



HARNESS THE POWER
OF KNOWLEDGE

**The Problem of Fractured
Reservoirs: Concepts, Methods,
and Case Studies**

TRAIN



Introduction

Fractured reservoirs play a significant role in the global energy landscape, accounting for a substantial portion of the world's hydrocarbon resources

However, the complex nature of fractured reservoirs poses unique challenges in terms of reservoir characterization, well placement, and enhanced oil recovery (EOR)

This comprehensive 5-day professional training course will provide you with a thorough understanding of the principles, methods, and case studies related to fractured reservoirs, empowering you to tackle the challenges and unlock the potential of these valuable resources

Course Objectives

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

- Comprehend the fundamental concepts of fractured reservoirs, including their origin, types, and distribution
- Understand the impact of fractures on fluid flow, well performance, and hydrocarbon production in fractured reservoirs
- Employ various methods for identifying and characterizing fractures from seismic data, well logs, and core samples
- Utilize fracture network modeling techniques to represent fracture distribution and connectivity
- Integrate fracture characterization with reservoir modeling to evaluate flow behavior and hydrocarbon potential
- Develop effective strategies for well placement and enhanced oil recovery in fractured reservoirs

Course Agenda

Day 1: Fundamentals of Fractured Reservoirs

- Explore the origin, types, and distribution of natural fractures in various geological settings
- Understand the significance of natural fractures in fluid flow and hydrocarbon production in fractured reservoirs
- Review the impact of natural fractures on reservoir permeability, anisotropy, and well performance

Day 2: Identifying and Characterizing Natural Fractures

- Delve into various methods for identifying and characterizing natural fractures from seismic data, including seismic attributes, fracture interpretation techniques, and seismic geomorphology
- Analyze well logs to detect and characterize natural fractures based on resistivity, porosity, and sonic anisotropy
- Utilize core samples to study the geometry, orientation, and mineral composition of natural fractures

Day 3: Fracture Network Modeling

- Explore the principles and techniques of fracture network modeling
- Construct fracture network models using various approaches, including stochastic modeling and deterministic modeling
- Integrate fracture network models with reservoir models to simulate fluid flow and hydrocarbon production in fractured reservoirs

Day 4: Case Studies in Fractured Reservoir Characterization

- Analyze real-world case studies of fractured reservoir characterization using seismic data, well logs, and core samples
- Discuss the challenges and successes in identifying and characterizing natural fractures in complex geological settings
- Learn from case studies to apply fracture characterization techniques effectively in various exploration and production scenarios

Day 5: Well Placement and Enhanced Oil Recovery in Fractured Reservoirs

- Develop strategies for optimizing well placement in fractured reservoirs based on fracture characterization and reservoir modeling

- Explore various enhanced oil recovery methods applicable to fractured reservoirs, including waterflooding, gas injection, and miscible flooding
- Design and implement effective EOR strategies for fractured reservoirs based on fracture network modeling and reservoir simulation

Who Should Attend

This course is designed for:

- Aspiring and experienced petroleum engineers seeking to enhance their understanding of fractured reservoirs and their impact on reservoir behavior and hydrocarbon production
- Reservoir engineers involved in reservoir characterization, well placement, and enhanced oil recovery in fractured reservoirs
- Geologists working on fracture characterization, seismic interpretation, and geological modeling of fractured reservoirs
- Geophysicists utilizing seismic data and well log analysis to identify and characterize natural fractures

Course Benefits

- Develop a comprehensive understanding of fractured reservoirs, their formation mechanisms, and their impact on fluid flow and hydrocarbon production
- Gain hands-on experience in identifying and characterizing natural fractures using various techniques, including seismic interpretation, well log analysis, and core sample studies
- Enhance your ability to apply fracture network modeling and integrate fracture characterization with reservoir modeling for enhanced reservoir characterization and production optimization
- Apply fracture characterization knowledge to develop effective strategies for well placement and enhanced oil recovery in fractured reservoirs
- Stay updated on the latest advancements and techniques in fractured reservoir characterization, modeling, and EOR applications