Petroleum Geology & Exploration Strategies

29 March – 2 April 2027
Barcelona (Spain)



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Ref: 3255096_187636 **Date:** 29 March – 2 April 2027 **Location:** Barcelona (Spain) **Fees:** 5900 GBP

Introduction

Petroleum Geology & Exploration Strategies form the scientific and practical foundation for understanding the formation and distribution of hydrocarbon resources and identifying the most promising drilling locations. The success of exploration operations depends on integrating geological and geophysical analysis with advanced techniques to pinpoint hydrocarbon-rich sedimentary basins and develop effective exploration plans.
This training program is designed to equip participants with in-depth knowledge and practical skills in studying geological structures, analyzing seismic data, and developing exploration strategies that deliver the highest economic returns. Participants will learn how to assess risks, prioritize drilling prospects, and transform geological data into successful investment decisions.

Course Objectives

- Understand fundamental and advanced principles of petroleum geology.
- Analyze rock formations and identify hydrocarbon-bearing layers.
- Apply geophysical techniques in exploration activities.
- Interpret 2D and 3D seismic data.
- Develop exploration strategies based on scientific and economic foundations.
- Assess geological risks and minimize chances of failure.
- Improve planning for exploratory drilling operations.
- Integrate geological and geophysical results into development plans.

Course Outlines

Day 1: Fundamentals of Petroleum Geology

- Introduction to oil and gas formation.
- Geological processes influencing hydrocarbon accumulation.
- Rock types and their roles in storing and transmitting petroleum.
- Understanding petroleum traps and their types.
- Characteristics of hydrocarbon-rich sedimentary basins.
- Case study on petroleum field discovery.



Day 2: Geophysical Techniques in Exploration

- Fundamentals of petroleum geophysics.
- 2D and 3D seismic surveys.
- Seismic data processing and analysis.
- Electromagnetic and gravity surveys in exploration.
- Measurement While Drilling MWD tools to support exploration.
- Workshop: Interpreting seismic data.

Day 3: Exploration Strategies

- Principles of developing petroleum exploration plans.
- Prioritizing exploration target areas.
- Integrating geological and geophysical analysis.
- Staged planning for exploratory drilling.
- Selecting suitable technology for different geological settings.
- Case study: Developing a comprehensive exploration plan.

Day 4: Risk Assessment & Decision-Making

- Analyzing geological and exploration risks.
- Estimating success probabilities in exploration.
- Using software tools for risk management.
- Combining economic and technical factors in decision-making.
- Preparing risk assessment reports for projects.
- Practical exercise: Evaluating risks for an exploration project.

Day 5: Final Analysis & Development Planning

- Comprehensive review of learned concepts and techniques.
- Analyzing results from previous exploration activities.
- Preparing development plans based on findings.
- Setting follow-up and performance improvement strategies.
- Practical project: Designing an integrated exploration program.
- Course closure and certification.



Why Attend this Course: Wins & Losses!

- Gain specialized knowledge in petroleum geology and exploration techniques.
- Enhance decision-making for exploration projects using accurate data.
- Reduce risks and increase success rates in exploration activities.
- Learn the latest geological and geophysical analysis methods.
- Develop exploration plans that maximize economic returns.
- Strengthen collaboration between technical and exploration teams.
- Earn a recognized professional certification.
- Combine theoretical learning with practical application.

Conclusion

The Petroleum Geology & Exploration Strategies course offers a complete scientific and practical framework for understanding petroleum resources and developing effective exploration plans. By combining theoretical knowledge with practical applications, participants will gain the ability to evaluate geological environments, apply the latest analysis techniques, and design well-structured exploration strategies for optimal results.

Mastering these skills enhances both technical and investment performance, improving the ability to achieve exploration goals with efficiency and success.

