Datastat Research
Building Capacity in Training and Research

DATASTAT TRAINING IN

OFFICIAL COURSE PROSPECTUS

Center for Advanced Research & Professional Development

Nairobi Training Center • Global Virtual Academy • Corporate On-Site

OIL AND GAS

Tight Reservoir Engineering Training Course

Comprehensive Course Syllabus, Practical Modules & Upcoming Schedules

PROGRAM SPECIFICATIONS & HIGHLIGHTS

- **DURATION**
  5 Days Practical Hands-on
- **DELIVERY MODES**
  In-Person Class & Live Virtual
- **CERTIFICATION**
  Accredited Certificate of Completion
- **INTAKES / DATES**
  Multiple Cohort Schedules Included

PREPARED FOR:

Valued Participant

Email: training@datastatresearch.org | Issued: November 22, 2026

Academic & Professional Training Year: 2026

DATASTAT TRAINING INSTITUTE

P.O. Box 102802-00101, Nairobi, Kenya

Training Centers: Nairobi • Mombasa • Kigali • Dubai • Live Virtual Academy

Tel: +254 724 527 104 | +254 734 969 612

Email: training@datastatresearch.org

www.datastatresearch.org

Tight Reservoir Engineering Training Course

Oil and Gas • 5 Days Intensive • Accredited Certification

Course Overview

Tight Reservoir Engineering Training Course is designed to equip oil and gas professionals with advanced technical knowledge and practical skills for evaluating, developing, and optimizing tight oil and gas reservoirs.

Key Skills & Software Tools Covered

Tight Reservoir Modeling • Hydraulic Fracturing • Reservoir Simulation • Production Optimization

Upcoming Training Schedules

Confirmed cohort intakes and venues. Both physical in-person classroom and live virtual online seats are available.

TRAINING DATES	LOCATION / VENUE	FORMAT / DURATION	INVESTMENT (FEE)
19 Oct 2026 – 23 Oct 2026	Nairobi	Classroom / 5d	**$1,500 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Kigali	Classroom / 5d	**$3,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Dubai	Classroom / 5d	**$5,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Cape Town	Classroom / 5d	**$4,500 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Addis Ababa	Classroom / 5d	**$3,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Singapore	Classroom / 5d	**$5,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Istanbul	Classroom / 5d	**$5,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Bangkok	Classroom / 5d	**$5,000 USD / KES 110,000**
19 Oct 2026 – 23 Oct 2026	Accra	Classroom / 5d	**$4,000 USD / KES 110,000**
26 Oct 2026 – 30 Oct 2026	Nairobi	Classroom / 5d	**$1,500 USD / KES 110,000**
26 Oct 2026 – 30 Oct 2026	Kigali	Classroom / 5d	**$3,000 USD / KES 110,000**
26 Oct 2026 – 30 Oct 2026	Dubai	Classroom / 5d	**$5,000 USD / KES 110,000**

* Corporate discounts and customized cohort scheduling are available for teams of 3 or more participants.

Course Curriculum & Modules

Tight Reservoir Engineering Training Course

Introduction

Tight Reservoir Engineering Training Course is designed to equip oil and gas professionals with advanced technical knowledge and practical skills for evaluating, developing, and optimizing tight oil and gas reservoirs. As conventional hydrocarbon reserves become increasingly challenging to develop, tight reservoirs have emerged as an important source of unconventional energy resources. These formations typically exhibit ultra-low permeability, complex pore structures, limited natural flow capacity, and significant dependence on advanced stimulation technologies. This course explores the fundamental principles of tight reservoir characterization, petrophysical evaluation, reservoir simulation, unconventional resource assessment, and production optimization. Participants will gain a deeper understanding of tight sandstone, tight carbonate, and other low-permeability formations, including the geological, geomechanical, and fluid-flow mechanisms that influence hydrocarbon recovery.

The course further emphasizes the integration of advanced reservoir modelling, horizontal well design, hydraulic fracture optimization, production forecasting, and enhanced hydrocarbon recovery strategies. Through practical exercises, industry-based case studies, and engineering scenarios, participants will learn how to assess reservoir performance, interpret production data, evaluate fracture effectiveness, and improve ultimate recovery from unconventional assets. Key areas include stress-dependent permeability, multiphase flow in tight formations, fracture–matrix interaction, pressure depletion, well interference, and economic optimization of development strategies. Participants will also explore emerging technologies such as digital reservoir engineering, machine learning applications, real-time production surveillance, and integrated subsurface modelling. By the end of the training, learners will be better prepared to address complex reservoir challenges, reduce development uncertainties, improve capital efficiency, and support sustainable, data-driven decisions throughout the lifecycle of tight oil and gas projects.

Course Duration

5 days

Course Objectives

By the end of this course, participants should be able to:

- Explain the fundamental principles of tight reservoir engineering and unconventional hydrocarbon production.
- Evaluate tight reservoir properties using advanced petrophysical analysis and reservoir characterization techniques.
- Interpret geological, geophysical, and well-log data to identify high-quality tight reservoir zones.
- Assess porosity, permeability, pore-throat structure, and fluid saturation in low-permeability formations.
- Apply reservoir simulation and numerical modelling techniques to forecast tight oil and gas production.
- Understand hydraulic fracturing mechanisms and their influence on effective reservoir permeability.
- Optimize horizontal well placement, lateral length, and well spacing for unconventional field development.
- Analyze pressure-transient data and production diagnostics to evaluate reservoir connectivity and fracture performance.
- Evaluate stress-sensitive permeability, geomechanical effects, and fracture conductivity degradation.
- Develop production forecasts using decline curve analysis and unconventional reservoir performance models.
- Apply data analytics and machine learning concepts to improve reservoir surveillance and performance prediction.
- Assess enhanced oil recovery opportunities and strategies for improving hydrocarbon recovery from tight formations.
- Integrate technical, operational, environmental, and economic considerations into tight reservoir development optimization.

Target Audience

- Reservoir engineers working on tight oil and gas assets.
- Petroleum engineers involved in unconventional reservoir development.
- Geologists and geophysicists specializing in tight sandstone and carbonate formations.
- Production engineers responsible for well performance and optimization.
- Drilling and completion engineers involved in horizontal drilling and hydraulic fracturing.
- Reservoir simulation specialists and subsurface modelling professionals.
- Asset managers, field development planners, and petroleum project managers.
- Energy consultants, technical analysts, and professionals seeking expertise in unconventional reservoir engineering.

Course Modules

Module 1: Fundamentals of Tight Reservoir Engineering

- Definition, classification, and characteristics of tight oil and gas reservoirs.
- Differences between conventional, tight, and shale reservoirs.
- Fundamentals of low-permeability hydrocarbon flow and reservoir deliverability.
- Overview of tight sandstone, tight carbonate, and unconventional gas formations.
- Key development challenges, recovery mechanisms, and emerging engineering technologies.
- Case Study: Evaluate a tight sandstone reservoir with ultra-low permeability and determine the key technical barriers affecting commercial hydrocarbon production.

Module 2: Tight Reservoir Geology and Characterization

- Geological depositional environments and sedimentary controls on reservoir quality.
- Reservoir heterogeneity, mineral composition, and pore structure evaluation.
- Petrophysical interpretation of porosity, permeability, and water saturation.
- Integration of well logs, core analysis, and laboratory measurements.
- Identification of sweet spots and high-quality reservoir intervals.
- Case Study: Integrate core data and well-log interpretations to identify productive intervals within a heterogeneous tight gas reservoir.

Module 3: Petrophysics, Fluid Properties, and Rock Physics

- Advanced petrophysical evaluation of tight formations.
- Laboratory methods for measuring ultra-low permeability and effective porosity.
- Hydrocarbon phase behaviour and fluid properties under reservoir conditions.
- Relative permeability, capillary pressure, and multiphase flow behaviour.
- Effects of pore connectivity, wettability, and fluid distribution on recovery.

• Case Study: Assess the impact of pore structure and fluid properties on gas deliverability in a low-permeability reservoir.

Module 4: Geomechanics and Hydraulic Fracturing Fundamentals

• Fundamentals of in-situ stress, rock strength, and formation brittleness.

• Fracture initiation, propagation, geometry, and conductivity.

• Hydraulic fracturing design parameters and completion optimization.

• Stress-dependent permeability and fracture conductivity degradation.

• Fracture–matrix interaction and stimulated reservoir volume evaluation.

• Case Study: Compare alternative fracture designs for a tight oil reservoir and assess their effects on well productivity and recovery potential.

Module 5: Horizontal Well Design and Development Planning

• Horizontal drilling strategies for tight reservoir development.

• Lateral length optimization and productive interval selection.

• Well spacing, landing zones, and pad development configurations.

• Parent–child well interactions and fracture-driven communication.

• Integrated drilling, completion, and reservoir development planning.

• Case Study: Develop a horizontal well spacing strategy for a tight gas field while balancing reservoir drainage, interference risk, and capital expenditure.

Module 6: Reservoir Simulation and Production Forecasting

• Construction of tight reservoir simulation models and geological frameworks.

• Representation of hydraulic fractures and matrix–fracture flow.

• Numerical simulation of transient flow and pressure depletion.

• Production forecasting using decline curve analysis and rate-transient analysis.

• History matching, uncertainty analysis, and model calibration.

• Case Study: Build a conceptual simulation workflow to forecast production from a hydraulically fractured tight oil well under alternative operating scenarios.

Module 7: Production Optimization and Enhanced Recovery

• Production surveillance, well testing, and performance diagnostics.

• Optimization of drawdown, choke settings, and pressure management.

• Diagnosis of declining productivity and fracture-related performance issues.

• Evaluation of refracturing, infill drilling, and workover opportunities.

• Introduction to enhanced recovery approaches, including gas injection and other candidate EOR methods.

• Case Study: Investigate rapid production decline in a tight oil development and recommend interventions to improve recovery and asset performance.

Module 8: Digital Technologies, Economics, and Integrated Field Management

• Application of machine learning and predictive analytics to reservoir engineering.

• Real-time production monitoring and automated anomaly detection.

• Digital twins and integrated subsurface-to-surface modelling concepts.

• Economic evaluation, risk analysis, and uncertainty-based development planning.

• Environmental performance, emissions management, and lifecycle asset optimization.

• Case Study: Use production data and economic scenarios to prioritize tight reservoir development opportunities and select a technically robust, commercially viable field development plan.

Training Methodology

• Interactive lectures and presentations.

• Group discussions and brainstorming sessions.

• Hands-on exercises using real-world datasets.

• Role-playing and scenario-based simulations.

• Analysis of case studies to bridge theory and practice.

• Peer-to-peer learning and networking.

• Expert-led Q&A sessions.

• Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@datastatresearch.org or call +254724527104

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to DATASTAT CONSULTANCY LTD account, as indicated in the invoice so as to enable us prepare better for you.

Certification & Learning Methodology

- Hands-on practical delivery with real-world datasets, case studies, and lab exercises.
- Post-training mentorship, access to class resources, and customized follow-up support.
- Participants who successfully complete the course receive an accredited Datastat Certificate of Completion.

How to Enroll & Reserve Your Seat

1. Online Registration: Visit https://datastatresearch.org/courses/tight-reservoir-engineering-training-course to register online.
2. Email Booking: Send participant details to training@datastatresearch.org for official invoice & reservation.
3. Support & Assistance: Inquire via phone +254 724 527 104 | +254 734 969 612.