1D and 2D Petroleum System Modeling

TRAIN

Introduction

Petroleum system modeling (PSM) is a fundamental tool for understanding and evaluating the potential of hydrocarbon reservoirs

PSM involves simulating the generation, migration, and accumulation of hydrocarbons over geological timescales

This comprehensive 5-day professional training course will equip you with the essential knowledge and skills to perform 1D and 2D PSM using industry-standard software

Course Objectives

By the end of this course, you will be able to:

• Understand the fundamental principles of petroleum system modeling and its application in hydrocarbon exploration

• Construct 1D and 2D petroleum system models using industry-standard software

• Define and parameterize geological models for various depositional environments

• Simulate hydrocarbon generation, migration, and accumulation processes

• Analyze and interpret PSM results to assess hydrocarbon potential and identify exploration targets

Course Agenda

Day 1: Introduction to Petroleum System Modeling

• Explore the history, principles, and applications of petroleum system modeling in hydrocarbon exploration

• Understand the geological factors and processes controlling hydrocarbon generation, migration, and accumulation

• Review the components and workflow of petroleum system modeling software

Day 2: 1D Petroleum System Modeling

• Delve into the principles and techniques of 1D petroleum system modeling

• Construct 1D geological models using industry-standard software

• Define and parameterize geological properties, such as stratigraphy, lithology, and porosity

• Simulate hydrocarbon generation, migration, and accumulation using 1D models

• Analyze and interpret 1D PSM results to assess hydrocarbon potential

Day 3: 2D Petroleum System Modeling

• Explore the principles and techniques of 2D petroleum system modeling

• Construct 2D geological models using industry-standard software

• Define and parameterize geological properties, including faults, fractures, and facies distributions

• Simulate hydrocarbon generation, migration, and accumulation using 2D models

• Analyze and interpret 2D PSM results to identify exploration targets

Day 4: Advanced Topics in Petroleum System Modeling

• Discuss advanced topics in petroleum system modeling, such as source rock evaluation, reservoir characterization, and fluid flow modeling

• Integrate seismic data and well log information into petroleum system models

• Apply sensitivity analysis to assess the impact of geological uncertainties on PSM results

• Utilize PSM results for risk assessment and exploration planning

Day 5: Hands-on Petroleum System Modeling Project

• Engage in a hands-on petroleum system modeling project using industry-standard software

• Construct 1D and 2D geological models for a real-world exploration case study

• Simulate hydrocarbon generation, migration, and accumulation for the case study

• Analyze and interpret PSM results to assess hydrocarbon potential and identify exploration targets

• Present project findings and conclusions

Who Should Attend

This course is designed for:

- Aspiring and experienced geologists seeking to enhance their understanding of petroleum system modeling
- Geophysicists involved in subsurface interpretation and evaluation using petroleum system models
- Petroleum engineers utilizing PSM results for reservoir evaluation and exploration planning
- Environmental scientists applying PSM to assess potential hydrocarbon contamination and environmental impacts

Course Benefits
- Develop a comprehensive understanding of petroleum system modeling principles, techniques, and applications
- Gain hands-on experience in constructing, simulating, and analyzing 1D and 2D petroleum system models
- Enhance your ability to utilize PSM results for hydrocarbon exploration, reservoir evaluation, and risk assessment
- Apply PSM knowledge to address real-world geological challenges in various fields
- Stay updated on the latest advancements and techniques in petroleum system modeling software and applications