COURSE OVERVIEW DE0613
Advanced Carbonate Reservoir Characterization & Modelling

Course Title
Advanced Carbonate Reservoir Characterization & Modelling

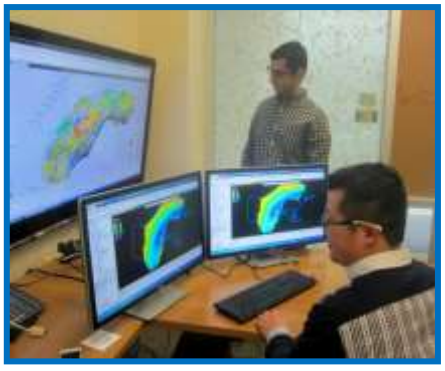
Course Date/Venue
September 14-18, 2025/B2 Meeting Room, Elite Byblos Hotel, Dubai, UAE

3.0 CEUs (30 PDHs) AWARD

Course Reference
DE0613

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 is designed to provide participants with a detailed and up-to-date overview of Carbonate Reservoir Characterization and Modelling. It covers the carbonate reservoirs in the oil and gas industry; the fundamental of carbonate sedimentology and stratigraphy; the petrophysical properties that characterize carbonate reservoirs including porosity types and their impact on fluid flow; the diagenetic processes that affect carbonate reservoir quality like the dolomitization, cementation and dissolution; and classifying carbonate rocks based on their petrophysical properties and depositional textures.

Further, the course will also discuss the carbonate reservoir characterization including core analysis, well logging and seismic interpretation techniques; the high-resolution sequence stratigraphic techniques to predict carbonate reservoir distribution and quality; the advanced petrophysical analysis, seismic attributes and facies modeling, geochemical characterization and integration of microscopic and macroscopic data; the geological modeling concepts specific to carbonate reservoirs; and the construction of static geological models including structural, stratigraphic and property modeling.

During this interactive course, participants will learn the dynamic reservoir modeling; the techniques for modeling heterogeneity and anisotropy in carbonate reservoirs; the pore system characterization and modeling; the software tools used for carbonate reservoir characterization and modeling; the natural fractures in carbonate reservoirs and their impact on reservoir performance; the reservoir enhancement techniques including acid stimulation, hydraulic fracturing and tailored for carbonates; the unconventional carbonate reservoirs and enhanced oil recovery (EOR) in carbonate reservoirs; the unique challenges in managing carbonate reservoirs for optimal recovery; the recent technological advances and research directions in carbonate reservoir characterization and modeling; conducting integrated reservoir studies in carbonates; the strategies for field development planning and management based on carbonate reservoir characterization and modeling; the uncertainty analysis and risk assessment; and the digital rock physics techniques for enhancing carbonate reservoir characterization.

Course Objectives

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

- Apply and gain an in-depth knowledge on carbonate reservoir characterization and modelling
- Discuss carbonate reservoirs in the oil and gas industry and the fundamentals of carbonate sedimentology and stratigraphy
- Describe the petrophysical properties that characterize carbonate reservoirs including porosity types and their impact on fluid flow
- Examinate the diagenetic processes that affect carbonate reservoir quality like the dolomitization, cementation and dissolution
- Classify carbonate rocks based on their petrophysical properties and depositional textures
- Apply carbonate reservoir characterization including core analysis, well logging and seismic interpretation techniques
- Apply high-resolution sequence stratigraphic techniques to predict carbonate reservoir distribution and quality
- Illustrate advanced petrophysical analysis, seismic attributes and facies modeling, geochemical characterization and integration of microscopic and macroscopic data
- Discuss the geological modeling concepts specific to carbonate reservoirs as well as the construction of static geological models including structural, stratigraphic and property modeling
- Describe dynamic reservoir modeling and apply techniques for modeling heterogeneity and anisotropy in carbonate reservoirs
- Carryout pore system characterization and modeling and identify software tools used for carbonate reservoir characterization and modeling
- Characterize the natural fractures in carbonate reservoirs and their impact on reservoir performance
- Apply reservoir enhancement techniques including acid stimulation and hydraulic fracturing tailored for carbonates

- Determine unconventional carbonate reservoirs and enhanced oil recovery (EOR) in carbonate reservoirs
- Identify and address the unique challenges in managing carbonate reservoirs for optimal recovery
- Explore the recent technological advances and research directions in carbonate reservoir characterization and modeling
- Conduct integrated reservoir studies in carbonates as well as apply strategies for field development planning and management based on carbonate reservoir characterization and modeling
- Employ uncertainty analysis and risk assessment and digital rock physics techniques for enhancing carbonate reservoir characterization

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 carbonate reservoir characterization and modelling for reservoir engineers, geophysicists and other technical staff.

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$ 8,000 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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

Haward's 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**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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. Stan Constantino, MSc, BSc, is a **Senior Petroleum & Drilling Engineer** with over **30 years** of **Offshore & Onshore** extensive experience within the **Oil**, **Gas & Petroleum** industries**.** His area of expertise include **Advanced Well Testing & Interpretation**, **Well Logs & Core Analysis**, **Exploration Well** Identification, **Gas Well** Testing, Exploration Wells Evaluation, **Horizontal Wells**, **Well Surveillance**, **Well Testing**, **Design & Analysis**, **Well Testing & Oil Well Performance**, **Well Log Interpretation** (**WLI**), **Formation Evaluation**, **Well Workover Supervision**, **Reserves & Resources**, **Reserves Estimation & Uncertainty**, **Reservoir** Characterization, **Unconventional Resource & Reserves** Evaluation, **Oil & Gas Reserves** Estimation, Methods for **Aggregation of Reserves & Resources**, **Fractured Reservoir** Classification & Evaluation, **Sequence Stratigraphy**, **Petrophysics & Rock** Properties, **Seismic** Technology, **Geological** Modelling, **Water Saturation**, **Crude Oil & Natural Gas** Demand, **Exploration Agreements & Financial** Modelling, **Seismic Survey** Evaluation, **Field Production** Operation, **Field Development** Evaluation, Crude Oil Marketing, **Core & Log Data** Integration, **Core Logging**, Advanced **Core & Log Integration**, Advanced Petrophysics/Interpretation of **Cased Hole Logs**, **Cased Hole Formation Evaluation**, **Cased Hole Formation** Evaluation, **Cased Hole Evaluation**, **Cased-Hole Logging**, Applied **Production Logging & Cased Hole & Production Log** Evaluation, **Cased Hole Logging & Formation** Evaluation, Open & Cased Hole Logging, Screening of Oil Reservoirs for **Enhanced Oil Recovery**, **Enhanced Oil Recovery**, **Enhanced Oil Recovery** Techniques, **Petroleum Economic** Analysis, **Oil Industry** Orientation, **Oil Production & Refining**, **Crude Oil Market**, **Global Oil Supply & Demand**, **Global Oil Reserves**, **Crude Oil** Types & Specifications, **Oil Processing**, **Oil Transportation-Methods**, **Oil & Gas** Exploration and Methods, **Oil & Gas** Extraction, Technology Usage in Industrial Security; **Upstream**, **Midstream** & **Downstream Operations**; **Oil Reservoir** Evaluation & Estimation, **Oil Supply & Demand**, **Oil Contracts**, **Government Legislation & Oil Contractual Agreements**, **Oil Projects** & Their Feasibility (revenue and profitability), **Water Flooding**, **Reservoir** Souring & Water Breakthrough, **Reservoir Performance** Using Classical Methods, **Fractured Reservoir** Evaluation & Management, **Reservoir Surveillance** & Management, **Reservoir Engineering** & Simulation, **Reservoir Monitoring**, **Pressure Transient** Testing & **Reservoir** Performance Evaluation, **Reservoir** Characterization, **Reservoir** Engineering Applications with ESP and Heavy Oil, **Reservoir** Volumetrics, Water Drive Reservoir, **Reserve** Evaluation, Rock & Fluid Properties, Fluid Flow Mechanics, PVT Analysis, Material Balance, Darcy's Law & Applications, Radial Flow, Natural Water Influx, EOR Methods, Directional Drilling, **Drilling** Production & Operations, Field Development & Production of Oil & Gas, **Wireline Logging**, **Mud Logging**, **Cased Hole Logging**, **Production Logging**, **Slick Line**, **Coil Tubing**, **Pressure Transient Analysis** and **Petrophysical Log Analysis**. Currently, he is the **CEO** & **Managing Director** of **Geo Resources Technology** wherein he is responsible in managing the services and providing technical supports to underground energy related projects concerning **field development**, **production**, **drilling**, **reservoir engineering** and **simulation**.

Throughout his long career life, Mr. Stan has worked for many international companies such as the **Kavala Oil**, **North Aegean Petroleum Company** and **Texaco Inc.**, as the **Managing Director**, **Operations Manager**, **Technical Trainer**, **Training Consultant**, **Petroleum Engineering & Exploration Department Head**, **Assistant Chief Petroleum Engineer**, **Reservoir Engineer, Resident Petroleum Engineer**, **Senior Petroleum Engineer** and **Petroleum Engineer** wherein he has been managing the evaluation of exploration wells, reservoir simulation, development training, production monitoring, wireline logging and well testing including selection and field application of well completion methods.

Mr. Stan has a **Master's** degree in **Petroleum Engineering** and a **Bachelor's** degree in **Geology** from the **New Mexico Institute of Mining & Technology** (**USA**) and from the **Aristotelian University** (**Greece**) respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership of Management (ILM**) and a member of the Society of Petroleum Engineers, USA (**SPE**), Society of Well Log Professional Analysts, USA (**SPWLA**) and European Association of Petroleum Geoscientists & Engineers (**EAGE**). Moreover, Mr. Stan published numerous scientific and technical papers and delivered various trainings, courses and workshops worldwide.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Sunday, 14th of September 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Carbonate Reservoirs:*** *Introduction to Carbonate Geology, the Significance of Carbonate Reservoirs in the Oil & Gas Industry & their Distribution Worldwide*
0930 – 0945	*Break*
0945 – 1030	***Carbonate Sedimentology & Stratigraphy:*** *Fundamentals of Carbonate Sedimentology, Depositional Environments & Stratigraphic Principles*
1030 – 1130	***Petrophysics of Carbonate Rocks:*** *The Petrophysical Properties that Characterize Carbonate Reservoirs, including Porosity Types & their Impact on Fluid Flow*
1130 – 1215	***Carbonate Diagenesis:*** *Examination of Diagenetic Processes that Affect Carbonate Reservoir Quality, such as Dolomitization, Cementation & Dissolution*
1215 – 1230	*Break*
1230 – 1330	***Rock Typing & Classification in Carbonates:*** *Methods for Classifying Carbonate Rocks Based on their Petrophysical Properties & Depositional Textures*
1330 – 1420	***Techniques for Carbonate Reservoir Characterization:*** *Overview of Core Analysis, Well Logging & Seismic Interpretation Techniques Tailored for Carbonate Reservoirs*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 15th of September 2025***

0730 – 0830	***High-Resolution Sequence Stratigraphy:*** *Applying High-Resolution Sequence Stratigraphic Techniques to Predict Carbonate Reservoir Distribution & Quality*
0830 – 0930	***Advanced Petrophysical Analysis:*** *Integration of NMR Logging, Dielectric Logging & Advanced Core Analysis Techniques for Detailed Reservoir Characterization*
0930 – 0945	*Break*
0945 – 1100	***Seismic Attributes & Facies Modeling:*** *Using Seismic Attributes for Facies Identification & Modeling in Carbonate Reservoirs*
1100 – 1215	***Geochemical Characterization:*** *Application of Geochemical Analysis for Understanding the Origin & Evolution of Carbonate Reservoirs*
1215 – 1230	*Break*
1230 – 1330	***Integration of Microscopic & Macroscopic Data:*** *Strategies for Integrating Data from thin Sections, Core Analysis & Well Logs for Comprehensive Reservoir Characterization*

1330 – 1420	***Case Studies on Carbonate Reservoir Characterization:*** *Discussion of Case Studies Illustrating Successful Characterization of Complex Carbonate Reservoirs*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Tuesday, 16th of September 2025***

0730 – 0830	***Fundamentals of Geological Modeling in Carbonates:*** *Introduction to Geological Modeling Concepts Specific to Carbonate Reservoirs*
0830 – 0930	***Static Modeling of Carbonate Reservoirs:*** *Construction of Static Geological Models, including Structural, Stratigraphic & Property Modeling*
0930 – 0945	*Break*
0945 – 1100	***Dynamic Reservoir Modeling:*** *Basics of Dynamic Reservoir Modeling, Incorporating Fluid Flow Simulations in Carbonate Reservoirs*
1100 – 1215	***Handling Heterogeneity & Anisotropy:*** *Techniques for Modeling Heterogeneity & Anisotropy in Carbonate Reservoirs*
1215 – 1230	*Break*
1230 – 1330	***Pore System Characterization & Modeling:*** *Approaches to Characterize & Model the Complex Pore Systems Unique to Carbonate Rocks*
1330 – 1420	***Software Tools for Carbonate Reservoir Modeling:*** *Review of Specialized Software Tools Used for Carbonate Reservoir Characterization & Modeling*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

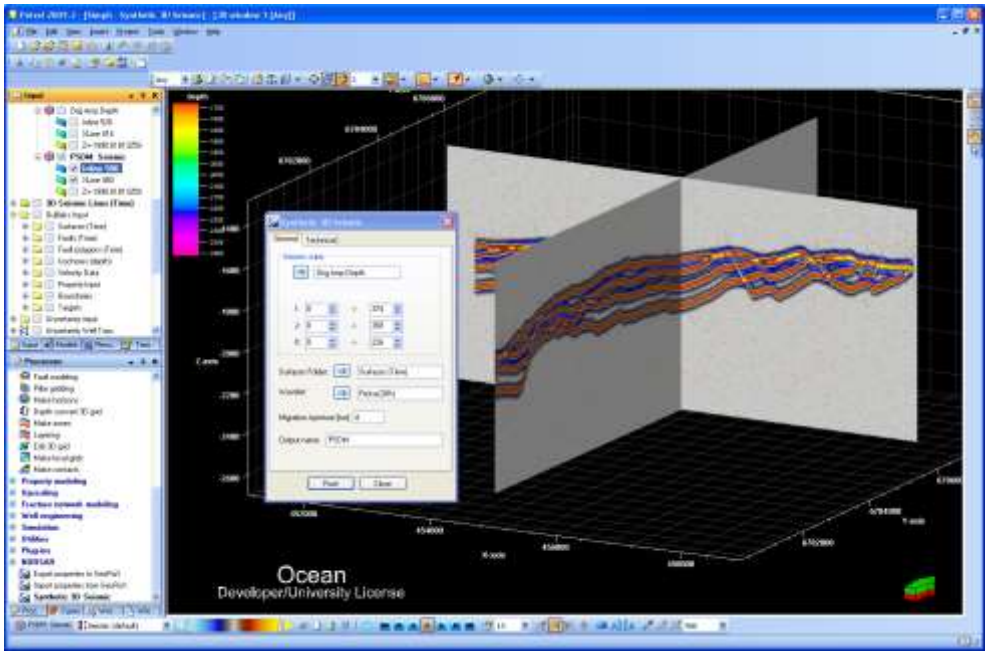
Day 4: ***Wednesday, 17th of September 2025***

0730 – 0830	***Fractured Carbonate Reservoirs:*** *Characterization & Modeling of Natural Fractures in Carbonate Reservoirs & their Impact on Reservoir Performance*
0830 – 0930	***Carbonate Reservoir Enhancement Techniques:*** *Overview of Reservoir Enhancement Techniques, including Acid Stimulation & Hydraulic Fracturing, Tailored for Carbonates*
0930 – 0945	*Break*
0945 – 1100	***Unconventional Carbonate Reservoirs:*** *Exploration of Unconventional Carbonate Plays, including Tight Carbonates & Carbonate Mudstones*
1100 – 1215	***Enhanced Oil Recovery (EOR) in Carbonate Reservoirs:*** *Discussion on EOR Methods Suitable for Carbonate Reservoirs, such as CO2 Injection & Chemical EOR*
1215 – 1230	*Break*
1230 – 1330	***Challenges in Carbonate Reservoir Management:*** *Identifying & Addressing the Unique Challenges in Managing Carbonate Reservoirs for Optimal Recovery*
1330 – 1420	***Recent Advances & Technologies:*** *Exploration of Recent Technological Advances & Research Directions in Carbonate Reservoir Characterization & Modeling*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:	***Thursday, 18th of September 2025***
0730 – 0830	***Workflows for Integrated Carbonate Reservoir Study:*** *Presentation of Step-by-Step Workflows for Conducting Integrated Reservoir Studies in Carbonates*
0830 – 0930	***Carbonate Reservoir Field Development Planning:*** *Strategies for Field Development Planning & Management Based on Carbonate Reservoir Characterization & Modeling*
0930 – 0945	*Break*
0945 – 1100	***Uncertainty Analysis & Risk Assessment:*** *Methods for Conducting Uncertainty Analysis & Risk Assessment in Carbonate Reservoir Projects*
1100 – 1230	***Digital Rock Physics & Carbonates:*** *Introduction to Digital Rock Physics Techniques for Enhancing Carbonate Reservoir Characterization*
1230 – 1245	*Break*
1245 – 1345	***Interactive Workshop on Carbonate Reservoir Modeling:*** *Participants Engage in a Hands-on Workshop to Apply the Concepts Learned Throughout the Course on a Real-World Carbonate Reservoir Modeling Project*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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 the "Petrel" software.



Petrel Software

Course Coordinator

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