Integrated Reservoir Management and Production Optimization Training Course



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Sharm El-Sheikh

4100 € (Per Person)

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Course Introduction / Overview:

This comprehensive training course provides a multidisciplinary approach to maximizing hydrocarbon recovery and optimizing production throughout the lifecycle of an oil and gas asset. It delves into the core principles of integrating geoscience, reservoir engineering, and production operations to create synergistic field development and management plans. As highlighted by the renowned academic Tarek Ahmed in his seminal work, "Reservoir Engineering Handbook", a holistic understanding of the reservoir system is paramount for effective decision-making. This course moves beyond theoretical concepts to equip participants with practical tools and workflows for reservoir characterization, performance analysis, and forecasting. At BIG BEN Training Center, we have designed this program to address the modern challenges of the industry, including managing mature fields, implementing IOR/EOR projects, and leveraging digital technologies for real-time optimization. Participants will learn to build and utilize integrated models, analyze complex production data, and formulate robust strategies that enhance asset value while considering economic and operational constraints. The curriculum is structured to foster a deep understanding of the interplay between subsurface uncertainties and surface facility capabilities, enabling professionals to drive efficiency and profitability in their operations.

Target Audience / This training course is suitable for:

- Reservoir Engineers.
- Production and Operations Engineers.
- Petroleum Engineers.
- Geoscientists and Geologists.
- Petro physicists.
- Asset Management Teams.
- Field Development Planners.
- Data Scientists in the energy sector.
- Technical Managers and Team Leaders.
- Professionals involved in production forecasting and optimization.

Target Sectors and Industries:

- Upstream Oil and Gas Companies.
- National Oil Companies (NOCs).
- International Oil Companies (IOCs).
- Independent and Marginal Field Operators.
- Energy Sector Consulting Firms.
- Oilfield Service Companies.
- Governmental bodies and regulatory agencies in the energy sector.
- Financial institutions investing in oil and gas assets.

Target Organizations Departments:

- Reservoir Management and Engineering.
- Production Operations and Technology.
- Subsurface and Geoscience Teams.
- Field Development and Planning.
- Asset Management.
- Exploration and Production (E&P).
- Research and Development.
- Digital Transformation and Data Analytics.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop a comprehensive, integrated reservoir management plan for various field types.
- Apply advanced reservoir characterization techniques to reduce subsurface uncertainty.
- Analyze well and reservoir performance using classical and modern diagnostic methods.
- Design and evaluate Improved Oil Recovery (IOR) and Enhanced Oil Recovery (EOR) projects.
- Optimize production systems by integrating reservoir, wellbore, and surface facility models.
- Utilize production data analytics for surveillance, monitoring, and forecasting.
- Perform economic evaluations and risk assessments for field development decisions.
- Integrate digital oilfield concepts and data-driven workflows into reservoir management.
- Formulate effective strategies for mature field revitalization and lifecycle extension.
- Master the principles of collaborative, multidisciplinary teamwork in asset management.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, practical, and engaging, ensuring participants can immediately apply their learning in a real-world context. We employ a blended learning approach that combines expert-led lectures with intensive, hands-on exercises. The course is built around a series of integrated case studies from diverse geological settings and operational environments, allowing participants to tackle complex problems collaboratively. Group discussions, brainstorming sessions, and interactive workshops are central to our method, fostering a dynamic learning environment where participants can share experiences and challenge assumptions. We emphasize problem-based learning, where teams work on realistic field development and optimization scenarios, from data analysis to strategic recommendation. The instructor will facilitate these sessions, providing expert guidance, constructive feedback, and insights into industry best practices. This immersive approach ensures a deep understanding of integrated reservoir management principles and equips participants with the critical thinking and decision-making skills necessary to enhance asset performance and maximize economic recovery.

Course Agenda (Course Units):

Unit One: Foundations of Integrated Reservoir Management

- Introduction to Integrated Reservoir Management (IRM).
- The multidisciplinary team and its role in asset management.
- Reservoir lifecycle and key decision points.
- Fundamentals of reservoir rock and fluid properties.
- Drive mechanisms and their impact on recovery.
- Material balance analysis for reservoir performance evaluation.
- Defining objectives and formulating a reservoir management strategy.

Unit Two: Advanced Reservoir Characterization and Simulation

- Geological and geophysical data integration for reservoir modeling.
- Static reservoir modeling workflows and best practices.
- Understanding and quantifying subsurface uncertainties.
- Principles of fluid flow in porous media.
- Introduction to dynamic reservoir simulation.
- History matching techniques and model validation.
- Using simulation models for performance forecasting and decision-making.

Unit Three: Well Performance and Production System Analysis

- Well inflow and outflow performance relationships (IPR & VLP).
- Nodal analysis for production system optimization.
- Diagnosing well problems using production data.
- Principles of artificial lift systems and their selection.
- Well testing design and interpretation for reservoir properties.
- Formation damage assessment, prevention, and remediation.
- Reservoir surveillance and data acquisition strategies.

Unit Four: Production Optimization and Recovery Enhancement

- Decline curve analysis and production forecasting techniques.
- Identifying opportunities for production enhancement and workovers.
- Waterflooding and gas injection fundamentals (IOR).
- Screening criteria for Enhanced Oil Recovery (EOR) methods.
- Overview of thermal, chemical, and miscible EOR processes.
- Monitoring and managing IOR/EOR project performance.
- Integrating surface facility constraints into optimization workflows.

Unit Five: Economic Evaluation, Risk Management, and Future Trends

- Petroleum economics and project evaluation metrics.
- Decision analysis and risk management in field development.
- Managing mature fields and extending asset life.
- The role of digital oilfield technologies and real-time data.
- Introduction to data analytics and machine learning in production optimization.
- Sustainable reservoir management and environmental considerations.
- Developing a final integrated field development and management plan.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As the industry moves towards energy transition, how can the principles of integrated reservoir management be adapted to sustainably maximize recovery from mature fields while minimizing environmental impact?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by adopting a truly holistic and integrated perspective, moving beyond the siloed treatment of individual disciplines. While many courses focus narrowly on either reservoir engineering or production technology, this program is meticulously designed to bridge the critical gap between the subsurface and surface domains. We emphasize the strategic decision-making process, teaching participants not just how to use tools, but when and why to apply specific techniques within the broader context of asset lifecycle management. The curriculum is built upon a foundation of practical, real-world case studies rather than abstract theory, forcing participants to grapple with the same incomplete data and complex trade-offs faced by professional asset teams. Furthermore, the course integrates forward-looking topics such as digital oilfield technologies, data analytics, and sustainable practices, ensuring the skills learned are relevant for the future of the energy industry. The focus is on cultivating a mindset of collaborative problem-solving and value creation, empowering participants to drive tangible improvements in production and recovery efficiency within their organizations.