

**DRILLING, WELLS AND RESERVOIR ENGINEERING**

Drilling Engineering Fundamentals

5 day course

Classroom, online or in-house

Course overview

A new drilling engineer's first well plan usually fails review on arithmetic rather than concept: a kick tolerance that was never calculated, a mud weight window read off the wrong gradient, a hook load that ignores buoyancy. This programme makes those calculations routine. Delegates begin with pressure units and gradients, take formation pressure and fracture gradient as inputs, then size hole and casing programmes, compute hydrostatic pressure and equivalent circulating density, apply buoyancy to string weights and estimate torque, drag and annular velocity. Bit selection, penetration rate drivers and basic well cost estimation follow. Each block ends with worked problems on a realistic well. Engineers leave able to build and check the numerical backbone of a drilling programme and defend it to a senior reviewer.

What you will learn

- Calculate hydrostatic pressure, equivalent circulating density and pressure gradients
- Construct a casing seat plan from pore pressure and fracture gradient inputs
- Apply buoyancy factors to determine hook load and string weight
- Estimate torque, drag and annular velocity for a planned wellbore
- Calculate kick tolerance for a given casing shoe and hole section
- Select bit type and size for the formations expected
- Prepare a time and cost estimate for a drilling programme
- Check a drilling programme for numerical consistency before issue

Who should attend

- Graduate and junior drilling engineers
- Petroleum engineers moving into well construction
- Mechanical engineers joining drilling contractors
- Mud loggers and MWD engineers seeking engineering depth
- Technical assistants who prepare drilling programmes

Course outline

- 01 Pressure units, gradients and hydrostatics
- 02 Formation and fracture pressure as design inputs
- 03 Hole size, casing seat selection and well architecture
- 04 Equivalent circulating density, surge and swab
- 05 Buoyancy, hook load and drill string weight
- 06 Torque, drag and hole cleaning basics
- 07 Bit types and drivers of penetration rate
- 08 Kick tolerance and the mud weight window
- 09 Time, depth and cost estimation for a well plan

Upcoming dates



Dates	Venue	Format	Fee per delegate
23 to 27 November 2026	Port Louis, Mauritius	Classroom	USD 1,325
30 November to 4 December 2026	Pretoria, South Africa	Classroom	R19,950
14 to 18 December 2026	Nairobi, Kenya	Classroom	USD 1,325
18 to 22 January 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@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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