

COURSE OVERVIEW DE0231
Petrel Quantitative Interpretation

Course Title

Petrel Quantitative Interpretation

Course Date/Venue

Session 1: July 14-18, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Session 2: December 21-25, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

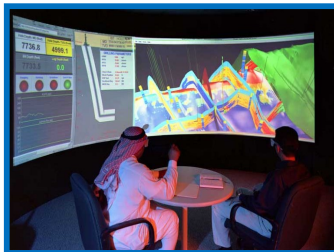
DE0231



Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

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.



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

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.

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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.

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

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

Day 2

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

1230 - 1245	<i>Break</i>
1245 - 1420	<i>Petro-elastic Analysis</i>
1420 - 1430	<i>Recap</i>
1600	<i>Lunch & End of Day Two</i>

Day 3

0800 - 0930	<i>Direct Hydrocarbon Indicator (DHI)</i>
0930 - 0945	<i>Break</i>
0945 - 1115	<i>Direct Hydrocarbon Indicator (DHI) (cont'd)</i>
1100 - 1215	<i>AVO Modeling</i> <i>AVO Modeling Workflow • AVO Approximations</i>
1200 - 1215	<i>Break</i>
1215 - 1330	<i>AVO Modeling (cont'd)</i> <i>AVO Classes • Fitting of AVO Approximations to Seismic Data</i>
1330 - 1420	<i>AVO Modeling (cont'd)</i> <i>AVO Modeling Study • Wedge Modeling</i>
1420 - 1430	<i>Recap</i>
1600	<i>Lunch & End of Day Three</i>

Day 4

0800 - 0930	<i>AVO Reconnaissance</i> <i>AVO Reconnaissance Tool</i>
0930 - 0945	<i>Break</i>
0945 - 1200	<i>AVO Reconnaissance (cont'd)</i> <i>AVO Reconnaissance Tool (cont'd)</i>
1200 - 1215	<i>Lunch</i>
1215 - 1315	<i>Simultaneous Seismic Inversion & the Inversion Property Builder</i> <i>What is Seismic Inversion? • Inversion Preparation: Well Tie & Wavelet Extraction</i>
1315 - 1420	<i>Simultaneous Seismic Inversion & the Inversion Property Builder (cont'd)</i> <i>Low Frequency Model Building & QC with the Inversion Property Builder • Simultaneous Inversion & Results</i>
1420 - 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0800 - 0930	<i>Stochastic Seismic Inversion</i> <i>What is Stochastic Inversion? • Stochastic Inversion Preparation</i>
0930 - 0945	<i>Break</i>
0945 - 1200	<i>Stochastic Seismic Inversion (cont'd)</i> <i>Set up & Run a Stochastic Inversion • Stochastic Inversion Run Evaluation</i>
1200 - 1215	<i>Break</i>
1215 - 1315	<i>Stochastic Seismic Inversion (cont'd)</i> <i>Application Stochastic Inversion Results • Volume Attribute Modeling</i>
1315 - 1345	<i>Time Lapse Analysis</i>
1345 - 1400	<i>Course Conclusion</i>
1400 - 1415	<i>POST-TEST</i>
1415 - 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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