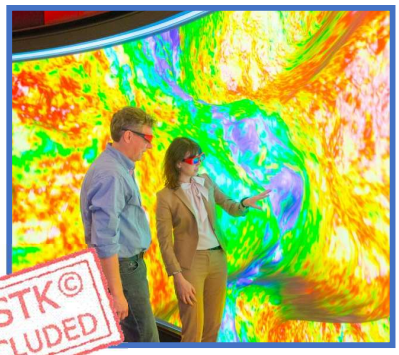
COURSE OVERVIEW DE0601
Geophysical Reservoir Characterization

Course Title
Geophysical Reservoir Characterization

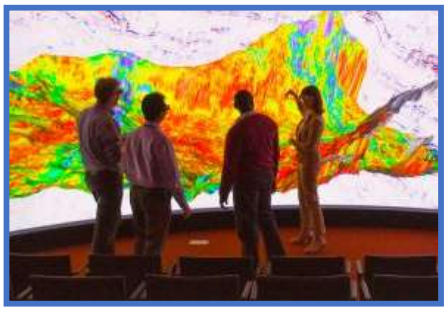


Course Date/Venue
Session 1: May 26-30, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: November 16-20, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
DE0601

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

Course Description



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

The solution to complex and challenging hydrocarbon reservoir problems requires the participation of disciplines that provide different and complementary insights about the reservoir. However, very little training is available to address the multidisciplinary, integrated nature of reservoir characterization and simulation projects. Typical oil industry training is usually focused on improving skills in one discipline, with little emphasis on integrated solutions that aim to solve a common problem.

At the end of this course, participants will understand the contributions from all team members (geologists, petrophysicists, geophysicists and reservoir engineers) to an integrated reservoir characterization project. Participants will also learn the value of geological, petrophysical, geophysical and engineering data and methods required for the project and will determine the key questions which have to be addressed and answered by the integrated team.

Course Objectives

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

- Apply and gain an in-depth knowledge on reservoir characterization in a multidisciplinary team approach
- Identify the problems and solutions along with different phases of the value chain
- Examine how the team should be structured, what questions should be asked and what tasks should be performed
- Address different workflows and data requirements for conventional and unconventional hydrocarbon plays
- Explain the fundamentals of reservoir characterization to enable a clearer understanding of the components and details of how they fit together in subsequent "how-to" focused on individual disciplines
- Illustrate integrated workflows for data rich exploitation phases and explain how the workflows may vary for both shorter time frames and/or limited data scenarios

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 reservoir characterization for reservoir engineers geologists, petrophysicists and geophysicists.

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: -

- 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.

- 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.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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:

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, Standford 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.

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	***Geology*** *Stratigraphic Controls on Heterogeneity and Productivity ● Stratigraphic Concepts for Reservoir Characterization ● Flow Units/Reservoir Rock Properties*
0930 – 0945	*Break*
0945 – 1100	***Geology (cont'd)*** *1D Analysis ● Interpretation ● 2D Analysis ● Correlation*
1100 – 1230	***Geology (cont'd)*** *Depositional Environments ● Structural Controls on Heterogeneity and Productivity*
1230 – 1245	*Break*
1245 – 1420	***Geology (cont'd)*** *Key Surfaces ● Faults ● Fracture Controls*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0930	***Reservoir Petrophysics/Rock Physics*** *Data Sources, Logging Tools ● Log Quality Control and Log Data Normalization ● Core QC ● Petrophysics Conventional Analysis and Models*
0930 – 0945	*Break*
0945 – 1100	***Reservoir Petrophysics/Rock Physics (cont'd)*** *Permeability, Fluid Identification ● Reservoir Compartments Identification*
1100 – 1230	***Reservoir Petrophysics/Rock Physics (cont'd)*** *Lithology Estimates, Core to Log Calibrations ● Rock Physics, Rock Mechanics*
1230 – 1245	*Break*
1245 – 1420	***Reservoir Petrophysics/Rock Physics (cont'd)*** *Production Logs, Special Reservoir Characterization Logs ● Unconventional Reservoir Analysis*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0930	***Seismic Technology*** *Fundamentals of Seismic Wave Propagation*
0930 – 0945	*Break*
0945 – 1100	***Seismic Technology (cont'd)*** *Seismic Data Acquisition ● Seismic Data Processing and Imaging*
1100 – 1230	***Seismic Technology (cont'd)*** *Structural Framework ● Time to Depth Conversion*
1230 – 1245	*Break*
1245 – 1420	***Seismic Technology (cont'd)*** *Seismic Based Fracture Characterization ● Other Remote Sensing Methods*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0930	***Construction of Geological Models*** *What do we Need from a Geomodel ● What Data is Required ● Integration of Seismic Data*
0930 – 0945	*Break*
0945 – 1100	***Construction of Geological Models (cont'd)*** *Structural and Stratigraphic Framework ● Facies and Lithology ● Porosity, Permeability and Water Saturation*
1100 – 1230	***Construction of Geological Models (cont'd)*** *Net to Gross Considerations, Static Pore Volume ● Volumetric Uncertainty Analysis ● Fracture Models*
1230 – 1245	*Break*
1245 – 1420	***Construction of Geological Models (cont'd)*** *Unconventional Resource Models ● Up-Scaling for Flow-Simulation*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

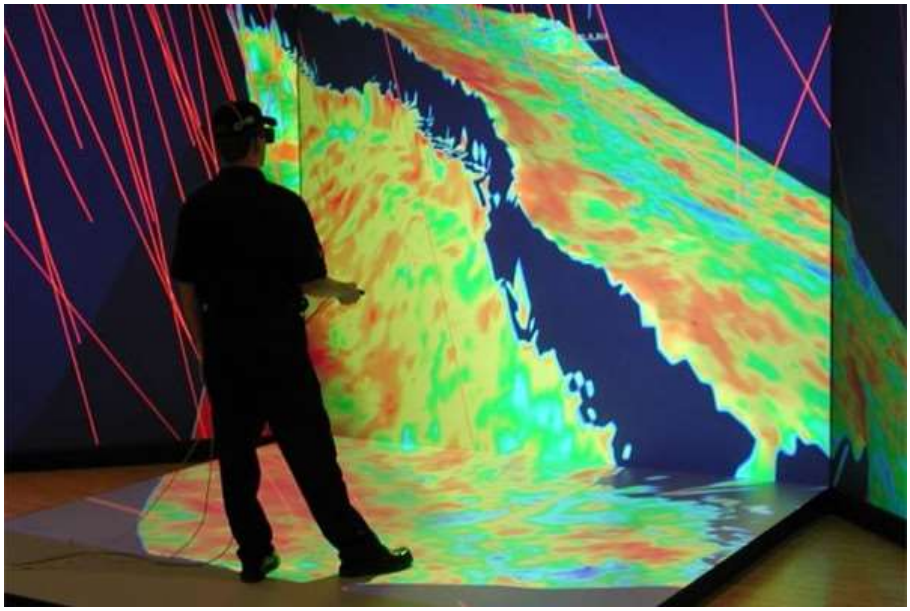
Day 5

0730 – 0930	***Reservoir Dynamics*** *Important Factors in Behavior of Dynamic Systems ● Data and Interpretation for Dynamic Behavior ● PVT/Fluid Properties*
0930 – 0945	*Break*
0945 – 1100	***Reservoir Dynamics (cont'd)*** *Multiphase Flow ● Stress Impacts on Fluid Flow ● Wellbore Flow*
1100 – 1230	***Reservoir Dynamics (cont'd)*** *Dynamic Well Tests and Production Analysis ● Performance Analysis ● Forecasting Economic Recovery*
1230 – 1245	*Break*

1245 – 1345	***Reservoir Dynamics (cont'd)*** *Simulation Grids ● PVT Data ● Rock and Fluid Interaction ● History Matching and Forecasting*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
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

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