BLACKBIRD FOR TRAINING

Well Testing and Pressure Transient Analysis

Toronto (Canada)

6 - 10 October 2025

www.blackbird-training.com

Well Testing and Pressure Transient Analysis

Code: OG28 From: 6 - 10 October 2025 City: Toronto (Canada) Fees: 5400 Pound

Introduction

The course first introduces the purpose of well testing and the basic methodology. The theory and fundamental equations, as well as various understanding analytical solutions are covered before introducing specific analysis techniques for homogeneous oil and gas reservoirs. Non-homogeneous situations and more advanced topics are also covered. Assumptions made in deriving equations and solutions and models used in test interpretation are stressed. Operational aspects are covered in terms of test design and use of specialised testing equipment. The course covers well test objectives and concepts; fluid flow equations and fundamental solutions; classical methods for drawdown and build-up analysis, bounded reservoirs, gas well testing, dual-porosity, hydraulic fractures, interference and pulse testing, test design.

Course Objectives

- Participants will learn various techniques of pressure transient analysis, part of the reservoir engineering discipline. The course will be based on a mathematical foundation of partial differential equations.
- Participants will use real field data and will gain the understanding of how such data is obtained in the field, including accuracy and limitations.
- The benefit of interdisciplinary team work at the work place is stressed.
- Participants will learn about well test design and the modern hardware used in the field.
- A number of technical papers will be handed out involving case histories and Participants will get an appreciation that the learning process never stops.
- Some of the case histories will point out risks involved in well testing and how best engineering practice will minimise such risks.

Course Outlines

Day 1: Well Testing Course Outline and Course Conduct

- Introduction.
- Overview.
- Theoretical Foundation.
- Derivation of Radial Diffusivity Equation: Group Exercise.

Day 2: Well and Near Well Effects

- Infinite Acting Reservoirs and Analysis.
- Infinite Acting Examples.
- Analysis of Pressure Build-up: Infinite Acting Reservoirs.
- Build-up Analysis: Tutorial - Problem 1.

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Day 3: Superposition Theory

- Theory for Bounded Reservoirs.
- Analysis for Bounded Reservoirs.
- Field Examples - Dai Hung and Timor Sea.
- Interference Test Analysis: Exercise 2 - Problem 2.

Day 4: Gas Well Test Formulation

- Gas Well Test Analysis.
- Well Test Design and Operations.
- Naturally Fractured Reservoirs Dual Porosity.
- Gas Well Test Analysis: Exercise 3 - Problem 3.
- Discussion on Testing Data, Reporting and Safety.

Day 5: Naturally Fractured Reservoirs: Examples

- Computer-aided Analysis.
- Layered Reservoirs.
- Hydraulically Fractured Wells.
- Start Assessment Tasks.
- Hydraulically Fractured Gas Wells: Examples.
- Introduction to Horizontal Well Tests.
- Introduction to Interference and Pulse Testing.

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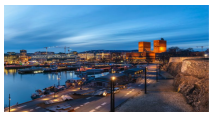
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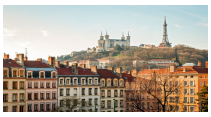
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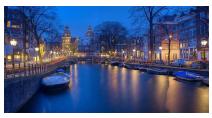
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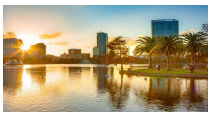
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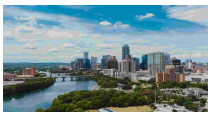
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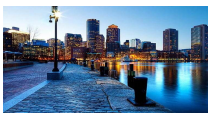
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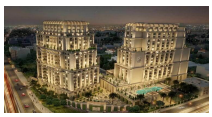
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