Training Course on Integrated Reservoir Modeling

Professional Development Training Course Outline

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

Course Introduction

Integrated Reservoir Modeling (IRM) is a cornerstone of modern petroleum reservoir management, bridging the gap between geology, petrophysics, geophysics, and reservoir engineering. Training Course on Integrated Reservoir Modeling is designed to provide professionals with a deep understanding of how to synthesize multi-disciplinary data to build high-resolution, predictive reservoir models. Leveraging state-of-the-art software and data analytics, the course focuses on maximizing hydrocarbon recovery, minimizing uncertainties, and supporting strategic decision-making across exploration and production activities.

As the energy sector increasingly adopts digital transformation, the integration of machine learning, big data, and 3D visualization into reservoir modeling is becoming a necessity. This course empowers reservoir engineers, geoscientists, and asset managers with the tools and techniques needed to navigate complex subsurface systems and optimize field development planning. With hands-on exercises, real-life case studies, and expert-led sessions, participants will walk away with the skills required for effective reservoir simulation and production forecasting.

Programme Curriculum

Training Course on Integrated Reservoir Modeling

Introduction

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Course Objectives

1. Understand the fundamentals of Integrated Reservoir Modeling (IRM)
2. Apply geological, petrophysical, and seismic data in reservoir modeling
3. Interpret dynamic reservoir behavior using simulation tools
4. Enhance field development strategies through data integration
5. Conduct history matching and model calibration
6. Utilize machine learning in reservoir prediction
7. Evaluate uncertainty and risk analysis in IRM
8. Perform static and dynamic reservoir characterization
9. Integrate real-time production data for model updates
10. Leverage cloud-based reservoir modeling platforms
11. Develop 3D reservoir visualization techniques
12. Optimize Enhanced Oil Recovery (EOR) strategies
13. Present comprehensive field development plans using IRM

Target Audience Profiles

1. Reservoir Engineers
2. Geologists & Geophysicists
3. Petrophysicists
4. Production Engineers
5. Asset Managers
6. Subsurface Data Analysts
7. E&P Project Planners
8. Energy Sector Consultants

Course Duration: 10 days

Course Modules

Module 1: Fundamentals of Integrated Reservoir Modeling

- Overview of IRM components
- Role of multi-disciplinary collaboration
- Introduction to software tools
- Static vs. dynamic models
- Key performance indicators
- **Case Study: Building a model from a brownfield asset**

Module 2: Geological Modeling Techniques

- Stratigraphic correlation and mapping
- Structural modeling
- Facies modeling
- Lithology interpretation
- Use of geological software (e.g., Petrel)

- **Case Study: Reservoir delineation in a complex faulted system**

Module 3: Petrophysical Analysis

- Core data integration
- Well log interpretation
- Porosity and permeability modeling
- Water saturation modeling
- Rock typing and cut-offs
- **Case Study: Multi-well petrophysical data integration**

Module 4: Seismic Data Interpretation

- Seismic-to-well tie
- Structural interpretation
- Time-to-depth conversion
- Attribute analysis
- Seismic inversion
- **Case Study: Mapping reservoir thickness using 3D seismic data**

Module 5: Static Modeling and Grid Building

- Grid design fundamentals
- Layering strategies
- Property modeling
- Upscaling techniques
- Quality control workflows
- **Case Study: Building a static model of a clastic reservoir**

Module 6: Dynamic Reservoir Simulation

- Reservoir flow mechanics
- Initialization techniques
- Simulation parameters setup
- Relative permeability curves
- Production prediction
- **Case Study: Waterflood simulation in a mature field**

Module 7: History Matching Techniques

- Importance of history matching
- Data preparation
- Automatic vs. manual matching
- Sensitivity analysis
- Model validation
- **Case Study: History matching for gas-condensate reservoir**

Module 8: Uncertainty and Risk Analysis

- Types of reservoir uncertainties
- Probabilistic modeling techniques
- Monte Carlo simulations
- Scenario planning
- Decision trees
- **Case Study: Risk-based evaluation of development scenarios**

Module 9: Production Data Integration

- Real-time production surveillance
- Production logging
- Material balance integration
- Model updates with production data
- Decline curve analysis
- **Case Study: Integrating surveillance data into reservoir model**

Module 10: Field Development Planning

- Resource estimation
- Strategy selection
- Economic evaluation
- Drilling and completion plans
- Performance monitoring
- **Case Study: Field redevelopment using updated IRM**

Module 11: Enhanced Oil Recovery (EOR) Integration

- EOR screening criteria
- Polymer and gas injection modeling
- Surveillance for EOR
- Incremental recovery forecasting
- Post-EOR performance evaluation
- **Case Study: CO? injection modeling in carbonate reservoir**

Module 12: Machine Learning in Reservoir Modeling

- Data preprocessing
- Feature selection
- Predictive modeling
- Model training and validation
- Deployment in IRM
- **Case Study: ML-based permeability prediction**

Module 13: 3D Visualization and Interpretation

- 3D model building
- Cross-sectional analysis
- Interactive platforms (VR/AR)
- Visual data storytelling
- Presentation best practices
- **Case Study: Communicating reservoir uncertainty in 3D**

Module 14: Cloud-Based IRM Tools

- Benefits of cloud computing
- Real-time collaboration
- Data security and access control
- Software-as-a-Service (SaaS) options
- Scalability and storage
- **Case Study: Cloud-hosted IRM for multinational collaboration**

Module 15: Final Project & Group Presentation

- Group assignments
- Model building from scratch

- Technical report writing
- Decision justification
- Peer-to-peer feedback
- **Case Study: Integrated field model and development strategy**

Training Methodology

- Instructor-led virtual or in-person lectures
- Hands-on software training with real data
- Interactive quizzes and knowledge checks
- Case-based learning and problem-solving
- Group projects and model presentations
- Post-training support and resource access

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
16 Nov 2026	27 Nov 2026	Online	$2,000
16 Nov 2026	27 Nov 2026	Physical	$3,000
16 Nov 2026	27 Nov 2026	Physical	$6,000

Start Date	End Date	Location	Price
16 Nov 2026	27 Nov 2026	Physical	$6,000
16 Nov 2026	27 Nov 2026	Physical	$12,000
16 Nov 2026	27 Nov 2026	Physical	$9,000
16 Nov 2026	27 Nov 2026	Physical	$12,000
16 Nov 2026	27 Nov 2026	Physical	$12,000

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

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