Artificial Lift: Pumping

5 days **APOMP-EN-P**

Overview

LEVEL

Skilled

PURPOSE

This course provides a comprehensive, practical knowledge of rod and centrifugal pumping concepts, design, operations and potential problems.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:

select the most-suited pumping method,

analyze operating conditions,

improve well performance and manage equipment lifetime.

WAYS AND MEANS

Exercises on equipment calculation.

Numerous animations and videos.

LEARNING ASSESSMENT

Quiz.

PREREQUISITES

Basics in well performance and completion, production engineering and/or artificial lift systems.

MORE INFO

Kindly refer to the following complementary course which might be of interest: “Artificial Lift: Gas Lift”.

Agenda

WHY ARTIFICIAL LIFT? — 0.5 d

Main parameters relative to reservoir and well performance curve: inflow and outflow.
Need for artificial lift.

SUCKER ROD PUMPING — 1.5 d

Principle, field of application, crucial parameters.
Main specific equipment: surface Pumping Units (PU), downhole pumps, rodstring.
Operating procedures and troubleshooting.
Example of rodstring load calculation.

ELECTRICAL SUBMERSIBLE CENTRIFUGAL PUMPING (ESP) — 2.25 d

Principle, field of application.
Main specific pieces of equipment: pump, seal section/protector, electric motor selection, Variable Speed Drive (VSD) interaction.
Operating procedures and troubleshooting (including PROSPER™ methodology).

Example of design:
Base case: oil “without problems”.
Specific cases: gassy oil well, ESP with VSD.

OTHER METHODS & PROCESS SELECTION

0.5 d

Overview of other methods (hydraulic pumps, jet pumps, Progressive Cavity Pumps [PCP]): principle, fields of operation.
Artificial lift methods comparison, benefits and limitations.

KNOWLEDGE ASSESSMENT

0.25 d