

Processes

Introducing

Description

Introduction to the concept of process, the way of building it, constraints of the industrial production.
Representation and estimate of the cost of a process.
Description of some large production channels.
Critical analysis of a transformation channel of matter or energy, through a project in group.

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- the principle of raw materials transformation processes (oil, coal, gas, ore, biomass), of organic and mineral heavy chemistry (refining, petrochemistry, NH_3 , H_2SO_4 , Na_2CO_3 , NaOH , Cl_2 , manure...) and of energy production (thermal, nuclear, biomass)
- the principle of the diagrammatic representation of a process (flowsheet) and associated graphics
- the principles of cost estimation of a process
- the industrial context of the sector

The student will be able to:

- describe a production system
- read, interpret, propose an installation flowsheet
- to write global balances on a process in order to calculate matter and energy flows

- identify of information fluxes
- make an critical analysis of a process
- estimate the cost of a process
- know to work in autonomy starting from a schedule of conditions to find and analyze scientific documentation.

Necessary prerequisites

Mineral and organic chemistry, biochemistry
Thermodynamics
Chemical kinetics, reactors
Unit operations of chemical engineering
Regulation
Metrology

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse