

Reservoir Simulation Fundamentals for Non-Specialists

INTRODUCTION

- Reservoir simulation is the main tool used for making any investment decisions in any field development plan. It is an area in which computer applications and models are used to define the reservoir performance and expected production. Simply, reservoir simulation is used to identify any opportunity to increase oil or gas production.
- This highly interactive training course is outlined to help and support the non-reservoir engineers with the basic features of reservoir simulation engineering. The seminar illustrates gradually from the basic concepts of reservoir simulation and up to the special topics used for the simulation practices. Participants will have valuable knowledge on the role of reservoir simulation engineer and the way to conduct a simulation study. Furthermore, the training course covers the importance of reservoir simulation in a company and overall oil industry and highlights the benefits of conducting a simulation study.

Participants on the Reservoir Simulation Fundamentals for Non-Specialists training course will develop their knowledge on the following key points:

- Definitions of reservoir and reservoir simulation engineering
- Role of reservoir simulation engineer
- Importance of reservoir simulation
- Basic concepts of reservoir simulation
- Key factors to run a reservoir simulation study
- Some special topics in reservoir simulation (e.g. Enhanced Oil Recovery)
- Different actual field case studies

PROGRAMME OBJECTIVES

Attendance to Reservoir Simulation Fundamentals for Non-Specialists training course will enable participants to be:

- Aware of the role of reservoir simulation Engineer
- Understand the importance of reservoir simulation
- Gain more knowledge on fundamentals of reservoir simulation
- Get an overview on the way to conduct a simulation study
- Get sufficient knowledge through different reservoir simulation case studies

WHO SHOULD ATTEND?

The Reservoir Simulation Fundamentals for Non-Specialists training seminar is suitable for:

- Non-Technical staff involved in oil industry
- Supporting Technical staff working with reservoir engineers
- Team Leaders involved in oil industry
- Junior Reservoir Engineers
- Petroleum Engineers
- Field / Production Engineers
- Facilities / Process Engineers
- Junior development / exploitation Engineers
- Geoscientists / Petrophysicists
- Technologists
- Those who want to have more knowledge on reservoir simulation engineering

TRAINING METHODOLOGY

- The Reservoir Simulation Fundamentals for Non-Specialists training seminar will combine technical presentations, extensive discussion and different actual field case studies supported by video materials to ensure that all participants will be ready to use their new knowledge.

PROGRAMME SUMMARY

- This training course on Reservoir Simulation Fundamentals for Non-Specialists adopts an easy approach to enhance the knowledge of all participants and bring them quickly to the concepts, methodology and importance of reservoir simulation engineering in the overall oil industry.

PROGRAM OUTLINE

Overview of Reservoir Engineering

- What is the Reservoir Engineering?
- Role and importance of Reservoir Engineer
- Reservoir Drive Mechanisms
- Reservoir Main Rock and Fluid Properties
- Initial Oil in Place and Reserve Calculations
- Reservoir Performance
- Overall Producing Well Performance
- Reservoir Life Cycle
- Recovery Methods

Reservoir Simulation

- What is the Reservoir Simulation?
- Importance of Reservoir Simulation
- Reservoir Simulation Concepts
- Reservoir Simulation Model
- Modelling overview
- Input / output data

How to Conduct the Simulation Study?

- What is the simulation Model Run?
- Methodology to run the simulation model
- Reservoir Initial Conditions
- History Match Concept
- Parameters required for History Match
- Reservoir Simulation Prediction

Enhanced Oil Recovery (EOR)

- EOR Definition and Concept
- EOR Different Types
- Compositional Simulation Model
- Fluid Characterization Modelling
- Preparing EOR Simulation Model
- Simulation Output

Field Case Studies

- Case Study – Field Development Plan
- Case Study – Reservoir Simulation for Oil reservoir
- Case Study – Reservoir Simulation for Gas reservoir
- Case Study – Enhanced oil recovery simulation study