

Course Description

Basics of Reservoir Engineering

Summary

The course “Basics of Reservoir Engineering” discusses the principles of the extraction of oil and gas from subsurface formations. Topics are:

1. Geophysics, geology and petrophysics
2. Types of reservoirs
3. Properties of reservoir fluids (oil, water and gas)
4. Material balance
5. Flow of oil and gas
6. Field development (incl. production forecasting)
7. Production
8. Well testing
9. Enhanced Oil Recovery (EOR)
10. Economics
11. Project management

The course starts with geophysics, geology and petrophysics in order to position the reservoir engineering discipline in an integrated team. The interaction with other disciplines is critical for correct reservoir engineering practices. After this introduction phase, technical topics will be discussed in detail. These include PVT behaviour of fluids, relative permeability, capillary pressure, composition, etc.

Significant attention will be paid to the practical application of reservoir engineering in order to learn how the theory can be applied to real field situations.

At the end of this training event, participants will at least be able to:

- name the essential input data for reservoir engineering practices
- describe the different types of reservoirs
- set-up a material balance
- calculate well performance
- make a production forecast and the role of simulations
- describe well testing and make a basic interpretation
- describe the role of reservoir engineering in field development and carry out basic economics

B-PES Botermans Petroleum Engineering Services

The course is set-up for geoscientists and engineers working in subsurface teams:

- Geophysicists
- Geologists
- Petrophysicists
- Reservoir Engineers
- Production technologists
- Drilling engineers
- Project managers
- Any other interested parties

The course can be adjusted according to the specific wishes of the client. For example, the technical content can be adjusted which makes the course suitable for government officials investors and bank employees who need to know more about the activities of their business partners.

Learning Level:

This training event is designed to achieve an Understand and Apply level.

Classroom requirements

The following equipment is required in the classroom: a beamer, flipchart, and/or white board.

Exercises & exam

During the course examples and exercises will be presented.

At the end there will be a final exam. Purpose is to rehearse the presented material and be able to find the information that is required to answer simple E&P questions.

Evaluation

A course evaluation form will be presented in order to allow future improvement of the course.

Training Course Modules:

Module	Description
1 Introduction 1 day	Geophysics, geology and petrophysics, integrated team construction and roles & responsibilities of the reservoir engineer.
Material balance & flow in reservoirs 2 day	Properties of reservoir fluids (oil, water and gas) Material balance Flow of oil and gas Relative permeability Capillary pressure
Field development & production testing 1 day	Field development Simulations Production Well testing
EOR, economics and project management 1 day	Enhanced Oil Recovery (EOR) Economics Project management

Total duration	Min. 3 days - Max. 5 days
Number of Participants	t.b.d.
Location	t.b.d.
Pre-Study	No
Pre-Course Assessment	No
Evening Work	No

About the Lecturer



Name: Cornelis Wouter Botermans

Educational Background:

Delft University of Technology, MSc. Petroleum Engineering (1996)

Professional Background:

Wouter Botermans has worked for Halliburton, Shell, BP, TAQA and Tulip Oil in the role of reservoir engineering, production technologist and field development lead. He was responsible for the integrated optimization of well, reservoir and system performance and for the development plan of the largest gas storage in Europe. In his role as development lead with Tulip Oil he was involved in the evaluation of numerous opportunities and the composition of development plans, portfolio management and economics. Currently Botermans is freelance petroleum engineer focusing on recovery and productivity optimization, training and consultancy.

Personal Motivation to Lecture:

It is very rewarding and motivating to deliver a solid proposal for any development plan or well intervention that is composed and supported by the team. The recognition of the importance of the contribution of every discipline in the E&P process will provide the basis of successful execution and operation to create value for the organization. In my role as petroleum engineer, I had the pleasure to work with many people on numerous topics crossing discipline borders and creating mutual understanding of the subsurface and expectations.

Mr. Botermans is married and has 3 children. His main hobbies are sports, photography and cars.

Address: Claudiuslaan 6
3453 KL De Meern
The Netherlands

Email: Wouter.Botermans@B-PES.nl
Tel.: +31 (0) 653557764