Graduate Certificate

Petroleum Engineering Certification

100 days **GENP/PETROLENG**

Overview

LEVEL

Foundation

PURPOSE

This course provides in-depth technical knowledge of Oil & Gas production in order to hold rapidly, and very effectively, the position of field engineer, design engineer, or project engineer.

LEARNING OBJECTIVES

Upon completion of this course the participants will be able to:
grasp fundamentals of reservoir engineering and drilling,
explain well completion and servicing, well performance and artificial lift,
understand fundamental concepts underlying Oil & Gas processing,
understand in detail operating conditions and basic design of oil, water and gas treatment,
describe technology of static equipment and rotating machinery used in production facilities,
explain offshore development techniques and flow assurance issues,
identify main risks related to Oil & Gas production operations and review safety engineering best practices,
contribute to the dynamics of field development projects studies,
explain main contracts in E&P and assess project profitability.

WAYS AND MEANS

Highly interactive training with industry specialist lecturers.
Multiple teamwork sessions and industrial case studies.
Numerous process simulation exercises using PRO/II™ software.
Final 10-day group project on a real field development case study, result of which are presented to a jury.

PREREQUISITES

Engineering degree or equivalent professional experience within the petroleum industry.

WHY AN IFP TRAINING CERTIFICATION?

- An international recognition of your competencies.
- A Graduate Certificate delivered.
- An expertise confirmed in Petroleum Engineering Certification.
- Ready-to-use skills.

Agenda

INTRODUCTION TO PETROLEUM GEOSCIENCES — 5 d

Elements & processes of petroleum systems. Exploration tools (seismic & well data). Prospect evaluation.

INTRODUCTION TO RESERVOIR CHARACTERIZATION — 5 d

Reservoir architecture. Geological characterization. Reservoir heterogeneities.

INTRODUCTION TO RESERVOIR ENGINEERING — 5 d

Reservoir engineering workflow. Petrophysics/rock properties. PVT. Well testing. Drive mechanisms. Case study: field development plan.

DRILLING FUNDAMENTALS — 5 d

Drilling operations. Architecture of the well & completion.

WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE — 5 d

Well productivity. Reservoir wellbore interface implementation.

ARTIFICIAL LIFT & WELL INTERVENTION FUNDAMENTALS — 5 d

Artificial lift: gas lift, ESP. Types and means of intervention on producing wells. General procedure of a workover. Case study.

WELL CONTROL — 5 d

Introduction to well control methods. Equipment. Wireline, coiled tubing, snubbing.
IWCF Certification: Well Intervention & Pressure Control.

THERMODYNAMICS APPLIED TO WELL EFFLUENT PROCESSING — 5 d

Well effluent. Gas compression and expansion. Liquid-vapor equilibrium of pure components and mixtures. Mixture separation.

OIL & WATER TREATMENT — 5 d

Crude oil treatment: stabilization, dehydration, sweetening. Reject and injection water treatment.

GAS PROCESSING & CONDITIONING — 5 d

Gas processing: dehydration, sweetening, NGL recovery. Fundamentals of Liquefied Natural Gas (LNG) chain.

STATIC EQUIPMENT & SCHEMATIZATION — 5 d

Piping & valves. Storage equipment. Thermal equipment. Flow assurance. Schematization.

ELECTRICITY & INSTRUMENTATION — 5 d

Electrical power generation and distribution network. Instrumentation and process control. Safety Instrumented Systems.

METERING - MATERIAL BALANCE - ALLOCATION — 5 d

Data treatment. Transactional metering of liquids and gases. Multi-phase metering.
Liquid & gas material balances. Production reporting.

ROTATING MACHINERY — 5 d

Centrifugal and positive displacement pumps. Centrifugal and reciprocating compressors. Turbo-expanders. Gas turbines.

OFFSHORE FIELD DEVELOPMENT - FLOW ASSURANCE — 5 d

Offshore development architecture. Technology & deep offshore specificities. Pipelines. Flow assurance issues.

SAFETY & ENVIRONMENT IN SURFACE PROCESSING FACILITIES — 5 d

Hazards and risks in production operations. Safety in production operations and during construction or maintenance works. HSE management.

SAFETY ENGINEERING — 5 d

HAZID application, HAZOP exercise, plant layout exercise. QRA and consequence analysis methodology. SIS and relief systems design.

PETROLEUM ECONOMICS & PROJECT MANAGEMENT — 5 d

Fundamentals of contracts. Project profitability evaluation. Risk analysis of Exploration & Production projects. Project cost estimation and cost control.

FIELD DEVELOPMENT PROJECT - JURY — 10 d