

COURSE OVERVIEW DE0441(AD6)
Advanced Pressure-Volume-Temperature (PVT) Simulation

Course Title

Advanced Pressure-Volume-Temperature (PVT) Simulation

Course Date/Venue

October 14-18, 2024/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference

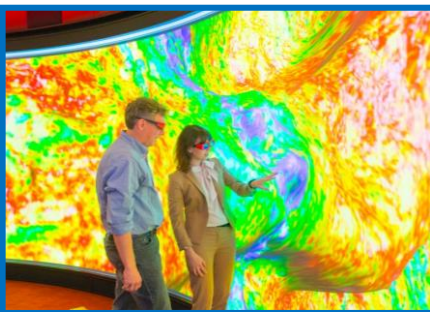
DE0441(AD6)

Course Duration/Credits

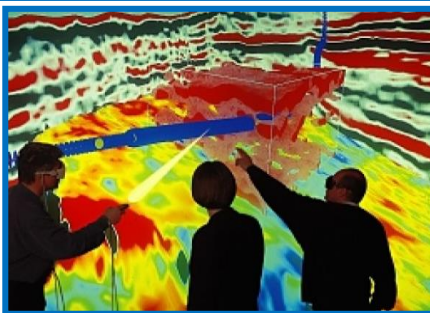
Five days/3.0 CEUs/30 PDHs



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.



The drilling in new fields is planned to start in early 2013, where one of the objectives of the first well is data gathering and especially fluid sampling that enables engineers to deliver a proper fluid characterization (from sampling to EOS characterization). This course will enable the participants to ensure optimum sampling strategy, strong laboratories follow-up capabilities and high-quality EOS characterization.



This course is designed to provide participants with a detailed and up-to-date overview of advanced pressure-volume-temperature (PVT) simulation. It covers the fluid phase behavior and basic fluid properties; the PVT measurements and sampling methods; the EOS models as well as how to properly characterize the plus fraction and tune EOS; and the process of lumping and de-lumping.

During this interactive course, participants will learn the PVT data for reservoir simulation; the miscible process and how is it modeled; the quality checking of the data provided by vendors; and the appropriate regressing methods on how to develop a PVT model (EOS) that match the available data.

Course Objectives

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

- Apply and gain an advanced knowledge on pressure-volume-temperature (PVT) simulation
- Discuss fluid phase behavior and basic fluid properties
- Perform PVT measurements and sampling methods
- Recognize EOS models as well as how to properly characterize the plus fraction and tune EOS
- Identify and discuss process of lumping and de-lumping
- Prepare PVT data for reservoir simulation
- Explain the miscible process and how is it modeled
- Demonstrate quality checking of the data provided by vendors
- Determine appropriate regressing methods on how to develop a PVT model (EOS) that match the available data

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 advanced pressure-volume-temperature (PVT) simulation for reservoir engineers and petroleum engineers who have a medium background of PVT.

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

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 Fee

US\$ 8,000 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:



Dr. Chris Kapetan, PhD, MSc, is a Senior Petroleum Engineer with over 30 years of international experience within the onshore and offshore oil & gas industry. His wide experience covers Decision Analytic Modelling Methods for Economic Evaluation, Probabilistic Risk Analysis (Monte Carlo Simulator) Risk Analysis Foundations, Global Oil Demand, Crude Oil Market, Global Oil Reserves, Oil Supply & Demand, Governmental Legislation, Contractual Agreements, Financial Modeling, Oil Contracts, Project Risk Analysis, Feasibility Analysis Techniques, Capital Operational Costs, Oil & Gas Exploration Methods, Reservoir Evaluation, Extraction of Oil & Gas, Crude Oil

Types & Specifications, Sulphur, Sour Natural Gas, Natural Gas Sweetening, Petroleum Production, Field Layout, Production Techniques & Control, Surface Production Operations, Oil Processing, Oil Transportation-Methods, Flowmetering & Custody Transfer and Oil Refinery. Further, he is also well-versed in Enhanced Oil Recovery (EOR), Electrical Submersible Pumps (ESP), Oil Industries Orientation, Geophysics, Cased Hole Formation Evaluation, Cased Hole Applications, Cased Hole Logs, Production Operations, Production Management, Perforating Methods & Design, Perforating Operations, Fishing Operations, Well & Reservoir Testing, Reservoir Stimulation, Hydraulic Fracturing, Carbonate Acidizing, Sandstone Acidizing, Drilling Fluids Technology, Drilling Operations, Directional Drilling, Artificial Lift, Gas Lift Design, Gas Lift Operations, Petroleum Business, Petroleum Economics, Field Development Planning, Gas Lift Valve Changing & Installation, Well Completion Design & Operation, Well Surveillance, Well Testing, Well Stimulation & Control and Workover Planning, Completions & Workover, Rig Sizing, Hole Cleaning & Logging, Well Completion, Servicing and Work-Over Operations, Practical Reservoir Engineering, X-mas Tree & Wellhead Operations, Maintenance & Testing, Advanced Petrophysics/Interpretation of Well Composite, Construction Integrity & Completion, Coiled Tubing Technology, Corrosion Control, Slickline, Wireline & Coil Tubing, Pipeline Pigging, Corrosion Monitoring, Cathodic Protection as well as Root Cause Analysis (RCA), Root Cause Failure Analysis (RCFA), Gas Conditioning & Process Technology, Production Safety and Delusion of Asphalt. Currently, he is the Operations Consultant & the Technical Advisor at GEOTECH and an independent Drilling Operations Consultant of various engineering services providers to the international clients as he offers his expertise in many areas of the drilling & petroleum discipline and is well recognized & respected for his process and procedural expertise as well as ongoing participation, interest and experience in continuing to promote technology to producers around the world.

Throughout his long career life, Dr. Chris has worked for many international companies and has spent several years **managing technically complex wellbore interventions** in both **drilling & servicing**. He is a **well-regarded** for his **process and procedural expertise**. Further, he was the **Operations Manager at ETP Crude Oil Pipeline Services** where he was fully responsible for optimum operations of crude oil pipeline, **workover and directional drilling, drilling rigs** and equipment, drilling of various geothermal deep wells and **exploration wells**. Dr. Chris was the **Drilling & Workover Manager & Superintendent for Kavala Oil** wherein he was responsible for supervision of **drilling operations and offshore exploration**, quality control of performance of **rigs, coiled tubing**, crude oil transportation via pipeline and abandonment of **well** as per the API requirements. He had occupied various key positions as the **Drilling Operations Consultant, Site Manager, Branch Manager, Senior Drilling & Workover Manager & Engineer and Drilling & Workover Engineer, Operations Consultant, Technical Advisor** in several petroleum companies responsible mainly on an **offshore sour oil field (under water flood and gas lift) and a gas field**. Further, Dr. Chris has been a **Professor of the Oil Technology College**.

Dr. Chris has **PhD in Reservoir Engineering** and a **Master degree in Drilling & Production Engineering** from the **Petrol-Gaze Din Ploiesti University**. Further, he is a **Certified Surfaced BOP Stack Supervisor of IWCF**, a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)** and has conducted **numerous short courses, seminars and workshops** and has published several technical books on **Production Logging, Safety Drilling Rigs and Oil Reservoir**.

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: Monday, 14th of October 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Fluid Phase Behavior
0930 – 0945	Break
0945 – 1100	Fluid Phase Behavior (cont'd)
1100 – 1215	Basic Fluid Properties
1215 – 1230	Break
1230 – 1420	Basic Fluid Properties (cont'd)
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Tuesday, 15th of October 2024

0730 – 0930	PVT Measurements
0930 – 0945	Break
0945 – 1100	PVT Sampling Methods
1100 – 1215	EOS Methods
1215 – 1230	Break
1230 – 1420	How to Properly Characterize the Plus Fraction
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Wednesday, 16th of October 2024

0730 – 0930	How to Tune an EOS
0930 – 0945	Break
0945 – 1100	How to Tune an EOS (cont'd)
1100 – 1215	Process of Lumping
1215 – 1230	Break
1230 – 1420	Process of De-Lumping
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Thursday, 17th of October 2024

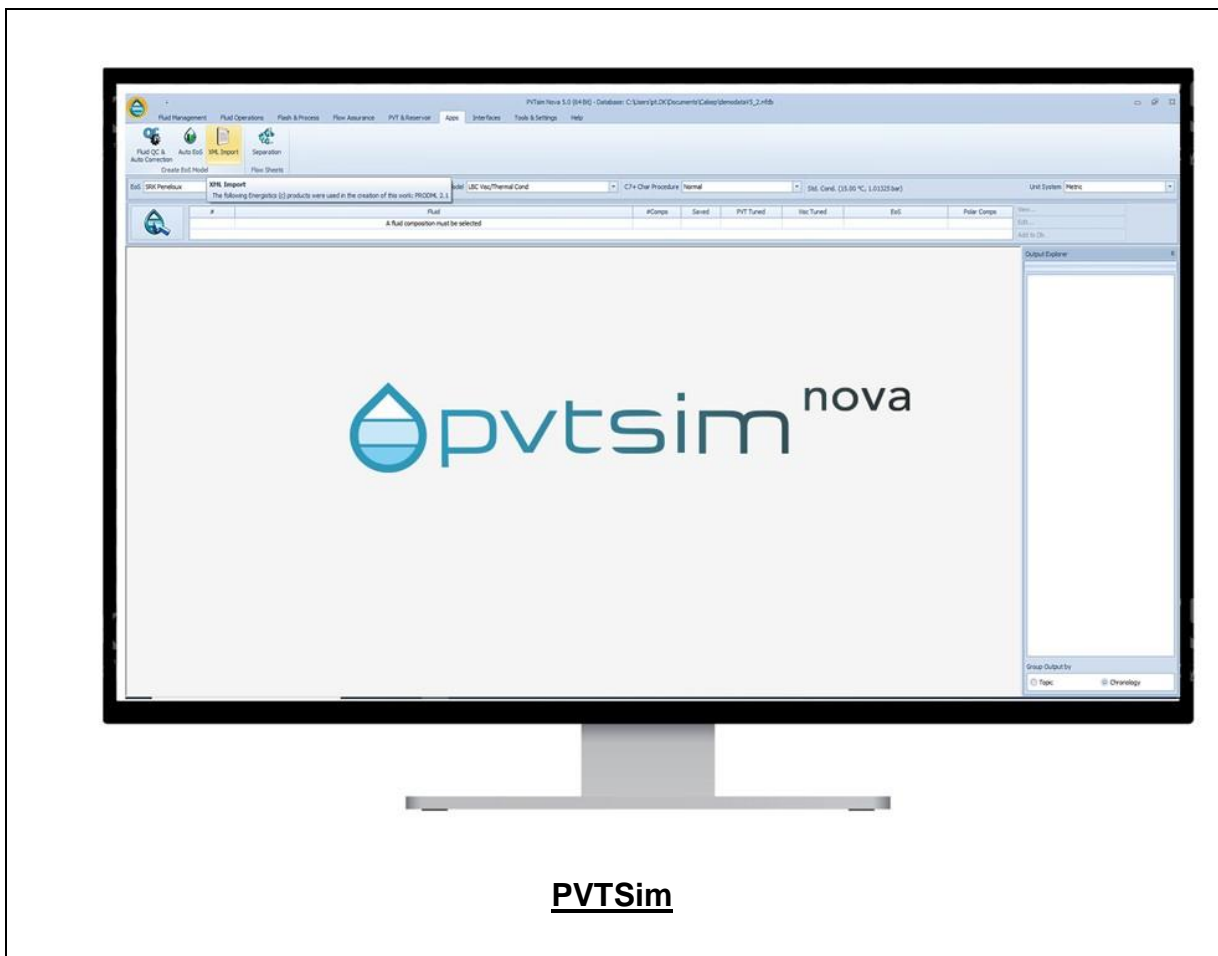
0730 – 0930	How to Prepare PVT Data for Reservoir Simulation
0930 – 0945	Break
0945 – 1100	How to Prepare PVT Data for Reservoir Simulation (cont'd)
1100 – 1215	Understanding the Miscible Process and How is it Modeled
1215 – 1230	Break
1230 – 1420	Proper Planning of a PVT Study Including Sampling Strategy
1420 – 1430	Recap
1430	Lunch & End of Day Four

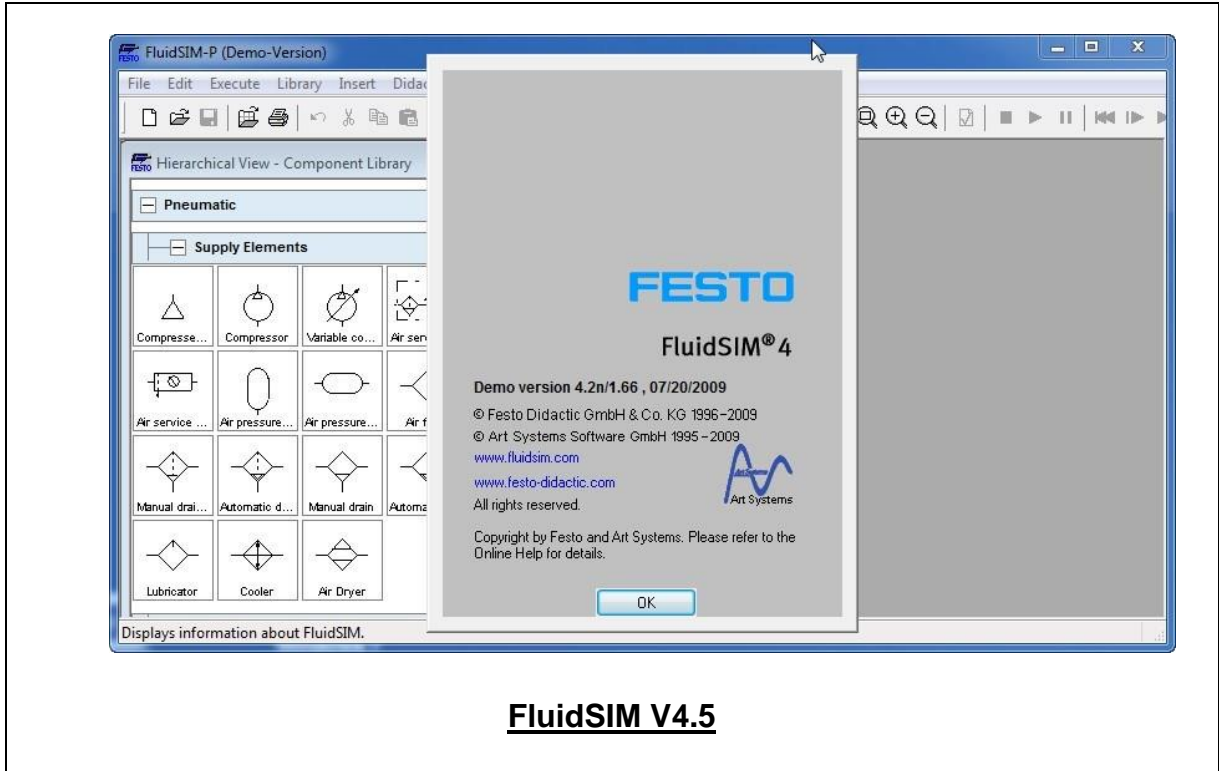
Day 5: Friday, 18th of October 2024

0730 – 0930	<i>Quality Check of the Data Provided by Vendors</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Quality Check of the Data Provided by Vendors (cont'd)</i>
1100 – 1215	<i>Appropriate Regressing Methods on How to Develop a PVT Model (EOS) that Match the Available Data</i>
1215 – 1230	<i>Break</i>
1230 – 1345	<i>Appropriate Regressing Methods on How to Develop a PVT Model (EOS) that Match the Available Data (cont'd)</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	POST-TEST
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

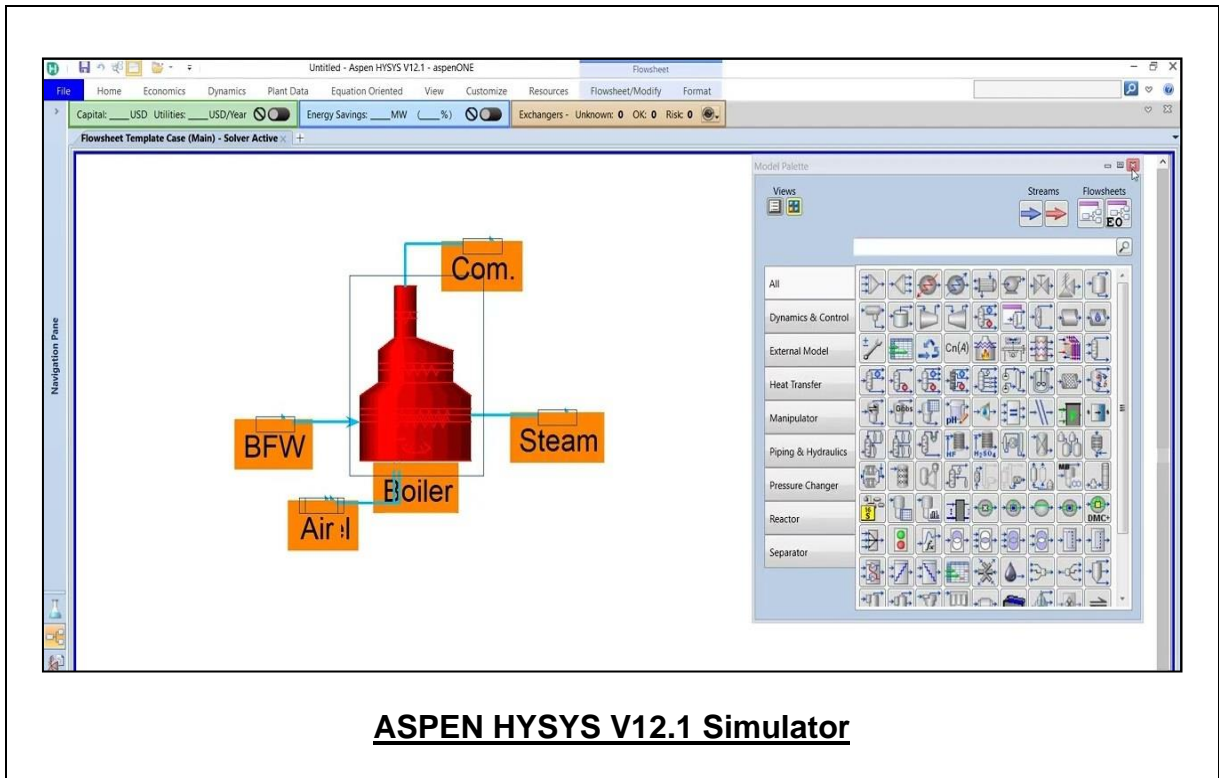
Practical Sessions

Practical session 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 one of our state-of-the-art simulators “PVTsim”, FluidSIM, and “ASPEN HYSYS”.





FluidSIM V4.5



ASPEN HYSYS V12.1 Simulator

Course Coordinator

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