
Summary

In this course you will learn about the mechanisms which drive oil and gas from the reservoir, through the well to the wellhead at the surface, and the engineering techniques used to predict and optimise production. Natural reservoir drive mechanisms will be investigated as well as techniques that can be used to stimulate and maximise production prior to considering Enhanced Oil Recovery (EOR) processes. The learner will develop an understanding of reservoir modelling to help quantify recovery factors and develop an appreciation for the most appropriate recovery technique to use in a given production situation.

Learning Outcomes

Participants will

1. Learn how to define well inflow and outflow and how to use this information to estimate overall well performance.
2. Demonstrate how the 'Material Balance' technique can be used to describe and analyse recovery from both oil and gas reservoirs.
3. Define how water injection can be used to improve recovery and how the resultant production performance can be evaluated.
4. Learn about the different types of Enhanced Oil Recovery, the benefit that can be obtained and the key engineering concepts involved in an EOR project

Training Method

This is a self-paced e-learning course. Learning materials are structured into short sections, each including interactive text and image content, animations, video, and audio. An end of course quiz is scored to provide the learner with their learning progress. Approximately 3 hours learning time.

Who Should Attend

This course is designed mainly for geoscientists to provide foundation knowledge of aspects of reservoir engineering and well optimisation.

Course Content

Well Performance and Artificial Lift

This module will introduce the terminology commonly used in the field of well performance and optimisation. The learner will consider the journey of the fluids from the reservoir, or 'sand face', at the bottom of the well up to the wellhead. The relationship between flowrate and pressure will be illustrated as well as how these can be successfully modelled to improve understanding of well performance before and after stimulation. Finally artificial lift techniques that can be used to enable, improve or sustain production to surface will be discussed.

Reservoir Drive Mechanisms

This module looks at the different types of reservoir drive that enable production from oil and gas wells along with potential recovery factors that can be expected. The participant will learn how to analyse and quantify recovery using the material balance technique in both oil and gas reservoirs. Fractured reservoirs and the concept of sudation will be considered before finally looking at how water injection can be used to aid and maximise recovery.

Enhanced Oil Recovery

This module looks at how recovery from an oil reservoir can be improved beyond natural depletion or simple injection techniques. Thermal, miscible and chemical processes are considered as well as the operations and conditions most suited to each. The learner will develop an understanding of screening reservoirs for potential EOR and the operational facilities and key chemical and engineering concepts required to maximise recovery.