

COURSE OVERVIEW PE0302
Oil Treatment -Stabilization & Sweetening Design

Course Title

Oil Treatment -Stabilization & Sweetening Design

Course Date/Venue

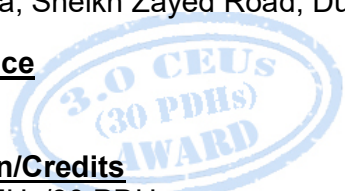
Session 1: February 17-21, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

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



Course Reference

PE0302



Course Duration/Credits

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.

This course is designed to provide participants with a complete and up-to-date overview of natural gas and LPG conditioning and processing technology. It covers product specifications and the processes available to condition the natural gas and LPG in order to meet these requirements. Participants will understand the nature and purpose of key gas processing operations, and how the individual operations are integrated into plants to process diverse feed streams received from gas fields around the world.



The course will provide participants with a working knowledge of the major processes for Dehydration, Acid Gas Removal (Gas Sweetening), Hydrocarbon Dewpoint Control (HCDP Control), LPG Production, NGL Recovery and Separation (Fractionation), Sulphur Recovery and Tail-Gas Cleanup. Participants will also learn the basic vocabulary unique to the industry and the key physical and chemical properties of natural gas constituents.



The course will also cover the main aspects of LPG in view of specification, production, and PFD. Methods of treatment using UOP Merox processes, types of storage tanks and troubleshooting will be thoroughly discussed.

Basic properties of hydrocarbon gases and the behaviour of water-hydrocarbon systems will be covered. The course will discuss the design and operational aspects of process control systems, separation equipment, pumping and compression facilities, and absorption and fractionation facilities. Further, the methods used for dehydrating natural gas will be discussed.

Course Objectives

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

- Apply and gain an in-depth knowledge gas LPG conditioning and processing technology and treatment, NGL recovery, sweetening, storage, SRU and tail-gas cleanup
- Identify the various types of separators and their sizing and become acquainted with slug catcher and twister super sonic separator
- Recognize the role and importance of water content and dew point applied in gas conditioning and processing technology
- Enumerate the formation, prediction and inhibition of hydrates and discuss the process of liquid desiccant dehydration
- Determine the operating variables of gas conditioning and processing technology
- Analyze the process of hydrocarbon recovery (NGL) and discuss mechanical refrigeration
- Emphasize the thermodynamics of gas and employ the removal of acid gases such as H₂S, CO₂, CS₂, COS & RSH
- Discuss the pH diagram of propane and develop an understanding on liquid ethane recovery
- Review and improve the amine process, corrosion, process control, physical, combined and sulfinol processes
- Interpret and carryout processes used for LPG production, understand LPG-Merox extraction and sweetening, understand LPG process trouble shooting and understand LPG different types of storage
- Describe the chemical reaction of natural gases and gain in-depth knowledge on claus process variations and claus combustion operation
- Identify the re-heating options and the mechanical considerations of natural gases
- Employ catalyst converter operation and distinguish the tail gas clean up options

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 gas and LPG conditioning and processing technology for those who are directly involved in supervising natural gas and LPG processing operations; production engineers, managers who are involved in the planning and development of new gas processing facilities or modifying existing facilities; and those who are involved in the negotiation of contracts for the sale of Natural Gas, LPG and NGL Product. Newly employed engineers and technicians in the oil and gas processing industry will find the course particularly relevant. The course is also designed to be of substantial benefit to both technical and non-technical personnel. Those employed in the activities that support the gas and LPG processing industry will also receive considerable benefit from the broad overview of this course.

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.

Accommodation

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

Course Fee

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

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 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. Abdul Ghani Anadani is a **Senior Process Engineer** with over **45 years** of industrial experience within the **Oil, Gas, Refinery** and **Petrochemical** industries. His expertise widely covers in the areas of **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, Flare, Blowdown & Pressure Relief Systems, Operation, Maintenance & Troubleshooting, Flare System, Pressure Vessel Operation, Gas Processing, Chemical Engineering.** He is also well versed in **Pumps, Gas & Steam Turbines, Compressors, Heat Exchanger, Safety Relief Valves, Pipelines, Piping, Pressure Vessels, Diesel Engine & Crane Maintenance, Maintenance Management (Preventive, Predictive, Breakdown), Reliability Management, Condition-Based Monitoring, Rotating Equipment, Tanks & Tank Farms, Pneumatic System, Static Equipment, Failure Analysis, Auxiliary Systems, Ventilation Systems, Fuel Supply Systems, Emission Control, Preventive & Predictive Maintenance, Couplings & Shaft Alignment, Lubrication Technology, Blower & Fan, Process Equipment, Bearings, Motors, Gears and Mechanical Seals.** Further he is well-versed in **Hydrodesulfurization & Hydrogenation, Steam Cracking, Acid Gas Removal & Treatment, Sulfur Production & Recovery, Ethylene Gas, Furnaces, Filtration, Distillation, Extraction, Salt Production, Caustic Soda, Ammonia, Chlorine, Benzene, P&ID & Process Modifications, Distillation Column, Process Equipment Design, Process Plant Optimization, Revamping & Debottlenecking, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Start-up & Commissioning, Oil & Gas Field Commissioning Techniques, Pressure Vessel Operation, Gas Processing, Process Reactors Start-Up & Shutdown, Gasoline Blending for Refineries, De-Sulfurization Technology, Catalyst Technology, Catalytic Reforming, Sulphur Extraction Plant, Crude Distillation Unit, Acid Plant Revamp and Crude Pumping.**

During his career life, Mr. Abdul Ghani has gained his practical and field experience through his various significant positions and dedication as the **Technical Manager, Shift Supervisor, Senior Project Engineer, Project Engineer, Recruited Engineer, Assistant Engineer, Technical Consultant, Deputy Shift Foreman and Shift Foreman** for numerous international companies like **QAPCO** and **Banyas Refinery**.

Mr. Abdul Ghani has a **Consultant** degree in **Chemical Engineering & Technology**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Auditor** as per **ISO 9000-2001**, a member of the **Syrian Engineers Chamber** and has delivered numerous trainings, courses, 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	Introduction to Natural Gas Processing
0900 – 0930	Contract Terms Gas Contracts • Liquid Contracts
0930 – 0945	Break
0945 – 1030	Separators Types of Separators
1030 – 1100	Separator Sizing
1100 – 1130	Slug Catcher & Case Study
1130 – 1230	Water Content & Dew Point Sweet/Sour Gas • Calculation Charts
1230 – 1245	Break
1245 – 1300	Hydrates Formation, Prediction & Inhibition
1300 – 1330	Liquid Desiccant Dehydration TEG Process
1330 – 1400	Operating Variables
1400 – 1420	Case Study
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0800	Hydrocarbon Recovery (NGL) Joule-Thompson (JT) Plants • Mechanical Refrigeration Plants
0800 – 0900	Mechanical Refrigeration
0900 – 0930	Thermodynamics of Gas
0930 – 0945	Break
0945 – 1015	Removal of Acid Gases (H₂S, CO₂, CS₂, COS & RSH) Batch Processes • Amines • Physical Solvents
1015 – 1100	pH Diagram of Propane
1100 – 1230	Solid Carbon Dioxide
1230 – 1245	Break
1245 – 1300	Liquid Ethane Recovery
1300 – 1400	Gas Sweetening Introduction • Batch Process • Mercury Removal • Corrosion • Reclaimer • Foaming
1400 – 1420	Amine Process
1420 – 1430	Recap
1430	Lunch & End of Day Two



Day 3

0730 – 0800	LPG Specification
0800 – 0900	LPG Production
0900 – 0930	LPG Sweetening, UOP Process & Merox Extraction
0930 – 0945	Break
0945 – 1030	Merox Extraction
1030 – 1100	Merox Sweetening
1100 – 1130	Caustic Free Merox & Process Chemistry
1130 – 1230	Caustic Wash
1230 – 1245	Break
1245 – 1300	Process Trouble Shooting
1300 – 1330	Missing Interface Level
1330 – 1420	Case Study
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0830	Carry Over
0830 – 0930	Turn Down Circulation Pump
0930 – 0945	Break
0945 – 1030	Vertical Wash Tower Water wash and Drying
1030 – 1230	LPG Storage Tank & Pressure Tank
1230 – 1245	Break
1245 – 1420	Low Temperature Tanks
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	SR4 & Modified Claus Plant
0930 – 0945	Break
0945 – 1100	Straight through Operation Chemical Reaction • Mechanical Consideration
1100 – 1230	Process Configuration Reheating Operation • Ammonia Dissociation
1230 – 1245	Break
1245 – 1345	Instrumentation, Degassification & Tail-Gas Cleanup
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical highly-interactive course includes the following real-life case studies:-



Course Coordinator

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