

Energy and Processes



ECTS
5 crédits



Hourly volume
43h

Introducing

Description

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

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