COURSE OVERVIEW DE0409
Field Development and Carbonate Reservoir

Course Title
Field Development and Carbonate Reservoir

Course Reference
DE0409

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

Course Date/Venue

Session(s)	Date	Venue
1	June 22-26, 2025	Meeting Plus 9, City Centre Rotana, Doha Qatar
2	August 17-21, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
3	October 19-23, 2025	Olivine Meeting Room, Fairmont Nile City, Cairo, Egypt
4	December 21-25, 2025	Safir Meeting Room, Divan Istanbul, Turkey

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 "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 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.

Accommodation

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

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.

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:

Mr. Konstantin Zorbalas, MSc, BSc, is a **Senior Petroleum Engineer & Well Completions Specialist** with over **25 years** of **offshore** and **onshore** experience in the **Oil** & **Gas**, **Refinery** & **Petrochemical** industries. His wide expertise includes **Workovers & Completions**, **Petroleum Risk & Decision Analysis**, **Acidizing Application** in **Sandstone** & **Carbonate**, **Well Testing Analysis**, **Stimulation Operations**, **Reserves Evaluation**, **Reservoir Fluid Properties**, **Reservoir Engineering & Simulation Studies**, **Reservoir Monitoring**, **Artificial Lift Design**, **Gas Operations**, **Workover/Remedial Operations** & **Heavy Oil Technology**, **Applied Water Technology**, **Oil & Gas Production**, **X-mas Tree** & **Wellhead Operations** & **Testing**, **Artificial Lift Systems** (**Gas Lift**, **ESP**, and **Rod Pumping**), **Well Cementing**, **Production Optimization**, **Well Completion Design**, **Sand Control**, **PLT Correlation**, **Slickline Operations**, **Acid Stimulation**, **Well testing**, **Production Logging**, **Project Evaluation** & **Economic Analysis**. Further, he is actively involved in **Project Management** with special emphasis in production technology and field optimization, performing conceptual studies, economic analysis with risk assessment and field development planning. He is currently the **Senior Petroleum Engineer & Consultant** of **National Oil Company** wherein he is involved in the mega-mature fields in the Arabian Gulf, predominantly carbonate reservoirs; designing the acid stimulation treatments with post-drilling rigless operations; utilizing CT with tractors and DTS systems; and he is responsible for gas production and preparing for reservoir engineering and simulation studies, well testing activities, field and reservoir monitoring, production logging and optimization and well completion design.

During his career life, Mr. Zorbalas worked as a **Senior Production Engineer**, **Well Completion Specialist**, **Production Manager**, **Project Manager**, **Technical Manager**, **Technical Supervisor** & **Contracts Manager**, **Production Engineer**, **Production Supervisor**, **Production Technologist**, **Technical Specialist**, **Business Development Analyst**, **Field Production Engineer** and **Field Engineer**. He worked for many **world-class oil/gas companies** such as **ZADCO**, **ADMA-OPCO**, **Oilfield International Ltd**, **Burlington Resources** (later acquired by **Conoco Phillips**), **MOBIL E&P**, **Saudi Aramco**, **Pluspetrol E&P SA**, **Wintershall**, **Taylor Energy**, **Schlumberger**, **Rowan Drilling** and **Yukos EP** where he was in-charge of the **design and technical analysis** of a gas plant with capacity **1.8 billion m3/yr gas**. His achievements include **boosting oil production 17.2% per year** since 1999 using **ESP** and **Gas Lift systems**.

Mr. Zorbalas has **Master** and **Bachelor** degrees in **Petroleum Engineering** from the **Mississippi State University**, **USA**. Further, he is an **SPE Certified Petroleum Engineer**, **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), an active member of the Society of Petroleum Engineers (**SPE**) and has numerous scientific and technical publications and delivered innumerable training courses, seminars and workshops worldwide.

Course Fee

Doha	**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.
Dubai	**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.
Cairo	**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.
Istanbul	**US$ 8,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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: ***Introduction to Carbonate Reservoirs***

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: ***Field Development Planning***

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: ***Advanced Reservoir Characterization***

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: ***Enhanced Oil Recovery (EOR) in Carbonate***

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: ***Sustainability and Future Challenges***

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

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