Training Title

RESERVOIR GEOPHYSICS

Training Duration

5 days

Training Venue and Dates

Ref # DE035	Reservoir Geophysics	5	13-17 December, 2021	$ 6,500	London, UK.

In any of the 5 star hotels. The exact venue will be intimated upon finalizing.

Training Fees

6,500 US$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch.

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

Reservoir characterization involves the understanding and methods used to characterize reservoir heterogeneity. This course provides a special focus on reservoir properties in constructing realistic 3D images of its geological and petrophysical properties. The course covers an extensive amount of case studies from various geological fields. This will also provide methods in the predicting reservoir performance in an integrated approach through reservoir geology, petrophysics, and reservoir engineering.

TRAINING OBJECTIVES

- **Understand the affecting characteristics of in reservoir characterization**
- **Learn the application of sequence stratigraphy to reservoir characterization**
- **Relate seismic and log data to reservoir properties (reservoir characterization)**
- **Manage risk factors and error margins in predicting depositional environments**
- **Integrate different data sets for geology, petrophysics, and reservoir engineering application**
- **Use geological and petrophysical data to understand the rock fabric**
- **Characterize the reservoir rock types using logs, pressure data and SCAL data**
- **Predict local variaciones with in the reservoir**
- **Understand the integration between static and dynamic data**
- **Build a geological framework with a zonation scheme that honors the flow units.**
- **Understand how to integrate seismic and faults in the reservoir framework.**
- **Learn how to incorporate fracture networks into a modeling process**

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1

- Use deterministic and stochastic algorithms to propagate petrophysical properties in three-dimensions
- Build saturation model honouring capillary pressures by reservoir rock types and fluid contacts
- Learn the process of ranking realizations and perform averaging and upscaling of properties
- Perform volumetric calculations and quantify the uncertainties.

WHO SHOULD ATTEND ?

Exploration & Development Geophysicists, Geologists, Reservoir Engineers, Seismic Interpreters, and E&P Managers, who are directly involved with carbonate reservoir characterization. This course is also for those who need a deeper understanding of the methodologies through an integrated approach in geology, geophysics, and reservoir engineering.

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 motivate everybody 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

DAILY OUTLINE

Day 1: Geology
- Stratigraphic controls on heterogeneity and productivity
Stratigraphic concepts for reservoir characterization
Flow units/reservoir rock properties
1D analysis, interpretation, 2D analysis, correlation
Depositional environments
- Structural controls on heterogeneity and productivity
Key surfaces, faults
Fracture controls

Day 2: Reservoir Petrophysics/Rock Physics

- Data sources, logging tools
- Log quality control and log data normalization. Core QC
- Petrophysics conventional analysis and models
- Permeability, fluid identification
- Reservoir compartments identification
- Lithology estimates, core to log calibrations
- Rock physics, rock mechanics
- Production logs, special reservoir characterization logs
- Unconventional reservoir analysis

Day 3: Seismic Technology
- Fundamentals of seismic wave propagation
- Seismic data acquisition
- Seismic data processing and imaging
- Structural framework
- Time to depth conversion
- From seismic amplitudes to elastic properties
- What to do with elastic properties
- Seismic based fracture characterization
- Other remote sensing methods

Day 4: Construction of geological models
- What do we need from a geomodel
- What data is required
- Integration of seismic data
- Structural and stratigraphic framework
- Facies and lithology
- Porosity, permeability and water saturation
- Net togross considerations, static pore volume
- Volumetric uncertainty analysis
- Fracture models
- Unconventional resource models
- Up scaling for flow simulation

Day 5: Reservoir Dynamics
- Important factors in behavior of dynamic systems
- Data and interpretation for dynamic behavior
PVT / fluid properties
Multiphase flow
Stress impacts on fluid flow
Wellbore flow

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Dynamic well tests and production analysis
Performance analysis
• Forecasting economic recovery
Simulation grids , PVT data
Rock and fluid interaction
History matching and forecasting

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

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