

COURSE OVERVIEW PE0812

Hydrocracking Process Technology

Course Title

Hydrocracking Process Technology

Course Date/Venue

Session 1: July 27-31, 2025/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Session 2: October 05-09, 2025/Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, KSA

Course Reference

PE0812

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 detailed and up-to-date overview of hydrocracker process unit technology. It covers the hydrotreatment process, petroleum refining and products specifications; the hydrocracking process configuration; the chemical mechanism of HC cracking and hydrocracking; the hydrocracking and dealkylation; the fluidized catalytic cracking, and the hydro desulfurization and catalytic reforming.

During this highly interactive course, participants will learn the feed, process variables and pre-treatment considerations; the HC chemical reactor section design and heat of reaction; the hydrocracking catalyst and process variables; the proper HC startup and shutdown procedures, catalyst deactivation and regeneration; the product separation section; the common problems and emergency issues; and the proper troubleshooting and hydrocracking process.



Course Objectives

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

- Apply and gain an in-depth knowledge on hydrocracker process unit technology
- Recognize hydrotreatment process, petroleum refining and products specifications
- Carryout hydrocracking process configuration and identify the chemical mechanism of HC cracking and hydrocracking
- Differentiate hydrocracking and de-alkylation as well as fluidized catalytic cracking, hydro desulfurization and catalytic reforming
- Identify feed, process variables and discuss pre-treatment considerations
- Explain HC chemical reactor section design and heat of reaction
- Describe hydrocracking catalyst and process variables
- Employ the proper HC startup and shutdown procedures, catalyst deactivation and regeneration
- Recognize product separation section
- Identify the common problems and emergency issues and carryout proper troubleshooting and hydrocracking process in a safely manner

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 hydrocracker process unit technology for engineers, shift leaders, senior operation personnel and other technical staff who are involved in the operation of hydrocracking units. Further, the course is also suitable for the staff of refineries research centres, oil companies and engineering firms involved in the different operational aspects of this process.

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

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 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. Kyle Bester is a **Senior Mechanical & Process Engineer** with extensive years of practical experience within the **Oil & Gas, Power & Water Utilities** and other **Energy** sectors. His expertise includes **Bearing & Bearing Failure Analysis, Centrifugal, Reciprocating & Screw Compressor, Gas Turbine Repair, Pump Installation & Operation, Compressors & Turbines Troubleshooting, Coupling, Gear Boxes, Bearings & Lubrication, Mechanical Seals, Bearings & Seals, Pressure Vessel Design & Analysis, Steam & Gas Turbine, High Pressure Boiler Operation, Compressors Operation &**

Maintenance, Pipe Maintenance & Repair, Centrifugal & Positive Displacement Pump, Rotating Machinery, PD Compressor & Gas Engine Operation & Troubleshooting, Hydraulic Tools & Fitting, Mass & Material Balance, Water Distribution & Pump Station, Tank Farm & Tank Terminal, Process Piping Design, Stack & Noise Monitoring, HVAC & Refrigeration Systems, Condition Monitoring System, Maintenance Planning & Scheduling, Maintenance Shutdown & Turnaround, Maintenance Audit Best Practices, Maintenance & Reliability Management, Reliability, Availability & Maintainability (RAM), Root Cause Analysis, Reliability-Centered Maintenance (RCM), Reliability Engineering Analysis (RE), Root Cause Analysis (RCA), Asset Integrity Management (AIM), Reactive & Proactive Maintenance, Mechanical & Rotating Equipment Troubleshooting & Maintenance, Maintenance Management & Cost Control, Operation of the Hydrocarbon Process Equipment, Fired Heaters, Air Coolers, Heat Exchangers, Crude Desalter, Pressure Vessels & Valves, Flare, Blowdown & Pressure Relief Systems Operation, Separation Techniques, Bulk Liquid Storage Management & Tanks Cleaning, Ammonia Manufacturing & Process Troubleshooting, Process Equipment Design, Process Reactors and Chemical Engineering. Further, he is also well-versed in Water Reservoir, Water Tanks, Water Pumping Station, Water Distribution System, Water Network System, Water Pipes & Fittings, Water Hydraulic Modelling, Water Storage Reservoir, Reservoirs & Pumping Stations Design & Operation, Pumping Systems, Interconnecting Pipelines, Water Network Hydraulic Simulation Modelling, Water Supply Design, Water Balance Modelling, Water Distribution Network, Water Network System Analysis, Water Forecasts Demand, Water Pipelines Materials & Fittings, Water Network System Design, Pump Houses & Booster Pumping Stations, Potable Water Transmission, Water Distribution Network, Districts Meters Areas (DMAs), Water Supply & Desalination Plants Rehabilitation, Water Reservoirs & Pumping Stations, Water Network System Extension, Water Network System Replacement & Upgrade, Water Networks Optimization, Water Supply & Distribution Systems Efficiency & Effectiveness, Pipe Materials & Fittings, Service Reservoir Design & Operation, Pipes & Fittings, Water Network System Design & Operation, Supply Water Network Rehabilitation, Water Loss Reduction, Main Water System Construction, Main Water Line Construction, Transmission & Distribution Pipelines, Water Distribution Design & Modelling, Water Supply System, Oilfield Water Treatment, Best Practice in Sewage & Industrial Wastewater Treatment & Environmental Protection, Water Distribution Design & Modelling, Desilting, Treating & Handling Oily Water, Water Chemistry for Power Plant, Water Sector Orientation, Environmental Impact Assessment (EIA). He is currently the **Part Owner & Manager of Extreme Water SA wherein he manages, re-designed and commissioned a water and wastewater treatment plants.**

During his career life, Mr. Bester has gained his practical and field experience through his various significant positions and dedication as the **Project Manager, Asset Manager, Water Engineer, Maintenance Engineer, Mechanical Engineer, Process Engineer, Supervisor, Team Leader, Analyst, Process Technician, Landscape Designer** and **Senior Instructor/Trainer** for various international companies, infrastructures, water and wastewater treatment plants from New Zealand, UK, Samoa, Zimbabwe and South Africa, just to name a few.

Mr. Bester holds a **Diploma in Wastewater Treatment** and a **National Certificate in Wastewater & Water Treatment**. Further, he is a **Certified Instructor/Trainer**, an **Approved Chemical Handler** and has delivered numerous courses, trainings, conferences, 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	<i>Registration & Coffee</i>
0800 – 0815	<i>Introduction & Welcome</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Introduction to Hydro Treatment Process</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Petroleum Refining & Products Specs</i>
1100 – 1230	<i>Hydrocracking Process Configuration</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<i>Chemical Mechanism of HC Cracking and Hydrocracking</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0900	<i>Hydrocracking and De-alkylation</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>Fluidized Catalytic Cracking</i>
1100 – 1230	<i>Hydro Desulfurization</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<i>Catalytic Reforming</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0900	<i>Feed and Process Variables</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>Pre-Treatment Considerations</i>
1100 – 1230	<i>HC Chemical Reactor Section Design & Heat of Reaction</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<i>Hydrocracking Catalyst and Process Variables</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>

Day 4

0730 – 0900	<i>H.C. Start-Up & Shutdown Procedures</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>H.C. Start-Up & Shutdown Procedures (cont'd)</i>
1100 – 1230	<i>Catalyst Deactivation & Regeneration</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<i>Product Separation Section (cont'd)</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0900	<i>Common Problems, Troubleshooting & Emergency Issues</i>
0900 – 0915	<i>Break</i>
0915 – 1100	<i>Common Problem, Troubleshooting & Emergency Issues (cont'd)</i>
1100 – 1215	<i>Safety in Hydrocracking</i>
1215 – 1230	<i>Break</i>
1230 – 1300	<i>Safety in Hydrocracking (cont'd)</i>
1300 – 1345	<i>Case Study</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

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



Course Coordinator

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