IRM - Integrated Reservoir Management

45 days
Overview

LEVEL
Skilled

PURPOSE
This course provides, through a multidisciplinary approach, an in-depth understanding of key concepts and mechanisms of reservoir development and management, from exploration and field development to field operations and enhanced oil recovery.

LEARNING OBJECTIVES
Upon completion of the course, participants will be able to:
discuss the workflow for developing and managing Oil & Gas fields,
discuss and apply best practices for developing and managing Oil & Gas fields through hands-on workshops and case studies,
maximize value creation of Oil & Gas assets by optimizing technical and economic resources while taking into account uncertainties.

WAYS AND MEANS
Highly interactive course with actual case studies.
Animation by E&P senior experienced lecturers.
A field trip in Wessex (England) followed by two weeks course in Imperial College (London) focused on field development optimization.
A condensate gas reservoir integrated project focused on integrated production management and related tools.
A final project focused on an FDP optimization including uncertainties assessment with a presentation to a jury.
Software used during workshops: with courtesy of Beicip-Franlab, Kappa Engineering and Schlumberger.

PREREQUISITES
Degree in geoscience, reservoir engineering, petroleum engineering or E&P project management.

MORE INFO
Accommodation and transportation costs are not included in the fee. Logistics can be organized by IFP training. A specific brochure for this program is available on request.

Agenda

RESERVOIR ENGINEERING & FIELD DEVELOPMENT FUNDAMENTALS (IFP TRAINING)
Production geology.
Petrophysics: rock properties (porosity, saturation, permeability) and their interactions with fluids.
Well logging and well log interpretation.
Fluid properties: PVT oil, gas and water.
Wellbore interface and wellbore treatment. Well performance.
Well testing and well test analysis.
Drive mechanisms:
Primary recovery: natural depletion of Oil & Gas fields related performance.
Secondary recovery: immiscible water and gas injection in oil fields and related performance.
Enhanced Oil Recovery: miscible gas injection, chemical flooding or thermal process.
Reserves evaluation and classification.
Risks and uncertainties assessment.
Development project & planning. Decision making process.
E&P economics & contracts. Economical criteria.

FIELD CASE STUDY (IMPERIAL COLLEGE)
Development and application of a reservoir simulation model for reservoir management, including upscaling, history matching, and reservoir performance prediction, field development planning and simple economic analysis.
UK field development project.
Field trip to the Wessex basin.
Group-based computer-aided exercise covering the development and monitoring of a large oil field.
Data analysis, development of a reservoir simulation model, including upscaling and history matching. Application of model to identify an optimum field development plan with simple economic evaluation.

RESERVOIR MANAGEMENT FUNDAMENTALS & FIELD CASE STUDIES (IFP TRAINING)
Production logging.
Time-lapse seismic.
Decline curve analysis.
Special case of unconventional reservoirs.
Condensate gas reservoir development:
Reminders about gas reservoirs.
Reservoir performance modeling and optimization.
Well performance.
Integrated production modeling and optimization using IPM™ suite industrial software.
Offshore oil reservoir development:
Data QC.
Estimate of accumulation.
Drive mechanisms identification and assessment.
Optimization of wells location while taking into account technical and economic constraints (production flowrates, workover, platform/subsea wells, surface fluids treatment/management etc.).
Optimization of injection flowrates and cycling periods (option).
Uncertainties assessment.
Conclusions and FDP recommendation.