Structural Geology and Geophysics Methods in Prospecting, Research and Development of Hydrocarbon Deposits

TRAIN

Introduction:
Structural geology and geophysics play crucial roles in the exploration, research, and development of hydrocarbon deposits. Structural geology provides insights into the deformation and architecture of the subsurface, while geophysics offers a range of non-invasive methods to map and characterize subsurface structures and hydrocarbon reservoirs.

This comprehensive 5-day professional training course will equip you with the essential knowledge and skills to effectively apply structural geology and geophysics methods to identify and evaluate potential hydrocarbon deposits.

Course Objectives:
By the end of this course, you will be able to:
• Understand the fundamental principles of structural geology and its application in hydrocarbon exploration
• Identify and interpret various structural features, such as faults, folds, and unconformities, in geological maps and cross-sections
• Apply structural geology concepts to assess reservoir potential, predict fluid flow paths, and guide well placement
• Utilize geophysical methods, including seismic reflection profiling, gravity, and magnetic surveys, to map subsurface structures and identify potential hydrocarbon reservoirs
• Integrate structural geology and geophysical data to construct comprehensive geological models of hydrocarbon-bearing basins

Course Agenda:
Day 1: Introduction to Structural Geology and Geophysics
• Delve into the history, principles, and applications of structural geology and geophysics in hydrocarbon exploration
• Explore the different types of structural features and their significance in hydrocarbon accumulation
• Understand the fundamental principles of geophysical methods, including seismic reflection profiling, gravity, and magnetic surveys
• Discuss the limitations and strengths of various geophysical methods in hydrocarbon exploration

Day 2: Structural Analysis and Interpretation
• Analyze geological maps and cross-sections to identify and interpret structural features, including faults, folds, and unconformities
• Understand the relationship between structural features and hydrocarbon reservoirs
• Apply structural analysis techniques to predict fluid flow paths and assess reservoir potential
• Discuss the role of structural geology in seismic interpretation and well planning

Day 3: Seismic Reflection Profiling
• Delve into the principles of seismic reflection profiling, the primary geophysical method for subsurface imaging
• Understand the acquisition, processing, and interpretation of seismic reflection data
• Identify and interpret seismic reflections from various subsurface structures, including faults, folds, and unconformities

• Utilize seismic data to map subsurface structures and identify potential hydrocarbon reservoirs

Day 4: Gravity and Magnetic Methods
• Explore the principles of gravity and magnetic methods and their application in hydrocarbon exploration
• Understand the measurement, processing, and interpretation of gravity and magnetic data
• Identify and interpret gravity and magnetic anomalies associated with subsurface structures and hydrocarbon reservoirs
• Integrate gravity and magnetic data with seismic data to improve subsurface mapping and reservoir characterization

Day 5: Integrated Structural and Geophysical Interpretation
• Discuss the integration of structural geology and geophysical data to construct comprehensive geological models of hydrocarbon-bearing basins
• Apply integrated interpretation techniques to identify and evaluate potential hydrocarbon reservoirs
• Utilize structural and geophysical data to guide exploration strategies, well placement, and reservoir management
• Discuss the importance of integrated interpretation in reducing exploration risks and optimizing hydrocarbon recovery

Who Should Attend:
This course is designed for:
• Aspiring and experienced geoscientists seeking to enhance their understanding of structural geology and geophysics and their applications in hydrocarbon exploration
• Reservoir engineers involved in reservoir modeling, well placement, and production optimization
• Petroleum geologists working in exploration, development, and production of hydrocarbon resources
• Geophysicists utilizing seismic data, gravity, and magnetic data for subsurface mapping and reservoir evaluation
• Exploration managers and decision-makers involved in evaluating hydrocarbon exploration prospects

Course Benefits:
• Develop a comprehensive understanding of structural geology and geophysics principles, techniques, and applications in hydrocarbon exploration
• Gain hands-on experience in interpreting geological maps, seismic data, gravity, and magnetic data
• Enhance your ability to integrate structural geology and geophysical data to identify and evaluate potential hydrocarbon reservoirs
• Apply structural and geophysical knowledge to guide exploration strategies, well placement, and reservoir management
• Stay updated on the latest advancements and techniques in structural geology and geophysics research and industry practices.