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COURSE BROCHURE

Rate of Penetration and Drillstring Vibration Control Training Course

14 – 18 December 2026
Barcelona

Rate of Penetration and Drillstring Vibration Control Training Course

Ref: 1722_63140 **Date:** 14 – 18 December 2026 **Location:** Barcelona **Fees:** 6200 GBP

Rate of Penetration and Drillstring Vibration Control is a 1-week training course for drilling engineers and well-site supervisors who set weight on bit, rotary speed and flow rate, ending with a section-by-section drilling parameter roadmap for the next well. Faster, smoother drilling shortens well time, protects downhole tools and keeps the hole clean for casing. Jupiter Prime Training delivers this rate of penetration and drillstring vibration control course.

Why Rate of Penetration and Drillstring Vibration Control Matters Now

Three forces shape this subject today. Operators want more footage per bit run while well profiles grow longer and more deviated. Surface and downhole sensors now stream torque, hookload and acceleration data in real time, so crews can act on dysfunction within minutes. Crews that read these signals well drill longer intervals with fewer trips; crews that ignore them lose cutters, twist off pipe and spend hours reaming. The course rests on the mechanical specific energy MSE model, drill-off testing and the established classification of axial, lateral and torsional vibration modes.

Who Gains Most from Rate of Penetration and Drillstring Vibration Control

- Engineers who set section parameters and bit recommendations
- Rig-site supervisors who change weight, speed or flow during a run
- Real-time specialists who watch drilling signals remotely
- Directional coordinators responsible for bottomhole assembly design
- Mud engineers who balance flow rate, rheology and cuttings transport

A drilling team from one asset gains most when its office engineers, rig supervisors and monitoring staff attend together.

Rate of Penetration and Drillstring Vibration Control Capabilities

Participants move from reading drilling curves to changing them, linking bit and parameter choices to footage and tool life.

- Calculate MSE and spot the founder point — weight-on-bit choice per formation
- Assess dull grades against rock strength — the next bit selection
- Diagnose stick-slip, whirl and bit bounce — the driller's parameter change
- Design and interpret a drill-off test — the supervisor's step-up plan
- Specify flow, rotation and sweeps for cuttings removal — the decision to trip
- Communicate parameter limits per section — the drilling contractor

Key Rate of Penetration and Drillstring Vibration Control Terms

- Rate of penetration ROP — the speed at which the bit deepens the hole.
- Mechanical specific energy MSE — the energy spent to remove a unit volume of rock, showing drilling efficiency.
- Founder point — the weight on bit beyond which more weight no longer raises penetration rate.
- Stick-slip — torsional vibration in which the bit stops and then spins rapidly.
- Whirl — lateral vibration where the bit moves off-centre around the hole.
- Cuttings transport ratio — the share of annular velocity that lifts cuttings up the hole.

Rate of Penetration and Drillstring Vibration Control Day by Day

Day 1: Drilling Performance in Context

- Offset Well Footage and Bit Run Review — Choosing Targets for the Next Well
- Rock Strength Logs and Formation Drillability — Setting Realistic Penetration Expectations
- Invisible Lost Time in Connections and Tripping — Where Hidden Hours Accumulate
- Surface and Downhole Sensor Channels — Which Signals the Crew Trusts
- Drilling Dysfunction Categories — Linking Symptoms to Root Limiters

Day 2: Bits and Mechanical Specific Energy

- PDC and Roller-Cone Bit Design Features — Matching Cutters to Formation Type
- Dull Grading of Pulled Bits — Feeding Lessons into Bit Selection
- Mechanical Specific Energy Calculation from Surface Data — Judging Drilling Efficiency
- Drill-Off Tests and Founder Point Detection — Choosing Weight on Bit
- Motor and Rotary Steerable Effects on MSE — Interpreting Downhole Power Correctly

Day 3: Drillstring Vibration Modes

- Axial Bit Bounce Signatures — Adjusting Weight and Speed Combinations
- Torsional Stick-Slip Severity Index — Deciding Speed Changes and Off-Bottom Resets
- Lateral Whirl and Backward Rotation — Protecting Cutters and MWD Tools
- Bottomhole Assembly Stabiliser Placement — Reducing Lateral Movement at the Bit
- Downhole Accelerometer and Memory Data — Confirming Mitigation After a Run

Day 4: Hole Cleaning and Parameter Limits

- Annular Velocity and Mud Rheology — Keeping Cuttings Moving in Deviated Holes
- Pipe Rotation for Cuttings Bed Removal — Setting Minimum Rotary Speed
- Torque and Drag Trend Monitoring — Spotting Packing-Off Before It Happens
- High-Viscosity and Weighted Sweeps — Timing Cleaning Before Trips
- Equivalent Circulating Density Window — Balancing Flow Against Formation Limits

Day 5: Practising the Drilling Parameter Roadmap

- Bit Selection Rationale per Section — Applying Dull Grade and Rock Strength Evidence
- Weight and Speed Envelopes from MSE — Applying Drill-Off Test Results
- Vibration Mitigation Triggers and Responses — Applying Mode Diagnosis to Driller Actions
- Flow and Sweep Schedule — Applying Hole-Cleaning Limits to Each Interval
- Section-by-Section Drilling Parameter Roadmap — Completing the Plan for the Next Well

Applying Rate of Penetration and Drillstring Vibration Control After the Course

- Run an MSE review on recent bit runs and share the founder points with the rig team.
- Post a stick-slip and whirl response card at the driller's console.

Rate of Penetration and Drillstring Vibration Control Questions FAQ

What is rate of penetration and drillstring vibration control and why does it matter now?

It is the practice of choosing bits and drilling parameters that drill fast while keeping the string stable. It matters now because longer wells and real-time data let crews remove dysfunction quickly, cutting trips and protecting expensive downhole tools.

Which roles gain most from rate of penetration and drillstring vibration control?

Drilling engineers and rig-site supervisors gain most. Monitoring staff, directional coordinators and mud engineers also benefit, as each controls a parameter affecting penetration or vibration.

How does rate of penetration and drillstring vibration control differ from a well delivery planning course?

This course works at the bit and drillstring level, on parameters a driller changes during a run. A well delivery planning course looks at whole-well time, benchmarking and organisational performance.

What do you bring back from rate of penetration and drillstring vibration control training?

You bring back a drilling parameter roadmap for a real well, with bit choices, weight and speed envelopes, vibration responses and a hole-cleaning schedule.

Rate of Penetration and Drillstring Vibration Control: The Way Forward

The drilling parameter roadmap first informs the bit and bottomhole assembly order for the next section. Drillers, rig supervisors and remote monitoring staff use it to agree when to change weight, speed or flow. After its first bit run, revisit the founder points and vibration triggers against the recorded data.