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COURSE BROCHURE

Sedimentary Basin Classification and Subsidence Analysis Training Course

28 February – 4 March 2027
Muscat

Sedimentary Basin Classification and Subsidence Analysis Training Course

Ref: 2922_111204 **Date:** 28 February – 4 March 2027 **Location:** Muscat **Fees:** 6500 GBP

Sedimentary Basin Classification and Subsidence Analysis is a 1-week training course for exploration geologists and geophysicists who must place a basin in its tectonic setting and read its burial history, producing a basin classification and petroleum system summary for one basin. New-venture teams now screen more frontier and underexplored acreage with fewer wells, so the basin type chosen early shapes every later prospect. Jupiter Prime Training delivers this course on sedimentary basin classification.

Why Sedimentary Basin Classification Matters Now

Two forces shape sedimentary basin classification today. Exploration portfolios are moving towards frontier basins where well control is sparse and analogue choice carries more weight. Licensing rounds and farm-in reviews ask geoscientists to defend their view of basin type and charge timing in front of commercial colleagues. An organisation that classifies a basin well picks sound analogues and ranks acreage with confidence; one that misreads it carries the wrong source, reservoir and seal assumptions into every prospect.

Who Gains Most from Sedimentary Basin Classification

- Geologists responsible for regional screening of new acreage and licence blocks
- Geophysicists who map basin-scale structure, unconformities and depocentres on regional seismic lines
- Petroleum systems specialists who time source maturation against trap formation
- New-venture analysts who compare basins and choose analogues for frontier areas
- Subsurface staff in carbon storage and geothermal teams who assess burial and heat history

Regional exploration groups gain most when geologists and geophysicists from the same basin study attend together and agree one shared basin model.

Sedimentary Basin Classification Capabilities

Participants move from plate setting to burial curve to petroleum system.

- Classify a basin by plate setting, crustal type and driving mechanism — new-venture screening
- Build one-dimensional subsidence curves from well and pseudo-well stratigraphy — burial history interpretation
- Separate tectonic subsidence from sediment and water loading — basin type confirmation
- Estimate heat-flow history from subsidence style and crustal stretching — source maturity timing
- Link basin type to likely source, reservoir, seal and trap styles — play selection
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Communicate a basin classification with its uncertainties — exploration leadership and partners

Key Sedimentary Basin Classification Terms

- Tectonic subsidence — the part of basement sinking caused by crustal and lithospheric processes once sediment and water loads are removed.
- Backstripping — the stepwise removal of sediment layers, correcting for compaction and loading, to recover the driving subsidence through time.
- Flexural basin — a basin formed where the lithosphere bends under an applied load such as a thrust belt or volcanic edifice.
- Intracratonic sag — a broad, slowly subsiding basin in the interior of a stable continental plate, away from active plate margins.
- Stretching factor — the ratio of crustal thickness before and after extension, used to predict subsidence and heat flow.
- Decompaction — restoring a buried layer to its original thickness and porosity using a porosity-depth relationship.

Sedimentary Basin Classification Day by Day

Day 1: Plate Settings and Basin Families

- Plate Boundary Settings — Where Basins Form and Why Location Matters
- Crustal Type and Thickness — Continental, Transitional or Oceanic Basement Calls
- Extensional, Flexural and Strike-Slip Families — First-Pass Basin Grouping
- Intracratonic Sags and Polyphase Basins — Handling Overprinted Histories
- Basin Classification Schemes Compared — Choosing Criteria for Screening

Day 2: Reading Basin Geometry and Fill

- Regional Seismic Megasequences — Separating Basin Stages from Fill
- Unconformity Mapping and Hiatus Duration — Timing Uplift and Erosion
- Depocentre Migration Maps — Tracking Load and Subsidence Shifts
- Gravity and Magnetic Basement Trends — Constraining Depth to Basement
- Stratigraphic Thickness Grids — Spotting Growth Faults and Flexure

Day 3: Subsidence and Thermal History

- Porosity-Depth Decompaction — Restoring Original Layer Thickness
- One-Dimensional Backstripping — Isolating Tectonic Subsidence Through Time
- Subsidence Curve Shapes — Recognising Rift, Thermal and Flexural Signatures
- Stretching Factor Estimates — Predicting Heat Flow and Sag Phase
- Palaeo-Water Depth and Eustatic Corrections — Reducing Curve Uncertainty

Day 4: From Basin Type to Petroleum System

- Source Rock Settings by Basin Type — Anoxic Lakes, Restricted Seas, Deltas
- Burial Curves and Maturity Windows — Timing Generation Against Trap Growth
- Reservoir and Seal Associations — Predicting Fairways from Basin Stage
- Trap Style by Tectonic Setting — Fault Blocks, Inversion and Salt Structures
- Analogue Basin Selection — Defending Comparisons to Partners

Day 5: Practising the Basin Classification and Petroleum System Summary

- Basin Family Assignment for a Study Basin — Applying Settings and Geometry
- Subsidence Curves from Study Wells — Applying Backstripping and Curve Shapes
- Petroleum System Events Chart — Applying Burial and Element Timing
- Uncertainty and Alternative Basin Models — Stating Confidence for Review
- Basin Classification and Petroleum System Summary — Completing the Study Deliverable

Applying Sedimentary Basin Classification After the Course

- Rebuild subsidence curves for two key wells in a current study area and test whether the assumed basin type still holds.
- Lead a review of the analogue basins used in a live farm-in or licence evaluation, checking plate setting and subsidence style.

Sedimentary Basin Classification Questions FAQ

What is sedimentary basin classification and why does it matter now?

Sedimentary basin classification groups basins by plate setting, crust and subsidence mechanism. It matters now because frontier screening relies on analogues and sparse wells, so an early basin call steers expected source, reservoir and trap styles.

Which roles gain most from sedimentary basin classification and subsidence analysis?

Exploration geologists and geophysicists gain most, especially those screening new acreage. New-venture analysts and carbon storage or geothermal staff also apply its burial reasoning.

How does sedimentary basin classification differ from basin modelling or rift geology courses?

Sedimentary basin classification covers every basin family and the subsidence evidence behind each call. Numerical maturity modelling courses go deeper into kinetics and simulation software, while rift-focused courses study one basin family in detail rather than comparing them.

What do you bring back from sedimentary basin classification training?

You bring back a basin classification and petroleum system summary for one basin, with subsidence curves, an events chart and stated uncertainties.

Sedimentary Basin Classification: The Way Forward

The basin classification and petroleum system summary first informs whether a block deserves further seismic or should be relinquished. New-venture leads, regional geologists and commercial colleagues use it to compare acreage on the same basis. After its first use, revisit the subsidence curves once new wells or reprocessed seismic arrive.