

**DRILLING, WELLS AND RESERVOIR ENGINEERING**

Drill String Design and Failure Prevention

5 day course

Classroom, online or in-house

Course overview

A twist off at the pin of a heavyweight joint costs days of fishing, and the fracture face nearly always shows fatigue cracks that started long before the final load. Delegates follow the string from top drive to bit: drill pipe, heavyweight, collars, jars, stabilisers and tool joints. Sessions cover tensile and torsional capacity, margin of overpull, neutral point location, critical buckling and the BHA arrangement that keeps compression where the components can take it. Fatigue mechanisms, stress concentration at connections, makeup torque and thread compounds are then linked to inspection categories under DS1 and API RP 7G practice. The programme closes on failure investigation from recovered pieces. Delegates leave able to design a string for a given well and set inspection and handling rules that prevent washouts and parted pipe.

What you will learn

- Calculate tensile, torsional and combined load capacity of drill pipe
- Determine margin of overpull and neutral point position
- Design a BHA that limits buckling and keeps collars in compression
- Explain how cyclic bending produces fatigue cracks in connections
- Specify makeup torque and thread compound practice for rotary shouldered connections
- Select inspection categories and frequency for drill string components
- Investigate a string failure from fracture surface and operating records
- Set handling and running rules that reduce washouts and twist offs

Who should attend

- Drilling engineers designing strings and BHAs
- Toolpushers and drillers
- Drill string inspection technicians and supervisors
- Rental tool and tubular asset managers
- Drilling supervisors investigating downhole failures

Course outline

- 01 Drill string components and their roles
- 02 Tensile, torsional and combined capacity
- 03 Overpull margin and neutral point
- 04 BHA design, buckling and stabiliser placement
- 05 Fatigue, bending and stress concentration
- 06 Rotary shouldered connections and makeup
- 07 Inspection categories and acceptance
- 08 Failure investigation from recovered parts

Upcoming dates



Dates	Venue	Format	Fee per delegate
26 to 30 October 2026	Maputo, Mozambique	Classroom	USD 1,325
21 to 25 December 2026	Online	Online	R8,500
25 to 29 January 2027	Durban, South Africa	Classroom	R19,950
1 to 5 February 2027	Johannesburg, South Africa	Classroom	R19,950

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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