Universidad Zaragoza

Year : 2019/20

62955 - Design for sustainability

Syllabus Information

Academic Year: 2019/20
Subject: 62955 - Design for sustainability
Faculty / School: 110 -

Degree: 562 - Master's in Product Development Engineering

ECTS: 4.5
Year: 1
Semester: Second semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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 smaller groups to work with specialized computer applications. They are intended to promote practical learning, so it is recommended to attend practice sessions, where students can experience directly with 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
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.
9. Design for use and repairability
10. Regional factor
11. Ecodesign and food packaging.

Practice sessions

1. Ecocad
2. Ecotool
3. Simapro
4. Sustainable electronics
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

- Javierre Lardiés, Carlos; Elduque Viñuales, Daniel; y Pina Gadea, Carmelo. Diseño Sostenible de Producto. Editorial KRONOS, 2016. ISBN: 978-84-944823-0-4.
- Javierre Lardiés, Carlos; Elduque Viñuales, Daniel; y Pina Gadea, Carmelo. "Diseño sostenible: Procesos de fabricación y reciclado". Editorial KRONOS, 2015. ISBN: 978-84-941655-7-3.
- Guinée, Jeroen. "Handbook on Life Cycle Assessment". Springer, 2002. ISBN: 978-1-4020-0557-2