

# RESERVOIR DEVELOPMENT & MONITORING



**DRPT115**  
**Drilling, Reservoir**  
**& Geology**

## **COURSE TITLE**

# **RESERVOIR DEVELOPMENT & MONITORING**

## **COURSE DATE/ VENUE**

12<sup>th</sup> - 16<sup>th</sup> Aug 24'

Spain

## **COURSE REFERENCE**

DRPT115

## **COURSE DURATION**

05 Days

## **DISCIPLINE**

Drilling, Reservoir & Geology

## **COURSE INTRODUCTION**

The principles of sound reservoir management are presented with emphasis on practical applications.

Actual case histories are used to study both successes and failures. An interdisciplinary synergistic approach to efficient reservoir management is detailed with the goal of optimized profitability. The significance of each component and the importance of timing and cost/benefit analysis are emphasized.

Reservoir management models for optimum field development and field operating plans are analysed.

The interdisciplinary reservoir management approach shows how each technology or function contributes to the plan and how checks and balances are developed.

## **COURSE OBJECTIVE**

**Upon successful completion of this course, the delegates will be able to:**

- ✓ Apply the principles of sound reservoir management.
- ✓ Use the interdisciplinary synergistic approach to efficient reservoir management.

- ✓ Include each reservoir management component and the importance of timing and cost/benefit analysis.
- ✓ Develop checks and balances.

## **COURSE AUDIENCE**

Petroleum/Reservoir Engineers and development Geologists.

## **COURSE CONTENT**

### **Day 1: Introduction to Reservoir Management**

1. Welcome and Course Overview
  - Introduction to the course structure and objectives.
  - Importance of reservoir management in various industries.
2. Fundamentals of Reservoir Engineering
  - Basic concepts of reservoir rock properties (porosity, permeability).
  - Types of reservoirs: oil, gas, water, and geothermal.
  - Introduction to reservoir fluid properties and phase behavior.
3. Reservoir Lifecycle
  - Exploration, appraisal, development, production, and abandonment stages.
  - Key decisions and challenges at each stage.
4. Reservoir Characterization
  - Geological modeling and seismic interpretation.
  - Petrophysical analysis and core sampling.
  - Well logging techniques and data integration.

### **Day 2: Advanced Reservoir Modeling and Simulation**

1. Reservoir Modeling Techniques
  - Static vs. dynamic models.
  - Building geological models: grid design, scale considerations.
  - Incorporating data from various sources.
2. Flow Simulation and Prediction
  - Introduction to reservoir simulation software.
  - Understanding flow mechanisms: single-phase, multiphase flow.

- Simulation workflows and case studies.
- 3. History Matching and Uncertainty Analysis
  - Techniques for matching historical production data.
  - Quantifying and managing uncertainties in models.
  - Sensitivity analysis.
- 4. Enhanced Oil Recovery (EOR) Methods
  - Overview of EOR techniques: thermal, gas injection, chemical.
  - Screening criteria for EOR applicability.
  - Designing and implementing EOR projects.

### **Day 3: Reservoir Monitoring Techniques**

1. Introduction to Reservoir Monitoring
  - Importance of monitoring in reservoir management.
  - Overview of monitoring objectives and strategies.
2. Well Testing and Production Logging
  - Techniques for well performance evaluation.
  - Analysis of pressure transient and production data.
  - Application of production logging tools.
3. Surface and Subsurface Monitoring Technologies
  - Seismic monitoring (4D seismic, microseismic).
  - Satellite and drone-based monitoring.
  - Distributed temperature sensing (DTS) and fiber optic technologies.
4. Real-Time Reservoir Management
  - Role of digital technologies and IoT in real-time monitoring.
  - Integrating real-time data with reservoir models.
  - Decision-making processes based on real-time information.

### **Day 4: Data Integration and Management**

1. Data Management in Reservoir Engineering
  - Types of data collected in reservoir studies.
  - Best practices for data storage, organization, and retrieval.
2. Big Data and Analytics in Reservoir Management
  - Role of big data in enhancing reservoir understanding.

- Introduction to data analytics and machine learning applications.
  - Case studies on successful data-driven reservoir management.
3. Reservoir Data Integration Techniques
    - Integrating geological, geophysical, and engineering data.
    - Multi-disciplinary approaches to reservoir modeling and decision-making.
    - Examples of successful data integration in complex reservoirs.
  4. Reservoir Management Software Tools
    - Overview of commonly used software tools.

### **Day 5: Integrated Reservoir Management and Future Trends**

1. Integrated Reservoir Management (IRM)
  - Definition and importance of IRM.
  - Key components of a successful IRM strategy.
  - Case studies demonstrating IRM best practices.
2. Risk Management in Reservoir Operations
  - Identifying and assessing risks in reservoir management.
  - Strategies for mitigating operational, economic, and environmental risks.
3. Sustainability and Environmental Considerations
  - Managing reservoirs with a focus on sustainability.
  - Environmental impact assessment and mitigation.
  - Regulatory and social considerations.
4. Future Trends in Reservoir Management
  - Emerging technologies and their potential impact.
  - Digital transformation and the future of reservoir engineering.
  - Industry outlook and evolving best practices.

### **COURSE CERTIFICATE**

**TRAINIT ACADEMY** will award an internationally recognized certificate(s) for each delegate on completion of training.

### **COURSE FEES**

£5,750 per Delegate. This rate includes participant's manual, Hand-Outs, lunch, coffee/tea on arrival, morning & afternoon of each day.

## **COURSE METHODOLOGY**

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions

