

COURSE OVERVIEW PE0360
Gas Process and Equipment Design

Course Title

Gas Process and Equipment Design

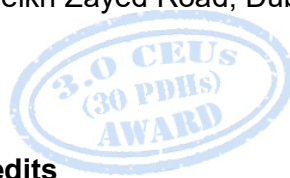
Course Date/Venue

Session 1: May 26-30, 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

PE0360



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 presents an overview of the design principles for the equipment used to process Natural Gas including Separators, Fired Equipment, Exchangers, Towers, Pumps, Compressors and Refrigeration Compressors. The course will discuss the different applications that each type of equipment is used for and how the design is adapted to suit the application.



Upon the successful completion of this course, you will have an overview of the design principles for the equipment used to process Natural Gas. You will better understand the important information that must be included when specifying equipment to be purchased. You will be better able to evaluate proposals and the operation of existing equipment. You will also learn the basic vocabulary unique to the industry.

Course Objectives

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

- Apply and gain an in-depth knowledge on lean gas
- Discuss the overall production system as well as the gas processing system
- Explain the process of separation including cold separator, regen gas separator, dry gas filter, flash separator/feed drum, scrubbers, surge drum and reflux accumulator
- Enumerate the various types of fired equipment comprising heat transfer, combustion, draft, burners, NO_x control, direct fired heaters, shell and tube, hairpin, plate-fin, plate and frame and air-cooled exchangers
- Recognize towers such as packed, trayed columns, overhead condensers, reboilers and desiccant
- Identify pumps including pump equations, pump types, NPSH, acceleration head, flow control, reciprocating , screw and drivers

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 natural gas process equipment design for those who are directly involved in gas processing operations will find the course particularly relevant. However the course is specifically designed to be of substantial benefit to both technical and non-technical personnel employed in the activities that support the industry. Managers, engineers, marketing staff, and manufacturer’s representatives, as well as individuals involved in sales and services to the natural gas industry will receive considerable benefit from the broad overview.

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 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. Manuel Dalas, PEng, MSc, BSc, is a **Senior Process Engineer** with almost **30 years** of industrial experience within the **Oil & Gas, Refinery, Petrochemical and Refinery** industries. His expertise widely includes in the areas of **Process Engineering & Systems Failure Analysis, Equipment & Mechanical Integrity, Process Failure Prevention, Engineering Modifications & Systems Failures, Root Cause Failure Analysis (RCFA) Techniques, Methodology Selection** based on Specific Scenarios, **Process Plant Optimization, Revamping & Debottlenecking, Process**

Plant Troubleshooting & Engineering Problem Solving, Process Plant Operations, Mass & Material Balance, Oil & Gas Processing, Process Plant Performance & Efficiency, Crude Distillation Process Saturated Gas Process Technology, Crude Dehydration & Desalting, Crude Stabilization Operations, Heat Exchangers & Fired Heaters Operation & Troubleshooting, Pressure Vessels Maintenance & Operation, Piping Support, Ironworks, Rotating & Static Equipment (Pumps, Valves, Boilers, Pressure Vessels, Tanks, Bearings, Compressors, Pipelines, Motors, Turbines, Gears, Seals), Hydrogen Sulphide Stripping, Crude Oil De Salting Process, Gas Conditioning, NGL Recovery & NGL Fractionation, Flare Systems, Pre-Fabrication of Steel Structure, Alloy Piping Pre-Fabrication, Vertical Columns/Pressure Vessels, Distillation Column, Steel Structures, Construction Management, Building Structures and Electrical-Mechanical Equipment. Currently, he is the **Technical Consultant** of the **Association of Local Authorities of Greater Thessaloniki** wherein he oversees mechanical engineering services while focusing on system reviews and improvements. His role involves a strategic approach to enhancing operational efficiencies and implementing robust solutions in complex engineering environments.

During his career life, Mr. Dalas has gained his practical and field experience through his various significant positions and dedication as the **Technical Manager, Construction Manager, Senior Process Engineer, Process Safety Engineer, Process Design Engineer, Project Engineer, Production Engineer, Construction Engineer, Consultant Engineer, Technical Consultant, Safety Engineer, Mechanical Engineer, External Collaborator, Deputy Officer** and **Senior Instructor/Trainer** for various companies including the Alpha Astika, Anamorfosis Technical Firm, EKME, ASTE, Elof Consulting and Hypergroup.

Mr. Dalas is a **Registered Professional Engineer** and has a **Master's degree in Energy System** from the **International Hellenic University** and a **Bachelor's degree in Mechanical Engineering** from the **Mechanical Engineering Technical University, Greece** along with a **Diploma in Management & Production Engineering** from the **Technical University of Crete**. Further, he is a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership and Management (ILM)**, a **Certified Project Manager Professional (PMI-PMP)**, a **Certified Instructor/Trainer**, a **Certified Energy Auditor for Buildings, Heating & Climate Systems**, a **Member of the Hellenic Valuation Institute** and the **Association of Greek Valuers** and a **Licensed Expert Valuer Consultant** of the **Ministry of Development and Competitiveness**. He has further delivered numerous trainings, courses, seminars, conferences and workshops

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 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
0815 - 0830	PRE-TEST
0830 - 0945	Overall Production System Gas Processing Module
0945 - 1000	Break
1000 - 1100	Separation Types of Separators • Separator Sizing • Slug Catcher
1100 - 1230	Separation (cont'd) FWKO • Inlet Separator • Fluid Booster
1230 - 1245	Break
1245 - 1420	Case Studies
1420 - 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 - 0900	Separation (cont'd) Cold Separator • Regen Gas Separator • Dry Gas Filter
0900 - 0915	Break
0915 - 1100	Separation (cont'd) Flash Separator/Feed Drum • Scrubbers
1100 - 1230	Separation (cont'd) Surge Drum • Reflux Accumulator
1230 - 1245	Break
1245 - 1420	Case Studies
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 - 0930	Fired Equipment Heat Transfer • Combustion • Draft
0930 - 0945	Break
0945 - 1100	Fired Equipment (cont'd) Burners • NO _x Control • Direct Fired Heaters
1100 - 1230	Heat Exchangers Shell & Tube • Hairpin • Plate-Fin • Plate & Frame • Air-Cooled Exchangers
1230 - 1245	Break
1245 - 1420	Case Studies
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 - 0930	Towers Packed • Trayed Columns
0930 - 0945	Break
0945 - 1100	Towers (cont'd) Overhead Condensers • Reboilers
1100 - 1215	Towers (cont'd) Desiccant
1215 - 1230	Break
1230 - 1420	Case Studies
1420 - 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 - 0930	Pumps Pump Equations • Pump Types • NPSH
0930 - 0945	Break
0945 - 1100	Pumps (cont'd) Acceleration Head • Flow Control
1100 - 1230	Refrigeration Compressors Reciprocating • Screw • Drivers
1230 - 1245	Break
1230 - 1345	Case Studies
1345 - 1400	Course Conclusion
1400 - 1415	POST-TEST
1415 - 1430	Presentation of Certificates
1430	Lunch & End of Course

Practical Sessions

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



Course Coordinator

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