

COURSE OVERVIEW PE0348(KP4) Hydro-Treating Technology

Course Title

Hydro-Treating Technology

Course Date/Venue

February 25-29, 2024/Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey

Course Reference

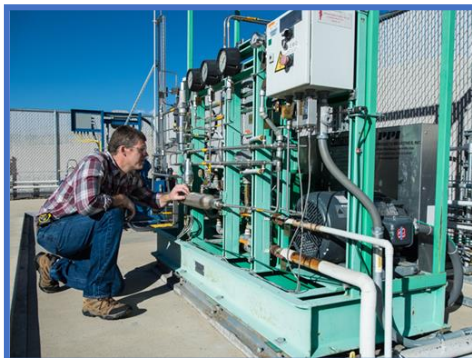
PE0348(KP4)

Course Duration/Credits

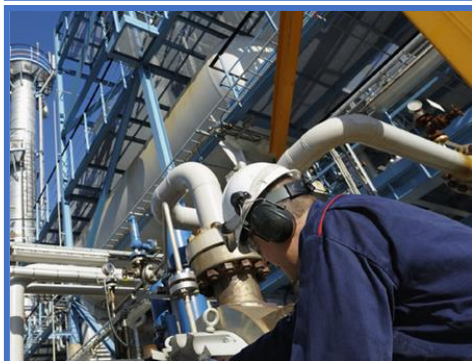
Five days/3.0 CEUs/30 PDHs



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 hydro-treating technology. It covers the performance of the large panel of the existing hydro-treatment process in the refining industry; the hydro-treatment units and hydrogen balance; the potential disturbances and their remedies; the impurities content in the petroleum cuts and products; the various treatments with hydrogen and integration in the refining scheme; and the characteristics of chemical reactions and catalysts for hydropurification and for hydrogenation.



During this interactive course, participants will learn the loading of the catalyst and the internals in the reactor; the presulfiding procedures; the operating conditions and compositions of the main streams; the significance of the operating variables and their influence on the process; and the advanced process control, optimization process and management of the hydrogen network in refinery.

Course Objectives

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

- Apply and gain an in-depth knowledge and skills on hydro-treating technology
- Discuss the performance of the large panel of the existing hydro-treatment process in the refining industry
- Operate hydro-treatment units and manage hydrogen balance
- Identify the potential disturbances and their remedies as well as the impurities content in the petroleum cuts and products
- Illustrate various treatments with hydrogen and integration in the refining scheme
- Enumerate the characteristics of chemical reactions and catalysts for hydropurification and for hydrogenation
- Perform loading of the catalyst and recognize the internals in the reactor
- Carryout presulfiding procedures as well as identify operating conditions and compositions of the main streams
- Define the significance of the operating variables and their influence on the process
- Employ advanced process control, optimization process and management of the hydrogen network in refinery

Who Should Attend

This course provides an overview of all significant aspects and considerations of hydro-treating technology for process supervisors and other process, instrument and mechanical technical staff.

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 Fee


US\$ 6,000 per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), 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


Certificates are accredited by the following international accreditation organizations: -

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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.

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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.

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. Mike Poulos, MSc, BSc, is a Senior Process Engineer with over 35 years of industrial experience within the Utilities, Refinery, Petrochemical and Oil & Gas industries. His expertise lies extensively in the areas of Process Plant Performance & Efficiency, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Monitoring, Catalyst Selection & Production Optimization, Operations Abnormalities & Plant Upset, Process Plant Start-up & Commissioning, Process Equipment Design & Troubleshooting, Petroleum Processing, Process Design Specifications, Process Calculation Methods, Equipment Sizing & Selection, Piping, Pumps, Compressors, Heat Exchangers, Air Coolers, Direct-Fired Heaters, Process Vessels, Fractionator Columns, Reactors, Ancillary Equipment, Mechanical & Safety Aspects, Cost Estimation, Commissioning & Start-Up, Production & Cost Reduction, Reactor Building Ventilation System, PVC Initiators Storage Bunkers, PVC Modernization & Expansion, PVC Reactor, PVC Plant Reactors Pre-Heating, PVC Plant Start-Up & Commissioning, PVC Plant Shutdown, PVC Driers Automation, VCM Recovery, VCM Sphere Flooding System, VCM Storage Tanks, Steam Tripping Facilities, Solvents Plant Automation Commissioning & Start-Up and Inferential Properties System. Further, he is also well-versed in Advanced Process Control Technology, Designing Process Plant Fail-Safe Systems, Quantitative Risk Assessment, On-Line Statistical Process Control, Principles and Techniques of Contemporary Management, Rosemount RS3, Polymer Additives, Polymer Reaction Engineering, Polymer Rheology and Processing, GRID Management and Batch Process Engineering.

During his career life, Mr. Poulos held significant positions as the **Chemical Plants Technology Engineer, PVC Plant Production Engineer, PVC Plant Shutdown Coordinator, PVC Plant/CC Solvents Plants Acting Section Head and Chemical Distribution Section Head** from Hellenic Petroleum, wherein he was responsible for the development of integrated system.

Mr. Poulos has **Master and Bachelor** degrees in **Chemical Engineering** from the **University of Massachusetts and Thessaloniki Polytechnic** respectively. Further, he is a **Certified Instructor/Trainer**, a and a **member** of the **Greek Society of Chemical Engineers and Greek Society of Engineers**.

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: Sunday, 25th of February 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Comprehensive Understanding of the Aim and the Performance of the Large Panel of the Existing Hydro-treatment Process in the Refining Industry
0930 – 0945	Break
0945 – 1100	Knowledge of the Operation of the Hydro-treatment Units and the Management of the Hydrogen Balance
1100 – 1230	Understanding of the Potential Disturbances and their Remedies
1230 – 1245	Break
1245 – 1420	Impurities Content in the Petroleum Cuts and Products Impacts on the Health, the Environment and on the other Refining Processes • Highly Refractory Compounds
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 26th of February 2024

0730 – 0930	Aim of the Various Treatments with Hydrogen and Integration in the Refining Scheme Hydropurifications of Straight Run Cuts • Stabilization or Saturation of Cracked Cuts
0930 – 0945	Break
0945 – 1100	Characteristics of the Chemical Reactions Thermodynamic and Kinetic Aspects • Consequences on the Operation of the Units • Side Reactions and Optimum Operating Conditions to Deplete their Evolution • Special Features of Reversion Reactions
1100 – 1230	Characteristics of the Catalysts for Hydropurification and for Hydrogenation Effects of Molybdenum • Cobalt and Nickel Importance of the Substrate
1230 – 1245	Break
1245 – 1420	Characteristics of the Catalysts for Hydropurification and for Hydrogenation (cont'd) Criteria for the Best Choice Facing a Hydrotreatment Problem • Top Gradings
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Tuesday, 27th of February 2024

0730 – 0930	Loading of the Catalyst
0930 – 0945	Break

0945 – 1100	Internals in the Reactor
1100 – 1215	Presulfiding Procedures Role
1215 – 1230	Break
1230 – 1420	Presulfiding Procedures (cont'd) Steps and Details of the Different Methods
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 28th of February 2024

0730 – 0930	Operating Conditions and Compositions of the Main Streams Mass Balance and Yields
0930 – 0945	Break
0945 – 1100	Operating Conditions and Compositions of the Main Streams (cont'd) Sulfur Balance
1100 – 1215	Operating Conditions and Compositions of the Main Streams (cont'd) Hydrogen Balance
1215 – 1230	Break
1230 – 1420	Operating Conditions and Compositions of the Main Streams (cont'd) Consumption
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 29th of February 2024

0730 – 0930	Definition, Significance of the Operating Variables and their Influence on the Process Mean Temperatures and Profile • Pressures • Partial Pressure of Hydrogen • Recycle Rate
0930 – 0945	Break
0945 – 1100	Definition, Significance of the Operating Variables and their Influence on the Process (cont'd) Quench Ratio • Feed Flow Rate • Space Velocity
1100 – 1215	Advanced Process Control and Optimization of the Process
1215 – 1230	Break
1230 – 1345	Management of the Hydrogen Network in the Refinery Effect of Feed Composition and Origin
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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