

Course guide

220043 - GBE - Greening the Built Environment

Last modified: 11/04/2025

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2025 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Gangolells Solanellas, Marta

Others:

TEACHING METHODOLOGY

The course is divided into parts:

- Theory classes
- Practical classes
- Self-study for doing exercises and activities.

In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.

In the practical classes (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The teachers provide the syllabus and monitoring of activities (by ATENEA).

LEARNING OBJECTIVES OF THE SUBJECT

The aim of this subject is to provide basic knowledge on building's energy certification including the analysis of the energy consumption and energy saving measures. The course will be mainly concerned with the limitation of buildings' energy demand and energy performance certification.

STUDY LOAD

Type	Hours	Percentage
Self study	45,0	60.00
Hours large group	30,0	40.00

Total learning time: 75 h



CONTENTS

Buildings energy performance certification

Description:

Introduction to energy consumption in buildings

Introduction to the related legal framework

HULC: Software for limitation the buildings' energy demand and buildings' energy certification

Examples of smart technologies integration (energy metering and sensor-actuator networks) in buildings

Related activities:

Project developed in small groups related to an energy certification and proposal of energy performance improvements. Each group will choose the building object of analysis.

During some sessions, small exercises will be conducted in the class individually or in small groups and some others will be in hours of autonomous work.

Full-or-part-time: 75h

Theory classes: 30h

Self study : 45h

GRADING SYSTEM

The final grade depends on the following assessment criteria:

- Project (part 1), weight: 35 %
- Project (part 2), weight: 35 %
- Class activities, weight: 30 %

Non-satisfactory results in the project will be able to be redirected by improving the project individually after highlighting weak points. All the students have the right to improve the project. The improved project will have to be delivered the day scheduled by the school within the period of final exams. Marks in the improved project can range from 0 to 10. Only the best mark will be taken into account.

RESOURCES

Other resources:

Notes posted to the Atenea platform.