



COURSE OVERVIEW PE0785

Refinery Operational Economics, Planning & Profitability

Course Title

Refinery Operational Economics, Planning & Profitability

Course Date/Venue

Please see page 3

Course Reference

PE0785

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 the “MS Excel” applications.



This course is designed to provide participants with a detailed and up-to-date overview of Refinery Operational Economics, Planning & Profitability. It covers the planning and scheduling in petroleum refineries, refinery complexity, refinery configuration, integrated refineries and choice of crude; the crude oil scheduling, capacity utilization of crudes and operational efficiency; improving product movements and releasing tankages; the crude assay, intermediate feed characteristics, yields and properties; the different process units, storage tanks and custody transfer/measurements; the product blending rules, product specifications, new trends in fuel production and environmental issues; and the crude oil pricing regimes, product netback, concepts of operational profitability including gross refining margin (GRM), net refining margin and contribution margin.



During this interactive course, participants will learn the refinery configuration covering topping, hydroskimming, cracking, full conversion and niche products; the production plans, selecting feedstock, feasibility and optimality; the optimal product mix, marginal economics, investment opportunities and planning versus scheduling; the blending methods, process models, simple stock balances (spreadsheet), linear programming (LP's), non-linear programming (NLP's), distributed error recursion and integer programming; the various model types pertaining to blending, multi-refinery and distribution, single refinery and time period; and the key crude and product qualities as well as crude and product pricing.



Course Objectives

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

- Apply and gain a comprehensive knowledge in operational economics, planning and profitability of modern oil refineries
- Discuss planning and scheduling in petroleum refineries, refinery complexity, refinery configuration, integrated refineries and choice of crude
- Carryout crude oil scheduling and recognize the capacity utilization of crudes and operational efficiency
- Improve product movements and releasing tankages as well as discuss crude assay, intermediate feed characteristics, yields and properties
- Identify the different process units, storage tanks and custody transfer/measurements
- Apply product blending rules and review product specifications, new trends in fuel production and environmental issues
- Discuss crude oil pricing regimes, product netback and concepts of operational profitability including gross refining margin (GRM), net refining margin and contribution margin
- Carryout refinery configuration covering topping, hydroskimming, cracking, full conversion and niche products
- Apply production plans, feedstock selection, feasibility and optimality
- Discuss optimal product mix, marginal economics, investment opportunities and planning versus scheduling
- Identify various planning tools covering blending methods, process models, simple stock balances (spreadsheet), linear programming (LP's), non-linear programming (NLP's), distributed error recursion and integer programming
- Identify the various model types pertaining to blending, multi-refinery and distribution, single refinery and time period
- Recognize key crude and product qualities as well as crude and product pricing

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 refinery operational economics, planning and profitability. planning engineers, process engineers, production engineers, scheduling engineers, marketing engineers and estimation engineers will definitely benefit from the practical approach of the course. finance managers, commercial managers, estimation managers, section heads, supervisors and refineries/process plant consultants will gain an excellent knowledge from the operational aspects of this course.

Course Date/Venue

Session(s)	Date	Venue
1	June 07-11, 2026	Meeting Room 4, Four Seasons Hotel Cairo at Nile Plaza, Corniche El Nil, Garden City, Cairo, Egypt
2	August 02-06, 2026	Meeting Plus 9, City Centre Rotana, Doha, Qatar
3	September 14-18, 2026	Salon Expo, NH Hotel Plaza de Armas, Seville, Spain
4	October 12-16, 2026	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
5	November 01-05, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
6	December 14-18, 2026	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey
7	January 17-21, 2027	Meeting Plus 9, City Centre Rotana, Doha, Qatar
8	February 15-19, 2027	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
9	March 14-18, 2027	Salon Expo, NH Hotel Plaza de Armas, Seville, Spain

Course Fee

Doha	US\$ 6,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	US\$ 6,000 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	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.
London	US\$ 8,800 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Seville	US\$ 8,800 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Cairo	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 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:

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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**. 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.

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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.

Accommodation

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

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 **Process Troubleshooting, Distillation Towers, Fundamentals of Distillation** for Engineers, **Distillation Operation and Troubleshooting, Advanced Distillation Troubleshooting, Distillation Technology, Vacuum Distillation, 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, Process Engineering Manager, Project Engineering Manager, Construction Manager, Site Manager, Area Manager, Procurement Manager, Factory Manager, Technical Services Manager, Senior Project Engineer, Process 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's 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.



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	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Overview of Planning & Scheduling in Oil Refineries</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Refinery Complexity</i>
1030 – 1100	<i>Refinery Configuration</i>
1100 – 1130	<i>Integrated Refineries</i>
1130 – 1215	<i>Choice of Crude</i>
1215 – 1230	<i>Break</i>
1230 – 1315	<i>Crude Oil Scheduling</i>
1315 – 1400	<i>Capacity Utilization of Crudes & Operational Efficiency</i>
1400 – 1420	<i>Workshop - Cut-point Optimization</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0830	<i>Improving Product Movements & Releasing Tankages</i>
0830 – 0930	<i>Crude Assay</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Intermediate Feed Characteristics</i>
1030 – 1130	<i>Yields & Properties</i>
1130 – 1215	<i>Different Process Units</i>
1215 – 1230	<i>Break</i>
1230 – 1315	<i>Storage Tanks</i>
1315 – 1400	<i>Custody Transfer / Measurements</i>
1400 – 1420	<i>Class Exercises: Using Excel - Yield Optimization</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>



Day 3

0730 – 0930	Product Blending Rules
0930 – 0945	Break
0945 – 1030	Product Specifications
1030 – 1130	New Trends in Fuel Production
1130 – 1215	Environmental Issues
1215 – 1230	Break
1230 – 1330	Crude Oil Pricing Regimes
1330 – 1420	Product Netback
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 – 0930	Concepts of Operational Profitability Gross Refining Margin (GRM) • Net Refining Margin • Contribution Margin
0930 – 0945	Break
0945 – 1130	Refinery Configuration Topping • Hydroskimming • Cracking (FCC & Hydrocracking)
1130 – 1215	Refinery Configuration (cont'd) Full Conversion (Coking) • Niche Products (Lubes, Asphalt, Solvents, Aromatics, other Petrochemicals)
1215 – 1230	Break
1230 – 1400	Planning Objectives Production Plans (Unit Operating Goals, Blending Operations) • Feedstock Selection • Feasibility • Optimality (Minimum Cost, Maximum Profit) • Optimal Product Mix • Marginal Economics • Investment Opportunities • Planning versus Scheduling
1400 - 1420	Case Study
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 5

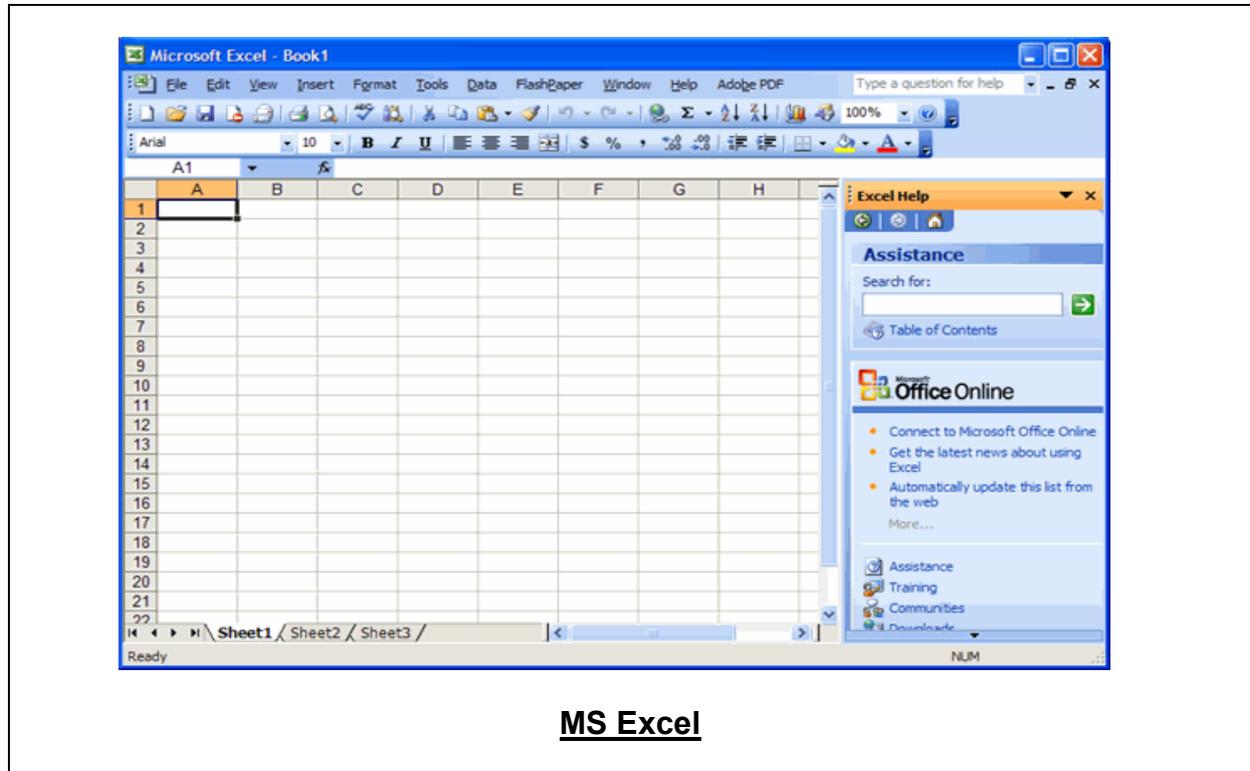
0730 – 0930	Planning Tools Blending Methods (Linear (Volume/Weight), Blending Indices, Interaction Coefficients) • Process Models (Fixed Yield, Operational Modes, Simulation)
0930 – 0945	Break
0945 – 1100	Planning Tools (cont'd) Modeling Tools (Simple Stock Balances (Spreadsheet), Linear Programming (LP's), Feasibility, Linear Relationships, Non-Linear Programming (NLP's), Feasibility, Local Optima, Distributed Error Recursion & Integer Programming) • Model Types (Blending, Single Refinery, Multi-Refinery and Distribution & Time Period)
1100 – 1215	Key Crude & Product Qualities Sulfur & Gravity • Other Properties • Environmental Regulations
1215 – 1230	Break
1230 - 1300	Crude & Product Pricing Pricing Basis (FOB, CIF & Import Parity)
1300 – 1345	Case Study
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course





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 “MS-Excel” application.



Course Coordinator

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