

**DRILLING, WELLS AND RESERVOIR ENGINEERING**

Drilling Fluids Technology and Hydraulics

5 day course

Classroom, online or in-house

Course overview

More holes are lost through the mud system than through any other single cause: a weight too low to hold back a formation, a gel that will not suspend cuttings, a filtrate that swells shale. Delegates study fluid functions and then the chemistry of water based, oil based and synthetic systems, including clays, polymers, weighting agents and inhibitors. Rheology is treated quantitatively with Bingham plastic, power law and Herschel Bulkley models, leading into pressure loss calculation, bit hydraulics optimisation and hole cleaning in deviated sections. Solids control equipment, lost circulation materials, fluid testing to API RP 13B practice and waste handling close the programme. Delegates leave able to specify a fluid, read a mud check and adjust properties and pump rates to keep the hole in condition.

What you will learn

- Explain the functions a drilling fluid must perform in each hole section
- Select between water based, oil based and synthetic systems
- Interpret routine mud check results and recommend treatments
- Calculate system pressure losses using appropriate rheological models
- Optimise bit hydraulics for hydraulic horsepower or jet impact force
- Assess hole cleaning in high angle wells and correct shortfalls
- Design a solids control arrangement and lost circulation response
- Plan safe handling and disposal of drilling fluids and cuttings

Who should attend

- Mud engineers and fluids specialists
- Drilling engineers responsible for fluid programmes
- Drilling supervisors who approve mud treatments
- Solids control and waste management technicians
- Laboratory staff testing drilling fluids

Course outline

- 01 Fluid functions and system selection
- 02 Clay chemistry, polymers and shale inhibition
- 03 Oil based and synthetic systems
- 04 Fluid testing and the daily mud check
- 05 Rheological models and pressure loss
- 06 Bit hydraulics optimisation
- 07 Hole cleaning in deviated wells
- 08 Solids control and lost circulation
- 09 Fluid waste handling and environmental controls

Upcoming dates



Dates	Venue	Format	Fee per delegate
30 November to 4 December 2026	Johannesburg, South Africa	Classroom	R19,950
1 to 5 February 2027	Addis Ababa, Ethiopia	Classroom	USD 1,325
8 to 12 February 2027	Online	Online	R8,500
22 to 26 March 2027	Lusaka, Zambia	Classroom	USD 1,325

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@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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