Development and Characterization of Reservoirs

Duration: 5 days (May 19-23, 2025)

Location: Madrid

Candidates:

The course is recommended for all Engineers, Geologists, Geomodelers, Geoscientists or any other professional with equivalent experience.

Summary:

The key objectives of this course are to develop the skills needed for reservoir characterization and modeling and how to apply the most updated techniques for constructing 3D reservoir models. Both description and characterization tools for carbonate and clastic reservoirs including their geometry, connectivity, depositional environment, petrophysical properties and reservoir quality will be discussed in detail. Then the course will cover the techniques of integrating geological, geophysical, petrophysical and engineering data into high-resolution static model.

Course Objectives:

By the end of the course participants will become familiar with:

- Use subsurface tools; seismic, cores, logs and test data to better describe and characterize their reservoirs
- Understand the different depositional settings and reservoir quality for the carbonate and clastic reservoirs
- Become familiar with the influence of sequence stratigraphy on the reservoir geometry
- Describe and quantify the different factors affecting a development plan
- Select optimum drill sites for field development
- Calculate the volumetric of a field and measure the associated risk and uncertainties
- Analyse and describe the different reservoir properties
- Become familiar with the fluid properties
- Build a basic 3D static model

- Detect the drive mechanism of a field
- Select the most economically positive development plan

Course Contents:

- Concepts of reservoir Studies
  - a) Reservoir Description
  - b) Reservoir Characterization
  - c) Reservoir Modeling
  - d) Reservoir Management
- Reservoir Life Cycle
- Data Needed for RC Study
- Reservoir Characterization Tools
  - a) Seismic
  - b) Logs
  - c) Cores
  - d) Well-Test
- Carbonate Rocks
  - a) Depositional Settings
  - b) Classification of Carbonate Rocks
  - c) Diagenesis and Rock Typing
  - d) Reservoir Quality of Carbonates
  - e) Reef reservoirs facies and diagensis
- Clastic Rocks
  - a) Depositional Settings
  - b) Classification of Clastic Rocks
  - c) Diagenesis and Rock Typing
  - d) Sandstone Reservoir Quality
- Influence of Sequence Stratigraphic on reservoir geometry
  - a) Refreshment on Sequence Stratigraphy concepts
  - b) Global change in Sea Level
  - c) Cyclicity and Stratal terminations
  - d) Reservoir Connectivity; areal and vertical

- Reservoir Properties
  - a) Porosity
  - b) Permeability
  - c) Wettability
  - d) Capillary Pressure
  - e) Relative Permeability
- Workshop on Reservoir Properties
  - a) Core Pore/Perm Cross Plots
  - b) Capillary Pressure curves
  - c) Pore Throat Size Technique
- Reserve Estimates and Risk Analysis in clastic and carbonate Reservoirs
- 3D Modeling Techniques
  - a) Deterministic Reservoir Modeling
  - b) Stochastic Modeling Techniques
- Population of Reservoir Properties
  - a) Practical uses of geostatistics
  - b) Cross plot, PDF and CDF (construction and interpretation)
  - c) Spatial relationships between properties
  - d) Variogram (building and interpretation)
  - e) Geostatistical algorithms
- Characterizing & Modeling of Fractured reservoirs
- Post-Modeling Operations
- Up-Scaling Techniques
- Exporting Results to Simulation
- Case studies

Training Methods

- PowerPoint Presentations
- Videos
- Individual & Group Exercise
- Flip chart and white board Writing
- Group Quizzes
- Case Studies/ Learning Review

Instructor: **Dr Mohamed Salah Galal Abou Sayed**

For more details, please contact:

- Ms. Charmaine (Abu Dhabi Office) email: trainingauh@resmodtec.com
- Ms. Natalia (Abu Dhabi Office) email: ceooffice@resmodtec.com
- telephone: +971 2 6674666 (whatsapp available)