressure Vessel Oxidation Test ASTM D2272
1230 – 1245	Break
1245 – 1330	Rust & Corrosion Tests
1330 – 1420	Turbine Oil Rust Test ASTM D665
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0800	Copper Strip Corrosion ASTM D130
0800 – 0830	Anti-Wear Tests
0830 – 0930	Four Ball Wear Test ASTM D2266
0930 – 0945	Break
0945 – 1100	Vickers Wear Pump Test ASTM D2882
1100 – 1230	SRV Test
1230 – 1245	Break
1245 – 1330	Extreme Pressure
1330 – 1420	Four Ball EP Test ASTM D2596
1420 – 1430	Recap
1430	Lunch & End of Day Three



Day 4

0730 – 0800	<i>Timken Extreme Pressure Test ASTM D2509</i>
0800 – 0830	<i>Falex EP/Wear Test ASTM D2670</i>
0830 – 0930	<i>FZG Four Square Gear Test Rig ASTM D5182.97</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Demulsibility ASTM D 1404</i>
1100 – 1230	<i>Grease Consistency ASTM D217</i>
1230 – 1245	<i>Break</i>
1245 – 1330	<i>Dropping Point of Grease ASTM D2265</i>
1330 – 1420	<i>Mechanical Stability of Greases ASTM D217A</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0800	<i>Rolling Stability of Greases ASTM D1831</i>
0800 – 0830	<i>Water Washout Test for Greases ASTM D1264</i>
0830 – 0930	<i>Water Spray Test for Greases ASTM D4049</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Rolling Bearing Rust Test ASTM D1743</i>
1100 – 1230	<i>Koppers Centrifugal Stability Test</i>
1230 – 1245	<i>Break</i>
1245 – 1315	<i>Oil Separation in Grease Storage ASTM D1742</i>
1315 – 1345	<i>Oxidation Stability-Greases ASTM D942</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This hands-on, highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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