

This course can be adapted to virtual classroom mode - Graduate Certificate

## Field Operations Engineer Certification

60 days  
Overview

FIELDIG-EN-A

### LEVEL

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Knowledge

### PURPOSE

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This course aims to provide the in-depth technical knowledge of Oil & Gas production facilities design and operation necessary to hold rapidly, and very effectively, the position of field operations engineer or project engineer.

### LEARNING OBJECTIVES

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

- grasp fundamentals of reservoir engineering, drilling, well completion and servicing,
- evaluate well performance and identify needs for artificial lift,
- explain fundamental concepts underlying Oil & Gas processing,
- analyze operating conditions and basic design of oil, water and gas treatment,
- describe the technology of static equipment and rotating machinery used in production facilities,
- identify offshore development techniques and flow assurance issues,
- identify main risks related to O&G production operations and contribute to process safety management,
- contribute to the dynamics of field development projects studies.

### WAYS AND MEANS

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Highly interactive training with industry specialist lecturers.  
Numerous applications and illustrations.  
Multiple teamwork sessions. Use of dynamic simulations and industrial case studies.  
Numerous simulations performed using the PRO/II™ or HYSYS™ software.  
Several tutorials with equipment in a workshop. Site/field visits.

### LEARNING ASSESSMENT

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Continuous assessments all-along the program.  
Final assessment including a presentation in front of a jury.

### PREREQUISITES

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Engineering degree or equivalent professional experience in an Oil & Gas.

### WHY AN IFP TRAINING CERTIFICATION?

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

### MORE INFO

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This training includes 1 week in Pau (south of France) for mechanical workshop and site visits.

## Agenda

### FUNDAMENTALS OF GEOSCIENCES & RESERVOIR ENGINEERING

5 d

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

### FUNDAMENTALS OF DRILLING, WELL COMPLETION & WELL PERFORMANCE

5 d

Fundamentals of drilling. Well completion, well servicing and workover. Well performance and artificial lift.

### ADVANCED OIL & GAS FIELD PROCESSING

15 d

Module I: Thermodynamics applied to well effluent processing  
Well effluent. Ideal gas and real fluid behavior.  
Gas compression and expansion.  
Liquid-vapor equilibrium of pure components and mixtures. Mixture separation.  
Heat transfer, heat balance and thermal equipment.  
Module II: Oil & water treatment  
Crude oil treatment: stabilization, dehydration, sweetening.  
Storage equipment.  
Reject and injection water treatment.  
Module III: Gas processing & conditioning  
Gas processing: dehydration, sweetening, NGL recovery.  
Fundamentals of Liquefied Natural Gas (LNG) chain.

### PIPING & INSTRUMENTED SYSTEMS

5 d

Gathering networks design. Piping. Valves. Schematization of Oil & Gas production facilities. Metallurgy.  
Corrosion. Cathodic protection. Instrumentation & Process Control. Safety Instrumented Systems. Metering systems.

### ROTATING MACHINERY - TECHNOLOGY, SELECTION & OPERATION (IN MECHANICAL WORKSHOP)

5 d

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

### OFFSHORE FIELD DEVELOPMENT - PIPELINES & FLOW ASSURANCE

5 d

Context of offshore developments. Fixed and floating production structures. Construction and installation of platforms.  
Pipelines: technology, laying and operation. Deep offshore developments. FSO & FPSO technology. Flow assurance & multi-phase flow.

### PRODUCTION ACCOUNTING & MATERIAL BALANCE

3 d

Measures and metering systems along the chain. Liquid and gas balances. Performance monitoring and production reporting.  
Case study and production balances reconstruction: back allocation, satellite fields...

### PETROLEUM ECONOMICS & PROJECT MANAGEMENT

2 d

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

### PROCESS SAFETY MANAGEMENT

5 d

Process hazard analysis: HAZID, HAZOP. Operating procedures. Mechanical integrity. Organizational elements. Continuous improvement elements.

### FIELD DEVELOPMENT PROJECT - JURY

10 d

During this final project, participants will select field development scenario and architecture, design wells, evaluate well performances, design and simulate process, realize heat and mass balance and evaluate profitability of their project.

This 10-day teamwork project is a real case study based on actual data. Participants are coached throughout the project to produce the required deliverables, which are to be presented on the last day (jury):  
Field architecture. Well design and completion. Process design and simulation. Main equipment sizing. Heat and mass balance. Fuel gas requirements. HAZID and plant layout.

