COURSE OVERVIEW PE0240
Liquid Bulk Cargo Handling
CRUDE OIL & LNG: *Storage, Separation, Loading, Unloading, Marine Operations, Dehydration, Desalting, Measurement and Calculations*

Course Title

Liquid Bulk Cargo Handling: CRUDE OIL & LNG: *Storage, Separation, Loading, Unloading, Marine Operations, Dehydration, Desalting, Measurement and Calculations*

Course Date/Venue

Session 1: June 07-11, 2026/Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA

Session 2: December 13-17, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Course Reference

PE0240

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

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.

Liquid Bulk Cargo handling plays a critical role in the ongoing expansion of the oil industry, especially with the continuing growth of the spot/short term market and the dynamic expansion of markets and supply sources.

This course is designed to provide participants with a detailed and an up-to-date overview of liquid bulk cargo handling including the storage, separation, loading, unloading, marine operations, dehydration, desalting, measurement and calculations of crude oil and LNG.

The course will cover the basic properties of petroleum and liquefied gases; the principles of gas and toxicity of petroleum and associated substances; the various types of liquid bulk cargo storage; the difference between crude oil cargo handling and LNG cargo handling; and the cargo calculation, gas freeing tanks and proper cleaning methodology of a crude tank.

Course Objectives

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

- Apply and gain an in-depth knowledge on liquid bulk cargo handling including the storage, separation, loading, unloading, marine operations, dehydration, desalting, measurement and calculations of crude oil and LNG
- Discuss the basic properties of petroleum and liquefied gases as well as the principles of gas and toxicity of petroleum and associated substances
- Describe the various types of liquid bulk cargo storage
- Distinguish the difference between crude oil cargo handling and LNG cargo handling
- Employ cargo calculation, gas freeing tanks and proper cleaning methodology of a crude tank

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 covers systematic techniques and methodologies on liquid bulk cargo handling for marine terminal staff, marine operation staff, oil movement personnel, operations and production staff, custody measurement people, metering engineers and process engineers who have limited direct understanding of liquid bulk handling operations and who are involved in the storage, separation, loading, unloading, marine operations, dehydration, desalting, measurement and calculations of crude oil and LNG. Further, the course is essential as a base course for trainees with little or no experience of liquid bulk handling operations.

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 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 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

Haward's certificates are accredited by the following international accreditation organizations:

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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. Mervyn Frampton is a **Senior Process Engineer** with over **30 years** of industrial experience within the **Oil & Gas**, **Refinery**, **Petrochemical** and **Utilities** industries. His expertise lies extensively in the areas of **Distillation Column** Operation & Control, **Oil Movement** Storage & Troubleshooting, **Process Equipment** Design, Applied **Process Engineering** Elements, **Process Plant** Optimization, **Revamping & Debottlenecking**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant** Monitoring, **Catalyst** Selection & Production Optimization, Operations Abnormalities & Plant Upset, **Process Plant** Start-up & Commissioning, **Clean Fuel** Technology & Standards, Flare, Blowdown & Pressure Relief Systems, **Oil & Gas Field Commissioning** Techniques, **Pressure Vessel** Operation, **Gas Processing**, **Chemical** Engineering, **Process Reactors** Start-Up & Shutdown, **Gasoline Blending** for Refineries, **Urea Manufacturing** Process Technology, Continuous Catalytic Reformer (**CCR**), **De-Sulfurization** Technology, Advanced Operational & Troubleshooting Skills, Principles of Operations Planning, **Rotating Equipment** Maintenance & Troubleshooting, **Hazardous Waste Management & Pollution Prevention**, **Heat Exchangers & Fired Heaters** Operation & Troubleshooting, **Energy Conservation** Skills, **Catalyst Technology**, **Refinery & Process Industry**, **Chemical Analysis**, **Process Plant**, **Commissioning & Start-Up**, **Alkylation**, **Hydrogenation**, **Dehydrogenation**, **Isomerization**, **Hydrocracking & De-Alkylation**, **Fluidized Catalytic Cracking**, **Catalytic Hydrodesulphuriser**, **Kerosene Hydrotreater**, **Thermal Cracker**, **Catalytic Reforming**, **Polymerization**, **Polyethylene**, **Polypropylene**, Pilot Water Treatment Plant, **Gas Cooling**, **Cooling Water Systems**, Effluent Systems, Material Handling Systems, **Gasifier**, **Gasification**, Coal Feeder System, **Sulphur Extraction Plant**, **Crude Distillation Unit**, **Acid Plant Revamp** and **Crude Pumping**. Further, he is also well-versed in HSE Leadership, Project and Programme Management, Project Coordination, Project Cost & Schedule Monitoring, Control & Analysis, Team Building, Relationship Management, Quality Management, Performance Reporting, Project Change Control, Commercial Awareness and Risk Management.

During his career life, Mr. Frampton held significant positions as the **Site Engineering Manager**, **Senior Project Manager**, **Project Engineering Manager**, **Construction Manager**, **Site Manager**, **Area Manager**, **Procurement Manager**, **Factory Manager**, **Technical Services Manager**, **Senior Project Engineer**, **Project Engineer**, **Assistant Project Manager**, **Handover Coordinator** and **Engineering Coordinator** from various international companies such as the **Fluor Daniel**, **KBR** South Africa, **ESKOM**, MEGAWATT PARK, CHEMEPIC, PDPS, CAKASA, **Worley Parsons**, Lurgi South Africa, **Sasol**, **Foster Wheeler**, **Bosch** & **Associates**, **BCG** Engineering Contractors, Fina Refinery, Sapref Refinery, Secunda Engine Refinery just to name a few.

Mr. Frampton has a **Bachelor degree** in **Industrial Chemistry** from **The City University** in **London**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and has delivered numerous trainings, courses, workshops, conferences and seminars 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 – 0930	***Introduction*** *Course Overview • Participant's Expectation • Basic Properties of Petroleum • Toxicity of Petroleum & Associated Substances • Properties of Liquefied Gases • Principles of Gas*
0930 – 0945	*Break*
0945 – 1100	***Liquid Bulk Cargo Storage*** *The Tank Farm Overview • General Installations of a Tank Farm*
1100 – 1215	***Liquid Bulk Cargo Storage (cont'd)*** *Crude Oil Dehydration, Desalting & Stabilization, Crude Oil Assay, Types of Crude Oil*
1215 – 1230	*Break*
1230 – 1420	***Liquid Bulk Cargo Storage (cont'd)*** *Types of Storage Tanks, Accessories of Tanks*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Liquid Bulk Cargo Storage (cont'd)*** *Basics of Operation & Inspection of Tanks*
0900 – 0915	*Break*
0915 – 1100	***Liquid Bulk Cargo Storage (cont'd)*** *Methods of Gauging Tanks*
1100 – 1230	***Liquid Bulk Cargo Storage (cont'd)*** *Tank Mixers*
1230 – 1245	*Break*
1245 – 1420	***Crude Oil Cargo Handling*** *Hydrocarbon Gas Evolution & Dispersion • Gas Indicators • Electrical Equipment and Installations*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0900	***Crude Oil Cargo Handling (cont'd)*** *Static Electricity • Pressure Surge • Fire-fighting – Theory & Equipment • Pyrophoric Iron Sulphide • Flammability Hazards Associated with Handling*
0900 – 0915	*Break*
0915 – 1100	***Crude Oil Cargo Handling (cont'd)*** *Hazard of Petroleum • Precautions on Tankers & Tank Areas • Arrival in Port • General Precautions while at Berth • Liaison between Tanker & Terminal*

1100 – 1230	***Crude Oil Cargo Handling (cont'd)*** *Precautions before & during Cargo Handling • Handling of Cargo & Ballast • Double Hull Operations • Tank Cleaning & Gas Freeing • Fixed Inert Gas Systems*
1230 – 1245	*Break*
1245 – 1420	***Crude Oil Cargo Handling (cont'd)*** *Enclosed Space Entry • Combination Carriers • Product Carriers • Packaged Cargoes • Emergency Procedures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

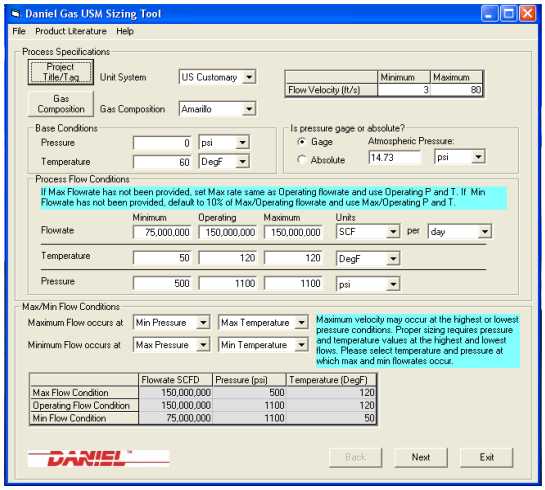
0730 – 0900	***LNG Cargo Handling*** *The Ship – Equipment & Instrumentation • The Terminal – Equipment & Instrumentation*
0900 – 0915	*Break*
0915 – 1100	***LNG Cargo Handling (cont'd)*** *The Ship/Shore Interface • Cargo Handling Operations*
1100 – 1230	***LNG Cargo Handling (cont'd)*** *Cargo Measurement & Calculations • Personal Health & Safety*
1230 – 1245	*Break*
1245 – 1420	***LNG Cargo Handling (cont'd)*** *Emergency Procedures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

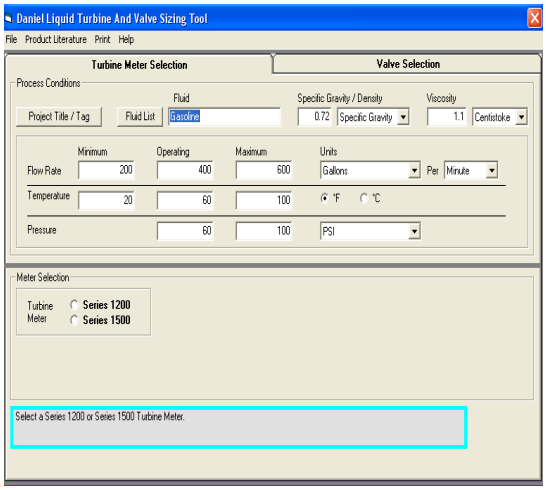
0730 – 0900	***Cargo Calculation*** *Flow Measurement*
0900 – 0915	*Break*
0915 – 1100	***Cargo Calculation (cont'd)*** *Meter Proving & Meter Factor*
1100 – 1230	***Gas Freeing of Tanks***
1230 – 1245	*Break*
1245 – 1345	***Cleaning of a Crude Tank***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

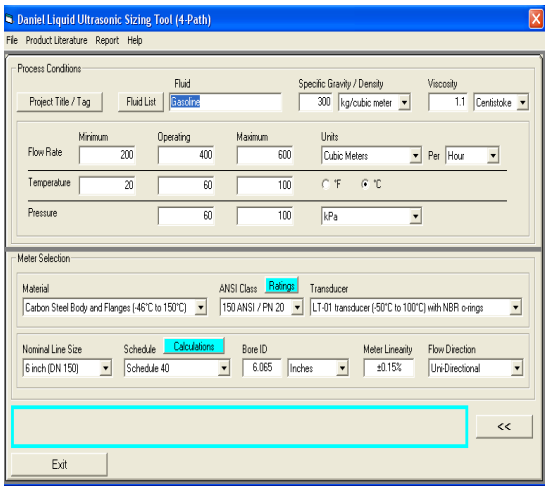
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art simulators "Gas Ultrasonic Meter Sizing Tool", "Liquid Turbine Meter and Control Valve Sizing Tool", "Liquid Ultrasonic Meter Sizing Tool", "Orifice Flow Calculator" and "ASPEN HYSYS" simulator.



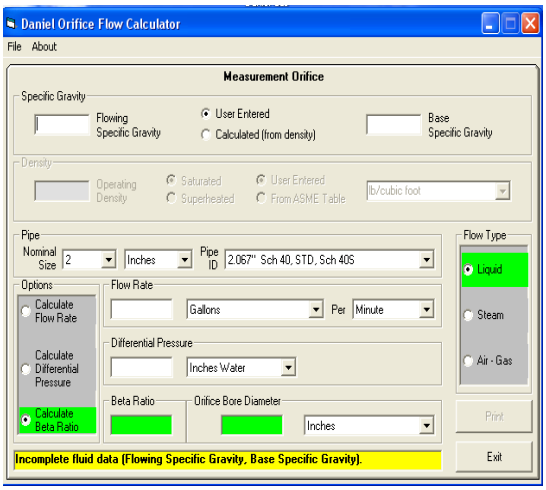
Gas Ultrasonic Meter (USM) Sizing Tool Software



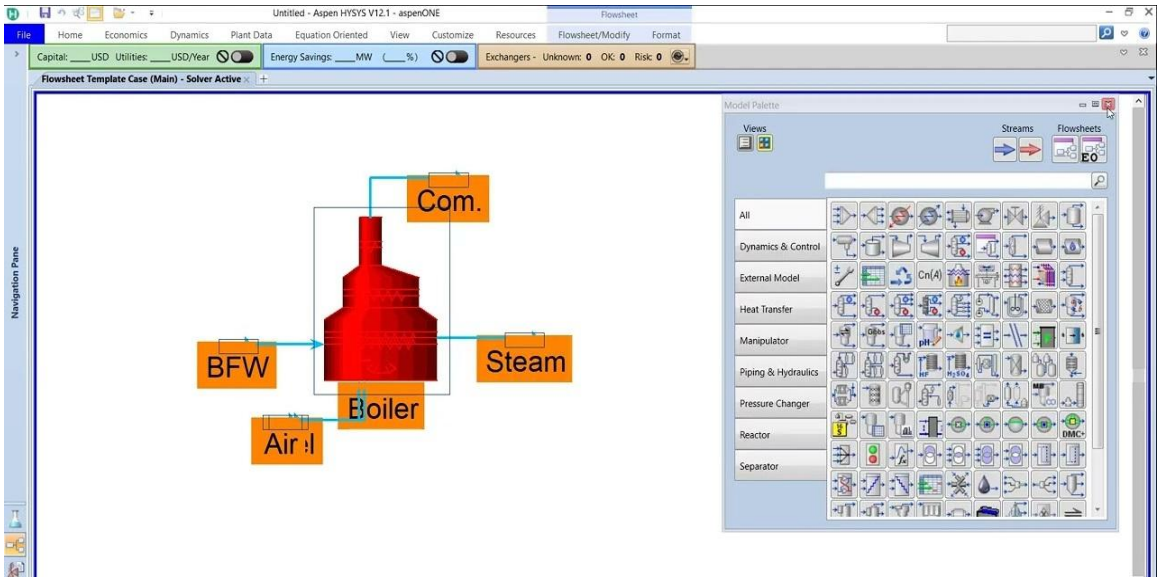
Liquid Turbine Meter and Control Valve Sizing Tool Software



Liquid Ultrasonic Meter Sizing Tool Software



Orifice Flow Calculator Software



ASPEN HYSYS V12.1 Simulator

Course Coordinator

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