Geomechanics

Duration: 5 days

Course Fees: $4800 per participant

10% off for 2 participants

15% off for 3 participants

20% off for 4 participants

25% off for 5 participants

For special corporate prices please contact us on hala@resmodtec.com.

Date: September 9 - 13, 2024

Location: Milan, Italy

Candidates:

This course is for attendees from disciplines across the industry and geomechanical community and will provide an opportunity for operators, service companies, and researchers to discuss common challenges, and examine the application of new and future technologies to solve them. This course is also applicable for Geologists, Geochemists, Geophysicists, Petroleum Engineers, Reservoir Engineers, Petrophysicists, Geomechanics engineers, Production Technologists and Geoscientists.

Summary:

This course introduces basic reservoir geomechanics concepts and methods to enable the cross-disciplinary exchange of ideas and experience.

It provides the required input to help you understand questions crucial to reservoir Geomechanics: How human activities of drilling, production, and injection can affect the stress equilibrium in the reservoir at depth? How these changes in the stresses can create different problems? How can we drill without surprises? Where to place horizontal wells for better production? How and what completion methods can be used to optimize the production? What reservoir/field development plan is optimum for better production over reservoir lifecycle?

This course will focus on how geomechanics is currently being used at present, and how they can help in the future with the increasing pressure to maximize recovery from challenging environments

Course Objectives:

Upon completion of the course, participants will be:

- Understand the Reservoir Geomechanics concepts and terminology
- Learn The 3D stress state in the subsurface
- Identify and enumerate the principles of rock mechanics
- Know the interrelations among 3D stress state, the natural and induced fractures, and fluid flow
- What factors control fracture/fault reactivation with possible predictions
- Typical assumptions and simplifications are required to predict reservoir behavior under different states of stress

Course Contents:

Day 1

a) The Effect of Capillary Condensation on the Geomechanical Properties of Tight Formations: An Experimental Study
b) Natural Fractures & Drilling Operations
c) The Geomechanics Impact of Faults and Discontinuities in Field
d) Development—A Must-Do Assessment
e) Cluster Spacing Optimization: A Geomechanical Modeling Perspective
f) Fracture density variation at different observation scales in carbonate reservoir outcrop analogues
g) Paleo-to Present-day-in-Situ Stress Discrepancies
h) Wellbore Instability Mechanism Evaluation by Computer Vision on Cavings
i) Understanding near wellbore fracture behaviour for loss mitigation
j) Drilling efficiency improvement driven by geomechanics study
k) Increasing Operational Efficiency of a Wildcat Exploration Well in Southern Asia

Day 2

a) Methods and Applications for 3D Geomechanics
b) Reservoir Geomechanics
c) A parametric study on overburden stress evolution using a generalized
d) Geertsma solution
e) Digital Assistants for 3D Geomechanical Modeling: an Application for a Pre-salt Carbonate Field
f) Application of New Geomechanics Technology and Workflow for E&P in a Carbonate Field

Day 3

a) Geomechanical Integration for Infill Wells Optimization in Fractured Condition
b) Waterflooding Field: An example from Sultanate of Oman
c) Geomechanical Assessment De-risking Fault Stability and Cap Rock
d) Integrity for Gas Injection in a Carbonate Field in Sultanate of Oman
e) Procedures for Core Testing and Application to Middle Eastern Rocks
f) Experimental Geomechanics
g) Methods for determining tensile and shear failure

Day 4

Experimental Geomechanics

a) Methods for determining tensile and shear failure
b) Reservoir compaction with emphasis on predicting pore collapse
c) Tight rock requirements for frac design
d) Shale stability—mechanical and chemical changes affecting wellbore stability

Day 5

a) Core Testing Solutions of Shale Formations Through Shale Stability Analysis for Drilling Optimization
b) A Novel Approach to Evaluate the Nature and Rock Mass Quality of Near-Surface Granitic Strata
c) Surface Movement Driven by Groundwater Dynamics

Course Conclusion