

**Process and Surface
Facilities**

Reference : GFP-E

Who should attend

**** Junior and experienced
process or production en-
gineers working in the Oil
and Gas industry**

**** Graduate chemical en-
gineer aiming to work in
the Oil and Gas field**

Instructor

Imen BEN ATTOUCHE

Duration

5 days

Venue

**5* Hotel Royal Thalassa
Monastir**

Language

**French (with technical words
in English)**

Fees / Trainee

(Excluding VAT)

2 000 DT

810 € for non resident



Imen BEN ATTOUCHE

Course Objectives

This course gives trainees a mostly complete overview of all aspects related to Gas Field Processing

Prerequisites

Strong background in chemical or process engineering

Participants will

- Acquire a strong background in gas field surface facilities
- Learn the major specifications to be achieved in order to produce a marketable gas
- Investigate worldwide implemented processes in fields of gas sweetening, gas dehydration, and NGL recovery : efficiency, yields, advantages and shortcomings
- Come across some of flow assurance problems (not detailed in this module)

Specific needs

None

**PhD Process Engineer , Doctorate in Mines Paris Tech,
R&D in French Petroleum Institute (IFP) Energies
nouvelles, Thermodynamics and Molecular Simulation
Department. Trainer in IFP Training, E&P Department.**

Course Content (1/3)

Day 1:

1. Natural Gas Chain

- 1.1 Overview of the Gas Chain
- 1.2 Natural Gas Fields
- 1.3 End Uses of Natural Gas

2. Need for Field Treatment

- 2.1 Natural Gas Composition (HC light ends, HC heavy ends, acid gases, water...)
- 2.2 Sales Gas Specifications (water dew point, hydrocarbon dew point, acid gas content...)
- 2.3 Required Treatments

Day 2:

1. Water Content and Hydrate Formation

- 1.1 Water Content Estimation Methods, theory and applications
- 1.2 Water Dew Curve of a Natural Gas, definition and use
- 1.3 Hydrate Formation, a major issue in gas processing
- 1.4 Hydrates, chemical definition, composition, structure, formation conditions and stability
- 1.5 Hydrate Prevention, water removal, injection of inhibitors

Course Content (2/3)

Day 3:

1. Gas Dehydration Or Water Removal

- 1.1 Water Removal by Physical Adsorption
- 1.2 Water Removal by Physical Absorption

2. Natural Gas Liquids NGL Extraction

- 2.1 Definition of Natural Gas Liquids
- 2.2 Why do we extract NGLs?
- 2.3 Hydrocarbon Dew Point Measurement
- 2.4 NGL Extraction Processes, external refrigeration, expansion
- 2.5 NGL Extraction by Oil Physical Absorption
- 2.6 NGL Fractionation

Day 4:

1. Gas Sweetening Processes

- 1.1 Chemical Absorption (Amines)
 - * Most commonly used solvents and chemical reactions
 - * Amine-based gas sweetening process description
 - * Temperature profile in the absorber
 - * Main issues of Amine Units, solvent degradation, corrosion, foaming

Course Content (3/3)

1.2 Physical Absorption

1.3 Physico-chemical Absorption, hybrid solvents

1.4 Overview of other known processes (Physical Adsorption, Hot Carbonate Process, Membranes, Direct Conversion to sulfur...)

1.5 Guidelines for process selection

Day 5:

1. Sulfur Recovery

1.1 The Claus Process

1.2 Influence of acid gas composition on Claus process yields