TRAINING TITLE

CARBONATE SEQUENCE STRATIGRAPHY

Training Duration

5 days

Training Venue and Dates

Ref. No. DE062	**Carbonate Sequence Stratigraphy**	**5**	**17-21 Feb. 2025**	**$5,750**	**Dubai, UAE**

In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- **$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

Carbonate and clastic reservoirs are characterized by significant heterogeneity at numerous scales, ranging from exploration to production and enhanced production scale. Understanding of how primary depositional facies, diagenesis, and the sequence stratigraphic framework control the development of pores in carbonate and clastic rocks, and how the variation in pore architecture influences reservoir porosity and permeability characteristics is a fundamental step in the accurate reservoir characterization of carbonate and clastic units. With the ubiquitous use of geostatistical models to define 3D reservoir architecture, it has become increasingly important to accurately define the probable geometric distribution of potential reservoir facies, fluid barriers, and baffles at multiple scales to help build more accurate geologic models that can then be used to manage and improve reservoir development. To effectively do this, the challenge is to integrate data on the primary depositional environment (facies, probable geometry, and susceptibility to diagenetic modification), the sequence stratigraphic framework, and the petrophysical characteristics of carbonates and clastics at multiple scales. This course will review the controls on carbonate and clastic reservoir heterogeneity from the pore architecture scale to the geometrical attributes at reservoir-scale and how these parameters can be incorporated and integrated into the development of viable petrophysically-based reservoir models for carbonates and clastics. In-class exercises are used to reinforce the potential integration of various data sets to provide students with experience in carbonate and clastic reservoir characterization. The comprehensive course documentation has been designed as a useful guide for future reference.

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COURSE OBJECTIVES

At the end of the course the Attendees should be able to:

- Build on previous experience with carbonate and clastic systems to integrate various aspects of carbonate and clastic rocks (depositional environment, primary facies and mineralogy, high resolution sequence stratigraphy, and various petrophysical characteristics) for improved carbonate and clastic reservoir architecture and flow unit characterization
- Apply knowledge of petrophysical, sedimentological petrologic tools to characterize and evaluate carbonate and clastic reservoirs
- Recognize and better understand well log responses in carbonate and clastic systems and to learn to utilize data from formation evaluation tools to determine reservoir quality (porosity, permeability, and lithology)
- Identify potential stratigraphic variations in carbonate and clastic pore architecture and its effect on permeability
- Better understand the relationship of primary depositional facies, sequence stratigraphic framework, and diagenetic history to pore architecture and reservoir quality
- Better understand fracturing in carbonates and clastics, relating fracture density, aperture, length to facies, lithology, and diagenesis.
- Better understanding for application of well logging to carbonate and clastic reservoirs, characterization and sequence stratigraphy.
- To know more about case studies from Oman, e.g. Shuaiba and Buah.

WHO SHOULD ATTEND?

Exploration and development geoscientists, petrophysicists, reservoir engineers, geostatistical modelers and research/development staff who want to gain fundamental insight into carbonate and clastic reservoir characterization through an integrated geological and petrophysical approach.

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

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COURSE PROGRAM

OUTLINES

Module 1: Pore Types and Estimation in Carbonate and Clastic Rocks

- Origin and classification of rocks.
- Importance of understanding the various scales of heterogeneity in carbonate and clastic reservoirs.
- Carbonate and clastic deposition, diagenesis, mineralogy, rock textures, and pore types.
- Carbonate and clastic rock and pore system classification.
- Carbonate and clastic rock properties on the core scale, routine and special core analysis.
- Porosity and permeability, estimation and governing factors.
- Case study.

Module 2: Well Log Responses in Carbonate and Clastic Rocks

- Well log response, limitations, and strengths in carbonates and clastics.
- Determination of lithology, porosity and permeability.
- Fracture identification and distribution
- Porosity/depth relationships in limestone and dolomite reservoirs.
- Case study.

Module 3: Diagenetic History, Sequence Stratigraphy and Reservoir Heterogeneity

- Importance of sequence boundaries to development of pore architecture
- Variations in carbonate and clastic pore architecture and its effect on permeability
- Relationship of primary depositional facies, sequence stratigraphic framework and diagenetic history to pore architecture and reservoir quality determination.
- Controls on reservoir heterogeneity, from sub-reservoir to reservoir scale.
- Case study.

Module 4: Natural Fractures in Carbonate and Clastic Rocks

- Importance and distribution of naturally fractured carbonate and clastic reservoirs.
- Classification of natural fractures.
- Indicators of Natural Fractures and visual identification.
- Fracture porosity determination, core analysis and well logging.
- Fracture Intensity Index.
- Porosity-depth relationship in limestone and dolostone reservoirs.

Module 5: Workshop and Case Studies

- Carbonate and clastic Reservoirs of Shuaiba oil Field on the Saudi-Oman Borders.
- Carbonate and clastic Reservoirs of Buah oil Field on block 4, Oman.
- Case studies.
- Workshop.

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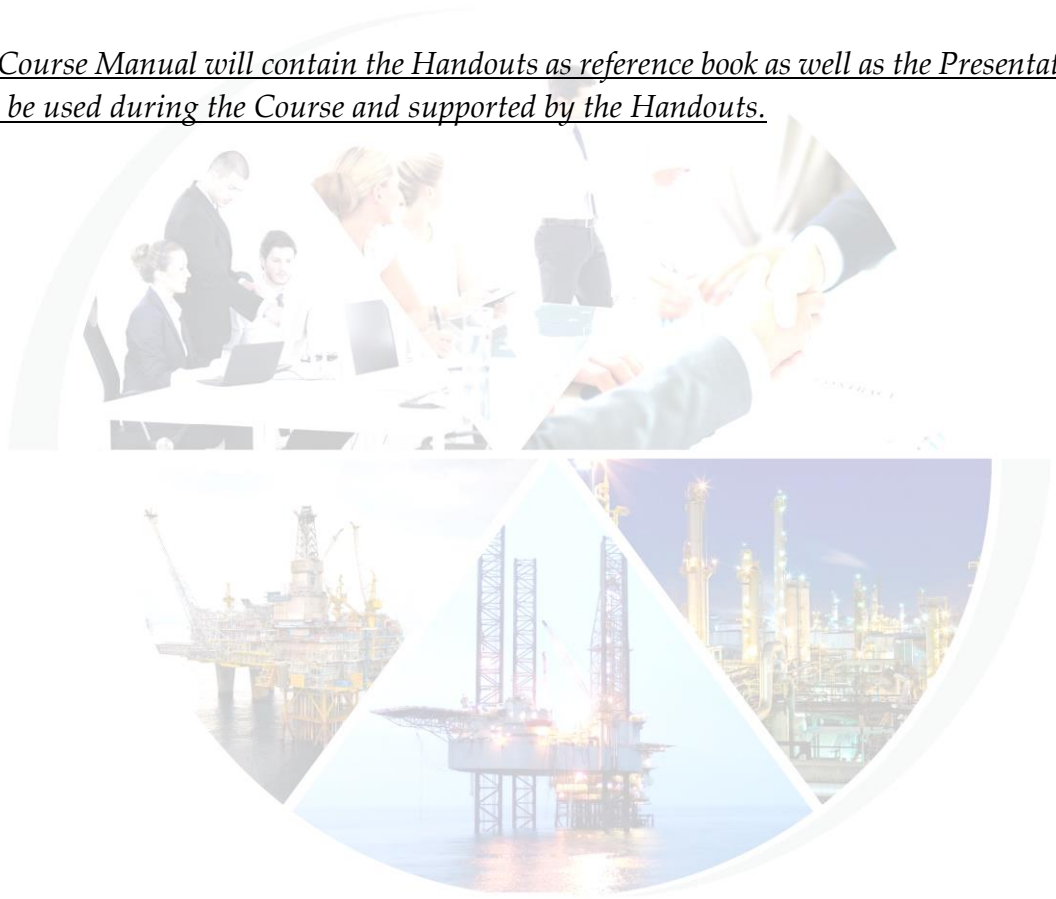
NOTE:
Pre & Post Tests will be conducted
Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

Note: The Course Manual will contain the Handouts as reference book as well as the Presentation Slides which will be used during the Course and supported by the Handouts.



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