Graduate Certificate
Oil & Gas Process Engineering Certification

60 days
Overview

LEVEL
Foundation

PURPOSE
This course provides in-depth technical knowledge of Oil & Gas production facilities design and optimization in order to provide Process Engineer with industry international best practices.

LEARNING OBJECTIVES
Upon completion of the course, participants will be able to:
- describe fundamental concepts underlying Oil & Gas processing,
- analyze operating conditions and basic design of oil, water and gas treatment,
- design oil, gas and water processing facilities and anticipate process performances by simulation and troubleshoot process operations,
- describe technology of static equipment and rotating machinery used in production facilities and analyze performances and key operating parameters,
- size main process equipment of surface facilities,
- identify main risks related to Oil & Gas production and to contribute to safety engineering studies,
- contribute to the dynamics of process development projects.

WAYS AND MEANS
Highly interactive training course delivered by industry experts and adapted to participants’ experience.
Multiple teamwork sessions and industrial case studies.
Hands-on activities on professional software: HYSYS™ or PRO/I™ for process simulation, PIPESIM™ and OLGA™ for gathering networks and flow assurance.
Teamwork project on a real case study of surface facilities design.

LEARNING ASSESSMENT
Continuous assessments all-along the program.
Final assessment including a presentation in front of 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 Oil & Gas Process Engineering Certification.
- Ready-to-use skills.

Agenda
THERMODYNAMICS APPLIED TO WELL EFFLUENT PROCESSING

OIL & WATER TREATMENT

GAS PROCESSING & CONDITIONING

DYNAMIC SIMULATION OF OIL & GAS PROCESSING FACILITIES
During this week, case study and exercises are performed using a dynamic simulator replicating a DCS environment in order to allow the participants to understand process dynamics: analysis of wellhead pressure/temperature variations choke valve tuning, hydrates detection and inhibition; crude oil processing (study of operating parameters on oil stabilization, dehydration and desalting); gas dehydration (impact of TEG operating conditions); multistage gas compression and export: effect of operating parameters.

PIPING SYSTEMS & PROCESS EQUIPMENT: SIZING & OPERATION

GATHERING & DISTRIBUTION SYSTEMS DESIGN - FLOW ASSURANCE

INSTRUMENTATION, PROCESS CONTROL, AUTOMATION & ELECTRICAL SYSTEMS

ROTATING EQUIPMENT - TECHNOLOGY, SELECTION & OPERATION
Fundamentals of pumping circuits and gas compression. Operating principles, technology, selection criteria, performances and operating conditions of centrifugal and volumetric pumps; centrifugal and reciprocating compressors; gas turbines; turbo-expanders.

OIL & GAS PROCESSING FACILITIES TROUBLESHOOTING

SAFETY ENGINEERING CASE STUDIES
Main safety engineering studies: HAZID and HAZOP workflow and application; plant layout case study; QRA; consequence analysis methodology.

PROCESS DEVELOPMENT PROJECT - JURY
During this final project, participants will be required to design a process, simulate it, evaluate its performances with reference to various production scenarios, select and size associated key equipment. This 10-day teamwork project is 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): process design and simulation; main equipment sizing; heat and mass balance; fuel gas requirements; HAZID and plant layout.