Haward Technology Middle East

COURSE OVERVIEW DE0335
Petrel Advanced Property Modeling

Course Title
Petrel Advanced Property Modeling

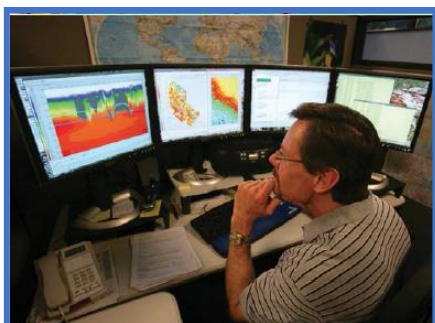**Course Reference**
DE0335

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

Course Date/Venue

| Session(s)	Date	Venue
1	February 04-08, 2024	Oryx Meeting Room, DoubleTree By Hilton Doha-Al Sadd, Doha, Qatar
2	May 19-23, 2024	
3	September 15-19, 2024	
4	November 17-21, 2024	

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.
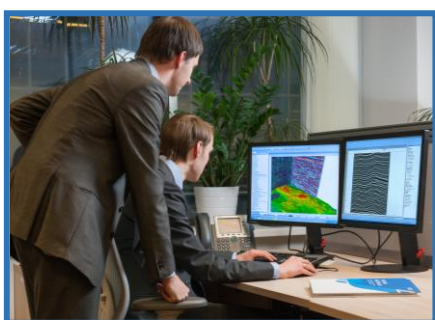
This course focus on Facies modeling, which in recent years has become the main method for guiding and constraining Petrophysical models. Pixel based and Object models are demonstrated and exhausted in addition to complex hierarchical models combining multiple methods. Standard facies modeling methods have their limitations in more complex depositional environments. Therefore, this course will explore the more advanced property modeling tools, like the cutting edge Multi-point statistics process.
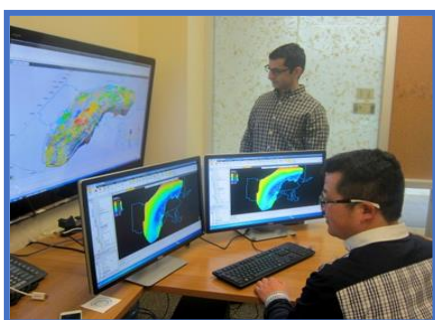
Different ways of creating soft probability data using different processes to analyze data, such as trend modeling and geometrical trend modeling, exploring the relationship of secondary data to constrain models will also be covered.

There is a special focus in the theory behind the Multi-point statistical concept, covering the creation of good training images and how to incorporate soft probability data, vary direction and scale in the final simulation model. In addition, this course covers the Geobody modeling tool for extracting seismic bodies and use them directly as "hard data" in the modeling process.

During this interactive course, participants will be able to learn the basics of geostatistics; the creation of soft data; the facies modeling methods with classical geostatistics; the pixel-based facies modeling methods and object-based facies modeling methods; the conditioning and combining of modeling methods; the neural net learning systems and multi-point statistics (MPS) theory; region properties; the conditioning and scaling of MPS models; the creation and use of seismic geobodies; and the multi-point facies simulation and conditioned petrophysical modeling.

Course Objectives

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

*   Apply and gain an advanced knowledge on Petrel property modelling

*   Discuss the basics of geostatistics and create soft probability data

*   Apply facies modeling methods with classical geostatistics including pixel-based facies modeling methods and object-based facies modeling methods

*   Condition and combine modeling methods

*   Describe neural net learning systems and multi-point statistics (MPS) theory

*   Identify region properties and carryout conditioning and scaling of MPS models

*   Demonstrate how to make and use seismic geobodies

*   Employ multi-point facies simulation and conditioned petrophysical modeling

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 covers systematic techniques on petrel advanced property modeling development and exploration geologists, geophysicists, petroleum engineers, reservoir engineers and other technical staff with experience in property modeling in Petrel.

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:

Mr. Hossam Kachwar is a **Senior Reservoir Engineer & Geologist** with almost **20 years** of **Onshore** & **Offshore** experience within the **Oil & Gas**, **Refinery** and **Petrochemical** industries. His wide expertise covers in the areas of **Oilfield** Development & Production Optimization, **Asset Management** Principles, Risks & Economics, **Geological** Modeling, **Geological & Engineering** Aspects of Horizontal Wells, **Hydraulic Fracturing**, **Fracture Characterization** of **Modeling**, **Rock Properties & Rock Mechanics**, **Directional Drilling**, **Horizontal & Side-Tracking**, **Reservoir Simulation**, **Horizontal Well Control**, **Horizontal & Multilateral Wells**, **Shale Gas & Liquid Production & Exploitation**, **Well Architecture & Placement**, **Completions**, **Fracturing & Fracture Evaluation**, **Production Philosophies**, **Reserve** Estimation, **Reserve** Evaluation, **Reservoir** Characterization, **Uncertainty Calculations**, **Risk & Uncertainties** Management, **Resources & Reserves** Evaluation, **Reserves** Reporting, **Oil & Gas Reserves** Estimation, **Unconventional Resource & Reserve**, **Reservoir Management**, **Reservoir** Engineering, **Fractured Carbonate Reservoir**, **Reservoir** Geophysics, **Reservoir** Modeling, **Steam Flood Reservoir** Management, Integrated **Carbonate Reservoir** Characterization, Applied **Reservoir Engineering** & Management, **Petroleum Reservoir** Management, **Reservoir Surveillance** & Management, Applied **Production Logging & Reservoir Monitoring**, 3D Seismic Attributes for **Reservoir Characterization**, **Reservoir Fluid** Characterization & Management, Integrated **Reservoir Analysis**, Structural **Geology**, **Geological** Interpretation, **Drilling Rigs**, **Jack-up Rig** Operation, **Drilling Process** Evaluation, **Rig Site** Operation, **Gas Formation** Evaluation, **Gas Ratio** Analysis & Interpretation, **Drilling Bit** Optimization, **Fracture Prediction**, **Fault Seal** Analysis, **Mudlogging & Wireline** Operations, **Core & Coring** Analysis, **Drilling** Parameters Monitoring, **Well Data** Results Interpretation, **Rock** Analysis, **Rock** Formation, Rock-cutting Data, **Wireline Data & Core Sampling** Analysis, **Subsurface Mapping**, **Geological & Hydrocarbon** Evaluation, **Geostatistical Modeling** Techniques, **3D Geological** Property Modeling and **PETREL** Software. Further, he is also well-versed in **H₂S**, **Sea Survival**, **Helicopter** under Water Emergency, **Process Plant** Shutdown, Turnaround & Troubleshooting, **Process Equipment**, **Mechanical Integrity**, **Maintenance** Management, **Reliability** Management, **Reliability** Best Practices, **Maintenance Strategies**, **Rotating Equipment** Failure Analysis, **Reliability** Optimization, Reliability Centered Maintenance (**RCM**), **Risk & Reliability** Engineering, **Pump Technology**, **Pump** Construction & Installation, **Pump** Performance and **Mechanical Shaft Seals**. Currently, he is the **Reservoir Production Specialist** and **Operation & Modeler Geologist** wherein he is responsible in monitoring and analyzing all surveillance programs for all reservoir performance and managing reservoir analysis techniques as well as analyzing rocks from the oil and gas wells and using engineering geological models.

During Mr. Hossam's career life, he has gained his thorough and practical experience through his various positions and dedication as the **Senior Reservoir Engineer**, **Reservoir Engineer**, **Reservoir Production Specialist**, **Contractor Wellsite Geologist**, **Consultant Geologist**, **Reservoir Engineering Consultant**, **Wellsite Geologist**, **Mud Logger Geologist**, **Data Engineer**, **Pressure Engineer**, **Team Leader**, **Reservoir Engineering Technician** and **Senior Instructor/Trainer** for Petro-China, Petro-Canada, Suncor Energy Company, Baker Hugs, GeoServices and PetroServices, just to name a few.

Mr. Hossam has a **Bachelor's** degree in **Geology**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership of Management** (**ILM**) and holds a Certificate of Completion in "Shale as a Reservoir: Leveraging Formation Characterization, Well Placement & Unique Completions to Improve Multi-stage Stimulation" as well as "4-D Reservoir Management Practices" from the Society of Petroleum Engineers (**SPE**) and **Colorado School of Mines**, **USA**, respectively. He has further delivered numerous trainings, seminars, conferences and workshops globally.

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	**Overview of Basic Geostatistics**
0930 – 0945	*Break*
0945 – 1045	**Creating Soft Probability Data**
1045 – 1230	**Creating Soft Probability Data (cont'd)**
1230 – 1245	*Break*
1245 – 1420	**Short Recap of Facies Modeling Methods with Classical Geostatistics**
1420 – 1430	**Recap**
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	**Pixel-Based Facies Modeling Methods**
0930 – 0945	*Break*
0945 – 1100	**Object-Based Facies Modeling Methods**
1100 – 1230	**Conditioning & Combining Modeling Methods**
1230 – 1245	*Break*
1245 – 1420	**Conditioning & Combining Modeling Methods (cont'd)**
1420 – 1430	**Recap**
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	**Neural Net Learning Systems**
0930 – 0945	*Break*
0945 – 1100	**Multi-Point Statistics (MPS) Theory**
1100 – 1230	**Region Properties**
1230 – 1245	*Break*
1245 – 1420	**Region Properties (cont'd)**
1420 – 1430	**Recap**
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	**Conditioning & Scaling of MPS Models**
0930 – 0945	*Break*
0945 – 1100	**Conditioning & Scaling of MPS Models (cont'd)**
1100 – 1230	**How to Make & Use Seismic Geobodies**
1230 – 1245	*Break*
1245 – 1420	**How to Make & Use Seismic Geobodies (cont'd)**
1420 – 1430	**Recap**
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	*Multi-Point Facies Simulation*	
0930 – 0945	*Break*	
0945 – 1100	*Multi-Point Facies Simulation (cont'd)*	
1100 – 1230	*Optional: Conditioned Petrophysical Modeling*	
1230 – 1245	*Break*	
1245 – 1345	*Optional: Conditioned Petrophysical Modeling (cont'd)*	
1345 – 1400	*Course Conclusion*	
1400 - 1415	*POST-TEST*	
1415 – 1430	*Presentation of Course Certificates*	
1430	*Lunch & End of Course*	

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 one of our state-of-the-art simulators "Petrel software".

Petrel Software
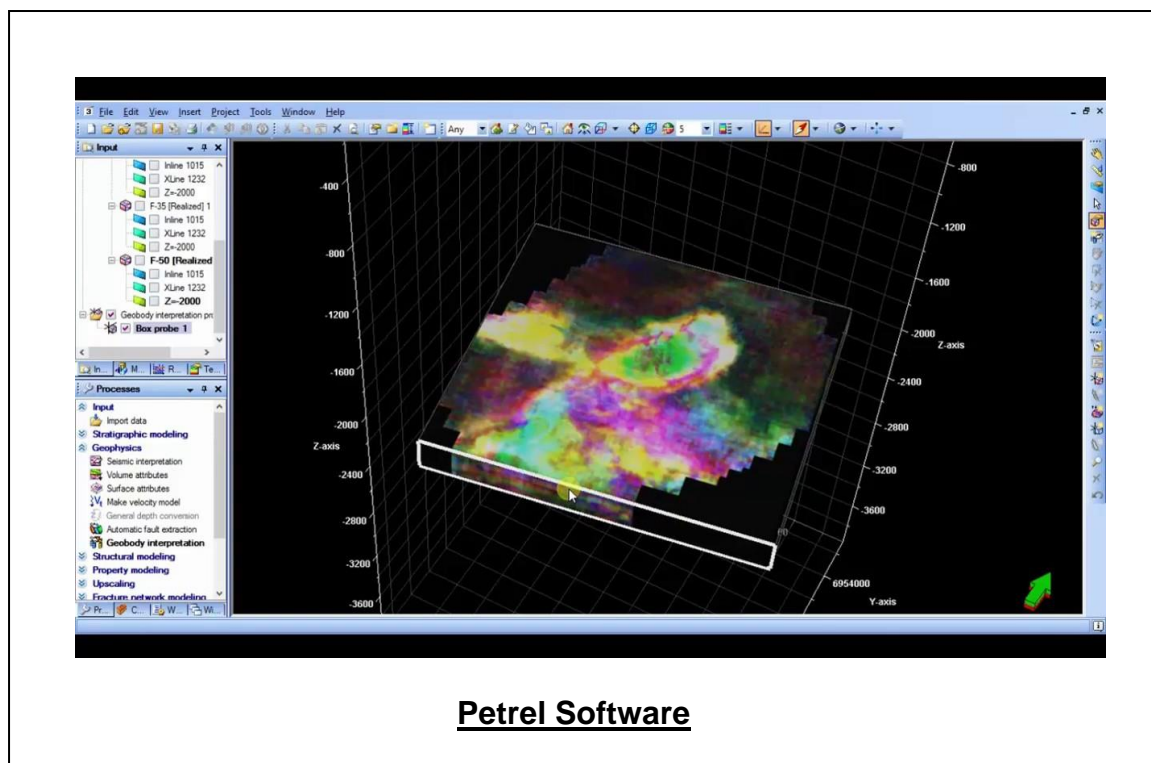
Course Coordinator

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