



COURSE OVERVIEW PE0485(OR1) Crude Distillation Unit Operations

Course Title

Crude Distillation Unit Operations

Course Date/Venue

Session 1: June 23-27, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: December 07-11, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

PE0485(OR1)

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.



The Distillation Process is used in many industries to separate mixtures into components. It is defined as a process in which a liquid or vapor mixture of two or more substances is separated into its component fractions of desired purity by the application and removal of heat. The application and removal of heat makes the distillation process energy intensive as it is consuming up to 50 percent of a refinery's operating costs due to intense heating and cooling cycles. Having accurate measurements to feed the control system is critical for energy efficient, safe and reliable operation.



Improving distillation columns has always been challenging as problems can occur when operators and engineers have insufficient information about operating conditions. Failing to properly monitor and control process variables can result in decreased product quality and throughput, increased energy costs and unsafe operations that put employees and capital equipment at risk.



This course is designed to provide participants with a detailed and up-to-date overview of crude ATM and vacuum distillation unit process. It covers the refinery flow sheet, hydrocarbon chemistry, crude oil properties, tests, sources and assays; the fuel products specifications covering environmental regs, specifications and MTBE; the atmospheric and vacuum distillation and fluid catalytic cracking; the crude ATM and vacuum process; the distillations units products and its characteristics that include liquid petroleum gas (LPG), gasoline and naphtha; and the kerosene and related jet aircraft fuels, diesel fuel, fuel oils, lubricating oils, paraffin wax, asphalt & tar and petroleum coke.

Course Objectives

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

- Apply and gain in-depth knowledge on crude ATM and distillation unit process
- Discuss refinery flow sheet and hydrocarbon chemistry
- Identify the crude oil properties, tests, sources and assays
- Recognize fuel products specifications covering environmental regs, specifications and MTBE
- Describe atmospheric and vacuum distillation and fluid catalytic cracking
- Illustrate crude ATM and vacuum process and identify distillations units products and its characteristics that include liquid petroleum gas (LPG), gasoline and naphtha
- Determine kerosene and related jet aircraft fuels, diesel fuel, fuel oils, lubricating oils, paraffin wax, asphalt & tar and petroleum coke

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 crude and vacuum process technology for all engineering, operations and maintenance staff and management. Engineers, foremen and other technical staff will benefit from this important course that deals with their day-to-day problems and activities.

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

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.

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 MSc, BSc, is a **Senior Mechanical & Maintenance Engineer** with over **25 years** of industrial experience in **Oil, Gas, Refinery, Petrochemical, Power and Nuclear** industries. His wide expertise includes **Gas Turbines & Compressors** Troubleshooting, **Gas Turbines Performance, Maintenance & Testing, Gas Turbine Performance and Optimization, Gas Turbine Control Systems, Advanced Gas Turbine, Gas Turbine Design and Analysis, Air Compressor & Gas Turbines Selection and Design, Material Cataloguing, Maintenance Planning & Scheduling, Reliability Centered Maintenance (RCM), Reliability Maintenance, Condition Based Maintenance & Condition Monitoring, Asset & Risk Management, Vibration Condition Monitoring & Diagnostics of Machines, Vibration & Predictive Maintenance, Reliability Improvement & Vibration Analysis for Rotating Machinery, Effective Maintenance Shutdown & Turnaround Management, Engineering Codes & Standards, Rotating Equipment Maintenance, Mechanical Troubleshooting, Static Mechanical Equipment Maintenance, Machinery Failure Analysis, Machinery Diagnostics & Root Cause Failure Analysis, Plant Reliability & Maintenance Strategies, Boiler Operation & Water Treatment, Pumps Maintenance & Troubleshooting, Fans, Blowers & Compressors, Process Control Valves, Piping Systems & Process Equipment, Advanced Valve Technology, Pressure Vessel Design & Analysis, Steam & Gas Turbine, High Pressure Boiler Operation, FRP Pipe Maintenance & Repair, Centrifugal & Positive Displacement Pump Technology Troubleshooting & Maintenance, Rotating Machinery Best Practices, PD Compressor & Gas Engine Operation & Troubleshooting, Hydraulic Tools & Fitting, Mass & Material Balance, Water Distribution & Pump Station, Tank Farm & Tank Terminal Safety & Integrity Management, Process Piping Design, Construction & Mechanical Integrity, Stack & Noise Monitoring, HVAC & Refrigeration Systems, BPV Code, Section VIII, Division 2, Facility Planning & Energy Management, Hoist - Remote & Basic Rigging & Slings, Mobile Equipment Operation & Inspection, Heat Exchanger, Safety Relief Valve, PRV & POPRV/PORV, Bearing & Lubrication, Voith Coupling Overhaul, Pump & Valve Technology, Lubrication Inspection, Process Plant Optimization, Rehabilitation, Revamping & Debottlenecking, Engineering Problem Solving and Process Plant Performance & Efficiency. Currently, he is the **Technical Consultant** of the **Association of Local Authorities of Greater Thessaloniki** where he is in charge of the mechanical engineering services for piping, pressure vessels fabrications and ironwork.**

During his career life, Mr. Dalas has gained his practical and field experience through his various significant positions and dedication as the **Technical Manager, Project Engineer, Safety Engineer, Deputy Officer, Instructor, Construction Manager, Construction Engineer, Consultant Engineer and Mechanical Engineer** for numerous multi-billion companies including the **Biological Recycling Unit** and the **Department of Supplies of Greece, Alpha Bank Group, EMKE S.A, ASTE LLC** and **Polytechnic College of Evosmos**.

Mr. Dalas has a **Master's degree in Energy System** from the **International Hellenic University, School of Science & Technology** and a **Bachelor's degree in Mechanical Engineering** from the **Mechanical Engineering Technical University of 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 internationally.



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 – 0930	Introduction to the Refinery Flow Sheet
0930 – 0945	Break
0945 – 1130	Hydrocarbon Chemistry
1130 – 1245	Hydrocarbon Chemistry (cont'd)
1245 – 1300	Break
1300 – 1420	Hydrocarbon Chemistry (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2

0730 – 0930	Crude Oil Properties • Tests
0930 – 0945	Break
0945 – 1100	Crude Oil (cont'd) Sources • Assays
1100 – 1215	Fuel Products Environmental Regs
1215 – 1230	Break
1230 – 1420	Fuel Products (cont'd) Specifications • MTBE
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 – 0930	Atmospheric & Vacuum Distillation
0930 – 0945	Break
0945 – 1100	Atmospheric & Vacuum Distillation (cont'd)
1100 – 1215	Fluid Catalytic Cracking





1215 – 1230	Break
1230 – 1420	Fluid Catalytic Cracking (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0900	Process of Crude ATM & Vacuum
0900 – 0915	Break
0915 – 1030	Process of Crude ATM & Vacuum (cont'd)
1030 – 1200	Distillation Units Products & Characteristics Liquid Petroleum Gas (LPG)
1200 – 1215	Break
1215 – 1420	Distillation Units Products & Characteristics (cont'd) Gasoline • Naptha
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	Distillation Units Products & Characteristics (cont'd) Kerosene & Related Jet Aircraft Fuels
0930 – 0945	Break
0945 – 1045	Distillation Units Products & Characteristics (cont'd) Diesel Fuel • Fuel Oils
1045 – 1200	Distillation Units Products & Characteristics (cont'd) Lubricating Oils • Paraffin Wax
1200 – 1215	Break
1215 – 1300	Distillation Units Products & Characteristics (cont'd) Asphalt & Tar • Petroleum Coke
1300 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course





Practical Sessions

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



Course Coordinator

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