COURSE OVERVIEW PE0549
Gasoline Blending

Course Title
Gasoline Blending

Course Date/Venue
July 20-24, 2025/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE

Course Reference
PE0549

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 introduction of new types of green gasolines and diesels such as ethanol blends (E5, E10, CBOB, RBOB), ultra-low sulfur diesel (ULSD), first and second-generation biodiesels (B2-20), and possibly cleaner bunkers to the worldwide fuels markets has turned blending into a highly technical process. Furthermore, because of the 30 plus specifications that must be met simultaneously, the difficulty of formulating gasoline and diesel blends has been expanded by several orders of magnitude.

This course is designed to provide a comprehensive overview and discussion of gasoline and diesel blending techniques, technology and cost/benefits. It addresses contemporary issues such as the latest specifications, ultra-low sulfur fuels, impact of Ethanol and Bio-Diesel blending, and environmental impact of various gasoline and diesel specifications. Case studies are used to illustrate the relative importance of each aspect of the fuels blending operation, together with specific exercises. The course allows participants to interact closely with both the instructor and others in attendance to exchange ideas on blending techniques.

This very comprehensive complete training course is designed for traders, blending engineers, senior operators, product coordinators, refinery planners, refinery lab personnel, as well as fuels marketers, and provides a complete overview and discussion of gasoline and diesel blending techniques, technology and cost/benefits. It addresses contemporary issues such as the latest specifications, ultra-low sulfur fuels, impact of bio-fuels, Ethanol and bio-diesel blending, and environmental impact of various fuel specifications. Case studies are used to illustrate the relative importance of each aspect of the gasoline and diesel blending operation, together with specific exercises.

Course Objectives

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

- Apply and gain a good working knowledge on refinery blending techniques
- Identify the types of blending that includes sequential, tank to tank and in-line blending
- Discuss the specifications, components and additives of gasoline blending
- Identify the basics of fuel chemistry covering combustion and refinery fuel operations
- Recognize the typical blending equipment that includes in-line blenders, on-line analyzers and tank gauging
- Carryout trends in blending, blending control and optimization steps
- Apply blending economics and the optimization steps technique for blending
- Discuss quality assurance and interpret clean fuels environmental issues
- Identify the benefits of improved blending

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 a complete and up-to-date overview of refinery blending techniques for traders, blending engineers, senior operators, product coordinators, refinery planners, refinery lab personnel, fuels marketers and all engineers involved in the design, operation and troubleshooting of refining facilities. Additionally, the course will be useful to any personnel wishing to gain a perspective on refinery production planning and how the blending of products fits into the refinery economics.

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 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: -

- 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.

- 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: ***Sunday, 20th of July 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Gasoline Blending in Refineries*** *Types of Blending • Sequential; Tank to Tank; In-Line Blending*
0930 – 0945	*Break*
0945 – 1100	***Specifications, Components & Additives*** *Typical Specs (US, EU, World) for Conventional, RFG, Diesel • Blendstock Components and Typical Properties*
1100– 1215	***Specifications, Components & Additives (cont'd)*** *Additives (Octane & Cetane Boosters, Detergents, PP Depressants) and Dyes • Linear/Non-Linear Property Blending*
1215 – 1230	*Break*
1230 – 1420	***Specifications, Components & Additives (cont'd)*** *Component Interactions and Effects on Specs*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 21st of July 2025***

0730 – 0830	***Basics of Fuel Chemistry*** *Combustion • Refinery Fuel Operations*
0830 - 0930	***Typical Blending Equipment*** *In-Line Blenders • On-Line Analyzers (Conventional, NIR, NMR, Raman) for Octane, RVP, Dist, S, Cetane, CP, FP, CFPP, etc. & Typical Performance*
0930 – 0945	*Break*
0945 – 1215	***Typical Blending Equipment (cont'd)*** *Tank Gauging (Float, Servo, Radar) & Typical Performance • Planning, Control, Optimization*
1215 – 1230	*Break*
1230 – 1420	***Trends in Blending***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: **Tuesday, 22nd of July 2025**

0730 – 0930	***The Blending Control & Optimization Steps*** *Types of Optimizers • Typical Property Correlation Equations for Octane, RVP, Dist, Cetane Index*
0930 – 0945	*Break*
0945 – 1100	***The Blending Control & Optimization Steps (cont'd)*** *Planning of Blends/Generating Blend Orders • Executing a Blend/Quality Control*
1100 – 1215	***Blending Economics*** *Blend Component Pricing Methods*
1215 – 1230	*Break*
1230 – 1420	***Blending Economics (cont'd)*** *Blend Profit Calculations and Optimization Methods*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: **Wednesday, 23nd of July 2025**

0730 – 0930	***Optimization Technique for Blending*** *Modelling Issues • Problems in Blending*
0930 – 0945	*Break*
0945 – 1100	***Quality Assurance*** *Laboratory Measurements (ASTM Test Methods for Gasoline and Diesel) • On-Line Analyzers (Advantages vs. Single Lab Analysis, State-of-the-Art NIR & NMR Analyzers for Blend Control)*
1100 – 1215	***Clean Fuels & Environmental Issues*** *EPA Complex (Emissions) Models for Gasoline*
1215 – 1230	*Break*
1230 – 1420	***Clean Fuels & Environmental Issues (cont'd)*** *Impacts of USA and EU Regulations (Renewable Fuels (RFS2), RIN's /LCFS/Cap & Trade, Ethanol Blending, including New E15 Waiver, Sulfur Reduction, Testing, Contamination, Bio-Diesel (B2-20) Blending*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5: **Thursday, 24th of July 2025**

0730 – 0930	***Benefits of Improved Blending*** *Inventory Reduction • Quality Giveaway Minimization*
0930 – 0945	*Break*
0945 – 1015	***Benefits of Improved Blending (cont'd)*** *Tankage Minimization • Blend Key Performance Indicators*
1015 - 1100	***Open Form Q&A Session*** *Summary of each Participant Blending Operation*
1100 – 1215	*Break*
1215 – 1345	***Open Form Q&A Session (cont'd)*** *Exchanging Problems/Handling of Common Problems*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

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

Course Coordinator

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