# Improved Oil Recovery (IOR)

New and Developing Technologies

## Introduction

The world's industry's growing need for oil creates a great potential for more modern and current enhanced oil techniques to be applied in established oil fields. The goal of this Course N Carry Improved Oil Recovery (IOR) training course is to give participants a thorough understanding of the various design elements, kinds, screening standards, and field application of the most recent, cutting-edge, and emerging Improved Oil Recovery (IOR) processes.

This five-day Course N Carry training programme aims to provide an overview of the fundamentals, challenges, sophisticated solutions, and field applications of chemical, miscible, and thermal IOR techniques as well as developing technologies of various IOR processes with real-world examples. It is preferable to use IOR in a secondary mode these days. We will go over specific advanced IOR techniques including Vapour Extraction (VAPEX), Low Salinity (LSW), Microwave, Electric, Hybrid Chemical-Thermal-Miscible, and Steam Assisted Gravity Drainage (SAGD). These methods all have issues with precise reservoir characterisation, challenging real-world severe heterogeneous reservoir screening, pilot design, and field implementations. This Course N Carry Improved Oil Recovery (IOR) training course combines industry videos, solved field cases, and lectures to create a dynamic learning environment.

**Included in this Course N Carry training programme will be:**

- Rock and Fluid Characteristics for Improved Reservoir Diction
- Sort and evaluate various IOR techniques for reservoirs that are currently generating water.
- Examine the actual reservoir(s) to determine which IOR technique is suitable for it.
- Optimise Oil Recovery using Miscible, Chemical, and Thermal IOR Techniques
- Learn about the most recent developments in chemical, thermal, miscible, and hybrid IOR techniques.
- Recognise Low Salinity Water, Microwave, Electric, SAGD, VAPEX, THAI, and Microbial Methods.
- Recognise the various issues and suggested fixes for various IOR processes.

## Objectives

**Participants in this Course N Carry training course will be capable of the following by the end:**

- Explain the various thermal, miscible, and chemical IOR processes.
- Use the Mobility Ratio and Capillary Number to maximise oil recovery.
- Use reservoir characterization and real-world field screening for IOR
- Recognise IOR approaches that are chemical, miscible, thermal, and hybrid.
- Recognise recently created IOR techniques and contrast them with existing ones.

## Training Methodology

A range of tried-and-true adult learning strategies will be employed in this Course N Carry Improved Oil Recovery (IOR) training programme to guarantee that the material is understood, comprehended, and retained to the greatest extent possible. The format of this Course N Carry training course combines lecture, in-class activities, field application/analysis, and many industry films that demonstrate every step of the process.

## Organizational impacts

**Teaching the principles of Interactive Economics to your employees can help drive organizational growth and seamless operations:**

- A short course that equips employees with skills for the real world
- Employees receive enhanced and economically driven decision-making skills
- Helps create better marketing strategies for higher sales
- Provides a competitive advantage by helping make calculated risks

## Personal Imapct

**Enrolling in this course can benefit you in the following ways:**

- Gain a deep understanding of the relation between human behavior and finances
- Learn modern techniques to estimate market demand and prediction
- Attain leadership, adaptability, and decision-making skills
- Analyze and understand successful market strategies

## Who should attend?

**A wide range of professionals can benefit from this Course N Carry training course, but the following are particularly noteworthy:**

- Process engineers, petroleum, production, and reservoir engineers, as well as other discipline engineers
- Fresh to the field of engineering

- Other people who should be aware of IOR technologies

# Course Outline

# Day 1

### Distinct EOR Procedures and Screening Standards

- Various Techniques for Improved Oil Recovery (IOR)
- Rock and Fluid Properties, Reservoir Concepts for IOR
- Selection Standards and Workings of Various IOR Techniques
- Optimise Oil Recovery using Capillary Number and Mobility Ratio Limitations.
- Difficulties, and Issues with Various IOR Techniques

# Day 2

### Characterization of Fluid Properties of Reservoirs

- Advanced Reservoir Characterization Techniques for IOR Methods
- Reservoir Concepts, Main Rock and Fluid Properties
- Water Flooding: Limitations, Design Needs, and Theory of Displacement
- Flooding of Polymers: Types, Characteristics, and Forms of Degradation
- Polymer Flooding: Field Application, Slug Design, and Mobility Ratio (M)

# Day 3

### Present-Day Miscible and Chemical IOR Methods

- Limitations and Procedures for Alkaline/Polymer and ASP Flooding
- Two Real-World Results: Kentucky (USA) and Daqing (China)
- Miscible Gas EOR: Lab and Numerical Calculation of Minimum Miscibility Pressure; CO2, HC, and Nitrogen Injection Techniques
- Flooding Processes with Miscible and Immiscible Carbon Dioxide

# Day 4

### Modern and State-of-the-Art Thermal IOR Procedures

- Thermal Processes: Continuous and Cyclic Injection of Steam
- Gravity Drainage-Assisted Steam (GDAS)

- Methods of In-Situ Combustion: CAPRI Processes, Toe-to-Heel Air Injection (THAI), and Forward and Backward
- Technique for Steam-CO2 Hybrid IOR and Its Field Application

# Day 5

## Additional Advanced IOR Methods

- Processes involving microbes and enzymes
- Processes for Pulsed Water and Low Salinity Water (LSW)
- IOR Methods for Seismic, Electric, and Electromagnetic Heating
- Applications of Hybrid IOR; CO2-thermal and Chemical-thermal Techniques