



DRILLING, WELLS AND RESERVOIR ENGINEERING

Reservoir Simulation and Dynamic Modelling

5 day course

Classroom, online or in-house

Course overview

A simulation model that matches history beautifully can still forecast nonsense if the match was forced through unrealistic multipliers. Good dynamic modelling means knowing what the numbers in the deck represent physically. Delegates begin with the finite difference formulation, grid types and numerical stability, then build a model from an upscaled geological grid, adding PVT, relative permeability, capillary pressure, initialisation and aquifers. Well models and production controls follow. History matching is treated as a disciplined process: parameter sensitivity, assisted matching and recognising non unique solutions. Prediction cases, development scenarios and probabilistic forecasting complete the workflow, with black oil and compositional formulations compared. Delegates leave able to build, run, history match and critically review a dynamic reservoir model.

What you will learn

- Explain finite difference formulation, grid design and numerical stability
- Assemble a simulation model from geological grid, fluid and rock function data
- Initialise a model and verify equilibrium and in place volumes
- Represent wells, completions and production constraints
- Conduct a structured history match and judge its credibility
- Run prediction cases for alternative development options
- Choose between black oil, compositional and dual porosity formulations
- Review third party simulation studies critically

Who should attend

- Reservoir engineers
- Simulation engineers
- Geomodellers handing over to dynamic work
- Asset managers relying on simulation forecasts
- Regulatory reviewers of field development studies

Course outline

- 01 Principles of numerical simulation
- 02 Grids and upscaled properties
- 03 Fluid and rock functions
- 04 Initialisation and equilibrium
- 05 Wells and production controls
- 06 History matching
- 07 Prediction and scenario analysis
- 08 Compositional and dual porosity models
- 09 Uncertainty and study review

Upcoming dates



Dates	Venue	Format	Fee per delegate
30 November to 4 December 2026	Johannesburg, South Africa	Classroom	R19,950
14 to 18 December 2026	Kigali, Rwanda	Classroom	USD 1,325
11 to 15 January 2027	Online	Online	R8,500
1 to 5 February 2027	Cape Town, South Africa	Classroom	R19,950

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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