

Petroleum Geology

Course Price

£3050

Course Description

The course is designed to summarise the fundamentals of Petroleum Geology and demonstrate its application to hydrocarbon exploration and development, and its interaction with the other disciplines. It is aimed to help participants to understand variety of geological data that need to be integrated together for petroleum exploration and reservoir description.

Participants will learn about the geological data acquisition, their interpretation, and integration to perform source rock and reservoir characterisation. Petroleum system elements and processes are discussed in play fairway analysis and prospect generation framework.

Petroleum System Modelling and Reservoir Modelling methods and workflows are briefly discussed to show advanced techniques in petroleum geology.

In addition, uncertainties associated with the geological data and methods are reviewed and their impact on the reserve/resource estimation is discussed.

Course Objectives

- Understand fundamentals of petroleum geology
- Review generation, migration and entrapment of hydrocarbons
- Gain knowledge of depositional systems and diagenesis
- Understand importance of Sequence Stratigraphy and correlation
- Review source rock and reservoir characterisation
- Acquire knowledge of seismic and wireline methods and petrophysical interpretation
- Gain knowledge of petroleum systems and 3D geomodelling
- Understand reserves estimation methods and uncertainty analysis

Who Should Attend

Geoscientists and Petroleum Engineers who require a fundamental understanding of the role and relation of Geology to their job.

Course Content

Day 1**Basic Ideas and Principals**

- Earth sciences: definition and overview
- Rocks associated with oil and gas
- Basic Principles of Geology
- Introduction to geological time
- Principles of structural geology
- Petroleum System elements and processes
- Generation and Migration of Petroleum
- Petroleum traps
- Hydrocarbon Life Cycle

Day 2**Depositional Basins and Environments**

- Plate-tectonics & Sedimentary Basins
- Petroleum System Case Study
- Sedimentary Structures
- Facies Models
- Siliciclastic depositional systems
- Carbonate depositional systems

Day 3**Petroleum Exploration**

- Response to Sea Level Change
- Basics of Sequence stratigraphy
- Carbonate Sequence Stratigraphy
- Source Rock Characterisation
- Reservoir Characterisation
- Play Fairway Analysis
- Leads and Prospects

Day 4**Subsurface Methods**

- Source of data for Exploration & Appraisal
- Seismic Data for Prospecting
- Working with Well-log Data
- Core and Core Analysis
- Petrophysics
- Well Log Correlation

Day 5**Modelling and Resource Assessment**

- Petroleum System Modelling
- Modelling workflow
- Reservoir Characterisation and Tools
- Uncertainty Analysis
- Resources & Reserves Estimation
- Unconventional Resources & Reserves

CPD Unit

Continuing Professional Development

35 HOURS CPD