Haward Technology Middle East

COURSE OVERVIEW PE0399
ASPEN Pipeline Integrity Management System (PIMS)
Introduction to Refinery Planning

Course Title
ASPEN Pipeline Integrity Management System (PIMS): Introduction to Refinery Planning

Course Date/Venue
December 09-13, 2024/ Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
PE0399

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 our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of ASPEN Pipeline Integrity Management System (PIMS): Introduction to Refinery Planning. It covers the importance of ASPEN PIMS in refinery planning; navigating ASPEN PIMS interface; the basic concepts in refinery modelling and creating a new project; the basics of linear programming and its application; and how to input, validate and manage data for crude oils, capacities, demands and product specifications.

Further, the course will also discuss the techniques on how to create models for distillation units, converters, blenders and other refinery operations; selecting crudes and managing crude assays in the model; the product slate and specifications including utilities and energy modelling; the scenario analysis and its significance in strategic planning; creating, running and comparing different operational scenarios in ASPEN PIMS; the optimization techniques available and sensitivity analysis; and dealing with constraints and penalties.

During this interactive course, participants will learn the non-linear blending techniques and handling multiple locations and transportation; integrating short-term scheduling with long-term planning; using advanced tools and features and customizing output reports; using visualization tools for analysis and presentations; the best practices, tips and tricks for efficient use of ASPEN PIMS; the data integrity and validation; and the strategies for implementing changes in refinery operations based on ASPEN PIMS planning.

Course Objectives

The course should serve the following overall learning objectives: -

- Apply and gain a good working knowledge on ASPEN pipeline integrity management system (PIMS)

- Discuss ASPEN PIMS and its importance in refinery planning

- Navigate ASPEN PIMS interface and explain the basic concepts in refinery modelling

- Create a new project and discuss the basics of linear programming and its application

- Input, validate and manage data for crude oils, capacities, demands and product specifications

- Create models for distillation units, converters, blenders and other refinery operations

- Select crudes and manage crude assays in the model as well as discuss product slate and specifications

- Recognize utilities and energy modelling and discuss the scenario analysis and its significance in strategic planning

- Create, run and compare different operational scenarios in ASPEN PIMS and apply optimization techniques available

- Carryout sensitivity analysis and deal with constraints and penalties

- Apply non-linear blending techniques and handle multiple locations and transportation

- Integrate short-term scheduling with long-term planning and identify the use of advanced tools and features

- Customize output reports and use visualization tools for analysis and presentations

- Apply best practices, tips and tricks for efficient use of ASPEN PIMS as well as data integrity and validation

- Employ strategies for implementing changes in refinery operations based on ASPEN PIMS planning

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, sample video clips of the instructor's actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of ASPEN pipeline integrity management system (PIMS) for process engineers who need advanced skills for more complex modelling tasks R&D engineers and researchers using Aspen HYSYS for process synthesis, upgrade or modifications.

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$ 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.

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: -

- 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.

- 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. However, we have the right to change the course instructor prior to the course date and inform participants accordingly:

Mr. Manuel Dalas, PEng, MSc, BSc, is a **Senior Process Engineer** with over **25 years** of industrial experience within the **Oil & Gas**, **Refinery**, **Petrochemical** and **Refinery** industries. His expertise widely includes in the areas of **Crude Distillation Process**, **Refinery Modelling**, **Utilities & Energy Modelling**, **Saturation Gas Process** Technology, **Crude Dehydration & Desalting**, **Crude** Stabilization Operations, **Process Plant** Performance & Efficiency, **Heat Exchangers & Fired Heaters** Operation & Troubleshooting, **Process Plant** Optimization, **Revamping & Debottlenecking**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Mass & Material Balance**, **Oil & Gas** Processing, **Oil Field** Operation, **Process Plant** Operation & Troubleshooting, Sensitivity Analysis, **Hydrogen Sulphide Stripping**, **Crude Oil De Salting** Process, **Gas Conditioning**, **NGL Recovery & NGL Fractionation**, **Flare** Systems, Pre-Fabrication of **Steel Structure**, Alloy Piping Pre-Fabrication, **Heat Exchangers**, **Vertical Columns/Pressure Vessels**, **Distillation Column**, **Steel Structures**, **Pressure Vessels** Maintenance & Operation, **Piping Support**, **Ironworks**, **Rotating & Static Equipment** (**Pumps**, **Valves**, **Boilers**, **Pressure Vessels**, **Tanks**, **Heat Exchangers**, **Bearings**, **Compressors**, **Pipelines**, **Motors**, **Turbines**, **Gears**, **Seals**), **Construction** Management, **Building** Structures and **Electrical-Mechanical Equipments**. Further, he is also a well-versed in **Materials** Management, **Inventory Control** and Workplace Housekeeping. 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**, **Construction Manager**, **Project Engineer**, **Production Engineer**, **Construction Engineer**, **Consultant Engineer**, **Technical Consultant**, **Safety Engineer**, **Mechanical Engineer**, **External Collaborator**, **Deputy Officer** for various companies including the Alpha Astika, Anamorfosis Technical Firm, EKME, ASTE, Elof Consulting and Hypergroup.

Mr. Dalas is a **Registered Professional Engineer** and has a **Master** degree in **Energy System** from the **International Hellenic University** and a **Bachelor** degree in **Mechanical Engineering** from the **Mechanical Engineering Technical University**, **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.

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Course Program

The following program is planned for this course. However, the course instructor 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:   **Monday 09th of December 2024**

00730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to ASPEN PIMS:*** *Understanding ASPEN PIMS & its Importance in Refinery Planning*
0930 – 0945	*Break*
0945 – 1100	***Navigating the ASPEN PIMS Interface****: Familiarization with the User Interface, Key Features & Navigation*
1100 – 1200	***Basic Concepts in Refinery Modelling:*** *Introduction to the Concepts of Crude Processing, Product Blending & Distribution*
1200 - 1215	*Break*
1215 – 1330	***Setting Up a New Project in ASPEN PIMS****: Steps for Creating a New Project, including Defining the Refinery Configuration*
1330 – 1420	***Linear Programming:*** *Basics of Linear Programming & its Application in Refinery Planning*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2:   **Tuesday 10th of December 2024**

0730 – 0830	***Managing Input Data****: How to Input, Validate, & Manage Data for Crude Oils, Capacities, Demands & Product Specifications*
0830 – 0930	***Building Blocks of a Refinery Model:*** *Detailed Look at Creating Models for Distillation Units, Converters, Blenders & Other Refinery Operations*
0930 – 0945	*Break*
0945 – 1100	***Crude Selection & Assay Management:*** *Techniques for Selecting Crudes & Managing Crude Assays in the Model*
1100 – 1230	***Product Slate & Specifications:*** *Defining the Product Slate, Product Qualities & Specifications*
1230 – 1245	*Break*
1245 – 1330	***Utilities & Energy Modelling:*** *Modelling Refinery Utilities, Energy Consumption & Efficiency*
1330 – 1420	***Case Study: Building a Simple Refinery Model****: Hands-On Exercise in Building a Basic Refinery Model in ASPEN PIMS*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3:   **Wednesday 11th of December 2024**

0730 – 0830	***Scenario Analysis:*** *Understanding Scenario Analysis & its Significance in Strategic Planning*
0830 – 0930	***Creating & Managing Scenarios:*** *How to Create, Run & Compare Different Operational Scenarios in ASPEN PIMS*
0930 – 0945	*Break*
0945 – 1100	***Optimization Techniques in ASPEN PIMS****: An Overview of Optimization*

	Options & Techniques Available in ASPEN PIMS
1100 - 1230	***Sensitivity Analysis:*** *Learning to Conduct Sensitivity Analysis to Understand the Impact of Variables on Refinery Operations*
1230 – 1245	*Break*
1245 – 1420	***Constraints & Penalties****: Managing Operational Constraints & Penalties to Optimize Refinery Planning*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:   **Thursday 12th of December 2024**

0730 – 0930	***Case Study: Scenario Analysis Exercise:*** *Practical Scenario Analysis Exercise, Optimizing for Different Market Conditions*
0930 – 0945	*Break*
0945 – 1100	***Non-Linear Blending:*** *Understanding & Applying Non-Linear Blending Techniques in ASPEN PIMS*
1100 – 1230	***Handling Multiple Locations & Transportation:*** *Modelling Logistics, Transportation Costs & Constraints for Multi-Location Refineries*
1230 – 1245	*Break*
1245 – 1330	***Integrating Refinery Planning with Scheduling:*** *Overview of Integrating Short-Term Scheduling with Long-Term Planning*
1330 – 1420	***Use of Advanced Tools & Features:*** *Exploring Advanced Tools in ASPEN PIMS for More Sophisticated Analyses*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:   **Friday 13th of December 2024**

0730 – 0830	***Custom Reports & Visualization:*** *Customizing Output Reports & Using Visualization Tools for Analysis & Presentations*
0830 – 0930	***Interactive Workshop****: Participants Work on an Advanced Refinery Planning Project, Incorporating Complex Scenarios & Optimization Strategies*
0930 – 0945	*Break*
0945 – 1100	***Best Practices in Refinery Planning with ASPEN PIMS****: Discussion on Best Practices, Tips & Tricks for Efficient Use of ASPEN PIMS*
1100 – 1230	***Data Integrity & Validation:*** *Ensuring Data Integrity & Validation Techniques for Reliable Modelling*
1230 – 1245	*Break*
1245 – 1345	***Change Management & ASPEN PIMS Implementation:*** *Strategies for Implementing Changes in Refinery Operations Based on ASPEN PIMS Planning*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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Simulator (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 our state-of-the-art "ASPEN HYSYS" simulator.
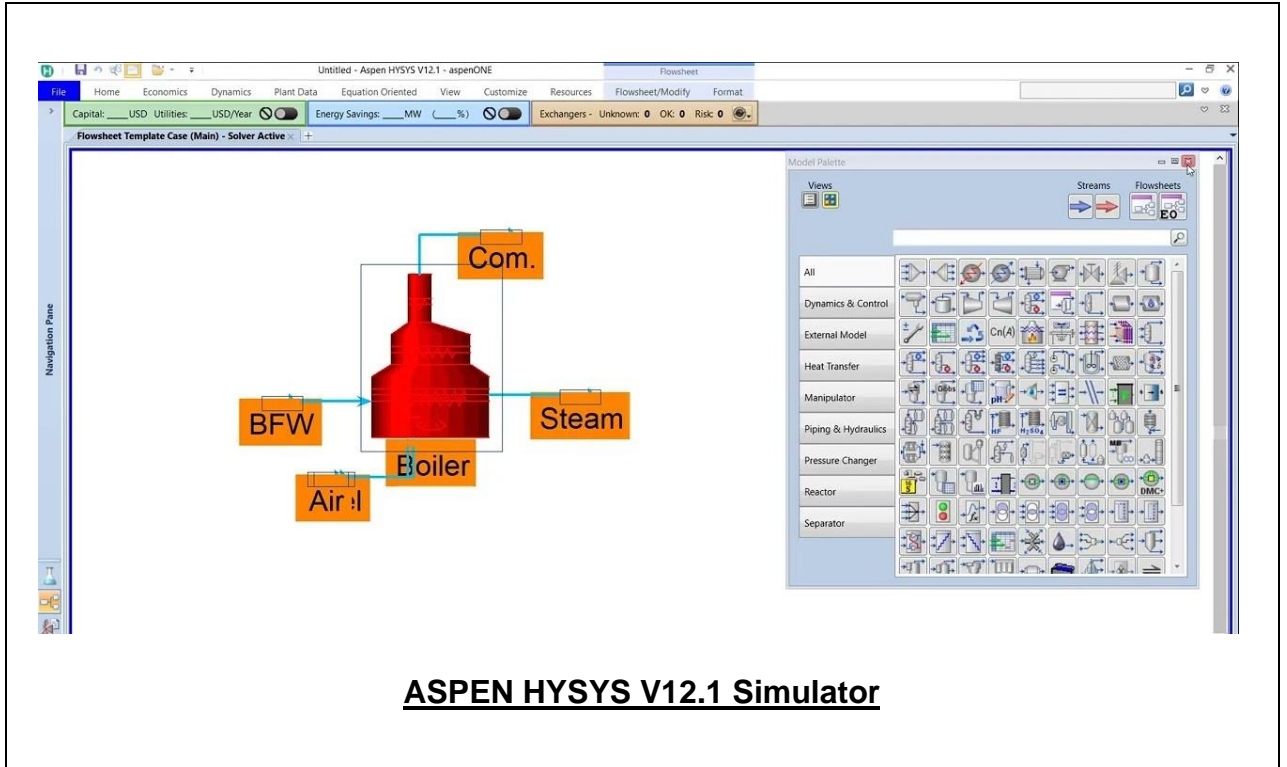
ASPEN HYSYS V12.1 Simulator

Course Coordinator
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