

58 days

MAINSI-EN-P

Overview

LEVEL

Skilled

PURPOSE

This course develops managerial and communication skills while providing an in-depth technical knowledge stretching over a wide range of issues and advanced topics in relation to the maintenance and operation of Oil & Gas treatment facilities. This certifying training deals in details with effluent processing, HSE, equipment maintenance and management.

LEARNING OBJECTIVES

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

- describe the Oil & Gas production chain, from reservoir to offloading facilities,
- explain technology, working principle, operation and maintenance of main equipment in Oil & Gas facilities,
- anticipate production constraints and their consequences on maintenance,
- describe HSE management rules and responsibilities,
- use adapted work methods and communication skills,
- prepare and manage effectively a global maintenance plan.

WAYS AND MEANS

Several applications and illustrations.
Several teamwork sessions.
Several tutorials with equipment in a fully equipped workshop.

LEARNING ASSESSMENT

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

PREREQUISITES

Significant experience in Oil & Gas production facilities operation and maintenance.

WHY AN IFP TRAINING CERTIFICATION?

- An international recognition of your competencies.
- A Vocational Certificate delivered.
- An expertise confirmed in Maintenance Superintendent Certification.
- Ready-to-use skills.

MORE INFO

The training duration includes 3 days of written and oral competency evaluation. This training is organized together with the Production and HSE Superintendents trainings. The effective scheduling of the common and specific modules of the three sessions may imply a slightly different chaining of the modules.

Agenda

INTRODUCTION

Welcome and program overview. Entry test. Units. Dimensions.

1 d

DOWNHOLE PRODUCTION - WELL PERFORMANCE - PRODUCTION FUNDAMENTALS

Fundamentals of reservoir engineering. Well testing. Fundamentals of drilling, completion and well servicing. Artificial lift (pumping, gas lift...) and well performance. Effluent behavior. Fundamentals of thermodynamics. Specifications. HSE management.

5 d

OIL, WATER & GAS PROCESSING

Oil processing: required specifications; stabilization; dehydration, desalting. Production and injection water treatment: why a water treatment; expected qualities and required treatments; operating conditions. Gas processing: required specifications; dehydration; hydrates, consequences and treatments; Natural Gas Liquids recovery. Work on study cases to detail processes and concerns.

5 d

OFFSHORE DEVELOPMENTS, FLOW ASSURANCE

Offshore developments challenges, technology and techniques and production constraints. Fixed and floating production structures. Prevention of deposits in flowlines. Multi-phase flows in flowlines.

2 d

TERMINAL, FSO & FPSO

Overview of oil terminals. FSO & FPSO technologies. Metering of oil quantities.

1 d

BEHAVIORAL MANAGEMENT

Teamwork management, written and oral communication. Active listening and communication tools. Team cohesion and stress management. Problems analysis and investigation: tools and behaviors. How to better analyze and know oneself.

5 d

INSTRUMENTATION & PROCESS CONTROL - ELECTRICITY

Instrumentation and process control: functional blocks, symbolization; pneumatic, electrical and digital technologies; measurements, sensors, security equipment; control equipment, actuators; controllers and control loops; Distributed Control System (DCS): architecture, connections; Safety Instrumented Systems (SIS): HIPS, ESD, EDP, FGS. Electricity: generation (turbines, alternators, monitoring, troubleshooting); distribution (HT-BT networks, power supply, stability, constituents, cabinets, transformers, batteries, isolation, protections).

5 d

ROTATING MACHINERY (IN MECHANICAL WORKSHOP)

Pumps: pumping prerequisites: pressure, flowrate, head; centrifugal pumps: types, technology, auxiliaries, performances; volumetric pumps. Compressors: compression prerequisites: technology, auxiliaries, practical laws; centrifugal compressors: rotor, stator, bearings, shafts, seals balance; reciprocating compressors: frame, cylinders, pistons and rings, bearings, lubrication, cooling. Gas turbines: operating principles, compression, combustion, expansion, performances; technologies: compressor, combustion chamber, turbine, internal cooling; auxiliaries. HSE concerns. Technology and maintenance of the elements: bearings (ball, hydrodynamics, magnetic); shaft outlet sealing systems: braided and mechanical seals; rotors and shafts: balancing, geometric controls; coupling and alignments: types, stresses; diagnostics from process, vibration or oil analysis data; wear and rupture phenomena.

10 d

CORROSION, INSPECTION & INTEGRITY

Corrosion mechanisms. Types of corrosions in the Oil & Gas industry. Corrosion prevention and monitoring, fundamentals of inspection.

2 d

MAINTENANCE MANAGEMENT - EQUIPMENT AVAILABILITY CONTROL

Maintenance policy and objectives. Reliability process implementation and follow-up. Reliability analysis and improvement. Maintenance costs and failure costs. Subcontracting, shutdown management, progress plans.

5 d

HSE RISKS & MANAGEMENT

HSE risks, flammability, overpressure systems: PSV, flare and flare network, closed and open drains... Safety in operation: use of utilities, degassing/inerting, confined space entry, start-up & shutdown. Safety during construction and maintenance works: lifting & rigging, work at height, electrical safety... Work permit system. SIMultaneous OPerationS (SIMOPS) management... Safety engineering: HAZID, HAZOP, layout

15 d

optimization and identification of major accidents. Risks matrix... Safety systems: HIPS, ESD, EDP, F&G, USS. Safety logic diagrams. Human factors. Opersafe: philosophy and methodology. Incident analysis and reporting. Root cause analysis.

REVISIONS - ORAL ASSESSMENT