



Universitat de Lleida

DEGREE CURRICULUM **ECOINNOVATION**

Coordination: PUIG VIDAL, RITA

Academic year 2019-20

Subject's general information

| | | | | |
|---|--|---------------|------------------|------------------|
| Subject name | ECOINNOVATION | | | |
| Code | 102357 | | | |
| Semester | 2nd Q(SEMESTER) CONTINUED EVALUATION | | | |
| Typology | Degree | Course | Character | Modality |
| | Not informed | 4 | OPTIONAL | Attendance-based |
| | Bachelor's degree in Industrial Organization and Logistics Engineering | 4 | OPTIONAL | Attendance-based |
| Course number of credits (ECTS) | 6 | | | |
| Type of activity, credits, and groups | Activity type | PRAULA | | TEORIA |
| | Number of credits | 3 | | 3 |
| | Number of groups | 1 | | 1 |
| Coordination | PUIG VIDAL, RITA | | | |
| Department | COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING | | | |
| Teaching load distribution between lectures and independent student work | 40% class 60% autonomous work | | | |
| Important information on data processing | Consult this link for more information. | | | |
| Language | english | | | |
| Distribution of credits | Theoretical credits 2 Practical credits 4 | | | |

| Teaching staff | E-mail addresses | Credits taught by teacher | Office and hour of attention |
|------------------|-------------------|---------------------------|------------------------------|
| PUIG VIDAL, RITA | rita.puig@udl.cat | 7,2 | |

Subject's extra information

Continuous work during the semester is recommended in order to achieve the aims of the subject. It is also important to visit frequently the virtual space associated with the subject.

Learning objectives

In this subject, the following objectives are to be achieved:

- To know what is and what is not eco-innovation
- Knowing the added value of eco-innovation for a company.
- Financial support for eco-innovation projects and how to write an application.
- How to apply eco-innovation to existing products / services of different types.
- How to apply eco-innovation in the design of new products / services.

The final goal is that the student achieves the necessary criteria to be able to Eco-innovate within his future job.

Competences

The most significant skills that will be worked on in this subject are:

B02 Students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

CE16. Define the basic knowledge and applications of environmental technologies and sustainability.

CT4. Apply basic knowledge of entrepreneurship and professional environments.

Subject contents

The program is structured in 5 topics with a teaching load of 60-hour and a total student-dedication of about 150h. The subjects are the following:

- TOPIC 1. INTRODUCTION TO ECOINNOVATION.

Have clear concepts such as: innovation, eco-design, eco-efficiency, eco-innovation, etc., and describe several examples.

- TOPIC 2. FINANTIAL SUPPORT TO ECOINNOVATION.

Seeing different existing programs and grants for companies that implement eco-innovation projects. Training on how to present a specific project to a specific call.

- TOPIC 3. CARBON FOOTPRINT AND OTHER TOOLS.

Different tools will be described, especially the carbon footprint, that can help us to Eco-innovate or to quantify the environmental and economic improvements achieved with an eco-innovation project. Their specific regulations will

be applied (ISO or others).

- TOPIC 4. INTERNATIONAL POLICIES.

The international climate change summits and the European policies of "single market for green products" will be studied.

- TOPIC 5. SOFTWARE FOR ECOINNOVATION.

Methodology

The classroom activities are divided into three parts that complement each other: theory, problems and practices.

Master class: in the theory classes, the most relevant theoretical concepts and results are introduced, illustrating them with examples and exercises.

Problems: in the classes of 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 be presented.

Practices: a series of practical sessions will be carried out with specific software for eco-innovation.

Evaluation: In the evaluation tests or evidences the theoretical concepts and the resolution of problems and practices that have been explained in the face-to-face activities will be evaluated. There will be two written tests and some follow-up tests.

In addition, students will be responsible for reinforcing their knowledge autonomously based on the teaching material provided or recommended by the teacher.

Both the theoretical classes and the problems and practices will be taught in small groups of students. These smaller groups of students stimulate the dialogue and their participation.

Development plan

| Topic | Weeks | Methodology | Hours in class | Hours of autonomous work |
|------------------------------------|-------|----------------------------|----------------|--------------------------|
| 1.Introduction | 1-3 | Master class and problems | 12 | 18 |
| 2.Eco-innovation financial support | 4-6 | Master class and problems | 12 | 18 |
| 3.Carbon footprint | 7-8 | Master class and problems | 8 | 12 |
| Midterm Exam | 9 | Written test | 2 | 3 |
| 4.International Policies | 10-11 | Master class and problems | 8 | 12 |
| 5.Software | 12-15 | Master class and practices | 16 | 24 |
| Final Exam | 16 | Written test | 2 | 3 |
| | | TOTAL | 60 | 90 |

Evaluation

The evaluation of the subject will take into account the exam and exercises grades with the following weight:

Exams: 50%

Exercises: 30% (compulsory)

Practices: 20% (compulsory)

Anyone who has not passed the course at the first opportunity will be able to take a final recovery exam that will include all the contents of the subject. This recovery exam will be held during the week proposed in the academic calendar.

Bibliography

The main resource are the notes of the subject.

Further reading:

- ISO 14040, 2006. Environmental management, Life cycle assessment, Principles and framework. ISO, Geneva, Switzerland.
- ISO 14044, 2006. Environmental Management - Life Cycle Assessment – Requirements and Guidelines. International Organization for Standardization, Geneva, Switzerland.
- Pere Fullana, Rita Puig, “El Análisis del Ciclo de Vida”, Ed. Rubes, Barcelona, 1997, pp 143. ISBN: 84-497-0070-1 Legal deposit: B-19627-97.
- Guia pràctica per al càlcul d'emissions d'efecte hivernacle (GEH). Oficina catalana de canvi climàtic. Març, 2018.
- BSI PAS 2050. Specification for the assessment of the Life Cycle Greenhouse Gas Emissions of goods and services, Carbon Trust. British Standards Institution, London, 2011.
- IPCC. Intergovernmental Panel on Climate Change. Guidelines for National Greenhouse Gas Inventories. National Greenhouse Gas Inventories Programme, 2006.
- ISO 14067, 2013. Greenhouse Gases – Carbon footprint of products – Requirements and guidelines for quantification and communication. International Organization for Standardization, Geneva, Switzerland.
- ISO 14064, 2006. Greenhouse Gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. International Organization for Standardization, Geneva, Switzerland.

Adaptations to the contents due to COVID-19

The program has been structured in 4 topics with a teaching load for students of 60 hours and a total dedication of about 150 hours. The topics are as follows:

- UNIT 1. INTRODUCTION TO ECOINNOVATION.

Have clear concepts such as: innovation, ecodesign, eco-efficiency, eco-innovation, etc., and see examples.

- UNIT 2. AID TO THE ECOINNOVATION.

View different existing programs and grants for companies launching eco-innovation projects. Know how to present and adjust a specific project to a call.

- UNIT 3. THE FOOTPRINT OF CARBON AND OTHER TOOLS.

Different tools will be described, especially the carbon footprint, which can be used to eco-innovate or to quantify the environmental and economic improvements achieved with an eco-innovation project. It will be based on the rules that govern them (ISO or others).

- UNIT 4. INTERNATIONAL POLICIES.

International climate change summits and European “single market for green products” policies.

UNIT 5 (SOFTWARE FOR ECOINNOVATION) of practices has been replaced by a PROJECT integrating the various contents that they have done in groups and that they have been doing throughout the course.

Adaptations to the methodology due to COVID-19

There have been no face-to-face classes since March 13, 2020, so face-to-face activities in theory, problems, and practice have been replaced by videoconferencing and recorded explanations of both theory and problems. The planned practices with the software have been eliminated (since it was installed exclusively on university computers).

Master class: the theory classes have been carried out by videoconference where the most relevant concepts and theoretical results are introduced, illustrating it with examples and exercises.

Problems: Small recordings have been made of how to solve problems and exercises of gradual difficulty to consolidate the concepts and notions of theory. Problems with real data arise. The issues delivered have been carefully corrected and detailed feedback has been given to the student on how to improve the exercise. In some cases it has been allowed to deliver a new corrected version, to see that they have really reached the necessary knowledge.

Practical: it has not been possible to carry out practical sessions with specific software for eco-innovation.

Project: the practices for a group project that have been working throughout the subject and that includes the application of diverse contents of the same have been replaced.

Evaluation: In the evaluation tests or evidences the theoretical concepts and the resolution of problems will be valued. There will be only a final written test and follow-up notes of the exercises delivered during the continuous assessment.

In addition, students have the responsibility to autonomously reinforce the theoretical concepts presented and worked with the teaching material prepared by the teacher.

Adaptations to the development plan due to COVID-19

| Units | Week | Methodology | Face-to-face sessions (h) | Autonomous work (h) |
|-----------------------------------|-------|---|---------------------------|---------------------|
| 1.Introduction | 1-3 | Master class & problems | 12 | 18 |
| 3.Carbon footprint | 4-6 | Master class & problems | 12 | 18 |
| 2.Ecoinnovation financial support | 7-8 | Master class & problems | 0 | 20 |
| 5. PROJECT | 5-15 | Practical application of the concepts in a real open project and teamwork | 0 | 44 |
| 4.International Policies | 10-11 | Videoconferencia y problemas | 0 | 20 |
| | | | | |
| Final Exam | 16 | Written test | 0 | 6 |
| | | TOTAL | 24 | 126 |

Adaptations to the evaluation due to COVID-19

The evaluation of the subject will take into account the grade of the exam and the grades of the proposed exercises with the following weighting:

Exam: 30% (a non-face-to-face final test)

Exercises: 40% (mandatory)

Project: 30% (required)

Those who have not passed the subject at the first opportunity will be able to take a final retake exam (on-line) which will include all the contents of the subject. This test will take place during the week marked in the academic calendar.