

Energy and Processes





Introducing

Objectives

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

- the world context of power-generating systems, which produces a net power output from a fossil, nuclear or renewable energy source.

- the legal and technical context of the various forms of renewable energy (wind, solar photovoltaic, biomass ...),

- the different thermodynamic cycles associated to the power generation systems, the refrigeration and heat pump systems and the gas liquefaction.

- the use of energy and exergy balances for these thermodynamic systems in order to optimize their operation

The student will be able to:

- design a given steam power plant, including the choice of working fluid temperatures, pressures and the determination of fluid working flows plus the pre-sizing of compressors and turbines

- design a refrigeration system, including the choice of working fluid temperatures, pressures and the determination of fluid working flows plus the preliminary design of compressors and expansion devices,

- design a gas liquefaction plant

- participate in the implementation of a wind energy area development and a site photovoltaic,

- participate in the implementation of a biogas

network.

Necessary prerequisites

Thermodynamic I3BETH11

Practical info

Location(s)

Q Toulouse



