

Academic Year/course: 2022/23

62955 - Design for sustainability

Syllabus Information

Academic Year: 2022/23

Subject: 62955 - Design for sustainability

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 562 - Master's in Product Development Engineering

ECTS: 4.5

Year: 1

Semester: Second semester

Subject Type: Optional

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. In lectures, the whole student group is present, and the teacher explains the most theoretical aspects of the course contents and some illustrative case studies are solved. Practice sessions are conducted in groups to work with specialized computer applications. They are intended to promote applied learning, so it is recommended to attend practice sessions, where students can use real means of design and analysis.

4.2. Learning tasks

The course includes the following learning tasks:

- Lectures (30 hours).
- Practice sessions (15 hours).

4.3. Syllabus

The course will address the following topics:

Lectures

1. Methodology to identify and assess sustainability factor in design processes
2. Life Cycle Assessment methods
3. Environmental impact categories. Carbon Footprint methodology.
4. Life Cycle Assessment Tools (SIMAPRO, ECOINVENT, ECOCAD, ECOTOOL)
5. Design for sustainability
6. Design criteria to reduce critical raw material consumption
7. Design for reuse and recyclability

8. Design for circular economy. Related legislation. Sustainable Development Goals
9. Design for use and repairability. Durability scenarios
10. Regional factor
11. Ecodesign and food packaging.

Practice sessions

1. Ecocad
2. Ecotool and Life Cycle Inventory (LCI)
3. Simapro and Life Cycle Inventory (LCI)
4. Sustainable electronics and Life Cycle Inventory (LCI)
5. Repairability and Recyclability

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=62955>