COURSE OVERVIEW DE0231
Petrel Quantitative Interpretation

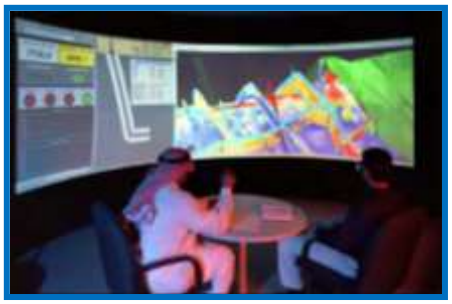
Course Title
Petrel Quantitative Interpretation

Course Date/Venue
February 01-05, 2026/TBA Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Course Reference
DE0231

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

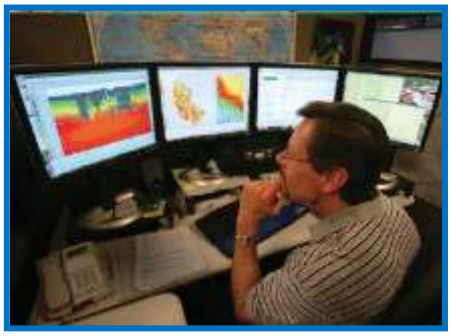
Course Description



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 petrel quantitative interpretation. It covers the various petrel quantitative interpretation modules; the accurate and comprehensive interpretation, rock physics, AVO/AVA analysis, pre and post-stack deterministic and stochastic inversion; the fluid substitution, pore fluid content, seismic pore pressure prediction and modeling and 4-D seismic; the rock physics workflow, studies and identify the pore fluid content; and the fluid substitution in rock physics and estimate the shear velocity from empirical relationship.

During this interactive course, participants will learn the seismic pore pressure prediction, petro-elastic analysis and direct hydrocarbon indicator (DHI); the AVO modeling workflow, AVO approximations, AVO classes, AVO modeling study covering fitting of AVO approximations to seismic data and wedge modelling; AVO reconnaissance using AVO reconnaissance tool; simultaneous seismic inversion and the inversion property builder; inversion preparation, well tie, wavelet extraction and identify the low frequency model building and QC with the inversion property builder; and the stochastic seismic inversion and apply stochastic inversion results, volume attribute modeling and time lapse analysis.



Course Objectives

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

- Apply and gain an in-depth knowledge on petrel quantitative interpretation
- Discuss the various petrel quantitative interpretation modules
- Identify accurate and comprehensive interpretation, rock physics, AVO/AVA analysis, pre and post-stack deterministic and stochastic inversion
- Determine the fluid substitution, pore fluid content, seismic pore pressure prediction and modeling and 4-D seismic
- Review the rock physics workflow, studies and identify the pore fluid content
- Carryout the fluid substitution in rock physics and estimate the shear velocity from empirical relationship
- Identify the seismic pore pressure prediction, petro-elastic analysis and direct hydrocarbon indicator (DHI)
- Define AVO modeling workflow, AVO approximations, AVO classes, AVO modeling study covering fitting of AVO approximations to seismic data and wedge modeling
- Determine AVO reconnaissance using AVO reconnaissance tool
- Identify simultaneous seismic inversion and the inversion property builder
- Carryout inversion preparation, well tie, wavelet extraction and identify the low frequency model building and QC with the inversion property builder
- Discuss the stochastic seismic inversion and apply stochastic inversion results, volume attribute modeling and time lapse analysis

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 during the course conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of petrel quantitative interpretation for petrophysicists, geophysicist and geologist experienced with petrel and with good knowledge in the reservoir characterization workflow, geostatics, seismic interpretation and seismic well tie.

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
Haward's 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**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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 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:

Ms. Diana Helmy, PgDip, MSc, BSc, is a **Senior Petroleum & Geologist** with extensive years of experience within the **Oil & Gas**, **Refinery** and **Petrochemical** industries. Her expertise widely covers in the areas of **Tubular & Pipe** Handling, **Tubular Strength**, **Casing & Tubing** Design, **Production/Injection Loads** for Casing Strings & Tubing, **Drilling** Loads, **Drilling & Production Thermal** Loads, **Well** Architecture, **Wellhead Integrity**, **Well Integrity & Artificial Lift**, **Well Integrity** Management, **Well** Completion & Workover, Applied **Drilling** Practices, Horizontal **Drilling**, **Petroleum** Production, **Resource & Reserve Evaluation**, **Reserves Estimation & Uncertainty**, Methods for **Aggregation of Reserves & Resources**, **Horizontal & Multilateral Wells**, **Well Completion & Stimulation**, **Artificial Lift System Selection & Design**, **Well** Testing & Oil Well Performance, **Well** Test Design Analysis, **Well Test** Operations, **Well Testing & Perforation**, **Directional** Drilling, **Formation Damage** Evaluation & Preventive, **Formation Damage** Remediation, **Drilling & Formation Damage**, Simulation Program for The **International Petroleum Business**, **Well** Testing & Analysis, **Horizontal & Multilateral Wells & Reservoir** Concerns, **Oil & Gas Analytics**, **Petrophysics & Reservoir Engineering**, **Subsurface Geology & Logging** Interpretation, **Petroleum Geology**, **Geophysics**, **Seismic** Processing & Exploration, **Seismic** Interpretation, **Sedimentology**, **Stratigraphy & Biostratigraphy**, **Petroleum Economy**, **Core** Analysis, Well Logging Interpretation, **Core Lab Analysis** & **SCAL**, **Sedimentary Rocks**, **Rock** Types, Core & Ditch Cuttings Analysis, Clastic, Carbonate & Basement Rocks, **Stratigraphic Sequences**, **Petrographically** Analysis, Thin Section Analysis, Scanning Electron Microscope (**SEM**), X-ray Diffraction (**XRD**), Cross-Section Tomography (**CT**), **Conventional & Unconventional** Analysis, **Porosity & Permeability**, **Geological & Geophysical** Model, **Sedimentary** Facies, **Formation Damage** Studies & Analysis, **Rig** Awareness, 2D&3D **Seismic** Data Processing, Static & Dynamic Correction, Noise Attenuation & Multiple Elimination Techniques, Velocity Analysis & Modeling and various software such as Petrel, OMEGA, LINUX, Kingdom and Vista. She is currently a **Senior Consultant** wherein she is responsible in different facets of **Petroleum & Process Engineering** from managing **asset integrity**, **well integrity process**, **pre-commissioning/commissioning** and **start up** onshore & offshore process facilities.

During her career life, Ms. Diana worked as a **Reservoir Geologist**, **Seismic Engineer**, **Geology Instructor**, **Geoscience Instructor & Consultant** and **Petroleum Geology Researcher** from various international companies like the **Schlumberger**, Corex Services for Petroleum Services, Petrolia Energy Supplies and Alexandria University.

Ms. Diana has a **Postgraduate Diploma** in **Geophysics**, **Master's** degree in **Petroleum Geology** and **Geophysics** and a **Bachelor's** degree in **Geology**. Further, she is a **Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management** (**ILM**) and has delivered numerous trainings, courses, workshops, seminars and conferences internationally.

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.

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 ***Sunday, 01st of February 2026***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome and Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Petrel Quantitative Interpretation Modules*** *Accurate & Comprehensive Quantitative Interpretation ● Rock Physics ● AVO/AVA Analysis ● Pre & Post-Stack Deterministic and Stochastic Inversion*
0930 – 0945	*Break*
0945 – 1100	***Petrel Quantitative Interpretation Modules (cont'd)*** *Fluid Substitution ● Pore Fluid Content & Seismic Pore Pressure Prediction & Modelling ● F 4-D Seismic (Time Lapse Analysis)*
1215 - 1230	*Break*
1230 – 1315	***Rock Physics*** *Rock Physics Review ● Rock Physics Workflow ● Rock Physics Studies*
1315 – 1415	***Pore Fluid Content***
1415 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2 ***Monday, 02nd of February 2026***

0730 – 0930	***Fluid Substitution in Rock Physics*** *Shear Velocity Estimation from Empirical Relationships*
0930 – 0945	*Break*
0945 – 1115	***Fluid Substitution in Rock Physics (cont'd)*** *Shear Velocity Estimation from Empirical Relationships (cont'd)*
1115 - 1230	***Seismic Pore Pressure Prediction***

1230 - 1245	*Break*
1245 – 1300	***Petro-elastic Analysis***
1300 – 1430	***Recap***
1430	*Lunch &End of Day Two*

Day 3 ***Tuesday, 03rd of February 2026***

0730 – 0830	***Direct Hydrocarbon Indicator (DHI)***
0830 – 0945	*Break*
1045 - 1145	***AVO Modeling*** *AVO Modeling Workflow ● AVO Approximations*
1145 - 1200	*Break*
1200 – 1300	***AVO Modeling (cont'd)*** *AVO Classess ● Fitting of AVO Approximations to Seismic Data*
1300 – 1420	***AVO Modeling (cont'd)*** *AVO Modeling Study ● Wedge Modeling*
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4 ***Wednesday, 04th of February 2026***

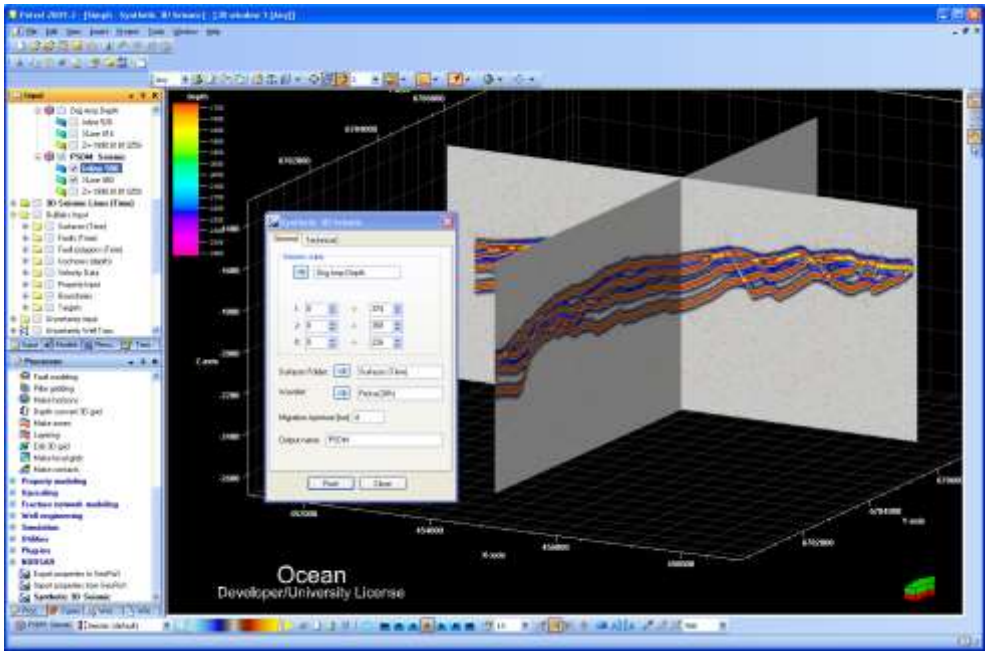
0730 – 0930	***AVO Reconnaissance*** *AVO Reconnaissance Tool*
0930 – 0945	*Break*
0945 – 1100	***AVO Reconnaissance (cont'd)*** *AVO Reconnaissance Tool (cont'd)*
1215 - 1230	***Simultaneous Seismic Inversion & the Inversion Property Builder*** *What is Seismic Inversion? ● Inversion Preparation: Well Tie & Wavelet Extraction*
1230 – 1245	*Break*
1245 – 1420	***Simultaneous Seismic Inversion & the Inversion Property Builder (cont'd)*** *Low Frequency Model Building & QC with the Inversion Property Builder ● Simultaneous Inversion & Results*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5 ***Thursday, 05th of February 2026***

0730 – 0930	***Stochastic Seismic Inversion*** *What is Stochastic Inversion? ● Stochastic Inversion Preparation*
0930 – 0945	*Break*
0945 – 1200	***Stochastic Seismic Inversion (cont'd)*** *Set up & Run a Stochastic Inversion ● Stochastic Inversion Run Evaluation*
1200 - 1215	*Break*
1215 – 1315	***Stochastic Seismic Inversion (cont'd)*** *Application Stochastic Inversion Results ● Volume Attribute Modeling*
1315 – 1345	***Time Lapse Analysis***
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 the “Petrel” software.



Petrel Software

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org