

COURSE OVERVIEW DE0335
Petrel Advanced Property Modeling

Course Title

Petrel Advanced Property Modeling

Course Date/Venue

Session 1: February 23-27, 2025/Meeting Plus 8,
 City Centre Rotana Doha Hotel, Doha,
 Qatar

Session 2: August 24-28, 2025/Meeting Plus 8,
 City Centre Rotana Doha Hotel, Doha,
 Qatar

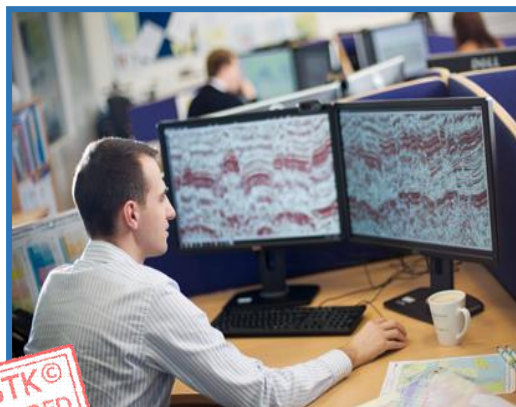
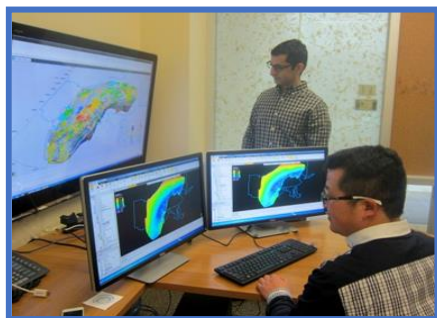
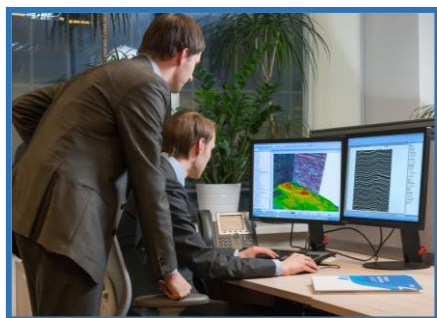
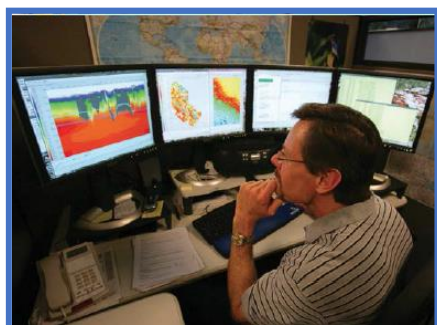
Course Reference

DE0335

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 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: -

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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\$ 8,500 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. John Petrus, PhD, MSc, BSc, is a **Senior Reservoir Engineer & Geologist** with over **30 years of onshore & offshore** experience within the **Oil & Gas, Refinery and Petroleum** industries. His wide experience covers in the areas of **Production Technology & Engineering, Well Completions, Well Logs, Well Stimulation & Production Logging, Well Completion Design & Operation, Well Surveillance, Well Testing, Well Stimulation & Control and Workover Planning, Completions & Workover, Hole Cleaning & Logging, Servicing and Work-Over Operations, Wellhead Operations, Maintenance & Testing, Petrophysics/Interpretation of Well Composite, Reservoir & Tubing Performance, Practical Reservoir Engineering, Clastic Exploration & Reservoir Sedimentology, Carbonate Reservoir Characterization & Modeling, Seismic Interpretation, Mapping & Reservoir Modelling, Reservoir Geology, Integrating Geoscience into Carbonate Reservoir Management, Faulted & Fractured Reservoirs, Fractured Hydrocarbon Reservoirs, Analyses, Characterisation & Modelling of Fractured Reservoirs & Prospects, Fracture Reservoir Modeling Using Petrel, Reservoir Engineering Applied Research, Artificial Lift, Artificial Lift System Selection & Design, Electrical Submersible Pumps (ESP), Enhance Oil Recovery (EOR), Hydraulic Fracturing, Sand Control Techniques, Perforating Methods & Design, Perforating Operations, Petroleum Exploration & Production, Hydrocarbon Exploration & Production, Exploration & Production, Play Assessment & Prospect Evaluation, Formation Evaluation, Petroleum Engineering Practices, Petroleum Hydrogeology & Hydrodynamics, Project Uncertainty, Decision Analysis & Risk Management, Decision Analysis & Uncertainty Management, Exploration & Development Geology, Sedimentology & Sequence Stratigraphy, Structural Interpretation in Exploration & Development, Petrel Geology, Geomodeling, Structural Geology, Applied Structural Geology in Hydrocarbon Exploration, Petrophysics, Geology of the Oil & Gas Field, Geophysics, Geothermal, Geochemical & Geo-Engineering and Drilling Applied Research, Field Geological Outcrop Mapping & Digital Cartography, Geological Modelling, Geoscience Management in E&P, Geoscience Modelling, Geological Mapping, Structural Geology-Tectonics, Structural Analysis, Tectonic Modelling and Numerical Simulation of Fractured Prospects & Reservoirs, Fracture Network Analysis & Modelling, Prospect Generation, Global Networking, Research and Technology Development Management for Fault & Fracture Analyses & Modelling, Fracture Modelling, Dynamic Modelling, Field Development Planning, Water Injection Planning, Stereophotogrammetry, Fault Mapping, GPS Survey, 2D & 3D Seismic Acquisition & Processing, 3D Seismic Surveys & Mapping, 3D GIS, GMAP, Sandbox Modelling, Sedimentological Logging, GR Logging, Surface & Subsurface 3D Modelling, Best Practices Management System (BPMS), Subsurface Work for Energy Projects, Digitalization Projects, Structural Model using Petrel, G&G Seismic & Well Data Modelling, GIS System Management, Database Management, Strategic Planning, Best Practices and Workflow, Quality Management, Project Management and Risk Assessment & Uncertainty Evaluation. Further, he is also well-versed in **seismic interpretation, mapping & reservoir modelling tools** like **Petrel** software, **LandMark, Seisworks, Geoframe, Zmap** and has extensive knowledge in **MSDos, Unix, AutoCAD, MAP, Overlay, Quicksurf, 3DStudio, Esri ArcGIS, Visual Lisp, Fortran-77 and Clipper**. Moreover, he is a world **expert in analysis and modelling of fractured prospects and reservoirs** and a **specialist and developer of fracture modelling software tools** such as **FPDM, FMX and DMX** Protocols.**

During his career life, Dr. Petrus held significant positions and dedication as the **Executive Director, Senior Geoscience Advisor, Exploration Manager, Project Manager, Manager, Chief Geologist, Chief of Exploration, Chief of Geoscience, Senior Geosciences Engineer, Senior Explorationist, Senior Geologist, Geologist, Senior Geoscientist, Geomodeller, Geoscientist, CPR Editor, Resources Auditor, Project Leader, Technical Leader, Team Leader, Scientific Researcher and Senior Instructor/Trainer** from various international companies and universities such as the **Dragon Oil Holding Plc., ENOC, MENA, ENI Group of Companies, Ocre Geoscience Services (OGS), Burren RPL, Ministry of Oil-Iraq, Eni Corporate University, Stanford University, European Universities, European Research Institutes, NorskHydro Oil Company, Oil E&P Companies**, just to name a few.

Dr. Petrus has a **PhD in Geology and Tectonophysics** and **Master's and Bachelor's degree in Earth Sciences** from the **Utrecht University, The Netherlands**. Further, he is a **Certified Instructor/Trainer, a Certified Trainer/Assessor/Internal Verifier** by the **Institute of Leadership & Management (ILM)**, a **Secretary and Treasurer of Board of Directors of Multicultural Centre, Association Steunfonds SSH/SSR** and **Founding Member of Sfera Association**. He has further published several scientific publications, journals, research papers and books and delivered numerous trainings, workshops, courses, seminars and conferences internationally.



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

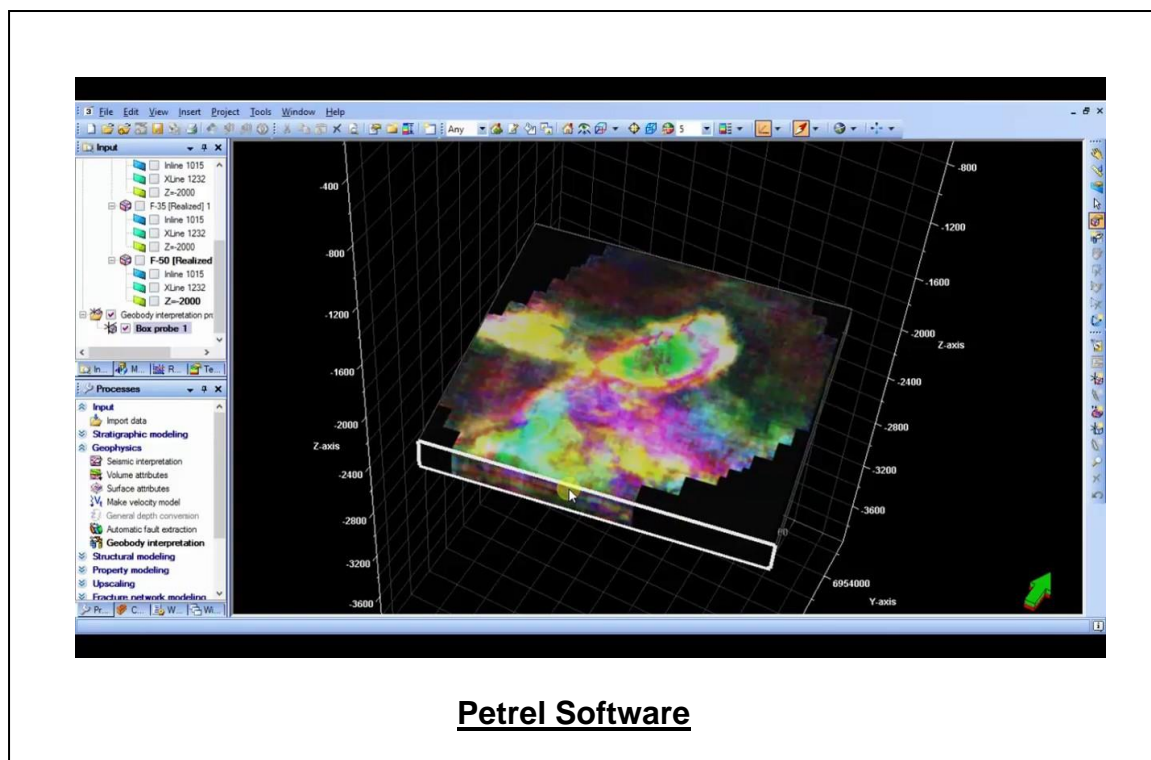
0730 - 0930	Conditioning & Scaling of MPS Models
0930 - 0945	Break
0945 - 1100	Conditioning & Scaling of MPS Models (cont'd)
1100 - 1230	How to Make & Use Seismic Geobodies
1230 - 1245	Break
1245 - 1420	How to Make & Use Seismic Geobodies (cont'd)
1420 - 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	<i>Multi-Point Facies Simulation</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<i>Multi-Point Facies Simulation (cont'd)</i>
1100 – 1230	<i>Optional: Conditioned Petrophysical Modeling</i>
1230 – 1245	<i>Break</i>
1245 – 1345	<i>Optional: Conditioned Petrophysical Modeling (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>

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”.



Course Coordinator

Reem Dergham, Tel: +974 4423 1327, Email: reem@haward.org