



PETROLEUM GEOSCIENCE AND PETROPHYSICS

Geomechanics, Pore Pressure and Wellbore Stability

5 day course

Classroom, online or in-house

Course overview

Stuck pipe, lost circulation and kicks cost the industry heavily, and many of them follow from an underestimated pore pressure or a misjudged stress field. Delegates begin with in situ stress, rock strength and elastic properties from logs and laboratory tests. The origins of overpressure, including undercompaction, fluid expansion and lateral transfer, are covered next, with prediction from seismic velocity, sonic and resistivity using the Eaton and Bowers methods. Fracture gradient, leak off test interpretation and wellbore failure modes lead into stability analysis and mud weight selection for vertical and deviated wells. The final sessions apply geomechanics to fault reactivation, reservoir compaction and caprock integrity. Delegates leave able to build a one dimensional mechanical earth model and support well planning with defensible pressure predictions.

What you will learn

- Estimate vertical stress, horizontal stresses and their orientation from well data
- Derive rock strength and elastic properties from logs and laboratory tests
- Explain the mechanisms that generate overpressure
- Predict pore pressure from seismic velocity, sonic and resistivity data
- Interpret leak off and extended leak off tests for fracture gradient
- Determine a safe mud weight window for vertical and deviated wells
- Build a one dimensional mechanical earth model
- Assess fault reactivation, compaction and caprock integrity risks

Who should attend

- Geomechanics and pore pressure specialists
- Well planning engineers
- Petrophysicists supporting drilling
- Operations geologists
- Reservoir engineers dealing with stress sensitive reservoirs

Course outline

- 01 In situ stress and rock mechanics
- 02 Elastic properties from logs and core
- 03 Origins of overpressure
- 04 Pore pressure prediction methods
- 05 Fracture gradient and leak off tests
- 06 Wellbore failure and stability analysis
- 07 Mud weight window design
- 08 Mechanical earth model construction
- 09 Reservoir geomechanics and caprock integrity

Upcoming dates

Dates	Venue	Format	Fee per delegate
19 to 23 October 2026	Gaborone, Botswana	Classroom	R19,950
2 to 6 November 2026	Lagos, Nigeria	Classroom	USD 1,325
1 to 5 February 2027	Online	Online	R8,500



Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afiscience.co.za, or WhatsApp us on **+27 63 479 1136**.

AfriScience Group | +27 61 536 6531 | info@afiscience.co.za | Pretoria, Gauteng, South Africa