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COURSE BROCHURE

Drilling Fluids and Cementing Engineering Training Course

22 – 26 February 2027
London

Drilling Fluids and Cementing Engineering Training Course

Ref: 2100_77359 **Date:** 22 – 26 February 2027 **Location:** London **Fees:** 5900 GBP

Drilling Fluids and Cementing Engineering is a 1-week training course for drilling engineers and mud engineers who choose fluid systems and cement jobs for each hole section, producing a Mud and Cement Design Basis for an upcoming well. Hole stability, waste handling and long-term zonal isolation now weigh on every well budget and licence to operate. Jupiter Prime Training links drilling fluids and cementing engineering to these hole-section choices.

Why Drilling Fluids and Cementing Engineering Matters Now

Deeper, hotter and more deviated wells push mud and slurry chemistry closer to its limits, while operators and partners scrutinise lost circulation, stuck pipe and sustained casing pressure as cost and integrity signals. Environmental expectations shape the choice between water-based and non-aqueous systems and the handling of cuttings. A well whose fluids and cement are engineered together reaches total depth with a gauge hole and a sound cement sheath; one handled piecemeal invites remedial squeezes and lost rig days. The course rests on the two-barrier principle and the safe mud weight window between pore and fracture pressure.

Who Gains Most from Drilling Fluids and Cementing Engineering

- Engineers who write the fluid plan for each hole section and its contingencies
- Wellsite fluid specialists who test, treat and report mud properties every tour
- Engineers who design cement slurries, spacers and placement schedules
- Well integrity staff who judge whether cement provides an isolation barrier
- Supervisors who sign off fluid and cement operations at the rig

An asset drilling group that sends its well planners and wellsite fluid specialists together gains most.

Drilling Fluids and Cementing Engineering Capabilities

Participants connect rheology readings, filtrate behaviour and slurry tests to hole-section decisions.

- Design water-based and oil-based mud formulations for given formations — hole-section fluid selection
- Interpret rheology and filtration test results — treatment and dilution decisions
- Specify a solids control equipment train and targets — rig-up and waste handling
- Design a primary cement slurry, spacer and placement plan — casing cementing sign-off
- Assess zonal isolation evidence from job data and bond logs — barrier acceptance
- Plan a remedial squeeze job for a failed isolation — repair and abandonment choices

Key Drilling Fluids and Cementing Engineering Terms

- Yield point — the stress a mud must overcome before it flows, governing cuttings transport and pump pressure.
- Filter cake — the thin layer of solids a mud deposits on the borehole wall, limiting fluid loss into the rock.
- Low-gravity solids — fine drilled particles that thicken mud and slow penetration unless removed by solids control.
- Thickening time — the period a cement slurry stays pumpable at downhole temperature and pressure.
- Zonal isolation — sealing between permeable layers so fluids cannot migrate behind casing.
- Squeeze cementing — forcing cement through perforations or leaks under pressure to repair isolation.

Drilling Fluids and Cementing Engineering Day by Day

Day 1: Fluid Functions and Pressure Windows

- Drilling Fluid Functions — Pressure Control, Cuttings Transport and Hole Cleaning
- Pore and Fracture Pressure Window — Setting Mud Weight per Hole Section
- Water-Based Mud Systems — Clays, Polymers and Inhibition Choices
- Oil-Based and Synthetic Mud Systems — Emulsion Stability and Environmental Trade-Offs
- Shale Instability Mechanisms — Choosing Inhibitive Chemistry for Reactive Formations

Day 2: Rheology, Filtration and Solids Control

- Rheological Models and Viscometer Readings — Predicting Equivalent Circulating Density
- Hole Cleaning in Deviated Wells — Flow Rate and Gel Strength Targets
- Low- and High-Temperature Filtration Tests — Treating Filtrate Control
- Shakers, Hydrocyclones and Centrifuges — Sizing the Solids Control Train
- Lost Circulation Materials and Wellbore Strengthening — Responding to Losses

Day 3: Cement Slurry Design and Testing

- Cement Classes and Additives — Retarders, Accelerators and Fluid Loss Agents
- Thickening Time and Compressive Strength Tests — Matching Slurry to Well Temperature
- Gas Migration Resistance — Selecting Slurries for Shallow Gas Zones
- Lightweight and Heavyweight Slurries — Staying Inside the Fracture Gradient
- Spacers and Washes — Removing Mud Before Cement Contacts Casing

Day 4: Placement, Isolation and Remedial Work

- Casing Centralisation and Mud Removal — Achieving Full Annular Displacement
- Pumping Schedule and Displacement Rate — Balancing Pressure During Placement
- Cement Bond and Ultrasonic Logs — Judging Zonal Isolation Quality
- Squeeze Cementing Techniques — Repairing Channels, Micro-Annuli and Casing Leaks
- Cement Plugs for Sidetracks and Abandonment — Placement and Verification

Day 5: Practising the Mud and Cement Design Basis

- Hole-Section Fluid Selection Case — Applying Day 1 Pressure Windows
- Rheology and Solids Control Plan — Building on Day 2 Targets
- Production Casing Cement Job Design — Using Day 3 and Day 4 Methods
- Post-Job Evaluation Exercise — Accepting or Rejecting the Cement Barrier
- Mud and Cement Design Basis — Completing the Section-by-Section Document

Applying Drilling Fluids and Cementing Engineering After the Course

- Audit the current mud report against yield point, filtrate and low-gravity solids targets set during the course
- Review the next casing cement plan for centralisation, spacer volume and thickening time margins

Drilling Fluids and Cementing Engineering Questions FAQ

What is drilling fluids and cementing engineering and why does it matter now?

It is the design of mud systems and cement jobs that keep a well stable while drilling and isolated afterwards. It matters now because deeper, hotter wells and integrity scrutiny leave less margin for fluid or cement errors.

Which roles gain most from drilling fluids and cementing engineering training?

Drilling engineers, mud engineers, cementing engineers and well integrity staff gain most. They share decisions on mud weight, slurry design and barrier acceptance.

How does drilling fluids and cementing engineering differ from a well integrity course?

It concentrates on designing and placing fluids and cement during construction. A well integrity course covers barriers, monitoring and life-cycle assurance across production years.

What do you bring back from drilling fluids and cementing engineering training?

You bring back a section-by-section document setting fluid type, rheology and filtrate targets, solids control equipment and the cement slurry, spacer and placement plan for a real well.

Drilling Fluids and Cementing Engineering: The Way Forward

The Mud and Cement Design Basis first informs the fluid and cement choices for the next hole section to be drilled. Well planners, wellsite fluid specialists and cementing engineers use it as a shared reference. After its first use, revisit the bond log results and losses record to tighten rheology targets and slurry margins for the following well.