An Introduction to Field Development Plan (FDP)

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Introduction:

Investors set oil company valuations in part on the company's ability to design and execute credible field development plans. As a result, oil and gas company management is under increasing pressure from investors to translate discoveries into cash flow as quickly as possible. On the other hand, growing field complexity in many parts of the world has made field development plans (FDPs) increasingly difficult to formulate and execute.

Industry studies have shown that FDPs routinely over-estimate field production rates and ultimate recovery due to causes ranging from poor initial characterization of the reservoir to not fully integrating available development technologies.

Objectives:

By the end of this course, delegates will be able to:

- Understand how to have an integrated view of the hydrocarbon production system, identifying its uncertainties and opportunities
- Know the concept and elements of front-end-loading (FEL)
- Know the concept and elements of decision scenario optimization (DSO)
- Learn about integrated asset modeling (IAM)
- Identify the elements of a field development plan and production operations, and how the FEL methodology can be applied in real life projects

- Understand the drivers to execute such methodologies
- Understand the differences with integrated studies and reservoir characterization
- Identify the need for uncertainty analysis, correlation analysis, Tornado Charts, Montecarlo simulation, optimization, and optimization under uncertainty
- Use the basic techniques required

Who should attend?

Geologists, Geophysicists, Reservoir Engineers, Production Engineers, Petro physicists, Petroleum Engineers, Drilling Engineers, Field Development Engineers, Managers, Asset Managers, Oil & Gas Engineers, Reservoir Operators, Surveillance Engineers, Technicians, Engineering Trainees, Technical Managers, Technical Assistants, Technicians, Chemists, Physicists, Technical Supervisors, Service Company Personnel responsible for improving the performance of petroleum reservoirs

Course Outline:

- Introduction to field developing planning.
- What is field development? Field development processes and decisions.
- Optimization in field development.
- Petroleum field development risk and uncertainty.
- Uncertainty, processes impacting decision making.

- Inferential statistics: Histograms and Distributions.
- Risk analysis with Stochastic Simulations.
- Uncertainty quantification by stochastic simulation (Monte Carlo)
- Sensitivity diagrams vs. Tornado plot; risk vs. uncertainty.

- Front-End-Loading for field development.
- FEL (Front-End-Loading) concepts.
- FEL-Visualization & FEL-Conceptualization related tasks.
- Uncertainty processes impacting decision making (multidisciplinary approach)
- Decision Scenario Optimization (DSO)
- Uncertainty and decision making evaluation from integrated profit models.
- Exercises: optimal well number and location, optimal field development by IAM.
- History match.
- Uncertainty analysis and history match assisted by technology.