

# DYNAMIC RESERVOIR SIMULATION (MODULE VI)

Reservoir Engineering

E- 380

## OBJECTIVES

Participants acquire a thorough understanding of reservoir simulation principles and of data formatting for reservoir simulation.

At the end of the course, they are able to:

- prepare data sets for reservoir simulation
- perform a standard reservoir simulation study
- communicate easily with production engineers, geoscientists and asset managers

### ▲ Who should attend?

Reservoir engineers,  
geologists and geophysicists  
with some field experience

## COURSE CONTENT

|  |                 |
|--|-----------------|
| <b>INTRODUCTION TO SIMULATION</b>  | <b>1 day</b>    |
| Physical and numerical aspects<br>Flow equations, numerical modeling<br>Types of reservoir simulation models: Black oil, compositional, thermal, chemical and double porosity model  |                 |
| <b>FROM GEOLOGY TO DYNAMIC RESERVOIR MODEL</b>   | <b>1 day</b>    |
| Accurate grid selection (Cartesian grid, corner point grid, hybrid grids, etc.)<br>Layering<br>Upscaling procedure<br>Petrophysical upscaling<br>Vertical equilibrium approach<br>Kyte and Berry approach  |                 |
| <b>PETROPHYSICS</b>  | <b>0.5 day</b>  |
| End points definitions<br>Use of capillary pressure in the simulator<br>Formalisms used by the simulator<br>Normalized capillary pressure and relatives permeabilities<br>Three phase relatives permeabilities                                       |                 |
| <b>PVT DATA</b>  | <b>0.5 day</b>  |
| Laboratory data: differential depletion, constant volume depletion<br>Compositional data<br>Water properties<br>Initial distribution<br>Black oil PVT data set   |                 |
| <b>PRODUCTION AND WELL DATA</b>  | <b>1 day</b>    |
| Historical well rates<br>GOR and FW measurements<br>Static Pressure & Bottom Hole Flowing Pressure (BHFP)<br>Well tests data (PI, skin)<br>Numerical PI<br>Well type and well constraints<br>Perforated and productive layers<br>Management routines |                 |
| <b>RESERVOIR SIMULATION METHODOLOGY</b>  | <b>1 day</b>    |
| History match<br>- Data to match<br>- Limitations<br>- History matching strategies<br>- Type of Aquifers<br>Prediction case<br>- Complementary developments: infill wells, side-tracks, work-over, fluid injection, etc                              |                 |
| <b>PRACTICE ON A MULTIPURPOSE SOFTWARE PACKAGE (ECLIPSE)</b>   | <b>3.5 days</b> |
| Practical exercises<br>Field case studies  |                 |
| <b>FIELD DEVELOPMENT(ECLIPSE)</b>  | <b>1.5 days</b> |
| Practical exercises after the history matching: production forecastField case studies  |                 |

### ▲ Duration

**10 days**

### ▲ Dates & Location

**November 24 to  
December 05, 2008**

Rueil-Malmaison (Paris)

### ▲ Tuition Fees

**€ 3,950**

### ▲ Course Coordinator

**Gérard GLOTIN**

Ref. **GIS / RESSIMU**

