

**Process and Surface
Facilities**

Reference : OGPS-E

Who should attend

**** Process/production engineers doing process design and carrying out debottlenecking projects**

**** Graduate and R&D engineers using simulation software in their daily work or research**

Instructor

Imen BEN ATTOUCHE

Duration

**5 days
from December 5th to
December 9th, 2016**

Venue

**5* Hotel Royal Thalassa
Monastir**

Language

English

Fees / Trainee

**(Excluding VAT)
2 000 DT
810 € for non resident**



Imen BEN ATTOUCHE

Course Objectives

- Learn to build, navigate and optimize steady-state process simulation using Hysys software.
- Simulate most well-known oil and gas processes.

Prerequisites

A strong background in chemical engineering and/or oil & gas field.

Participants will

- Simulate most of the oil and gas processes.
- Design and optimize surface facilities.
- Carry out retrofit projects in order to improve the process efficiency, yields.
- Tune the right design and operating parameters for spec achieving purposes.

Specific needs

- Software installed.
- One PC + one dongle / two trainees.

Observations

A detailed process description and theoretical aspects are presented before going through simulation tutorials.

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

Course Content (1/3)

Day 1:

1. Introduction to Process Simulation

- 1.1 What is process simulation?
- 1.2 Principles of Thermodynamic Modelling
- 1.3 Which model, for which process?

2. Software Getting Started

- 2.1 Defining the simulation basis (flowsheet, components, utilities, thermodynamic package, units...)
- 2.2 Intrinsic data – Required data (stream, compressor, heat exchanger, flash drum...)
- 2.3 Results Displaying (tables, graphs, phase envelopes, case study...)
- 2.4 Hydrocarbons flash separation and gas saturation with water

Day 2:

1. Propane Refrigeration Loop

- 1.1 Theory : Process description and applications (LNG, NGL extraction)
- 1.2 Vaporization of propane through an expansion valve
- 1.3 Using a CONTROLLER
- 1.4 Using the “defined to “ feature
- 1.5 Running a case study

Course Content (2/3)

Day 3:

1. Low Temperature Separation Processes “LTS Process”

- 1.1 Theory: Description of NGL recovery process, principles, specifications
- 1.2 LTS process using external refrigeration (chiller)
- 1.3 LTS process using a Joules Thomson valve
- 1.4 LTS process using an expander
- 1.5 Meeting the hydrocarbon dew point specification

2. NGL Fractionation

- 2.1 Theory : Process Description
- 2.2 Simulate a distillation column (performance specifications, pressure profile...)
- 2.3 Determine the minimum reflux ratio, the number of trays
- 2.4 Estimate the top tray pressure
- 2.5 Optimization of the feed tray
- 2.6 NGL Fractionation

Day 4:

1. Gas Dehydration and Compression

- 1.1 Theory : Gas dehydration with glycol process, principle, specs
- 1.2 Simulate a typical TEG UNIT
- 1.3 Review methods to saturate gas with water

Course Content (3/3)

Day 5:

1. Crude Oil Stabilization and Associated Gas Compression

- 1.1 Theory : Oil stabilization process, principle, specs
- 1.2 Simulate a typical multistage oil stabilization unit
- 1.3 Meeting RVP, TVP, API specifications
- 1.4 Compression of the associated gases