MERCURY

Oil and Gas New Opportunities in Old Fields (NOF)

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Introduction

The Oil and Gas New Opportunities in Old Fields NOF course equips professionals with the knowledge and skills required to unlock hidden potential in mature reservoirs. As the global energy landscape evolves, maximizing the productivity of existing oil fields has become a strategic priority. This course explores methods for identifying untapped zones, evaluating reservoir behavior, and implementing cost-effective redevelopment strategies.

Participants will examine advanced drilling techniques and enhanced oil recovery techniques to optimize production in aging fields. This Oil and Gas New Opportunities in Old Fields NOF training course also emphasizes asset integrity management, well integrity, and maintenance best practices to ensure operational efficiency.

The Oil and Gas New Opportunities in Old Fields NOF program integrates digital transformation in oil and gas, data-driven decision-making, and training in reservoir simulation software. By combining theoretical insights with real-world case studies, attendees will gain actionable strategies to enhance field performance and profitability. Professionals will lead sustainable, technologically advanced operations in mature oil and gas assets.

Targeted Groups

This Oil and Gas New Opportunities in Old Fields NOF training targets professionals seeking specialized knowledge and skills:

- Reservoir engineers are aiming to enhance production from mature fields.
- Production engineers focused on improving operational efficiency.
- Geoscientists interested in geological assessment for mature fields.
- Asset managers oversee field revitalization projects.
- Technical consultants providing solutions for aging infrastructure.
- Field operators enhancing well performance and reliability.
- Project managers coordinating redevelopment initiatives.
- Environmental specialists promoting sustainable practices in oil field management.
- Decision-makers are implementing carbon capture and storage in oil fields.

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Course Objectives

Participants will achieve the following objectives by completing the Oil and Gas New Opportunities in Old Fields NOF course:

- Identify untapped reserves and opportunities in aging oil fields.
- Analyze historical production data to reveal efficiency trends.
- Evaluate reservoir heterogeneity and its impact on recovery.
- Apply advanced drilling techniques to maximize output.
- Develop strategies for infill drilling and well re-completion.
- Assess the feasibility of enhanced oil recovery techniques.
- Integrate geological, engineering, and operational data for informed decision-making.
- Design cost-effective redevelopment plans for mature fields.
- Implement artificial lift systems optimization to improve production.
- Utilize reservoir simulation software to forecast performance.
- Apply risk assessment techniques to minimize operational hazards.
- Understand regulatory, environmental, and social considerations.
- Communicate technical findings effectively to stakeholders.
- Optimize production enhancement in mature fields.
- Implement oil field surveillance and monitoring systems.
- Incorporate sustainable practices in oil field management.

Targeted Competencies

Participants will gain the following competencies during the Oil and Gas New Opportunities in Old Fields NOF program:

- Proficiency in petroleum reservoir management for mature assets.
- Ability to design and execute mature field revitalization strategies.
- Expertise in secondary recovery methods in oil fields.
- Skills in integrating multidisciplinary data for reservoir evaluation.
- Competence in selecting and applying enhanced oil recovery techniques.
- Knowledge of asset integrity management and well maintenance best practices.
- Capability to optimize production through artificial lift systems and monitoring.
- Competence in cost analysis and economic modeling of redevelopment projects.
- Ability to leverage digital transformation and data-driven decision-making.
- Knowledge of environmental impact mitigation and carbon capture strategies.
- Understanding of advanced reservoir characterization techniques.
- Skills in operational planning, scheduling, and resource allocation.

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Studying Scenarios

In this Oil and Gas New Opportunities in Old Fields NOF training, participants will develop their skills through the analysis of the following scenarios:

- Evaluating production potential in declining oil fields.
- Optimizing infill drilling programs to increase recovery.
- Assessing reservoir heterogeneity for redevelopment planning.
- Applying enhanced oil recovery techniques in complex reservoirs.
- Implementing artificial lift systems optimization.
- Using reservoir simulation software to forecast field behavior.
- Planning infrastructure upgrades for aging facilities.
- Conducting risk assessments for mature field projects.
- Integrating geological and engineering data for operational decisions.
- Designing sustainable strategies for field management.

Course Content

Unit 1: Understanding Mature Fields

- Characteristics and lifecycle of aging oil and gas reservoirs.
- Common operational and production challenges in mature fields.
- Importance of high-quality historical data and accurate records.
- Evaluating remaining reserves and economic feasibility.
- Role of advanced drilling techniques in field revitalization.
- Impact of reservoir heterogeneity on recovery efficiency.
- Case studies on mature field redevelopment and success stories.
- Asset integrity management practices for aging infrastructure.
- Production enhancement in mature fields through monitoring and optimization.
- Integration of digital transformation in oil and gas operations.

Unit 2: Reservoir Evaluation and Characterization

- Methods for analyzing reservoir heterogeneity and flow dynamics.
- Geological assessment for mature fields using petrophysical and seismic data.
- Use of advanced reservoir characterization techniques.
- Identifying bypassed oil zones and potential secondary recovery areas.
- Evaluating fluid properties and reservoir behavior.
- Reservoir simulation software training for performance prediction.
- Assessing natural fractures and reservoir connectivity.
- Strategies for data acquisition and monitoring in mature fields.
- Integration of petroleum reservoir management tools for decision-making.
- Predicting production trends using data-driven approaches.

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Unit 3: Redevelopment Planning and Execution

- Designing and implementing infill drilling programs.
- Criteria for well re-completion, stimulation, and artificial lift systems optimization.
- Evaluating the feasibility of enhanced oil recovery techniques.
- Planning secondary recovery methods in oil fields, including waterflooding and gas injection.
- Infrastructure assessment, upgrade planning, and maintenance best practices.
- Budgeting and cost-effective economic modeling for redevelopment.
- Scheduling and resource allocation for field revitalization projects.
- Monitoring and adjusting redevelopment strategies in real time.
- Ensuring safety, regulatory compliance, and environmental protection.
- Managing stakeholder communications and technical reporting.

Unit 4: Enhanced Oil Recovery EOR Techniques

- Overview of thermal, chemical, and gas EOR methods.
- Selecting EOR strategies tailored to reservoir characteristics.
- Designing pilot projects for enhanced oil recovery implementation.
- Monitoring EOR performance and production impact.
- Addressing challenges in EOR applications through advanced solutions.
- Environmental considerations and sustainable practices in EOR.
- Conducting cost-benefit analysis of EOR projects.
- Case studies on successful EOR deployment in mature fields.
- Innovations in EOR technologies and field applications.
- Integration of digital tools for EOR monitoring and optimization.

Unit 5: Sustainability and Future Outlook

- Environmental impact assessment in redevelopment projects.
- Implementing sustainable practices in oil field management.
- Incorporating renewable energy sources into oil field operations.
- Regulatory compliance, reporting, and social responsibility measures.
- Community engagement and stakeholder collaboration.
- Predictive maintenance and real-time oil field surveillance and monitoring.
- Innovations in digital transformation for operational efficiency.
- Staff training and professional development for mature field management.
- Preparing for long-term performance improvement and future technologies.
- Carbon capture and storage in oil fields to reduce emissions.

Final Insights & Key Takeaways

Revitalizing mature oil and gas fields unlocks significant opportunities for production growth and operational efficiency. Advanced techniques and redevelopment strategies extend the life of aging reservoirs. Integrating technology, data-driven decision making, and sustainable practices ensures long-term success. The course equips professionals with the tools to lead effective, innovative, and responsible field management programs.