Training Course on Unconventional Resource Development: Shale and Tight Gas

Professional Development Training Course Outline

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

Course Introduction

The global energy landscape is rapidly shifting toward more complex and technically challenging unconventional resources, with shale gas and tight gas playing a crucial role in meeting growing energy demands. Training Course on Unconventional Resource Development: Shale & Tight Gas equips professionals with in-depth knowledge and practical skills to unlock the vast potential of shale and tight gas reservoirs using advanced technologies, data-driven strategies, and environmentally sustainable methods.

Participants will explore the complete value chain, from geological evaluation to production optimization, with a focus on hydraulic fracturing, horizontal drilling, reservoir modeling, and regulatory compliance. Designed for geoscientists, engineers, and policy professionals, this course addresses current industry trends, innovative practices, and global case studies that shape the unconventional gas market today.

Programme Curriculum

Training Course on Unconventional Resource Development: Shale & Tight Gas

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Course Objectives

By the end of the course, participants will be able to:

1. Analyze shale and tight gas reservoir properties using petrophysical and geological data.
2. Apply horizontal drilling and hydraulic fracturing techniques for improved gas recovery.
3. Assess economic viability through cost-effective resource planning and forecasting.
4. Evaluate well performance optimization strategies and reservoir stimulation methods.
5. Design integrated field development plans for unconventional gas fields.
6. Understand environmental risk assessment and mitigation practices.
7. Interpret real-time production data for decision-making in tight formations.
8. Implement digital oilfield solutions for unconventional operations.
9. Navigate regulatory frameworks and land acquisition challenges.
10. Use advanced software for reservoir simulation and modeling.
11. Conduct supply chain optimization in shale gas logistics.
12. Integrate ESG (Environmental, Social, Governance) strategies in project execution.
13. Learn from real-world shale gas success stories and failures globally.

Target Audiences

1. Petroleum Engineers
2. Geoscientists & Geologists
3. Reservoir Engineers
4. Drilling & Completion Engineers
5. Oil & Gas Project Managers
6. Regulatory and Compliance Officers
7. Energy Policy Analysts
8. Environmental and Sustainability Specialists

Course Duration: 10 days

Course Modules

Module 1: Introduction to Unconventional Resources

- Definitions: Shale vs. Tight Gas
- Historical evolution and trends
- Global unconventional gas hotspots
- Key exploration and production drivers
- Economic and environmental implications
- **Case Study**: Evolution of the U.S. Shale Revolution

Module 2: Geology and Petrophysics of Shale/Tight Formations

- Source rock characterization
- Rock properties and porosity analysis
- Petrophysical logs interpretation
- TOC and maturity modeling
- Resource estimation techniques
- **Case Study**: Marcellus Shale geological modeling

Module 3: Drilling Technologies for Unconventional Plays

- Horizontal drilling mechanics

- Drill bit selection for tight formations
- Directional drilling tools
- Mud systems and borehole stability
- Drill path optimization
- **Case Study**: Eagle Ford drilling efficiency gains

Module 4: Hydraulic Fracturing Design and Execution

- Fracture mechanics and modeling
- Proppants and fluid types
- Frac stage design and sequencing
- Pressure management and monitoring
- Frac hit and parent-child well mitigation
- **Case Study**: Bakken frac design breakthrough

Module 5: Reservoir Engineering for Tight Gas

- Flow regimes in tight gas reservoirs
- Gas-in-place calculations
- Decline curve and production forecasting
- Pressure transient analysis
- Rate transient analysis (RTA)
- **Case Study**: Barnett Shale reservoir performance

Module 6: Completion Techniques and Strategies

- Multistage fracturing systems
- Perforation strategies
- Wellbore cleanup techniques
- Zonal isolation tools
- Completion fluids selection
- **Case Study**: Haynesville completion optimization

Module 7: Production Optimization in Shale Gas

- Artificial lift systems for gas
- Wellbore flow assurance
- Production surveillance systems
- Real-time monitoring platforms
- Sand and water management
- **Case Study**: Utica shale production boost

Module 8: Reservoir Simulation and Modeling

- Static and dynamic modeling
- Simulation software overview (CMG, Petrel)
- History matching and calibration
- Fracture network modeling
- Uncertainty analysis
- **Case Study**: Tight gas model validation in China

Module 9: Economic Evaluation of Unconventional Projects

- CAPEX and OPEX breakdown
- Net present value (NPV) analysis
- Sensitivity and risk analysis

- Price volatility impacts
- Break-even point calculation
- **Case Study**: Permian Basin project economics

Module 10: Environmental and Regulatory Aspects

- Water use and contamination issues
- Methane leakage and air quality
- Permitting process and land access
- Stakeholder and community engagement
- Emissions reporting and ESG standards
- **Case Study**: Canadian regulatory compliance success

Module 11: Data Analytics and Digital Oilfield Integration

- Role of big data in shale operations
- IoT and smart sensors in the field
- Machine learning for production optimization
- Predictive maintenance systems
- Workflow automation and AI
- **Case Study**: Data-driven optimization in the Midland Basin

Module 12: Field Development Planning

- Integrated development strategy
- Clustered well pad design
- Infrastructure planning (roads, pipelines)
- Logistics and supply chain challenges
- Field life cycle management
- **Case Study**: Full-field planning in Argentina's Vaca Muerta

Module 13: Health, Safety & Sustainability (HSS)

- HSE management in shale plays
- Emergency response planning
- Safety training and certifications
- Green completion technologies
- Sustainable water reuse practices
- **Case Study**: Anadarko’s green frac initiative

Module 14: Global Outlook and Emerging Markets

- Emerging unconventional hotspots
- Investment trends and policies
- Political and economic risks
- Global technology transfer
- Cross-border collaboration case studies
- **Case Study**: Australia’s Cooper Basin pilot project

Module 15: Lessons Learned and Future Trends

- Failures and challenges in major plays
- Innovations shaping the future
- Digital twin integration
- Renewable-natural gas hybrids
- Future skills and training needs

- **Case Study**: Lessons from Shell’s Appalachian Basin operations

Training Methodology

- Instructor-led virtual or in-person sessions
- Interactive workshops and technical demos
- Real-world case study analysis and group work
- Hands-on exercises using simulation software
- Knowledge checks and final assessment

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	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

Start Date	End Date	Location	Price
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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