

Well Design & Engineering in Oil & Gas Operations

Course general description:

Advanced training in well design and engineering covering the entire well life cycle from planning to completion. The course provides comprehensive understanding of technical and operational aspects of well design, incorporating industry standards and best practices.

Audience:

This course is designed for:

1. Drilling engineers
2. Well planning engineers
3. Completion engineers
4. Project engineers
5. Field supervisors
6. Technical support staff
7. Graduate engineers transitioning to well engineering.

Course objectives:

By end of the course participants will:

1. Master well planning and design principles
2. Understand geological and reservoir considerations
3. Learn well trajectory design and calculations
4. Develop expertise in casing design
5. Understand completion requirements
6. Apply risk assessment methods
7. Learn cost estimation and optimization techniques.

Course duration:

5 days

Course location:

Dubai

Course contents:

Day 1: Well Planning Fundamentals

1. Overview of well objectives, classifications, geological considerations, and formation evaluation.
2. Basics of well architecture, hole size and casing point selection, and temperature factors.
3. Well trajectory and directional planning, anti-collision analysis, and survey calculations.

Day 2: Technical Well Design

1. Analysis of formation pressure, mud weight window, and wellbore stability.
2. Principles of casing design, including load cases, safety factors, and material selection.
3. Cementing program design, covering slurry composition, primary, and stage cementing.

Day 3: Drilling Engineering

1. Design principles for BHA, drill strings, torque, drag, and hydraulics optimization.
2. Key well control elements: kick tolerance, BOP requirements, and emergency procedures.

3. Drilling performance optimization, focusing on ROP, cost per foot, and benchmarking.

Day 4: Advanced Topics

1. HPHT, extended reach, multilateral, and slim hole well designs.
2. Risk assessment, critical operations, contingency planning, and change management.
3. Cost estimation, AFE preparation, project scheduling, and the well delivery process.

Day 5: Integration and Assessment

1. Review of case studies and hands-on well design exercises.
2. Final assessment to evaluate understanding and course evaluation.

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

Course code: (OGUP0105)