COURSE OVERVIEW PE0085-3D
Oil and Gas Operations, Gas Processing, Storage Tanks

Course Title

Oil & Gas Field Operations: *Gas Processing, Hydrates, Dehydration, Sweetening, NGL Recovery & Fractionation, Oil Production, Desalting, Stabilization, Storage Tanks, Mixers, Meter Proving, Cargo Calculations & Flow Measurement*

Course Reference

PE0085-3D

Course Duration/Credits

Three days/1.8 CEUs/18 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	May 19-21, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	July 27-29, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
3	October 27-29, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
4	December 21-23, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

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.

Oil or gas wells produce a mixture of hydrocarbon gas, condensate, or oil; water with dissolved minerals, usually including a large amount of salt; other gases, including nitrogen, carbon dioxide (CO_2), and possibly hydrogen sulphide (H_2S); and solids, including sand from the reservoir, dirt, scale and corrosion products from the tubing.

For the hydrocarbons (gas or liquid) to be sold, they must be separated from the water and solids, measured, sold and transported by pipeline, truck, rail, or ocean tanker to the user. Gas is usually restricted to pipeline transportation but can also be shipped in pressure vessels on ships, trucks, or railroad cars as compressed natural gas or converted to a liquid and sent as a liquefied natural gas (LNG). This course discusses the field processing required before oil and gas can be sold.

This course is designed to provide participants with a detailed and up-to-date overview of oil and gas field operations. It covers the properties of crude oil; crude assay; types and accessories of tanks; operation and inspection guidelines; corrosion and cathodic protection; tank gauging; tank mixers; meter proving and calculations; meter proving; meter factor and calculations; crude tank cleaning; and gas freeing and line pigging.

The course will also discuss the physical properties of gases; gas liquid separation; hydrates and water content of gas; hydrate inhibition and dehydration of gas; NGL recovery; short cycle units; low temperature separation; mechanical refrigeration; and turbo expander; gas sweetening; amine gas sweetening; MEA loading and corrosion; and amine reclaimer.

Course Objectives

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

- Apply and gain an in-depth knowledge on oil and gas field operations including gas processing, hydrates, dehydration, sweetening, NGL recovery & fractionation, oil production, desalting, stabilization, storage tanks, mixers, meter proving, cargo calculations, flow measurement and same safety aspects
- Discuss properties of crude oil, crude assay, types and accessories of tanks, operation and inspection guidelines, corrosion and cathodic protection and tank gauging
- Recognize tank mixers, meter proving and calculations, meter proving, meter factor and calculations
- Apply crude tank cleaning, gas freeing and line pigging
- Describe physical properties of gases, gas liquid separation, hydrates and water content of gas, hydrate inhibition and dehydration of gas
- Discuss NGL recovery, short cycle units, low temperature separation, mechanical refrigeration and turbo expander
- Differentiate between gas sweetening and amine gas sweetening and identify MEA loading and corrosion and amine reclaimer

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 intended for those seeking a complete and detailed overview of the various operations that take place in the oil and gas fields. This includes managers, engineers, supervisors and other technical staff. Further, the course is very useful for new recruits and for those who just started to handle responsibilities related to oil and gas operations.

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: -

- 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 **1.8 CEUs** (Continuing Education Units) or **18 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.

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 a **Senior Engineer** with over **30 years** of practical experience within the **Oil**, **Gas**, **Refinery** and **Petrochemical** industries. His wide expertise includes **Process Plant** Optimization Technology & Continuous Improvement, **Process Engineering Calculations**, **Process Plant** Start Up & Commissioning, Applied **Process Engineering** Elements**, Coke Cooler**, **Process Plant** Start-up & Commissioning, **Process Plant** Troubleshooting, **Operations Abnormalities & Plant Upset**, **Process Equipment** Applications & Troubleshooting, **Process Plant Performance & Efficiency**, **Gas Sweetening & Sulphur Recovery**, **Distillation-Column** Control & Troubleshooting, **Oil Movement & Troubleshooting**, **Process Plant Operations & Control**, **Process Equipment** Operation, **Fired Heaters & Air Coolers** Maintenance, **Heat Exchangers**, **Pumps & Compressors**, **Crude Desalter**, **Pressure Vessels & Valves**, **Steam Trapping & Control**, **Pumps & Valve** Maintenance & Troubleshooting, **Turbomachinery**, **Mechanical Alignment**, **Rotating Equipments**, **Diesel Generators**, **Lubrication** Technology, **Bearing**, **Predictive & Preventive** Maintenance, **Root Cause Analysis**, **Boilers**, **Oil Field** Operation, **Production** Operation, Plant Operation & Commissioning, **Crude Oil De Salting** Process, **Gas Conditioning**, **NGL Recovery & NGL Fractionation**, **Flare** System, **Storage Tanks**, **Oil Recovery** System and **Chemical Injection**.

Mr. Thanasis has acquired his thorough and practical experience as the **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer** and **Design Engineer**. 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** and **Bachelor** degrees 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 Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and a **Certified Instructor/Trainer**.

Accommodation

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

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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0850	***Oil Production, Recovery, Dehydration & Desalting***
0850 – 0910	***Properties of Crude Oil***
0910 – 0930	***Crude Assay***
0930 – 0945	*Break*
0945 – 1015	***Types of Tanks***
1015 – 1045	***Accessories of Tanks***
1045 – 1115	***Operation & Inspection Guidelines***
1115 – 1145	***Corrosion & Cathodic Protection***
1145 – 1230	***Tank Gauging***
1230 – 1245	*Break*
1245 – 1300	***Tank Mixers***
1300 – 1320	***Meter Proving & Calculations***
1320 – 1340	***Meter Proving***
1340 – 1400	***Meter Factor & Calculations***
1400 – 1420	***Crude Tank Cleaning***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0810	***Gas Freeing & Line Pigging***
0810 – 0850	***Gas Freeing & Pigging***
0850 – 0930	***Case Study***
0930 – 0945	*Break*
0945 – 1045	***Physical Properties of Gases***
1045 – 1115	***Gas Liquid Separation***
1115 – 1145	***Exercise***
1145 – 1230	***Hydrates & Water Content of Gas***

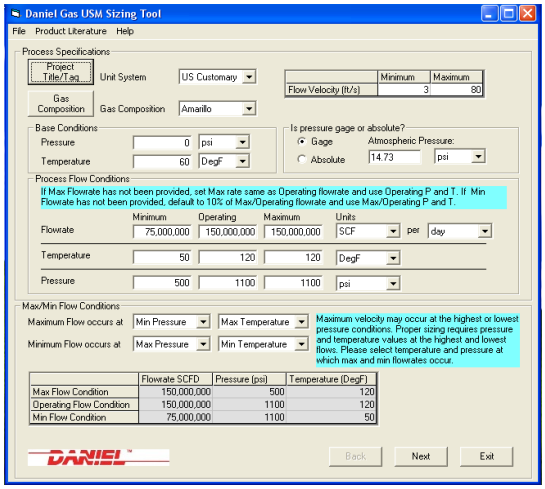
1230 – 1245	*Break*
1245 – 1315	***Hydrate Inhibition***
1315 – 1345	***Dehydration of Gas***
1345 – 1400	***Exercise***
1400 – 1420	***Question & Answer, DVD***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

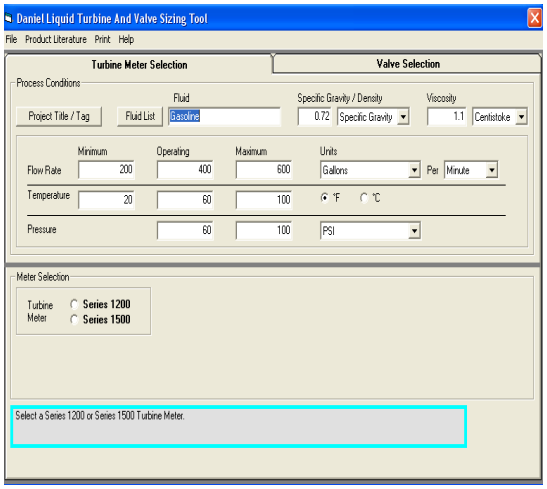
0730 – 0810	***NGL Recovery***
0810 – 0850	***Short Cycle Units***
0850 – 0930	***Low Temperature Separation***
0930 – 0945	*Break*
0945 – 1015	***Low Temperature Separation (cont'd)***
1015 – 1045	***Mechanical Refrigeration***
1045 – 1115	***Turbo Expander***
1115 – 1215	***Gas Sweetening***
1215 – 1230	***Amine Gas Sweetening***
1230 – 1245	*Break*
1245 – 1300	***MEA Loading & Corrosion***
1300 – 1315	***Amine Reclaimer***
1315 – 1330	***Question & Answer***
1330 – 1345	***DVD***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

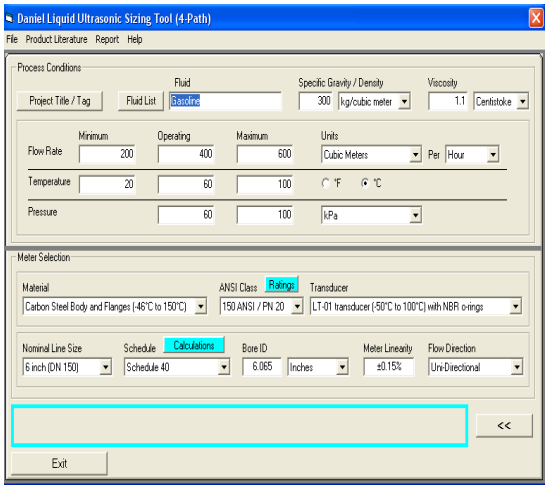
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art simulators “Gas Ultrasonic Meter Sizing Tool”, “Liquid Turbine Meter and Control Valve Sizing Tool”, “Liquid Ultrasonic Meter Sizing Tool” and “Orifice Flow Calculator” simulator “Centrifugal Pumps and Troubleshooting Guide 3.0”, “SIM 3300 Centrifugal Compressor”, “CBT on Compressors” and “ASPEN HYSYS” simulator.



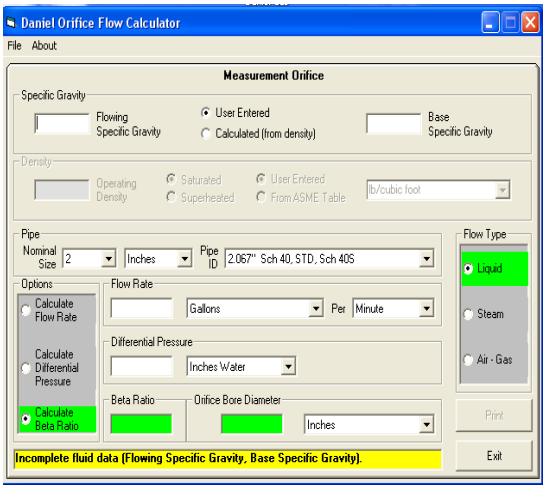
Gas Ultrasonic Meter (USM) Sizing Tool Simulator



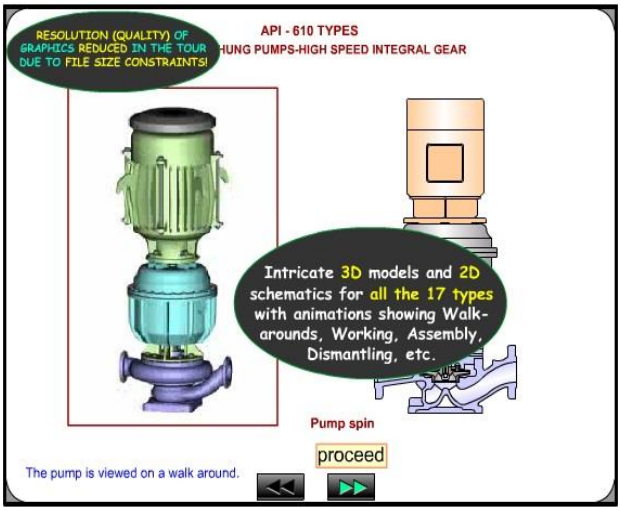
Liquid Turbine Meter and Control Valve Sizing Tool Simulator



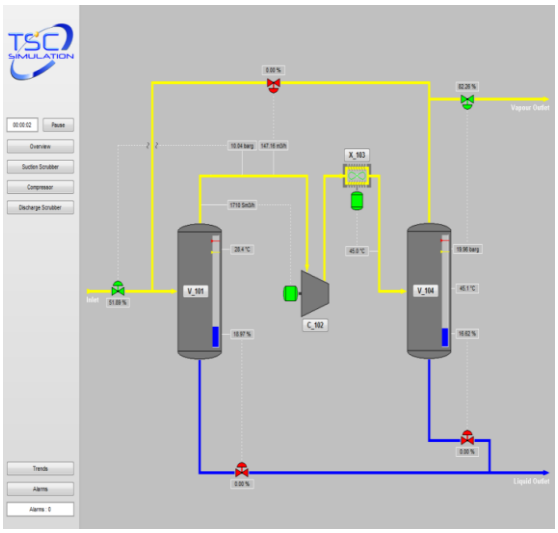
Liquid Ultrasonic Meter Sizing Tool Simulator



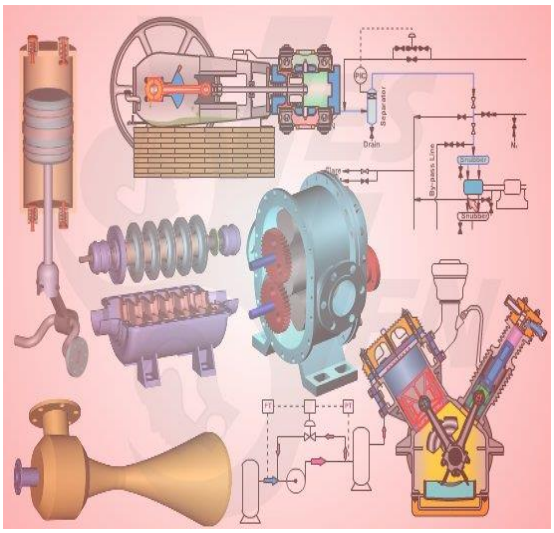
Orifice Flow Calculator Simulator



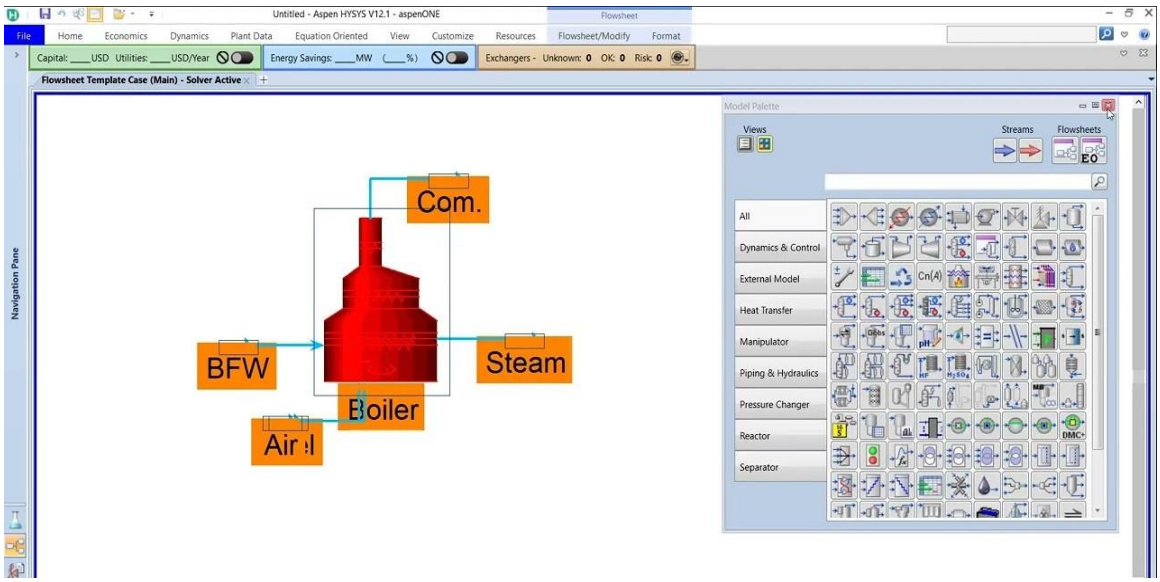
Centrifugal Pumps and Troubleshooting Guide 3.0



SIM 3300 Centrifugal Compressor Simulator



CBT on Compressors



ASPEN HYSYS V12.1 Simulator

Course Coordinator

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