

Seismic Reservoir Characterization

Course Price

£3050

Course Description

Seismic reservoir geophysics can be defined as “The use of geophysical methods to assist in delineating or describing a reservoir or monitoring the changes in a reservoir as it is produced.” Reservoir geophysics is applied across a wide spectrum of the oilfield life cycle from discovery and early development to tertiary recovery. One critical part of this process is a good understanding of the various stages of seismic processing and the relationships between attributes derived from the seismic and the elastic properties, and rock and fluid properties. Reservoir characterization combines surface seismic with borehole seismic, well data, i.e. petrophysical data and rock and fluid properties and production history.

Course Objectives

This course is meant for geophysicists and interpreters/geologists who want to familiarize themselves with the principles, methodologies and implementation technologies of seismic reservoir characterization. Key aspects of seismic data processing will be treated in order to derive the relevant properties and to preserve the data integrity that is necessary for subsequent calculation of meaningful attributes. The statistical nature of seismic inversion is thereby taken into account.

Who Should Attend

This course is designed for geophysicists – processing and interpretation – and earth scientists who understand to some extent conventional seismic processing and who want to learn how to maximize the application of seismic data especially in cooperation with input from other disciplines. Members of a multi-disciplinary team will benefit from this course.

Course Content

1. Introduction to seismic reservoir characterization
2. Fundamentals of rock physics and velocity determination

3. Wave propagation, the wave equation, P-waves and S-waves
4. Signal analysis, deconvolution and wavelet estimation
5. Reservoir imaging, time-to-depth conversion and true-amplitude migration
6. Seismic-to-well matching, survey matching and vintage matching
7. Borehole geophysics
8. Seismic inversion
9. AVO analysis and rock properties and fluid substitution algorithms
10. 4D reservoir monitoring and characterization
11. Geostatistics
12. Attribute analysis and classification
13. Multi-component seismic
14. Anisotropy (fractured reservoirs)

CPD Unit**Continuing Professional Development****35 HOURS CPD**