

Waste treatment and valorization

 ECTS
5 credits Component
INSTITUT
NATIONAL
DES SCIENCES
APPLIQUEES
TOULOUSE Number of
hours
76h

Presentation

Description

Programme (detailed contents):

French and European legal definition of waste. Strategies for wastes elimination (source reduction, valorisation and treatment). Legal policies.

Air pollution control.

Treatment and valorisation of industrial and urban solids wastes. Energy valorization and material recovery.

Introduction to soil pollution and soil risk assessment. Soil treatment processes.

Organisation:

This training is organised as an active learning. Different activities with a common interest (a specific industrial activity) will allow students to approach various aspects of the waste treatment problem. Specific lectures will be proposed, including conferences of industrial partners.

Objectives

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

- the legal and usual definitions of wastes in France. Waste characterisation
- the strategies for waste control
- the principles of unit operations and processes commonly used in waste (gas effluent, wastewater and solids waste) reduction, treatment or valorisation (chemical, biochemical and thermal processes).
- the principles of the French methodology for polluted soils risk assessment, the basis of soil treatment processes.

The student will be able to:

- identify basic rules and policies for an environmental problem, and use it to define a technical problem or to propose an adapted solution
- quantify the dispersion of air pollutants from industrial sources
- determine the valorisation potential for an industrial waste (or gas effluent or wastewater)

- select and design processes for air pollution control and for the treatment or valorisation of industrial water and solid wastes
- understand the risk assessment report of a site

Pre-requisites

All the basic Chemical Engineering courses

Physical, chemical, biological and mathematical fundamentals

Metrology, environment and risks

Useful info

Place

> Toulouse