Course review:

This course provides a full workflow for constructing a reservoir simulation model using commercial software. The course will cover different input data for reservoir modelling such as fluid properties, rock properties, well information, etc. The concept of reservoir history matching will be introduced and practiced through various examples. The main challenges of history matching will be discussed and some practical solutions will be introduced for them.

Main topics:

- Fundamental of reservoir simulation model:
  - A review for flow equations in the reservoir
  - Available analytical and numerical approaches to solve flow equations
  - Black oil versus compositional fluid description in reservoir simulators
  - Phase behaviour and fluid property modelling
  - Petrophysical input data for reservoir simulation

- Practical examples using Reveal
  - Data preparation
  - Grid construction
  - Black oil fluid description data: Introduction to PVTp software
  - Compositional fluid description data
  - Relative permeability data
  - Initialisation of the model
  - Well description
  - Analysing result and visualization

- History matching and forecasting using manual and automatic methods
  - Introduction to reservoir history matching and forecasting
  - The differences between manual and automatic/assisted history matching
  - Different automatic methods
  - Choosing the most important parameters to update
  - Choosing uncertain regions in the reservoir
  - Introduction to MBAL software
  - Tutorial for history matching a reservoir model with MBAL
  - Uncertainty analysis of the history matching results

- Some more examples
  - Grid refinement concept
  - Water chemistry in the simulation model
  - Permeability reduction
  - Surfactant
  - Gel injection
  - Asphaltene

Course duration and cost:

This course covers a wide range of topics and examples; therefore the time required to cover all the above topics strongly depends on the previous experience of individual participant. We suggest 1 month, but can allow for flexibility. Please contact us if you are interested in this course and we would be happy to tailor the course based on your interests/requirements.

Contact: Please email us at info@hydrafact.com

Certificate:

A certificate will be provided by Hydrafact at the end of the course.