Eco building & Environmental impact

ECTS
5 credits

Component
INSTITUT NATIONAL DES SCIENCES APPLIQUEES TOULOUSE

Number of hours
60h

Presentation

Description

Programme (detailed contents):

- Thermal dynamic simulation of buildings: bioclimatic design; heat transfer in unsteady state; use of a software to carry out a thermal dynamic simulation of a buildings and a sensitivity factor analysis (PLEIADES+COMFIE)

- Environmental Indicators for life cycle analysis (LCA); application to buildings and their integration in a district ; use of a LCA software dedicated to building (NovaEQUER)

- Principles of the Bilan Carbon method and application on an example;

- Diagnosis of energy performance (DPE): principles and application to a study project.

Organisation:

This teaching proceeds with projects. Some full-classes courses and conferences are given to present the key-concepts useful to carry on the projects.

Objectives

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

- Interest and principles being used to establish a diagnosis of energetic performance (DPE).

- Interest and the principle of a thermal dynamic simulation for buildings to help with the design - renovating of the buildings in a bioclimatic approach

- Interest and principles of methods to evaluate global environmental impacts in a project of new or renovated building: life cycle analysis (LCA), Bilan Carbone and other methods.

The student will be able to:

- carry out the DPE and the thermal dynamic simulation of a project of building, analyze results obtained and propose improvements with the studied project

- analyze and take into account a study report on the environmental impacts of a project

- carry out a simplified LCA to study a building

Expected skills :

* To optimize a building according to bioclimatic principles, using a dynamic thermal simulation software
* To assess the environmental impact of a building (or part of a building) via LCA and / or a Carbon Footprint analyze.

Useful info

Contacts

Education manager

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Place

Toulouse