

COURSE OVERVIEW

This course provides the participants with a working knowledge of the evaluation of well performance as an important aspect of oil and gas production. The course covers the physical principles of vapor/liquid mixtures in the well bore and the relevant calculations, analyses, and evaluation of the productivity and performance of oil and gas wells. It also summarizes well completion practices and artificial lift methods. The course includes work example sessions.

WHO SHOULD ATTEND

The course is intended for Petroleum and Production Engineers with some experience.

COURSE CONTENT

Overview of the production System

- The reservoir, well-bore, vertical flow, ...etc.
- Constraints and Interactions.
- Types of Reservoirs.
- Vapor/Liquid behavior in the well bore.
- Formation Volume Factors.
- Gas solubility in Crude Oils.
- Gas/oil (Liquid/oil) ratio, volume factor, water/oil ratio.
- Completion practices.

The Performance of the productive formation:

- Productivity Index (PI) and the Inflow Performance (IPR).
- Use of Radial flow equation to determine PI.
- Factors affecting the shape of IPR.
- Vogel's and Fetkovitch equations.
- Gas well productivity, back pressure equation for gas wells.
- Generalized pressure equation.
- Effect of skin resistance and non-Darcy flow.
- Methods used in prediction of future IPR.

Vertical Lift Performance:

- Application of the general energy equation in performing flow calculations and determining the static BHP in gas wells.
- Vertical & inclined two phase flow.
- Energy and pressure losses.
- Flow regimes, correlation's and computational methods.

Flowing Well Performance:

- Pressure gradient curves and traverses.
- Determination of well deliverability and graphical solution of pressure losses in oil wells.
- Two phase flow through chokes.
- Analysis of well performance.

Artificial lift systems:

- Continuous gas lift, gas lift valves general consideration and design criteria.
- Compressor requirements.
- Design of Electric submersible pumps (ESP).
- Operational problems of ESP

THE LECTURER
ONE OF PETRO-TEC CONSULTANTS