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## N608: Fundamentals of Well Completions and Workovers

Instructor(s): Michael Gallup / Idi Ishaya

Format and Duration

Classroom - 3 Days

Virtual - 5 Sessions

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### Summary

This course provides an introduction and overview of key considerations in well completion and workover design, and a fundamental explanation of well/service equipment and operations. Technical explanations of common practices are given, along with troubleshooting hints. Completions in a variety of settings, including HPHT, deepwater, and resource plays, are considered.

### Learning Outcomes

Participants will learn to:

1. Describe the fundamental concepts of well completions, including the completion design process.
2. Understand the differences between risk and uncertainty in petroleum engineering.
3. Recognize the factors that influence well performance and identify options to mitigate problems.
4. Identify the various types of stimulations and workovers.
5. Recognize the key components of well, workover, and intervention equipment.
6. Review stimulation and workover methods.
7. Discuss best practices for workovers and interventions.

### Training Method

This is a classroom or a virtual classroom course comprising lectures illustrated by examples, videos, and case studies.

### Who Should Attend

This course is intended for engineers, technologists, service personnel, and others involved directly or indirectly with the planning and programming of completion and workover operations.

### Prerequisites and Linking Courses

There are no prerequisites, although a familiarity with basic reservoir engineering principles would be beneficial.

To further develop learnings from this course, participants might consider N940 (Modern Completion and Production Techniques), N083 (Petrophysics and Formation Evaluation: Principles and Practice), N607 (Petroleum Engineering for Non-Engineers), N422 (Reservoir Engineering for Non-Reservoir Engineers), N316 (Petroleum Geology for Non Geologists) or N614 (Fundamentals of Directional Drilling).

### Course Content

#### Day 1 - Key Concepts

- Introduction
- Completion Design Process

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- Safety and Regulations
- Risk and Uncertainty
- Reservoirs and Fluids
- Fluid Hydrostatics
- Wellbore Overview
- Wellheads
- Downhole Completion Equipment

### Day 2 - Completion and Workover Design

- Well Performance Basics
- Well Testing Basics
- Materials and Corrosion
- Tubing and Thread Design Overview
- Well Intervention Planning
- Rig Overview
- Completion and Workover Fluids
- Formation Damage
- Perforating and Gun Performance

### Day 3 - Flow Assurance and Interventions

- Flow Assurance: Sand, Wax, and Hydrates
- Stimulation Basics
- Software Demonstration
- Cased Hole Logs
- Remedial Cementing Basics
- Wireline, Coiled Tubing, and Fishing
- Completions: HPHT, North Sea, Deepwater, Heavy Oil, Shale