



Integrated Field Development Planning

Course: Subsurface to Wells, Facilities and FDP



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Introduction:

Integrated field development planning, from subsurface to wells, facilities and the FDP, is a 10-day course for reservoir, petroleum, drilling, facilities and planning engineers and asset team leads that ends with an integrated FDP for a case onshore field. Development plans lose value when subsurface ranges, well plans, surface capacity and economics are prepared in separate silos and reconciled only at the decision gate. Nominees already contribute to appraisal or development studies, and the course is taught as a modelling build in which teams link production profiles, well schedules, facility sizing and cash flow. CoreConcept Training Center delivers this integrated field development planning course.

Course Objectives:

- Frame a field development opportunity within FEL decision gates using a decision hierarchy, a strategy table and an integrated team charter
- Translate subsurface uncertainty, static and dynamic model outputs and analogue data into low, mid and high development cases
- Screen depletion, pressure maintenance, IOR and EOR options and convert them into scenario production profiles
- Plan well numbers, well types, drilling sequence and artificial lift against plateau and recovery targets
- Size surface facilities, export routes and phased or early production options from the production forecasts
- Evaluate scenarios on cost, schedule, NPV, breakeven, risk and PRMS reserves links and document the selected plan in an FDP for partners and authorities

Target Audience:

- Reservoir and petroleum engineering functions responsible for in-place ranges, recovery forecasts and production profiles
 - Geoscience functions that supply structural, rock and fluid inputs to development studies
 - Drilling and well engineering functions responsible for well concepts, well numbers and drilling schedules
 - Facilities and production engineering functions responsible for gathering, processing, injection and export capacity
 - Planning, cost and economics functions that prepare development estimates, schedules and investment cases
 - Asset team leads who coordinate the disciplines and present development plans for approval
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Course Outline:

Day 1: FDP Process, Decision Gates and Integrated Team Set-Up

- FEL Stage-Gate Sequence Applied to Field Development Planning
- FDP Scope Statement, Development Objectives and Decision Hierarchy
- Integrated Asset Team Charter, Interfaces and RACI Matrix
- Appraisal Data Inventory and Information Gap Register
- Strategy Table for Framing Field Development Alternatives

Day 2: Subsurface Characterisation and Uncertainty for Development Decisions

- Structural Map, Fluid Contacts and Gross Rock Volume Ranges
- Reservoir Rock Typing Inputs Needed by Development Planners
- Fluid Sampling Results and Fluid Model Selection Checklist
- Uncertainty Matrix of Static and Dynamic Reservoir Parameters
- Low, Mid and High Subsurface Realisations for Planning

Day 3: Static and Dynamic Models at Planning Level

- Static Geological Model Fit-for-Purpose Review Criteria
- Sector Models and Coarse Full-Field Simulation for Screening
- Experimental Design and Proxy Models for Forecast Ranges
- Analogue Field Databases and Type Curve Benchmarks
- Model Handover Log Between Subsurface and Surface Teams

Day 4: Recovery Mechanisms and IOR and EOR Screening

- Natural Drive Mechanism Identification for Depletion Planning
- Water and Gas Injection Pressure Maintenance Options Compared
- Thermal, Gas Injection and Chemical EOR Screening Criteria
- Pilot Design Logic for IOR and EOR Candidates
- Recovery Factor Range Table by Development Option

Day 5: Guided Case Study on Development Scenarios and Production Profiles

- Development Scenario Matrix Combining Recovery and Well Options
 - Plateau Rate, Build-Up Period and Decline Profile Construction
 - Water, Gas and Liquid Handling Forecasts per Scenario
 - Probabilistic Production Forecast Envelopes for Each Scenario
 - Week-One Case Review of the Subsurface Development Basis
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Day 6: Well Numbers, Well Types and the Drilling Plan

- Well Count Optimisation Against Plateau Target and Recovery
- Vertical, Deviated, Horizontal and Multilateral Well Type Selection
- Well Spacing, Pad Layout and Drilling Sequence Planning
- Artificial Lift Method Selection at Field Planning Level
- Rig Count, Drilling Schedule and Well Cost Curves

Day 7: Surface Facilities Options and Export Routes

- Onshore Gathering Network, Flowlines and Manifold Station Layout
- Central Processing Facility Capacity Sizing From Production Profiles
- Water Injection Plant and Produced Water Disposal Options
- Offshore Development Options Summarised at Overview Level
- Export Pipeline, Trucking and Storage Terminal Route Options

Day 8: Phased Development, Early Production, Cost and Schedule

- Early Production Facility Options and Extended Well Testing
- Phased Development Sequencing and Capacity Debottlenecking Steps
- Capex and Opex Estimate Build With Accuracy Ranges
- Integrated Development Schedule and Critical Path to First Production
- Abandonment Cost Allowance and Late-Life Planning Assumptions

Day 9: Economics, Risk, Reserves Link and FDP Documentation

- Project NPV, IRR and Breakeven Oil Price Indicators
- Decision Tree Analysis of Phasing and Appraisal Options
- Development Risk Register and Uncertainty Mitigation Plan
- PRMS Project Maturity Link to Reserves Booking
- FDP Document Structure for Partners and Authorities

Day 10: Capstone Modelling Build of an Integrated FDP for a Case Onshore Field

- Case Onshore Field Data Pack and Team Role Allocation
 - Integrated Subsurface to Surface Scenario Selection Exercise
 - Well, Facilities and Phasing Plan Assembly for the Case
 - Economics and Risk Summary Chapter Drafting
 - Integrated FDP Presentation and Peer Challenge Completion
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Skills You Will Gain:

- Development Decision Framing
- Subsurface Uncertainty Ranging
- Recovery Option Screening
- Production Profile Forecasting
- Drilling Programme Sequencing
- Surface Capacity Sizing
- Development Cost and Schedule Estimating
- Integrated Scenario Valuation

Why Attend This Course:

- Deliver an integrated FDP for a case onshore field to the asset manager, partner representatives and the investment committee
- Decide which development scenario, well plan and phasing option to carry forward, with stated recovery and value ranges
- Avoid late redesign of wells and facilities caused by production profiles that were never reconciled with surface capacity
- Share the scenario matrix, profile templates and FDP chapter structure with colleagues in subsurface, wells and facilities teams

Conclusion:

Back at work, the participant gives the integrated FDP to the asset manager, the partners and the investment committee, who use it to select the development scenario, approve the well and facility plan and fund the first phase. The planning team then uses the same scenario matrix and profile envelopes to update the plan as appraisal and early production data arrive. After the first decision gate, the asset should review how closely forecasts, well costs and facility capacity matched actual results and refine the uncertainty ranges for the next phase.

Frequently Asked Questions FAQ:

What should participants know before the integrated field development planning course?

Participants should already work on appraisal, development or production studies in one discipline, such as reservoir, wells, facilities or planning. Familiarity with production forecasts and basic economics helps. Bringing anonymised field data or an earlier plan lets them test the methods on their own asset.

How does integrated field development planning differ from an offshore concept selection or reservoir engineering course?

It joins every discipline into one plan for a field, centred on an onshore case, from subsurface ranges to wells, facilities, phasing, economics and the FDP document. Offshore host selection and reservoir engineering theory appear only at overview level here.

Why do integrated field development planning teams carry low, mid and high cases?

A single deterministic forecast hides the range of recoverable volumes and well performance. Carrying low, mid and high cases through wells, facility sizing and economics shows how robust each scenario is, where capacity is over or under built, and which data would reduce the risk.

What do participants take back from the integrated field development planning course?

Participants take back an integrated FDP for a case onshore field with a scenario matrix, production profile envelopes, a well and drilling plan, facility sizing notes, a cost and schedule estimate, an economics and risk summary and an FDP chapter structure.
