# Training Course on Exploration in Frontier Basins and Emerging Plays

Professional Development Training Course Outline

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| **Category** | Oil and Gas | **Duration** | 10 Days |
| **Base Fee** | $3,000 USD | **Delivery Mode** | Online / On-site Hybrid |

## Course Introduction

Exploration in frontier basins and emerging plays represents the cutting-edge frontier of hydrocarbon discovery and resource development. These underexplored regions hold immense potential for unlocking new oil and gas reserves, driven by advances in seismic imaging, geological modeling, and drilling technologies. As the energy sector intensifies its search for unconventional and untapped resources, professionals must equip themselves with the latest exploration strategies and techniques tailored specifically for these challenging environments. This training course offers a comprehensive insight into geological, geophysical, and technological aspects that shape exploration success in frontier basins worldwide.

Training Course on Exploration in Frontier Basins & Emerging Plays multidisciplinary knowledge encompassing basin analysis, play fairway mapping, risk assessment, and innovative drilling solutions, empowering geoscientists, engineers, and decision-makers to make informed, data-driven exploration decisions. Participants will gain hands-on experience through real-world case studies and cutting-edge tools, enabling them to evaluate emerging plays with precision and confidence. By mastering these advanced concepts, attendees will position themselves at the forefront of exploration innovation and contribute effectively to the global energy transition.

## Programme Curriculum

**Training Course on Exploration in Frontier Basins & Emerging Plays**

**Introduction**

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**Course Objectives**

1. Understand frontier basin geology and its significance in hydrocarbon exploration.
2. Apply advanced seismic interpretation techniques for play identification.
3. Utilize play fairway analysis to prioritize exploration targets.
4. Assess risk and uncertainty in frontier basin exploration projects.
5. Integrate petroleum system modeling for resource estimation.
6. Implement unconventional resource evaluation in emerging plays.
7. Explore new drilling technologies tailored for challenging frontier environments.
8. Analyze basin modeling and tectonics to predict hydrocarbon migration pathways.
9. Develop exploration strategies for deepwater and remote basins.
10. Employ data analytics and AI for enhanced decision-making in exploration.
11. Understand environmental and regulatory challenges in frontier exploration.
12. Review case studies of successful and unsuccessful frontier basin explorations.
13. Enhance collaboration between geoscientists and engineers for integrated project success.

**Target Audiences**

1. Geologists and Geophysicists
2. Petroleum Engineers
3. Exploration Managers and Decision Makers
4. Energy Sector Analysts
5. Environmental and Regulatory Specialists
6. Data Scientists in Oil & Gas
7. Drilling and Reservoir Engineers
8. Oil & Gas Consultants and Advisors

**Course Duration:** 10 days

**Course Modules**

**Module 1: Introduction to Frontier Basins**

- Definition and characteristics of frontier basins
- Global examples of frontier basins
- Hydrocarbon potential and exploration challenges
- Basin tectonics and geological settings
- Economic and strategic importance
- **Case Study:** Successful hydrocarbon discovery in the North Falkland Basin

**Module 2: Geological Framework and Basin Analysis**

- Sedimentary basin classification
- Source rock evaluation
- Structural and stratigraphic analysis
- Basin evolution models
- Petroleum system components
- **Case Study:** Basin modeling in the East African Rift System

**Module 3: Seismic Data Acquisition & Interpretation**

- Seismic survey design in frontier areas
- Processing frontier basin seismic data
- Identification of play types through seismic
- Advanced seismic attributes
- 3D seismic integration
- **Case Study:** Seismic interpretation leading to discoveries in the Barents Sea

**Module 4: Play Fairway and Prospect Mapping**

- Play concept and play fairway definition
- Mapping techniques and software tools
- Risk assessment and ranking methods
- Integration of geological and geophysical data
- Prospect maturation workflows
- **Case Study:** Play fairway analysis in the Gulf of Mexico emerging plays

**Module 5: Petroleum System Modeling**

- Components of petroleum systems
- Modeling generation, migration, and accumulation
- Calibration with well data
- Predictive modeling techniques
- Resource estimation methods
- **Case Study:** Petroleum system modeling in the Arctic offshore basins

**Module 6: Risk and Uncertainty Management**

- Types of risks in frontier exploration
- Quantitative risk analysis techniques
- Decision trees and probabilistic methods
- Managing exploration portfolio risks
- Economic risk evaluation
- **Case Study:** Risk assessment in the Orphan Basin offshore Newfoundland

**Module 7: Unconventional Plays in Frontier Basins**

- Characteristics of unconventional plays
- Shale gas and tight oil potential
- Reservoir evaluation techniques
- Stimulation and production methods
- Integration with conventional play strategies
- **Case Study:** Unconventional exploration in the South China Sea

**Module 8: Drilling Technologies for Frontier Environments**

- Challenges in frontier basin drilling
- Advanced drilling rigs and technologies

- Managed pressure drilling
- Deepwater and ultra-deepwater drilling techniques
- Cost and safety optimization
- **Case Study:** Drilling operations in the Gulf of Thailand frontier basins

**Module 9: Basin Modeling and Tectonic Analysis**

- Tectonic setting influence on hydrocarbon systems
- Basin subsidence and uplift modeling
- Thermal history reconstruction
- Fault and fracture analysis
- Impact on exploration success
- **Case Study:** Tectonic evolution and hydrocarbon potential in the South Atlantic Margin

**Module 10: Data Analytics and Artificial Intelligence in Exploration**

- Role of big data in exploration
- Machine learning applications for prospect ranking
- Automated seismic interpretation
- Predictive analytics in frontier basins
- Integration with traditional workflows
- **Case Study:** AI-assisted exploration in the Permian Basin emerging plays

**Module 11: Environmental and Regulatory Framework**

- Environmental challenges in frontier exploration
- Regulatory compliance and permitting
- Impact assessments and mitigation strategies
- Stakeholder engagement
- Sustainable exploration practices
- **Case Study:** Environmental management in the Arctic offshore exploration

**Module 12: Exploration Strategy and Project Management**

- Exploration project lifecycle
- Budgeting and resource allocation
- Stakeholder communication
- Integrating geoscience and engineering teams
- Project risk and contingency planning
- **Case Study:** Strategic exploration planning in the East Mediterranean

**Module 13: Emerging Plays and Future Trends**

- Identifying new frontier plays
- Trends in global exploration investments
- Impact of energy transition on exploration
- Future technologies shaping exploration
- Collaboration and innovation in the energy sector
- **Case Study:** Emerging gas plays in the Eastern Mediterranean

**Module 14: Reservoir Characterization and Evaluation**

- Rock and fluid properties
- Reservoir modeling and simulation
- Production forecasting
- Reservoir monitoring techniques

- Integration with exploration data
- **Case Study:** Reservoir evaluation in frontier carbonate plays of the Middle East

**Module 15: Integrated Case Study and Hands-on Workshop**

- Comprehensive exploration project from basin to prospect
- Data integration and interpretation exercises
- Risk and economic analysis
- Team-based decision-making
- Presentation of findings and recommendations
- **Case Study:** Multi-disciplinary exploration project in the South Atlantic

**Training Methodology**

- Interactive lectures with multimedia presentations
- Hands-on exercises using real industry data
- Case study analysis for practical understanding
- Group discussions and collaborative problem-solving
- Use of software tools for seismic and basin modeling
- Expert guest lectures and Q&A sessions

**Register as a group from 3 participants for a Discount**

**Send us an email: info@fineskilltrainingcenter.org or call** *+254769199797*

***Certification***

*Upon successful completion of this training, participants will be issued with a globally- recognized certificate.*

***Tailor-Made Course***

*We also offer tailor-made courses based on your needs.*

**Key Notes**

**a.** The participant must be conversant with English.

**b.** Upon completion of training the participant will be issued with an Authorized Training Certificate

**c.** Course duration is flexible and the contents can be modified to fit any number of days.

**d.** The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

**e.** One-year post-training support Consultation and Coaching provided after the course.

**f.** Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

## Upcoming Scheduled Sessions

| Start Date | End Date | Location | Price |
|---|---|---|---|

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| **23 Nov 2026** | 04 Dec 2026 | Online | $2,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $3,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $6,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $6,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $9,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |

Ready to enroll or request a customized program? Book online or contact us:

**Register Online Now**

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