COURSE OVERVIEW PE0570
Basic of Process Simulator Systems

Course Title
Basic of Process Simulator Systems

Course Date/Venue
Session 1: February 24-28, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: August 31-September 04, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
PE0570

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 introduce advanced process simulation techniques using the commercial process simulator ASPEN version 7.3.2. Participants will become familiar with the interface and features of ASPEN version 7.3.2, and how to use this simulation package for a variety of chemical processes that include various reactors and separators. Details of the choice of chemical property methods and the convergence of simulations will be provided. An introduction to process economic analysis will also be included.

This practical course will be delivered to participants using the steady-state simulator "**ASPEN Plus V7.3.2**". Please refer to the last page of this course overview for more details.

Course Objectives

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

- Apply and gain an advanced knowledge on process simulation
- Set-up and run a steady-state process simulation with multiple pieces of process equipment in ASPEN Process Modeling version 7.3.2
- Insert and set-up various pieces process equipment into a steady-state simulation including: continuously stirred tank reactors, plug flow reactors, distillation columns, flash drums, liquid-liquid extractors, steam strippers, heat exchangers, pumps, compressors and solids handling equipment
- Evaluate and choose appropriate chemical process models and use these to evaluate complex properties
- Manipulate system parameters to improve the convergence of steady-state simulations
- Carryout sizing and costing of flow sheets and associated economics calculations
- Analyze spreadsheet simulations to characterize and optimize various processes

Who Should Attend

This course is intended for engineers involved in simulation and modeling of natural gas and liquids processing facilities.

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**.*

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: -

- 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.

- 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.

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. Manuel Dalas, PEng, MSc, BSc, is a **Senior Process Engineer** with almost **30 years** of industrial experience within the **Oil & Gas**, **Refinery**, **Petrochemical** and **Refinery** industries. His expertise widely includes in the areas of **Process Engineering & Systems Failure** Analysis, **Equipment & Mechanical Integrity**, **Process Failure** Prevention, **Engineering Modifications & Systems Failures**, Root Cause Failure Analysis (**RCFA**) Techniques, **Methodology Selection** based on Specific Scenarios, **Process Plant** Optimization, **Revamping & Debottlenecking**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant** Operations, **Mass & Material Balance**, **Oil & Gas Processing**, **Process Plant** Performance & Efficiency, **Crude Distillation** Process Saturated Gas Process Technology, **Crude Dehydration & Desalting**, **Crude** Stabilization Operations, **Heat Exchangers & Fired Heaters** Operation & Troubleshooting, **Pressure Vessels** Maintenance & Operation, **Piping Support**, **Ironworks**, **Rotating & Static Equipment** (**Pumps**, **Valves**, **Boilers**, **Pressure Vessels**, **Tanks**, **Bearings**, **Compressors**, **Pipelines**, **Motors**, **Turbines**, **Gears**, **Seals**), **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, **Vertical Columns/Pressure Vessels**, **Distillation Column**, **Steel Structures**, **Construction** Management, **Building** Structures and **Electrical-Mechanical Equipment**. Currently, he is the **Technical Consultant** of the **Association of Local Authorities** of **Greater Thessaloniki** wherein he oversees mechanical engineering services while focusing on system reviews and improvements. His role involves a strategic approach to enhancing operational efficiencies and implementing robust solutions in complex engineering environments.

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**, **Senior Process Engineer**, **Process Safety Engineer**, **Process Design Engineer**, **Project Engineer**, **Production Engineer**, **Construction Engineer**, **Consultant Engineer**, **Technical Consultant**, **Safety Engineer**, **Mechanical Engineer**, **External Collaborator**, **Deputy Officer** and **Senior Instructor/Trainer** 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's** degree in **Energy System** from the **International Hellenic University** and a **Bachelor's** 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.

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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Computer Simulation as a Tool in the Management of Engineering as it Relates to the Design, Selection and Operation of Oil and Gas Production***
0930 – 0945	*Break*
0945 – 1100	***Equations of State and Their Application***
1100 – 1215	***Calculation of Thermodynamic Properties***
1215 – 1230	*Break*
1230 – 1330	***Preparation of Compressor Train Flowsheet***
1330 – 1430	***Preparation of Compressor Train Flowsheet (cont'd)***
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Gas Compression***
0900 – 0915	*Break*
0915 – 1100	***Preparation of Production Train Flowsheet with Recycles and Equipment Sizing***
1100 – 1230	***Preparation of Production Train Flowsheet with Recycles and Equipment Sizing (cont'd)***
1230 – 1245	*Break*
1245 – 1430	***NGL Recovery Processing***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Preparation of Offshore Dewpoint Control Flowsheet***
0930 - 0945	*Break*
0945 – 1100	***Characterization of the C6+ Fraction***
1100 – 1215	***Comparison of Offshore Dewpoint Control Flowsheet with Potential Risk of Improper Feed Characterization***
1215 – 1230	*Break*
1230 - 1430	***Comparison of Offshore Dewpoint Control Flowsheet with Potential Risk of Improper Feed Characterization (cont'd)***
1430	*Lunch & End of Day Three*

Day 4

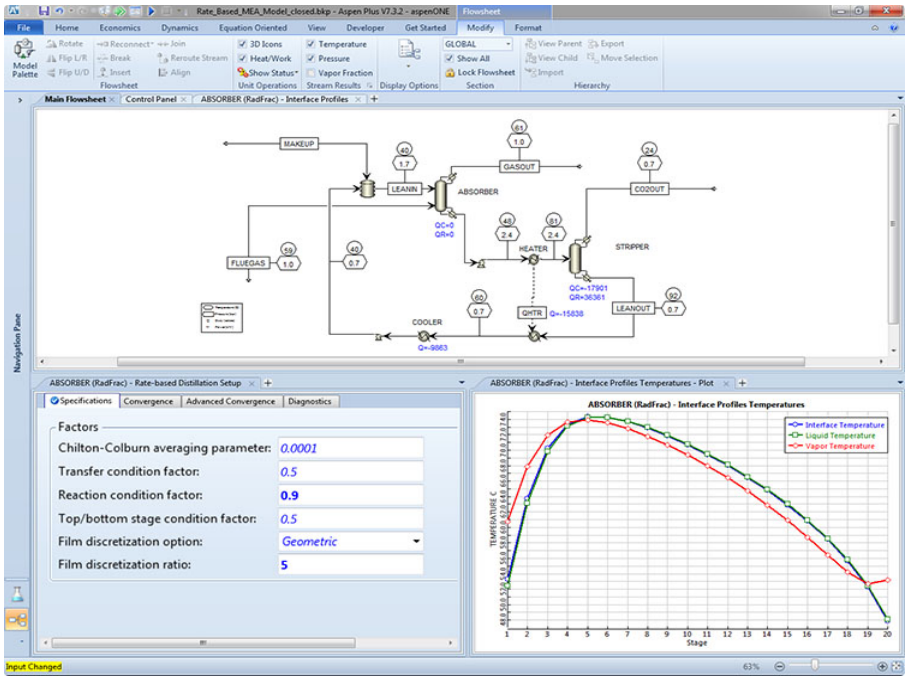
0730 – 0930	***Fractionation***
0930 - 0945	*Break*
0945 – 1100	***Modeling a Fractionation Train for Multiple Product Specifications***
1100 – 1215	***Fluid Flow***
1215 – 1230	*Break*
1230 - 1430	***Modeling a Piping System with Both Pumps and Compressors***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Water/Hydrocarbon Behavior and Gas Dehydration***
0930 - 0945	*Break*
0945 – 1100	***Modeling a Production Train with Glycol Dehydration***
1100 – 1215	***Modeling a Dewpoint Recovery System with Glycol or Methanol Injection***
1215 – 1230	*Break*
1230 - 1400	***Open Forum & Final Discussion***
1400 - 1415	***POST-TEST***
1415 - 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

Hands-on practical sessions will be arranged for all participants throughout the course duration using the steady-state simulator **ASPEN Plus V7.3.2.**



ASPEN Plus V7.3.2

Course Coordinator

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