Underbalanced Drilling Specialist: UBD Techniques & Equipment



DRPT154

# COURSE TITLE

Underbalanced Drilling Specialist: UBD Techniques & Equipment <u>COURSE DATE/ VENUE</u> 23rd - 27th Feb 2026 Austria, Vienna <u>COURSE REFERENCE</u> DRPT154 <u>COURSE DURATION</u> 05 Days

#### DISCIPLINE

Drilling, Reservoir & Petroleum Training

#### **COURSE INTRODUCTION**

The **"Underbalanced Drilling Specialist: UBD Techniques & Equipment"** course is designed to provide engineers and field professionals with the specialized knowledge and technical skills required to plan, execute, and troubleshoot Underbalanced Drilling (UBD) operations safely and effectively.

Unlike conventional overbalanced drilling, UBD intentionally maintains the wellbore pressure below formation pressure to enhance drilling performance, reduce formation damage, and improve reservoir productivity. However, the technique demands a deeper understanding of well control, multiphase flow behavior, and specialized surface and downhole equipment.

#### COURSE OBJECTIVE

### Upon successful completion of this course, the delegates will be able to:

□ UBD principles and reservoir suitability analysis

□ UBD fluid systems, including air, mist, foam, and gasified muds

Detailed study of UBD equipment such as RCDs, choke manifolds, and separation systems

- □ Operational planning, execution, safety, and troubleshooting
- □ Real-world case studies and lessons from field deployments

# COURSE AUDIENCE

Drilling Engineers – seeking to implement or optimize UBD techniques in challenging formations.

□ Wellsite Engineers and Supervisors – responsible for operational execution and real-time decision-making during UBD operations.

□ **UBD and Managed Pressure Drilling (MPD) Specialists** – aiming to strengthen their technical foundation and field-readiness.

□ **Completion and Production Engineers** – needing to understand the impact of UBD on well integrity and production.

□ Well Control and HSE Personnel – managing the unique safety and pressure control challenges of UBD.

# COURSE CONTENT

Day 1: Introduction to Underbalanced Drilling (UBD)

- Overview of Conventional vs. Underbalanced Drilling
- Objectives and Benefits of UBD A D E N
  - Minimize Formation Damage
  - Increase Rate of Penetration (ROP)
  - Reduce Lost Circulation
- Historical Development and Industry Adoption
- Reservoir Candidates for UBD
  - Formation Types, Pressure Regimes
  - Screening Criteria for UBD Applications
- Fundamentals of Pressure Control in UBD

### **Day 2: UBD Methods and Fluid Systems**

- Primary Techniques:
  - Air Drilling
  - Mist Drilling
  - Foam Drilling

- Aerated Mud Drilling
- Nitrogen or Gasified Fluid Systems
- Fluid Design for UBD
  - Rheology of Two-Phase Systems
  - Foam Quality, Mist Stability
  - Erosion and Corrosion Considerations

Day 3: UBD Equipment and Surface Systems

- Rotating Control Device (RCD) Types, Functions, Limitations
- Choke Manifold and Surface Separation Systems
- Gas Injection Equipment
- Flow Management and Measurement Systems
- Wellhead Configurations for UBD
- Downhole Tools:
  - Underbalanced Motors
  - UB-Hammers
  - MPD vs. UBD Key Differences and Interface Equipment

### Day 4: UBD Operations Planning and Execution

- UBD Project Planning:
  - Feasibility Studies
  - Modeling Underbalanced Conditions
  - Risk Assessment and Contingency Planning
- o Underbalanced Well Control Principles
- Real-Time Monitoring and Decision-Making
- UBD Drilling Programs and Procedures
- HSE (Health, Safety, and Environment) Requirements for UBD

Day 5: Field Challenges, Case Studies & Emerging Technologies

- Challenges and Problem-Solving in UBD Operations
  - Managing Kick and Flowback
  - Formation Stability Issues

- Equipment Failures and Recovery
- Global Field Case Studies
  - Successes, Failures, and Lessons Learned
- Future Trends:
  - Hybrid Drilling (Managed Pressure + UBD)
  - Automation and Smart UBD Systems
- Course Review and Final Q&A
- Certification Ceremony

# COURSE CERTIFICATE

**TRAINIT ACADEMY** will award an internationally recognized certificate(s) for each delegate on completion of training.

# COURSE FEES

£5,750 per Delegate. This rate includes participant's manual, Hand-Outs, lunch, coffee/tea on arrival, morning & afternoon of each day.

ACADEMY

### COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

