COURSE OVERVIEW DE0441(AD6)
Advanced PVT and EOS Fluid Characterization

Course Title
Advanced PVT and EOS Fluid Characterization

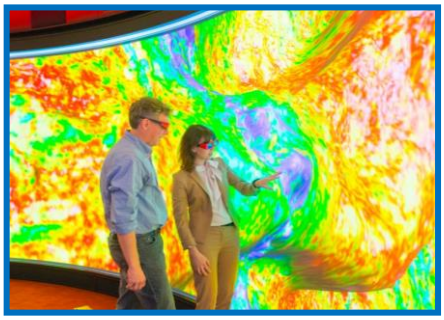
Course Reference
DE0441(AD6)

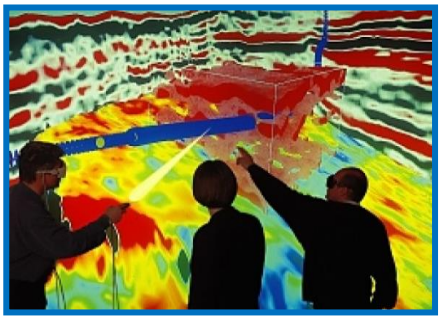
Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	February 25-29, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	May 19-23, 2024	
3	September 29-October 03, 2024	
4	November 24-28, 2024	

Course Description





This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.

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 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: -

- 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 Fee

US$ 8,500 per Delegate. 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 Drilling & Petroleum Engineer** with over **30 years** of international experience within the **onshore** and **offshore oil** & **gas** industry. His wide experience covers **Sucker-Rod Pumping** Operation, **Hydraulics & Nodal** Analysis, **Tubing** Anchors, **Sucker-Rod** String, **Coiled Tubing Intervention Design**, **Coiled Tubing Application** Design, **Coiled Tubing & Jet Pump**, **Coiled Tubing & Stimulation**, **Coiled Tubing Drilling** Technology, **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Drilling Practices**, **Drilling Fluids Technology**, Drilling **Operations**, **Directional** Drilling**, Formation Damage** Evaluation & Preventive, **Formation Damage** Remediation, **Drilling & Formation Damage**, Simulation Program for The **International Petroleum Business**, **Well** Testing & Analysis, **Well** Design, **Well** Testing & Oil Well Performance, **Well** Test Design Analysis, **Well Test** Operations, **Well Testing & Perforation**, Root Cause Analysis (**RCA**), RCA Method for Process Plant, **RCA** Techniques, Control Well-Flow Lines Parameters, Decision Analytic Modelling Methods for **Economic Evaluation**, **Probabilistic Risk Analysis** (**Monte Carlo Simulator**) **Risk Analysis** Foundations, Sulphur, Sour Natural Gas, **Natural Gas Sweeting**, **Petroleum Production**, Field Layout, **Production** Techniques & Control, **Surface Production** Operations, **Project Risk Analysis**, **Feasibility Analysis** Techniques, **Capital Operational Costs**, **Flow metering & 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 & 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 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

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

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

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

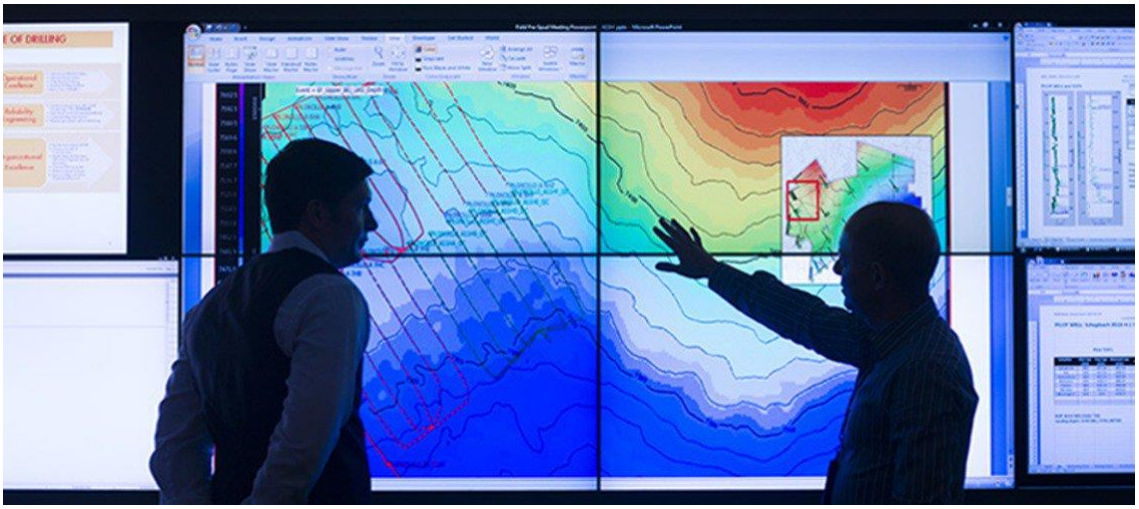
0730 – 0930	***How to Prepare PVT Data for Reservoir Simulation***
0930 – 0945	*Break*
0945 – 1100	***How to Prepare PVT Data for Reservoir Simulation (cont'd)***
1100 – 1215	***Understanding the Miscible Process and How is it Modeled***
1215 – 1230	*Break*
1230 – 1420	***Proper Planning of a PVT Study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

Day 5

0730 – 0930	***Quality Check of the Data Provided by Vendors***
0930 – 0945	*Break*
0945 – 1100	***Quality Check of the Data Provided by Vendors (cont'd)***
1100 – 1215	***Appropriate Regressing Methods on How to Develop a PVT Model (EOS) that Match the Available Data***
1215 – 1230	*Break*
1230 – 1345	***Appropriate Regressing Methods on How to Develop a PVT Model (EOS) that Match the Available Data (cont'd)***
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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