



LIFE CYCLE ASSESSMENT (LCA)

COORDINATION

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ACADEMIC YEAR

2023-2025

SUBJECT GENERAL INFORMATION

Subject name	LIFE CYCLE ASSESSMENT (LCA)			
Code	4SEM-GA-SUB1			
Typology	1st semester. Continued evaluation.			
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	<i>Degree</i>	<i>Course</i>	<i>Character</i>	<i>Modality</i>
	<i>Joint Master Degree in Leather Technology</i>	<i>1</i>	<i>Compulsory</i>	<i>Blended learning</i>
Coordination	<i>PUIG VIDAL, RITA</i>			
University	<i>UdL</i>			
Language	<i>English</i>			

LEARNING OBJECTIVES

1. Having a more global vision of the environmental impacts associated with leather.
2. - Knowing the importance of aspects such as the value chain, traceability, transparency, etc., highly valued by the customers of a company.
3. - Identifying possibilities for eco-innovation in the sector and see sustainability as an opportunity.
4. - Knowing how to apply the life cycle thinking to any technological development, new process or new product.
5. - To know the new model that the circular economy proposes and its relationship with life cycle analysis.
6. - Knowing how to apply all this knowledge in personal and professional life.
7. The final objective is for the student to have the knowledge and criteria necessary to be able to contribute, in their workplace, to the new economic model necessary for our society

LEARNING OUTCOMES

Basic

CB8 That students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments.

General

CG3 Research, develop and innovate.

Specific

CE7 Apply the different evaluation, innovation and communication tools based on the life cycle (LCA).

SUBJECT CONTENT

TOPIC 1. THE TANNING PROCESS: CONSUMPTIONS AND EMISSIONS.

- Overview of the leather tanning process, consumption of chemical products, generation of waste and atmospheric emissions.
- Discharge limits and waste management.
- The best available technologies (BATs).

TOPIC 2. ENVIRONMENTAL MANAGEMENT SYSTEMS (ISO 14001).

- From mandatory legislation to voluntary tools. Initial environmental diagnosis, planning of objectives and program, implementation, review and certification.

TOPIC 3. LIFE CYCLE ANALYSIS (LCA) AND CIRCULAR ECONOMY

- Towards a more global vision: the life cycle of the product.
- What is this tool and what is it for?
- The importance of the supply chain (upstream and downstream). Practical cases of application in the leather tanning sector.
- What is the circular economy, its main strategic axes and how the LCA contributes to the circular economy?

4. ECODESIGN OF PRODUCTS AND ECO-LABELS

- The client's vision of a tanning company.
- The designers and sustainability departments.
- The importance of the customer-supplier relationship: transparency.
- What are the main eco-design criteria? Type of eco-labels and their relationship with the LCA.

5. INDUSTRIAL SIMBIOSIS AND LCA

- The industrial symbiosis, the exchange of resources between companies.
- Industrial networks that want to operate in a similar way as natural ecosystems: what is rejected by one company is used as raw by another and the resources are kept the maximum time within the economic system.

6. LCA SOFTWARE.

- Use of specific software to carry out LCA studies.
- Practices with this software.

METHODOLOGY

MASTER CLASSES

In theory classes, the most relevant theoretical concepts and results are introduced, illustrating them with examples and exercises.

PROBLEMS

Exercises of gradual difficulty will be solved to consolidate the concepts and the notions developed in the theory classes. Problems with real data will arise.

PRACTICES

Practices will be done with specialized software in the computer classroom.

EVALUATION

In the evaluation tests or evidences the theoretical concepts and the resolution of problems will be valued. There will be two written tests and some follow-up test. In addition, students will be responsible for reinforcing their knowledge autonomously based on the teaching material provided or recommended by the teacher. Both theoretical and problem classes will be taught in small groups of students. The fact of having smaller groups of students favours dialogue and their participation.

EVALUATION

Exercises	20%
Practices	20%
Exam E1	60%
Exam E2	