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

Cyclic Steam Stimulation (CSS) 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

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Cyclic Steam Stimulation (CSS) Engineering Training Course

Oil and Gas • 5 Days Intensive • Accredited Certification

Course Overview

Cyclic Steam Stimulation (CSS) Engineering Training Course provides a practical understanding of the complete CSS workflow, from reservoir characterization, thermal properties, well selection, steam generation, injection design, soak periods, and production forecasting to performance evaluation and optimization.

Key Skills & Software Tools Covered

Steam Injection • Thermal Recovery • 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)
12 Oct 2026 – 16 Oct 2026	Nairobi	Classroom / 5d	**$1,500 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Kigali	Classroom / 5d	**$3,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Dubai	Classroom / 5d	**$5,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Cape Town	Classroom / 5d	**$4,500 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Addis Ababa	Classroom / 5d	**$3,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Singapore	Classroom / 5d	**$5,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Istanbul	Classroom / 5d	**$5,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Bangkok	Classroom / 5d	**$5,000 USD / KES 110,000**
12 Oct 2026 – 16 Oct 2026	Accra	Classroom / 5d	**$4,000 USD / KES 110,000**
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**

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

Course Curriculum & Modules

Cyclic Steam Stimulation (CSS) Engineering Training Course

Introduction

Cyclic Steam Stimulation (CSS), also known as Huff-and-Puff, is a proven thermal enhanced oil recovery (EOR) technique used to improve production from heavy-oil and viscous-oil reservoirs. Cyclic Steam Stimulation (CSS) Engineering Training Course provides a practical understanding of the complete CSS workflow, from reservoir characterization, thermal properties, well selection, steam generation, injection design, soak periods, and production forecasting to performance evaluation and optimization. Participants will explore how steam injection reduces oil viscosity, improves mobility, increases reservoir pressure, and enhances recovery while addressing operational constraints such as heat losses, steam quality, well integrity, water management, and production decline.

The course integrates reservoir engineering, production engineering, thermal recovery, well engineering, process optimization, field surveillance, numerical simulation, and digital oilfield technologies to develop a practical CSS engineering framework. Through real-world case studies, field-development scenarios, engineering calculations, production-data interpretation, and technology-driven optimization, participants will learn how to evaluate CSS projects and make informed decisions that balance oil recovery, steam-oil ratio (SOR), energy efficiency, operating cost, emissions reduction, and asset profitability. Particular attention is given to data-driven decision-making, thermal reservoir simulation, AI-assisted production analytics, sustainability, carbon intensity reduction, and next-generation EOR strategies.

Course Duration

5 days

Course Objectives

By the end of the training, participants will be able to:

- 1Understand the fundamentals of Cyclic Steam Stimulation (CSS) and its role in thermal enhanced oil recovery (EOR).
- Evaluate reservoir screening criteria for heavy-oil and viscous-oil thermal recovery projects.
- Apply reservoir characterization techniques to identify suitable CSS candidates.
- Design steam injection cycles, including injection, soak, and production stages.
- Assess steam quality, injection pressure, temperature, heat losses, and steam distribution.
- Optimize well selection and completion strategies for CSS operations.
- Analyze production performance, decline trends, recovery factors, and steam-oil ratio (SOR).
- Apply reservoir surveillance and production-data analytics to improve CSS performance.
- Use thermal reservoir simulation concepts for CSS forecasting and optimization.
- Identify opportunities for digital oilfield, AI, machine learning, and predictive analytics applications.
- Evaluate energy efficiency, water management, operating costs, and carbon intensity in CSS projects.
- Diagnose common production, injection, well-integrity, and reservoir-performance problems.
- Develop integrated CSS optimization and field-development strategies that improve recovery and economic performance.

Target Audience

- Reservoir Engineers involved in thermal EOR and heavy-oil recovery.
- Production Engineers responsible for production optimization and surveillance.
- Drilling and Completion Engineers working on thermal-recovery wells.
- Petroleum Engineers involved in field development and asset optimization.
- EOR Specialists seeking advanced CSS engineering knowledge.
- Oil & Gas Operations Professionals
- Asset Managers and Field Development Teams
- Energy, Sustainability, and Technical Professionals

Training Modules

Module 1: Cyclic Steam Stimulation Fundamentals

- Principles of thermal EOR and CSS/Huff-and-Puff technology.
- Heavy-oil properties, viscosity reduction, and thermal mobility mechanisms.
- CSS lifecycle-steam injection.
- Key reservoir and operational parameters controlling CSS performance.
- Case Study: Evaluation of a heavy-oil reservoir to determine whether CSS is technically suitable.

Module 2: Reservoir Characterization for CSS

- Reservoir properties affecting thermal recovery and steam penetration.
- Porosity, permeability, saturation, pressure, temperature, and fluid properties.
- Understanding heterogeneity, fractures, barriers, and vertical communication.
- PVT and viscosity behavior under elevated temperature conditions.
- Case Study: Reservoir screening and candidate ranking using geological and petrophysical data.

Module 3: Steam Generation and Injection Engineering

- Steam-generation systems, boilers, water treatment, and steam distribution.
- Steam quality, enthalpy, pressure, temperature, and injection rates.
- Heat losses in surface facilities and wellbore systems.
- Steam allocation and injection-profile management.
- Case Study: Optimizing steam quality and injection parameters to improve thermal efficiency.

Module 4: CSS Well Design and Completion

- Well selection, spacing, completion configuration, and thermal considerations.
- Thermal well integrity, casing, tubing, cement, and completion materials.

- Injection and production constraints during repeated CSS cycles.
- Managing thermal expansion, mechanical stresses, and formation damage.
- Case Study: Designing a CSS well completion strategy for repeated high-temperature cycles.

Module 5: CSS Cycle Design and Production Optimization

- Designing optimal injection, soak, and production periods.
- Determining steam volume, injection rate, pressure, and cycle frequency.
- Production forecasting and identification of diminishing returns.
- Optimizing oil rate, cumulative recovery, and steam-oil ratio (SOR).
- Case Study: Redesigning CSS cycle parameters to increase production while reducing steam consumption.

Module 6: Reservoir Simulation and Digital CSS

- Introduction to thermal reservoir simulation for CSS forecasting.
- Modeling heat transfer, steam movement, pressure changes, and fluid mobility.
- History matching and uncertainty analysis.
- Applications of digital oilfield, AI, machine learning, and predictive analytics.
- Case Study: Using production and injection data to identify an optimized CSS operating scenario.

Module 7: CSS Surveillance, Troubleshooting, and Performance Evaluation

- Key performance indicators-SOR, cumulative oil, production rate, recovery factor, and energy efficiency.
- Pressure, temperature, injection, production, and well-test surveillance.
- Diagnosing poor steam distribution, excessive water production, and declining response.
- Identifying cycle-to-cycle performance deterioration and optimization opportunities.
- Case Study: Troubleshooting a declining CSS well using production and surveillance data.

Module 8: Economics, Sustainability, and Advanced CSS Optimization

- CSS economics-CAPEX, OPEX, steam costs, water requirements, and project profitability.
- Energy optimization and reduction of steam generation intensity.
- Carbon emissions, carbon intensity, water management, and decarbonization strategies.
- Integrating CSS with SAGD, solvent-assisted processes, hybrid EOR, and digital optimization.
- Case Study: Economic and environmental evaluation of an optimized CSS development program.

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/cyclic-steam-stimulation-css-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.