



Practical Aspects of Oil and Gas Well  
Planning and Costing



# Practical Aspects of Oil and Gas Well Planning and Costing

## Introduction:

The planning and costing of oil and gas wells are critical components in successfully executing exploration and production projects. This oil and gas well planning and costing course focuses on the practical aspects of these processes, emphasizing real-world application over theoretical knowledge. Proper well planning is essential to maximize the efficiency and productivity of drilling operations while minimizing risks and costs.

Effective costing strategies ensure that projects remain economically viable and align with financial goals. In the practical domain, well planning encompasses site selection, geological analysis, and the design of the wellbore, taking into account various technical, environmental, and regulatory factors. It involves collaboration among geologists, engineers, and financial analysts to create a comprehensive plan that addresses each project's unique challenges.

Practical well planning also includes contingency planning to manage potential issues such as equipment failure, unexpected geological conditions, and environmental hazards. Costing, on the other hand, involves detailed budgeting and financial forecasting. It requires a thorough understanding of the costs associated with each phase of the well's lifecycle, from initial exploration and drilling to production and eventual decommissioning.

This oil and gas well planning and costing training includes capital expenditures CAPEX such as drilling rigs, equipment, and materials and operational costs OPEX like labor, maintenance, and compliance with safety and environmental regulations. Accurate costing is crucial for securing funding, managing cash flow, and ensuring the project's profitability.

This oil and gas well planning and costing course will explore the practical steps and considerations in planning and costing oil and gas wells. We will examine case studies and real-world examples to illustrate best practices and common pitfalls. By the end of this course, participants will have a robust understanding of how to effectively plan and cost oil and gas wells, equipping them with the skills needed to succeed in this dynamic and challenging industry.

## Targeted Groups:

- Petroleum Engineers.
- Drilling Engineers.
- Reservoir Engineers.
- Project Managers.
- Financial Analysts in the Oil and Gas Industry.
- Geologists and Geophysicists.
- Environmental and Safety Officers.
- Operations Managers.
- Cost Estimators.
- Procurement and Supply Chain Professionals.
- Regulatory Compliance Officers.
- Energy Consultants and Advisors.

## Course Objectives:

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

- Understand key elements of oil and gas well planning.
- Analyze geological and geophysical data for site selection.
- Design efficient and safe wellbore architectures.
- Develop comprehensive oil and gas well planning documents.
- Create detailed budgets for oil and gas well projects.
- Estimate CAPEX and OPEX accurately.
- Implement effective cost-control measures.
- Identify and mitigate potential drilling risks.
- Apply best practices in project management.
- Ensure compliance with environmental and regulatory standards.

## Targeted Competencies:

- Strategic Planning.
- Geological Interpretation.
- Wellbore Design.
- Budgeting and Financial Forecasting.
- Cost Estimation.
- Risk Management.
- Project Management.
- Regulatory Compliance.
- Environmental Impact Assessment.
- Technical Reporting.
- Operational Efficiency.
- Cross-disciplinary Collaboration.

## Course Content:

### Unit 1: Introduction to Well Planning:

- Overview of oil and gas well planning process.
- Importance of strategic planning in oil and gas operations.
- Key roles and responsibilities in well planning.
- Phases of oil and gas well planning: from concept to completion.
- Integrating geological and engineering data.
- Initial site assessment and feasibility studies.

### Unit 2: Geological and Geophysical Considerations:

- Analyzing geological formations.
- Use of seismic data in well planning.
- Identifying potential drilling hazards.
- Evaluating reservoir characteristics.
- Selecting drilling sites based on geophysical data.
- Integrating geological data with oil and gas well design.

### **Unit 3: Wellbore Design and Engineering:**

- Fundamentals of wellbore architecture.
- Designing for optimal drilling performance.
- Selection of drilling fluids and materials.
- Casing and cementing strategies.
- Wellbore stability and integrity considerations.
- Innovations in wellbore design technology.

### **Unit 4: Cost Estimation and Budgeting:**

- Breakdown of capital expenditures CAPEX.
- Operational expenditures OPEX in drilling.
- Creating detailed project budgets.
- Techniques for accurate cost estimation.
- Financial risk assessment and management.
- Monitoring and controlling project costs.

### **Unit 5: Risk Management and Regulatory Compliance:**

- Identifying and assessing drilling risks.
- Mitigation strategies for potential hazards.
- Ensuring environmental safety and protection.
- Compliance with local and international regulations.
- Developing contingency plans.
- Documentation and reporting requirements.

### **Unit 6: Drilling Operations Management:**

- Overview of drilling operations.
- Planning the drilling schedule.
- Managing drilling logistics and resources.
- Coordination with drilling contractors and service providers.
- Monitoring and optimizing drilling performance.
- Addressing common operational challenges.

### **Unit 7: Advanced Cost Control Techniques:**

- Implementing cost-saving measures.
- Techniques for tracking expenditures.
- Analyzing cost performance indicators.
- Use of technology for cost management.
- Strategies for reducing non-productive time NPT.
- Case studies on effective cost control.

## **Unit 8: Environmental and Safety Considerations:**

- Assessing the environmental impact of drilling activities.
- Implementing environmental protection measures.
- Safety protocols for drilling operations.
- Training and equipping personnel for safety.
- Emergency response planning.
- Compliance with health, safety, and environmental HSE regulations.

## **Unit 9: Post-Drilling Evaluation and Reporting:**

- Procedures for well completion and testing.
- Analyzing post-drilling data.
- Evaluating oil and gas well performance and productivity.
- Reporting on drilling operations and outcomes.
- Lessons learned and best practices.
- Continuous improvement in oil and gas well planning.

## **Unit 10: Project Closure and Decommissioning:**

- Planning for well decommissioning.
- Regulatory requirements for well abandonment.
- Techniques for safe and efficient decommissioning.
- Environmental restoration and site reclamation.
- Final cost reporting and project close-out.
- Reviewing and documenting project success and challenges.

## **Conclusion:**

Each unit provides practical knowledge and skills for effective oil and gas well planning and costing. By the end of the course, participants will be proficient in all critical aspects necessary to plan and manage oil and gas well projects efficiently.