Basin Analysis for Exploration Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The Basin Analysis for Exploration Training Course is designed to equip professionals with cutting-edge knowledge in sedimentary basin evaluation, petroleum systems analysis, hydrocarbon prospectivity assessment, seismic interpretation, subsurface modeling, and frontier exploration strategies. This training delivers practical expertise in basin architecture, tectono-stratigraphic evolution, source rock characterization, reservoir prediction, and risk-based exploration decision-making using real-world datasets and modern exploration technologies.

The course combines integrated basin modeling, geochemical interpretation, sequence stratigraphy, geospatial analytics, machine learning applications in exploration, unconventional resource assessment, and seismic attribute analysis to provide a comprehensive understanding of basin dynamics and hydrocarbon systems. Participants will gain hands-on exposure to exploration workflows, petroleum systems modeling software, play fairway analysis, prospect ranking methodologies, and exploration economics through case studies from major producing basins worldwide.

Programme Curriculum

Basin Analysis for Exploration Training Course

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Course Duration

5 Days

Course Objectives

1. Understand advanced concepts in sedimentary basin evolution and tectonic frameworks.
2. Develop expertise in petroleum systems analysis and hydrocarbon migration modeling.
3. Apply AI-driven exploration analytics and digital subsurface interpretation techniques.
4. Interpret 2D/3D seismic data and seismic attribute analysis for prospect generation.
5. Evaluate source rock maturity, geochemical indicators, and thermal history modeling.
6. Enhance skills in sequence stratigraphy and depositional environment interpretation.
7. Perform risk-based exploration assessment and uncertainty quantification.
8. Analyze reservoir characterization and unconventional resource potential.
9. Integrate GIS, geospatial intelligence, and basin visualization tools into workflows.
10. Improve understanding of play fairway analysis and frontier basin exploration strategies.
11. Assess carbon capture, storage potential, and energy transition basin opportunities.
12. Strengthen capability in exploration economics and portfolio optimization.
13. Develop strategic competence in sustainable exploration and ESG-focused energy development.

Target Audience

1. Exploration Geologists
2. Petroleum Geoscientists
3. Basin Modeling Specialists
4. Geophysicists and Seismic Interpreters
5. Reservoir Engineers
6. Energy Analysts and Exploration Managers
7. Oil & Gas Regulatory Professionals
8. Researchers and Graduate Students in Geosciences

Course Modules

Module 1: Fundamentals of Basin Analysis

- Introduction to sedimentary basins and classification
- Basin tectonics and structural evolution
- Plate tectonics and basin formation mechanisms
- Basin subsidence and thermal evolution
- Case Study: North Sea Basin evolution and exploration success

Module 2: Petroleum Systems Analysis

- Source rock identification and evaluation
- Hydrocarbon generation and migration pathways

- Trap formation and seal integrity analysis
- Timing of petroleum system events
- Case Study: Middle East petroleum system assessment

Module 3: Sequence Stratigraphy and Depositional Systems

- Stratigraphic principles and basin fill architecture
- Depositional environments and facies analysis
- Sequence stratigraphic frameworks
- Sediment transport and reservoir distribution
- Case Study: Gulf of Mexico depositional systems

Module 4: Seismic Interpretation and Subsurface Imaging

- Basics of seismic acquisition and processing
- 2D/3D seismic interpretation workflows
- Seismic attributes and amplitude analysis
- Structural and stratigraphic trap identification
- Case Study: Deepwater West Africa seismic interpretation

Module 5: Basin Modeling and Digital Exploration

- Basin modeling software applications
- Thermal maturation and burial history modeling
- AI and machine learning in exploration
- Digital twins and predictive analytics
- Case Study: AI-driven exploration in shale basins

Module 6: Reservoir Characterization and Unconventional Resources

- Reservoir quality prediction techniques
- Petrophysical analysis and rock properties
- Unconventional reservoirs and shale plays
- Fracture systems and tight reservoirs
- Case Study: Permian Basin unconventional development

Module 7: Exploration Risk and Economic Evaluation

- Exploration risk assessment methodologies
- Prospect ranking and volumetric estimation
- Portfolio management and decision analysis
- Exploration economics and investment strategies
- Case Study: Frontier exploration risk analysis in East Africa

Module 8: Energy Transition and Sustainable Basin Development

- Carbon capture and storage (CCS) in sedimentary basins
- ESG and sustainable exploration strategies
- Basin suitability for geothermal resources
- Energy transition and low-carbon exploration opportunities
- Case Study: North Sea CCS and energy transition projects

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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

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