

COURSE OVERVIEW DE0409
Field Development and Carbonate Reservoir

Course Title

Field Development and Carbonate Reservoir

Course Date/Venue

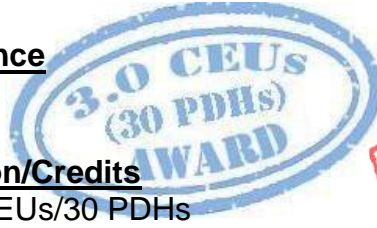
February 25-29, 2024/Oryx Meeting Room,
 Double Tree by Hilton Al Sadd, Doha, Qatar

Course Reference

DE0409

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 Field Development and Carbonate Reservoir. It covers the importance of carbonate reservoirs and geological characteristics including depositional environments and diagenetic processes; the petrophysical properties covering porosity, permeability and fluid saturations; the carbonate reservoir classifications including Dunham and folk classifications; the seismic and petrophysical data analysis using proper tools and techniques for reservoir characterization; the carbonate rock types and reservoir quality including the link between rock types and reservoir properties; the field development strategies and approaches; and the reservoir modeling and simulation using appropriate techniques and tools for predicting reservoir behavior.



Further, the course will also discuss the well planning and drilling techniques and best considerations for carbonate reservoirs; the completion and stimulation techniques tailoring to carbonate reservoir characteristics; and the economic evaluation and risk analysis and financial considerations in field development.

During this interactive course, participants will learn the high-resolution sequence stratigraphy and the temporal and spatial distribution of carbonate facies; the geochemical analysis, its role in reservoir characterization and advanced logging techniques; the core analysis and interpretation and laboratory techniques for reservoir evaluation; the fracture characterization and modeling and the importance in carbonate reservoirs; the reservoir heterogeneity and flow units and complexities in carbonate reservoirs; the EOR fundamentals, methods and chemical EOR techniques; the thermal EOR methods including suitability and challenges in carbonate reservoirs; the gas injection methods; the techniques and the potential of microbial EOR; the role of carbon capture, utilization and storage (CCUS) in carbonate reservoirs; the renewable energy integration, opportunities and challenges; the water management in carbonate reservoirs; the regulatory and environmental considerations, compliance and best practices; and the technological innovations and future trends.

Course Objectives

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

- Apply and gain a comprehensive knowledge on field development and carbonate reservoir
- Recognize the importance of carbonate reservoirs and identify geological characteristics including depositional environments and diagenetic processes
- Identify petrophysical properties covering porosity, permeability and fluid saturations
- Classify carbonate reservoir and explain Dunham and folk classifications
- Carryout seismic and petrophysical data analysis using proper tools and techniques for reservoir characterization
- Identify carbonate rock types and reservoir quality including the link between rock types and reservoir properties
- Apply field development strategies and different approaches as well as carryout reservoir modeling and simulation using appropriate techniques and tools for predicting reservoir behavior
- Develop well planning and drilling techniques and apply best considerations for carbonate reservoirs
- Employ completion and stimulation techniques tailoring to carbonate reservoir characteristics
- Analyze economic evaluation and risk as well as apply financial considerations in field development
- Explain high-resolution sequence stratigraphy and the temporal and spatial distribution of carbonate facies
- Carryout geochemical analysis, its role in reservoir characterization and advanced logging techniques including NMR, FMI and other tools specific to carbonates
- Analyze and interpret core and apply laboratory techniques for reservoir evaluation
- Explain fracture characterization and modeling and the importance in carbonate reservoirs
- Identify reservoir heterogeneity and flow units and manage complexities in carbonate reservoirs

- Discuss EOR fundamentals and use proper methods and chemical EOR techniques covering surfactants, polymers and alkaline flooding
- Implement thermal EOR methods as well as discuss suitability and challenges in carbonate reservoirs
- Employ gas injection methods focusing on CO₂, N₂ and miscible gas injection
- Emerge systematic techniques on microbial EOR and recognize their potential
- Identify the role of carbon capture and carryout utilization and storage (CCUS) in carbonate reservoirs
- Explain renewable integration including its opportunities and challenges
- Incorporate water management in carbonate reservoirs and handle produced water and reservoir souring
- Apply regulatory and environmental considerations, compliance and best practices as well as adapt technological innovations and future trends

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Howard 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 field development and carbonate reservoir for reservoir engineers, petroleum engineers, production engineers, geoscientists, project managers and those involved in the preparation of field development plans (FDP).

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 Fee


US\$ 8,500 per Delegate. This rate includes H-STK® (Howard Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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.

Accommodation

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

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.



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, 25th of February 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0900	Overview of Carbonate Reservoirs: Definition, Importance and Global Examples
0900 – 0930	Geological Characteristics: Depositional Environments and Diagenetic Processes
0930 – 0945	Break
0945 – 1130	Petrophysical Properties: Porosity, Permeability and Fluid Saturations
1130 - 1230	Carbonate Reservoir Classification: Dunham and Folk Classifications
1230 – 1245	Break
1245 – 1320	Seismic & Petrophysical Data Analysis: Tools and Techniques for Reservoir Characterization
1350 - 1420	Carbonate Rock Types & Reservoir Quality: The Link Between Rock Types and Reservoir Properties
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 26th of February 2024

0730 – 0830	Field Development Strategies: Overview of Different Approaches
0830 – 0930	Reservoir Modeling & Simulation: Techniques and Tools for Predicting Reservoir Behavior
0930 – 0945	Break
0945 – 1130	Well Planning & Drilling Techniques: Considerations for Carbonate Reservoirs
1130 – 1230	Completion & Stimulation Techniques: Tailoring to Carbonate Reservoir Characteristics
1230 – 1245	Break
1245 – 1330	Economic Evaluation & Risk Analysis: Financial Considerations in Field Development
1330 - 1420	Case Studies: Analysis of Successful Field Development Projects in Carbonate Reservoirs
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Tuesday, 27th of February 2024

0730 – 0830	High-Resolution Sequence Stratigraphy: The Temporal and Spatial Distribution of Carbonate Facies
0830 – 0930	Geochemical Analysis: Role in Reservoir Characterization
0930 – 0945	Break
0945 – 1130	Advanced Logging Techniques: NMR, FMI, and other Tools Specific to Carbonates
1130 – 1230	Core Analysis & Interpretation: Laboratory Techniques for Reservoir Evaluation
1230 – 1245	Break





1245 – 1330	Fracture Characterization & Modeling: Importance in Carbonate Reservoirs
1330 - 1420	Reservoir Heterogeneity & Flow Units: Managing Complexities in Carbonate Reservoirs
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 28th of February 2024

0730 – 0830	EOR Fundamentals: Overview of EOR Methods
0830 – 0930	Chemical EOR Techniques: Surfactants, Polymers and Alkaline Flooding
0930 – 0945	Break
0945 – 1130	Thermal EOR Methods: Suitability and Challenges in Carbonate Reservoirs
1130 – 1230	Gas Injection Methods: CO₂, N₂ and Miscible Gas Injection
1230 – 1245	Break
1245 – 1330	Microbial EOR: Emerging Techniques and their Potential
1330 - 1420	Pilot Projects & Field Case Studies: Learning from Real-World Applications
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 29th of February 2024

0730 – 0830	Carbon Capture, Utilization & Storage (CCUS): Role in Carbonate Reservoirs
0830 – 0930	Renewable Energy Integration: Opportunities and Challenges
0930 – 0945	Break
0945 – 1130	Water Management in Carbonate Reservoirs: Handling Produced Water and Reservoir Souring
1130 – 1230	Regulatory & Environmental Considerations: Compliance and Best Practices
1230 – 1245	Break
1245 – 1345	Technological Innovations & Future Trends: Keeping Pace with Advancements
1345 – 1400	Course Conclusion
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

Jaryl Castillo, Tel: +974 4423 1327, Email: jaryl@haward.org