

FUNDAMENTALS OF FIELD DEVELOPMENT PLANNING

RSE030

COURSE OVERVIEW

This course provides the knowledge, methodology and tools to develop field development schemes and strategies. Starting with collecting information and assessing the need for additional data, the course will cover all the topics of processes required to develop a field, environmental impact, geophysics, geology, reservoir and production engineering, infrastructure, well design and construction, completion design, surface facilities, and economics and risk assessment.

COURSE OBJECTIVES

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

- Develop comprehensive field development schemes and strategies.
- Conduct environmental impact assessments and apply geophysical and geological analysis.
- Utilize risk and uncertainty analysis techniques in field development planning.
- Evaluate and interpret seismic data, logs, and core analysis for reservoir characterization.
- Apply reservoir modeling and simulation methods to optimize development strategies.
- Design surface facilities, plan well sequencing, and manage uncertainties in field development.
- Perform project economics and commercial evaluation for decision-making.
- Understand different stages of field life cycle and select appropriate development options.
- Collaborate effectively within an integrated professional team.

WHO SHOULD ATTEND

- Reservoir Engineers
- Petroleum Engineers
- Geoscientists
- Field Engineers
- All individuals involved in the area of appraisal and development

COURSE DURATION

5 Working Days

COURSE OUTLINES

- Pre course evaluation.
- Introduction to Field Development Planning
- Field Life Cycle
- Exploration and Appraisal

- Made a Discovery – What is Next?
 - Log Evaluation
 - Mapping and Volumetrics
 - Risk and Uncertainty Analysis
- Need Appraisal – What to do?
 - Value of Information
 - Define Big (gest) Uncertainties
 - Seismic, Drilling, or
- Project Processes (Decision Gates)
 - Project Development and Selection Process
 - Other Companies – A Quick Comparison
- Project Failures (Why?)
- Project Stakeholders
- People, Skills, and Resources
- Integrated Professional Team
- Field Development Planning Workflow
- Risk Management and Risk Register
 - Objectives
 - Possible Alternate Outcomes
 - Seismic Data
 - Structural Framework
 - Depositional Environment – Facies Modeling
 - Property Modeling
 - Log Evaluation
 - Core Analysis (Routine – Special)
 - Geophysics Insights Static Reservoir Mode
 - Well Test Analysis
- Static Reservoir Model
 - Fluid Properties and Initial Reservoir Pressure
 - Uncertainties and their Ranges
 - Volumetrics and Monte Carlo Simulation
 - Volumetrics Cases (Probabilistic / Deterministic)
 - Development Alternatives
 - Drive Mechanisms
 - Surface Facilities (Top structure type and location)
 - Wells (No, placement, phasing, type, and completion)

- Dynamic Reservoir Model
 - Objectives
 - Is Simulation Necessary – Why?
 - Upscaling
 - Calibrating
 - Wells Modeling
 - Surface Facilities Sizing
 - Production Development (Well Sequencing)
 - Performance Prediction
- Capturing Reservoir Uncertainties and Development Decisions
 - Sensitivity Analysis
 - Experimental Design
 - Neural Network
- Reservoir Management
 - Reservoir Monitoring and Surveillance
 - Managing Production Decline
 - Wells Interventions and Workovers
 - Facilities Maintenance and Upgrade
- Project Economics
- Production Contracts and Licenses
- Project Scheduling and Estimating Expenditures
 - Commercial Evaluation (Cash Flow and Discounted Cash Flow)
 - Economic Measures
 - Expenditures and Revenues Uncertainties and Contingencies
- Reserves Progression through Development Planning
- Different Reserves and Resources Classification Systems
- Proved Reserves
- Decision Drivers
 - Economic
 - Strategic Fit
 - Contractual Obligations
 - Available Assets and Resources
 - Partner Interests
 - Others ...

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- Developments at Different Stages of Field Life Cycle
 - Green Field Development
 - Field Compartments Development
 - Giant Field Phases
 - Field Redevelopments
 - Water Flooding / Gas Injection
 - EOR/IOR
- Post course evaluation.

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