

E- 571

▲ Who should attend?

Graduate engineers and technical staff involved in the operation or design of the Oil & Gas field processing facilities.

▲ Duration

5 days

▲ Dates & Location

March 10 to 14, 2008
Rueil-Malmaison (Paris)
October 06 to 10, 2008
Martigues (South)

▲ Tuition Fees

€ 1,940

▲ Course Coordinator

Franck BEIJER

Ref. **MAT / EQUIP1**

STATIC EQUIPMENT

OBJECTIVES

To provide knowledge of the technology and the operating principle of the static equipment used in the Oil & Gas field processing facilities.

On completion of the course, participants:

- know the technology, the operating principle and the applications domain of the different piping, vessels, thermal equipment, storage equipment, and instrumentation & process control equipment.
- know the main equipment selection criteria with respect to the operating conditions and the different safety considerations.
- know the fundamentals of metallurgy, corrosion and corrosion protection.
- are able to identify the main origins of equipment operation trouble.

COURSE CONTENT

PIPING & VESSELS

1 day

Pipes, flanges and gaskets: types, standards.

Valves: globe valves, gate valves, other valve types (butterfly, membrane, piston, ...), check valves.

Pig types, pig valves.

Miscellaneous: filters, flame arrestors, steam traps, ...

Pressure relief equipment: pressure safety valves, thermal expansion valves, rupture disks
Thermal insulation and tracing.

Separators: two-phase and three phase separators, Free Water Knock Out (FWKO) drums, scrubbers, ...

Distillation columns, contactors & absorbers, stripping columns, etc., and their internals.

Different Codes and standards.

METALLURGY - CORROSION

1 day

Different material types.

Different alloy compositions - Mechanical characteristics.

Main corrosion types.

Different materials resistance to corrosion.

Corrosion protection and prevention.

THERMAL EQUIPMENT

1 day

Fundamentals of heat transfer.

Technology of heat exchangers and air coolers.

Technology of furnaces and fire tubes.

Examples of thermal equipment use.

STORAGE EQUIPMENT

0.5 day

Different storage equipment: atmospheric tanks, spheres, cigars, refrigerated and cryogenic storage, ...

Miscellaneous equipment.

Case of floating storage vessels (FSO, FPSO).

INSTRUMENTATION & PROCESS CONTROL - SAFETY SYSTEMS

1.5 days

Constitution of a control loop: sensor, transmitter, controller, recorder, control valve, signals (pneumatic, electrical, digital, ...) and signal converters -Tags and symbols.

Different types of pressure, temperature, flow rate and level sensors.

Transmitters types.

Technology of control valves: simple and double seat plug valves, cage valves, "Camflex" type valves, tree-way valves, ...

Different types of control loops: simple loop, override, split-range.

Distributed Control System (DCS): network architecture and constitution - Examples.

Emergency Shut-Down (ESD) systems: role, examples of typical architectures.

Fire and gas system: role, typical arrangements. High Integrity Pressure Protection Systems (HIPPS): role, specificities, typical arrangements.