



MAESTRO
CONSULTANTS

THERMAL ENHANCED OIL RECOVERY

COURSE OUTLINE 2020

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TRAINING TITLE

THERMAL ENHANCED OIL RECOVERY

VENUE

Dubai, UAE

DURATION

5 Days

DATES

25 - 29 October 2020

PRICE

US\$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet daily.

TRAINING INTRODUCTION

This course will take a comprehensive look at several aspects of improved oil recovery. Fluid properties and phase behavior affecting the mechanisms of Enhanced Oil Recovery (EOR) and the general screening criteria will be discussed. Gas injection as miscible and immiscible with specific emphasis on CO₂ injection, Chemical EOR as Polymer and Surfactant Injection, along with Thermal EOR methods will be described and case studies presented.

Other key concepts that will be covered during this course include, Residual Oil Saturation (ROS), Minimum Miscibility Pressure (MMP), and the Instability Phenomena. The course will end with a discussion on the impact of heat in oil productivity. Participants will be given example calculations for each day and will also be able to experience field examples for some of the concepts covered.

TRAINING OBJECTIVES

There is growing interest around the world for improving oil recovery from oilfields by enhanced oil recovery methods, This course is a great opportunity to learn the practical aspects of these topics .

TRAINING AUDIENCE

Reservoir and Production Engineers

TRAINING OUTLINE

Day 1

Enhanced Oil Recovery (EOR) and Improved Oil Recovery (IOR) Fundamentals

- EOR/IOR
- Concepts and preparation for a field project
- Important rock-fluid properties considerations

The first day of this course will cover the fundamentals of EOR/IOR and why it is needed. Participants will also learn concepts and begin the preparation for a field project. Important rock-fluid properties considerations will also be discussed on this day.

Day 2

Laboratory Studies, Tests, and Evaluations

- Laboratory Evaluation and Scaling for Laboratory Studies
- Oil and gas types
- PVT characteristics
- Laboratory tests and techniques needed for key design data
- Residual Oil Saturation and General Screening Criteria
- Importance of ROS in IOR and Tracer Tests

Participants will begin this day by discussing laboratory evaluation and scaling for laboratory studies. Oil and gas types, equations of state, and PVT characteristics will also be covered. Participants will learn about the laboratory test and techniques needed for key design data. The day will end with a discussion on residual oil saturation and general screening criteria. The importance of ROS in IOR, how to estimate it and Tracer Tests will also be covered.

Day 3

EOR Processes

- Hydrocarbon Phase Behavior with Pressure/Temperature and Pressure/Composition Diagrams
- Fluid Properties affecting EOR Mechanisms

- Ternary Diagrams to Represent Gas Injection Processes
- Solvent Methods
- Mechanisms of Oil Displacement
- Diffusion and Dispersion

Day three of this course will focus on EOR processes. Hydrocarbon phase behavior with pressure/temperature diagrams and pressure/composition diagrams will be discussed. Participants will also learn about fluid properties that affect EOR mechanisms. Ternary diagrams to represent gas injection processes (miscible and immiscible) will be covered. Participants will also receive a general overview of solvent methods. The day will end with a discussion on mechanisms of oil displacement along with diffusion and dispersion.

Day 4

Gas Injection Processes

- Hydrocarbon miscible displacement
- First contact miscible processes
- The condensing-gas process and the vaporizing-gas process
- Minimum Miscibility Pressure (MMP)
- High Pressure Gas Injection, Enriched Gas Injection, and LPG Slug Injection
- Air/ Nitrogen injection
- CO₂ flooding processes

Participants will focus on gas injection processes, both miscible and immiscible, on day four of this course. Some miscible processes that will be covered include hydrocarbon miscible displacement, first contact miscible processes, the condensing gas process, the vaporizing gas process and minimum miscibility pressure (MMP). The principles and theory of high pressure gas injection, enriched gas injection, and LPG slug injection processes will be discussed. Air/Nitrogen injection and CO₂ flood processes will also be covered

Day 5

Heat and Oil Productivity

- Impact of heat on oil productivity

- Heat losses and reservoir heat transmission
- Hot Water flooding and steam flooding
- Cyclic steam stimulation
- Steam-assisted gravity drainage process
- In-situ combustion

The last day of the course will focus on the impact of heat on oil productivity. Topics that will be discussed include, heat losses, reservoir heat transmission, and hot water flooding. Steam flooding's important factors, field applications, screening criteria, screening methods, and calculations will also be covered. Participants will learn about cyclic steam stimulations, steam-assisted gravity drainage, and in-situ combustion as well.

TRAINING CERTIFICATE

MAESTRO CONSULTANTS Certificate of Completion for delegates who attend and complete the training course

METHODOLOGY

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of “real life” issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.