Training - Advanced Well Performance

WPERF2-EN-P | Face-to-face only | 10 days

This course provides the practical, comprehensive understanding and skills needed to master well performance and make significant contributions to field productivity studies and well performance monitoring

Level

Skilled

Public

Reservoir, well performance or production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- identify all the parameters needed to the design of well performace
- select the adequate reservoir, fluid, near-wellbore zone, well completion and facilities characteristics related to well performance design
- select the remediation/stimulation and artificial lift methods
- model, forecast, assess, troubleshoot and optimize well performance

Pedagogical & technical resources

- Use of the software program PROSPER™ (training license provided for the duration of the course)
- Short lectures alternating with hands-on sessions
- Course ends with a 2-day integrated case study

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WEEK 1

INTRODUCTION TO PRODUCTION SYSTEM — **0.5 day**

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Introduction to well performance nodal analysis: inflow/outflow.
Overview of PROSPER™ software workflow:

- PROSPER™: building initial well system file.

PVT DATA/PVT MODELING — 0.5 day

Oil & Gas PVT properties: bubble point, Bo, Rs, GOR, solids...

- PROSPER™: building PVT model.

RESERVOIR PROPERTIES & RESERVOIR-WELLBORE INTERFACE — 0.5 day

Reservoir rock & fluids: porosity, permeability, saturation, relative permeability, scales.
Reservoir behavior type.
Pay zone drilling, completion (open hole, cased hole), perforating.
Wellbore treatment: sand control, stimulations (acidizing, hydraulic fracturing).

INFLOW PERFORMANCE/IPR MODELING — 1.5 days

Flow in the reservoir: Productivity Index (PI), empirical Inflow Performance Relationship (IPR).
Back pressure equation for gas wells.
Global skin: formation damage, perforation, partial penetration, deviation:

- PROSPER™: IPR modeling exercise.

Horizontal drains:

- PROSPER™: horizontal drain modeling.

WELLBORE FLOW, OUTFLOW PERFORMANCE/VLP MODELING — 1 day

Flow in the wellbore: pressure gradient and Vertical Lift Performance (VLP) curves.
GLR, tubing head pressure, tubing ID impacts.
Monophasic vs. polyphasic flow: minimum flow rate/well loading:

- PROSPER™: tubing correlations, VLP modeling.

Choke performance.

WELL PERFORMANCE — 1 day

Well deliverability nodal analysis: inflow x outflow:

- PROSPER™: IPR + VLP natural flow well performance modeling.
- Sensitivity study: prediction and analysis vs. reservoir pressure, PI, GLR, BSW, tubing ID.

WEEK 2

ARTIFICIAL LIFT — 2.5 days

Gas lift: fundamentals, unloading procedure, surveillance and troubleshooting:

- PROSPER™: gas lift design, prediction, analysis and diagnosis.

Electrical Submersible Pump (ESP): components, design, problems:

- PROSPER™: ESP design, prediction, analysis and diagnosis.

Rod pumping and jet pumps fundamentals.
Comparison of the artificial lift methods.

PROSPER™ CASE STUDY — 2 days

Application of PROSPER™ to a comprehensive case study, from PVT modeling and matching, IPR + VLP building and matching, to natural flow performance, gas lift and ESP design/performance prediction.

KNOWLEDGE ASSESSMENT — 0.5 day

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Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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