Training - Production Engineering

PRODENG-EN-P | Face-to-face only | 60 days

This training aims to provide a comprehensive knowledge and practical know-how of integrated subsurface and surface production engineering

IFP Training Certificate

Graduate Certificate

Level

Knowledge

Public

Production engineers, field engineers, production managers..., seeking to acquire comprehensive and solid engineering capabilities in Oil & Gas production, from the reservoir to the surface production facilities. This training program is well suited for junior Engineers and Engineers in conversion. It can also be tailored to experienced engineers

Objectives

Attendees will be able to implement the following skills:

- Identify and link all key subsurface and surface parameters impacting Oil & Gas production
- Implement integrated production management from the reservoir to the export point
- Use professional software to conduct production analysis studies and make recommendations for production optimization
- Contribute to field development studies

Pedagogical & technical resources

- Highly interactive training course, delivered by industry experts and adapted to participants' experience
- Numerous case studies and hands-on activities on professional software: MBAL™, PROSPER™, GAP™ for production engineering, PIPESIM™ and OLGA™ for gathering networks and flow assurance
- Teamwork project on a real case study of production optimization

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

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Program

FUNDAMENTALS OF GEOLOGY, RESERVOIR ENGINEERING & PRODUCTION MODES — 5 days

Petroleum geology and geophysics. Reservoir fluids. Petrophysics. Well log interpretation. Well testing. Reservoir engineering and simulation.

FUNDAMENTALS OF DRILLING, WELL ARCHITECTURE & COMPLETION — 5 days

Drilling fundamentals: principles of drilling, functions of the drilling fluid; drilling equipment. Well architecture and equipment: drilling and casing program; wellhead, characteristics of casings; shoe positioning, casing string calculations. Well completion equipment: main factors influencing completion design; completion configurations: requirements, main configuration; equipment of naturally flowing wells.

WELLBORE TREATMENTS — 5 days

Reservoir-wellbore interface fundamentals. Matrix treatment: acidizing. Hydraulic fracturing. Sand control. Water or gas shut-off and deposits.

WELL SERVICING & WORKOVER — 5 days

Reasons and well intervention means on production well. Well servicing. Workover: main operations; depleted reservoirs, study of different well workover cases; workover case study.

WELL PERFORMANCE & ARTIFICIAL LIFT — 5 days

Inflow performance/outflow performance. Well performance: well deliverability nodal analysis (inflow/outflow); well performance modeling, prediction and analysis/reservoir pressure, PI, GLR, BSW, tubing ID.
Artificial lift: gas lift (fundamentals, unloading procedure, surveillance and troubleshooting), Electrical Submersible Pump - ESP (components, design, problems), rod pumping and jet pumps fundamentals, comparison of the artificial lift methods.
Application on PROSPER™ software: PROSPER™ methodology for gas lift design and troubleshooting, manual application; PROSPER™ methodology for ESP troubleshooting.

GATHERING NETWORKS: DESIGN & OPERATION — 5 days

Fundamentals of fluid mechanics. Multiphase flow. Gathering networks: design criteria, flow assurance issues (hydrates, deposits...), gathering networks operation. Tie-in assessment using PIPESIM™: tie-ins and their impact on existing networks; implementation strategies, design and operation considerations. Multiphase dynamic simulation using OLGA™: gas field case study; oil field case study.

OIL & GAS FIELD PROCESSING — 5 days

Well effluent characterization; well effluent behavior. Need for field processing of well effluents. Crude oil processing: stabilization, dehydration, desalting. Production and injection water processing. Gas processing and conditioning: dehydration, sweetening, condensates recovery and fractionation. Fundamentals of LNG chain.

OFFSHORE FIELD DEVELOPMENT - PIPELINES & FLOW ASSURANCE — 5 days

Overview of offshore field developments. Fixed and floating production structures. Deep-offshore field developments. FSO/FPSO technology. New deep-water technologies. Operation of (offshore) terminals. Flow assurance: prevention of deposits in flowlines; monitoring of multiphase flow through flowlines. Flowlines/pipelines: technology, laying and operation.

METERING, MATERIAL BALANCE & PRODUCTION ALLOCATION — 5 days

Different types of metering. Importance of metering and associated data processing. Measures and metering systems along the chain. Implementation of a metering installation. Influence on process. Single phase metering: operating principle and equipment, transactional metering of liquids, transactional metering of gas. Multiphase metering: operating principle and equipment. Liquid balances. Gas balance. Performance

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monitoring and production reporting. Case study and production balances reconstruction: back allocation, satellite fields, main production centers.

HSE IN PRODUCTION ACTIVITIES — 5 days

Operations & HSE. Main hazards associated to hydrocarbon production and processing. Risks assessment tools; Job Safety Analysis. Risks in normal production operations and safe isolation of plant and equipment. Risks in well servicing operations. HSE in drilling and completion operations. HSE in SIMultaneous OPerationS (SIMOPS). Organizational framework. Human factors. Sustainability management in production operations.

PRODUCTION OPTIMIZATION: INTEGRATED PRODUCTION MODELING — 5 days

Advanced well performance. Case study using PROSPER™. Reservoir performance and modeling: prediction of production profile. Case study using MBAL™. Integrated production system models. Global production modeling and optimization: full field optimization and forecasting approach; GAP™ software overview and main functions; system definition, how to link MBAL™ and PROSPER™ models to GAP™ solve network; full field development hands-on exercise: prediction constraints.

PRODUCTION OPTIMIZATION: FIELD CASE STUDY & JURY — 5 days

5-day teamwork on an integrated project with deliverables to be presented on the last day (jury).
Agenda of the 5-day group project: field presentation (objectives of the project), building the reservoir model, well performance, surface architecture, jury (project presentation, synthesis and wrap-up).
Coaching throughout the project by experts using a real case study: bottlenecks are identified in the production system, given reservoir and fluid properties, wellbore configuration and flowing wellhead pressure; production performance is predicted from history production trends.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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