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# Upstream Oil and Gas Essentials: Wells, Reserves and Field Development Training Course

26 – 30 July 2027  
Cape town





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### Programme Summary

Upstream oil and gas essentials is the subject of this one-week training course for directors, vice presidents and heads of function, ending in a field development briefing for one asset. Operations, finance and commercial leaders often approve wells, reserves and development spend without shared technical vocabulary. The programme moves from the petroleum system and exploration, through wells and production, to reserves and development choices, then to application on one asset case. Mars Training Centre UK delivers this upstream oil and gas essentials programme for mixed oil and gas and government cohorts.

### The Business Case

Upstream decisions commit capital for decades, yet many of the people who approve them have never been shown how a prospect becomes a producing field. Finance leaders question reserves figures they cannot trace, and commercial teams negotiate without seeing the subsurface risk. Shared working knowledge of wells, reserves and field development lets these functions challenge proposals early and agree what evidence a decision needs.

- Capital Allocation Quality: Improves as spending proposals are tested against subsurface uncertainty and well performance.
- Reserves Reporting Confidence: Strengthens as finance and commercial leaders trace booked volumes to their technical basis.
- Cross-Functional Decision Time: Falls as functions share one vocabulary and stop reopening basic technical points.

### Principles and Evidence Base

- SPE Petroleum Resources Management System: Its resource classes frame Session 3.
- Reserves categories 1P, 2P and 3P: They structure ranges and uncertainty in Sessions 3 and 5.
- The petroleum system concept: It organises prospect screening in Session 1.
- The upstream value cycle from exploration to decommissioning: It sequences the programme and underpins Session 4.



## Intended Participants

- Directors who approve upstream spending.
- Finance leaders who report or challenge reserves figures.
- Commercial heads who negotiate partnerships linked to field output.
- Operations leaders who inherit wells and production plans.
- Government and national oil company stakeholders who oversee upstream work.

Typical functions include finance, commercial, legal, operations and energy oversight.

## Learning Outcomes

1. Participants will be able to diagnose the elements of a petroleum system that make a prospect worth drilling.
2. Participants will be able to evaluate drilling, completion and production data to judge how well a well performs.
3. Participants will be able to interpret reserves and resources statements using 1P, 2P and 3P ranges.
4. Participants will be able to construct a comparison of field development options by risk, cost and schedule.
5. Participants will be able to prioritise the technical questions that investment decisions depend on.
6. Participants will be able to justify a field development briefing to a mixed technical and commercial audience.

## Programme Structure

### Day 1: Upstream Oil and Gas Essentials and the Petroleum System

How does a petroleum system create an accumulation worth drilling?

- Upstream Value Cycle Map
- Petroleum System Elements Chart
- Source, Reservoir and Seal Sketch
- Basin to Prospect Screening Matrix
- Exploration Chance Factor Sheet

### Day 2: Reading Wells, Drilling and Production Performance

What do drilling and production data reveal about a well and its value?

- Well Construction and Casing Diagram
- Drilling Time and Cost Curve
- Completion Options Comparison
- Production Decline Curve Reading
- Well Test and Productivity Summary



## Day 3: Oil and Gas Reserves and Resources Classification

How are volumes classified, and what sits behind a reserves number?

- Resource Class Ladder
- 1P, 2P and 3P Range Reading
- Volumetric Estimate Walkthrough
- Reserves Reconciliation Question List
- Contingent Versus Prospective Resource Test

## Day 4: Field Development Options and Decommissioning Planning

Which development concept fits the reservoir, the economics and the risk?

- Development Concept Screening Table
- Facilities and Export Route Options
- Phased Development and Plateau Profile
- Cost and Schedule Risk Register
- Decommissioning Liability Outline

## Day 5: Applying Upstream Oil and Gas Essentials to One Asset

Does the asset briefing hold up when tested against every earlier session?

- Applying the Session 1 Screening Matrix to the Asset
- Testing the Session 2 Decline Reading on Well Data
- Checking the Session 3 Range Against Evidence
- Challenging the Session 4 Concept Table
- Completing the Field Development Briefing

## Methodology

The programme uses a structured exercise method built on anonymised asset data, well log summaries and short case notes from onshore, offshore and gas projects. Participants read the data in small groups, record their reasoning on a common template and receive facilitator and peer feedback before each work product enters the field development briefing.

- Suggested activity: Ranking three prospects by chance of success and explaining the ranking to a finance reader.
- Suggested activity: Reading a decline curve and stating what it implies for the booked reserves.
- Suggested activity: Comparing two development concepts on cost, schedule and risk in a one-page table.



## Capstone Output

Each participant completes a field development briefing for one asset case. It holds a field summary, a reading of well performance, a reserves range with its basis, a development options table and a list of open technical questions. The briefing is used at work to prepare investment reviews and partner meetings.

## Frequently Asked Questions

### **Is upstream oil and gas essentials suitable for leaders without an engineering background?**

Yes. Upstream oil and gas essentials is taught from first principles and assumes responsibility for upstream decisions, not geology or engineering training.

### **Which standard does upstream oil and gas essentials rely on for reserves?**

Upstream oil and gas essentials uses the SPE Petroleum Resources Management System and its 1P, 2P and 3P categories to read reserves and resources.

### **How is the field development briefing from upstream oil and gas essentials used at work?**

You use the field development briefing to prepare investment reviews and partner meetings and to list open technical questions.

### **How does upstream oil and gas essentials differ from a programme on petroleum economics?**

Upstream oil and gas essentials centres on how wells, reserves and fields work, while petroleum economics centres on fiscal terms and cash flow modelling.