Product and Environment

Professor: Alba Bala Gala and Laura Batlle Bayer
Office hours: by appointment
Course Type: Compulsory
Credits: 3 ECTS
Term: Second

Course Description

The development of cleaner products and services is becoming more and more a need and a catalyst for companies. This course will provide the necessary tools to determine the environmental impact associated with them, as well as ecodesign strategies to improve them. The course provides the necessary information to the student to know and be able to apply different tools for environmental evaluation of products (checklists, MET matrix, MIPS, LCA, etc.). It shows the student the applications of these types of tools, including the ecodesign of products and services. The course provides basic notions about the main ecodesign strategies and how to apply them to the design of new products and services. It provides the student with a critical spirit for the analysis of the products and services available in the market, as well as in the use of one of the LCA software tools more used in the world.

Objectives and competences

At the end of the course, students should:

- Know the existence of different types of tools for the environmental analysis of products (qualitative, semi-quantitative and quantitative), and understand the main differences between them as well as their pros and cons.
- Better understand the life cycle (LC) approach for the assessment of products and services, and why it is necessary to apply it.
- Have a deep learn about life cycle assessment (LCA) (references, applications, and methodology)
- Have basic knowledge about EcoDesing principles and strategies (types of eco-design and circular strategies) as well as in the use of different creative tools.
- Know the basic principles of the use of GaBi software, a specific LCA software.

Methodology

The course comprises eight 3-hour sessions, which combine theory lecturing with practical exercises and the use of some tools. Participants will also engage in presentations of reports, cases, or project assignments. Activities will require both individual and group work.

The course also involves a substantial amount of autonomous work outside the classroom combining readings and/or videos that will help them to gain a deeper understanding of the material covered in the class.

Evaluation criteria

Three elements concur in the final mark:

- **Final exam (30%):** the final exam is used to assess the individual level of knowledge and understanding of each student. It will include questions covering topics from all the classes. This item counts for 40% of the final mark. The minimum grade to pass the exam is 5.
- **Practical exercises and deliveries (50%):** during the sessions, some exercises related to different topics would be done, and delivered, to account for the final grade. Eventually, some extra exercises to be prepared at home would be asked. They will also account for the final grade.
- **Class attendance and active participation (20%):** Attendance in every session is expected and recorded by means of an attendance sheet. It is students' responsibility to comply with this measure. Class attendance is compulsory and will be reflected on the final grades; punctuality is a must.
  Note that unexcused absences reduce your score on the "attendance and participation" element of your final grade. In fact, two or more unexcused absences will result in an automatic score of zero and, in all likelihood, a failure mark for the course as a whole.

Attended all the sessions + actively and consistently participated in the class discussions during the entire course period,	20
Attended all the sessions + actively and consistently participated in most of the class discussions	15-19
No more than one unexpected absence + often participated in the class discussions	10-14
No more than one unexpected absence + participated in some class discussions	5-10

No more than one unexpected absence + limited or no participation in class discussions	1-5
Otherwise	0

Other evaluation criteria to take into consideration:

Retake
Students who fail the course during regular evaluation will be allowed ONE re-take of the examination/evaluation. Students that pass any retake exam should get a 5 by default as a final grade for the course. If the course is also failed after the retake, students will have to register again for the course the following year.

No-show
In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the "Retake" period). In the meantime, the student will get an "incomplete", which will be replaced by the actual grade after the final exam is taken. The "incomplete" will not be reflected on the student's Academic Transcript.

Plagiarism
Plagiarism is to use someone else's work and to present it as one's own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the "Honor Code," students acknowledge that they understand the schools' policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program.

Bio of Professor

Dra. Alba Bala graduated in Environmental Science in 2000 at Universitat Autònoma de Barcelona (UAB). She holds a Master in Environmental Sciences and obtained her PhD from UAB in 2015.

She is currently researcher and responsible for the line on packaging and waste at the UNESCO Chair in Life Cycle and Climate Change, and lecturer at ESCI-UPF. She worked as a teacher in Ecodesign and Environmental Analysis of products at the School of Industrial Design (ESDI, Ramón Llull University) and at Elisava Design School. She was researcher at the Institute of Environmental Science and Technology (UAB). She

has developed more than 30 national and international projects on LCA, green procurement and eco-design. Member of the Spanish LCA Network.

Awards. Finalist of the international awards "Europe Innova Awards", 2008 edition, awarded by the European Commission, DG Enterprise and Industry. Winning of the "Design for Recycling (2000)" awarded by the Catalan Government.

Dra. Laura Batlle Bayer, BSc in Agricultural Engineering (UPC), BSc in Plant Sciences, specialization in Natural Resources Management (Wageningen University) and PhD from University of Cantabria (UC).

She is currently researcher and responsible for the research line on food systems at the UNESCO Chair in Life Cycle and Climate Change. Previously, she has worked as a sustainability consultant at Blonk consultants (Netherlands), and assistant researcher at Utrecht University and the World Soil Information-ISRIC.

Reading Materials/ Bibliography/Resources

No textbook is required for this course. All the required material will be provided. Any readings, notes, handouts, dataset, or additional course material will be available through the course website.