Universidad del País Vasco — Euskal Herriko Unibertsitatea

COURSE GUIDE 2025/26

Faculty 345 - Faculty of Engineering - Bilbao **Cycle** .

Degree DIPRO13a - Master in Project Management **Year** .

COURSE

504912 - Product life cycle management **Credits, ECTS:** 3

COURSE DESCRIPTION

Sustainability has become a fundamental pillar in project and product management. Integrating sustainable practices in these areas not only helps reduce environmental impact, but also improves efficiency and can lead to long-term economic and social benefits. Sustainable project management involves planning, executing and closing projects in a way that minimizes negative impacts on the environment and maximizes social benefits. Some key strategies include the integration of Sustainability Principles: Incorporate sustainable objectives from the planning phase.
-Selection of Materials and Resources: Use recycled or sustainably sourced materials.
-Energy Efficiency: Implement practices to reduce energy consumption.
-Waste Management: Minimize waste generation and promote recycling.
Sustainable product management focuses on the design and development of products with a focus on reducing environmental impact throughout their life cycle. This includes:
-Design for Sustainability: Create durable, repairable and recyclable products.
-Supply Chain Optimization: Select suppliers committed to sustainable practices.
-Transparency and Labeling: Provide clear information about the environmental impact of the product.
Quantifying environmental and social impacts is essential to understand and improve the sustainability of projects and products. This can be achieved through tools and methodologies such as Life Cycle Analysis (LCA). LCA is a methodology that evaluates the environmental impact of a product or service throughout its life cycle, from the extraction of raw materials to its final disposal.
There are various software tools for performing LCA, such as SimaPro, GaBi and OpenLCA. The basic calculations in these software usually include:
-Data Entry: Enter information about the product life cycle.
-Selection of Impact Methods: Choose environmental impact assessment methods.
-Analysis and Results: Run the analysis and review the results.
Integrating life cycle thinking into the management of new designs and projects can significantly improve their sustainability. This involves: Preliminary Stroke Evaluation; Conduct preliminary LCA studies to identify opportunities for improvement.

COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

COMPETENCIAS DE LA ASIGNATURA

Apply the theories of product design and its life cycle
To apply the tools and techniques used for the sustainable management of projects

RESULTADOS DE APRENDIZAJE DE LA ASIGNATURA

At the end of the course, students must have made adequate progress in the development of the following skills:
-Understand the current environmental problems associated with products and services management, according to the Green Deal and Circular Economy lows.
-Define the life cycle concept and identify the phases of the life cycle of a product
-Describe the fundamentals and regulations of the Life Cycle Analysis
-Understand evaluation methodologies and software tools for product life cycle analysis

Theoretical and Practical Contents

Introduction to Product and Organization Life Cycle Thinking
Introduction to the concept of the Life cycle, implications for the product manager.
Methodological principles of Life Cycle Analysis, based on international standards UNE-EN ISO 14040 and UNE-EN ISO 14044. Quantification of environmental and social impacts.
Learning to use a software tool that supports the development of Life Cycle Analysis.
Real case studies.

METODOLOGIA (ACTIVIDADES FORMATIVAS)

Actividad Formativa	Hours	Porcentaje presencialidad
Exercises	15	10 %
Groupwork	30	10 %
Expositive classes	30	33 %

TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	10		20		0				
Horas de Actividad No Presencial del Alumno/a	10		15		20				

Legend: M: Lecture-based | S: Seminar | GA: Applied classroom-based groups | GL: Applied laboratory-based groups | GO: Applied computer-based groups | GCL: Applied clinical-based groups | TA: Workshop | TI: Industrial workshop | GCA: Applied fieldwork groups

Evaluation tools and percentages of final mark

Denominación	Ponderación mínima	Ponderación máxima
Attendance and participation	10 %	30 %
Drawing up reports and presentations	30 %	50 %
Written examination	15 %	35 %
Presentations	25 %	45 %

ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The evaluation of the subject is carried out continuously throughout the academic year. The finale grade of the subject takes into account the following factors: Attendance (30%): Although attendance is not mandatory, it is highly recommended.. Individual and / or group work (55%): students must submit a work assigned at the beginning of the lesson. The work will be delivered by uploading it to Egela within the specified deadlines. In order to pass the subject, the work must obtain a grade of 5 out of 10. Exam (15%): In order to pass the subject, the student must obtain a minimum grade of 4 out of 10. The weight corresponding to each factor (attendance, individual-team work, examination) will be applied. If one of the works (individual or in group) has not passed the established cut-off mark, the final grade of the subject will not be submitted. If the exam grade is below 4.0, the final grade for the lesson will be the same as the exam grade. If the student decides to waive the Continuous Assessment of this subject, must notify in writing way before the last day for the submission of the work. You will find this date in eGela platform. In this case, to pass the lesson, the student will be assessed through a written exam. In this exam, in addition to those posed in the exam conducted by the continuously assessed students, other questions may also be included, and all the content learned in the corresponding term of the call will be included. This assessment will be completed with an oral examination, which will take place on the day of the written examination, after requesting an appointment from the students who have registered for this call. In the oral exam, students will answer questions related to the content learned in the classroom, as well as about the activities done in class. The student will have to pass two tests to pass the lesson. If the health conditions prevent the teaching activity or face-to-face assessment, an online modality will be activated and students will be informed (applicable to all calls: regular, extraordinary and progress).

EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

Those who have to sit the extraordinary call will do so in the same way as they did in the ordinary call. In other words, those who took the continuous assessment will complete the tests (individual/team work, exam) that they did not pass in the ordinary call.
The grade for the course will be obtained by applying the corresponding weight to each of the factors (attendance, individual/team work, exam).
If any of the work (individual/team work) has not passed the established cut-off mark, the final mark for the course will be No Show.
If the exam mark is lower than 4.0, the final mark for the course will be that corresponding to the exam mark.
Those who waive the continuous assessment, will be submitted to a written and oral exam as described in the previous section (Ordinary call: orientations and waiver).

MANDATORY MATERIALS

Slides uploaded to eGela.
Basque Ecodesign Center. Obsolescencia programada: ¿mito o realidad?. Cuaderno de Ideas nº6. Gobierno Vasco, 2014.

Doménech-Quesada J.L., Huella ecológica y desarrollo sostenible. AENOR, 2007.

Gestión ambiental: Análisis del ciclo de vida. Principios y marco de referencia. UNE-EN ISO 14040. Madrid. AENOR, 2006

Global Footprint Network, Ecological Footprint Accounting: Building a Winning Hand. Global Footprint Network, 2007.

Guidance on Organizational Life Cycle Assessment. Life Cycle Initiative. UNEP SETAC, 2015.

Recomendación de la Comisión de 9 de abril de 2013 sobre el uso de métodos comunes para medir y comunicar el comportamiento ambiental de los productos y las organizaciones a lo largo de su ciclo de vida (2013/179/EU). Comisión de las Comunidades Europeas, 2013.

BIBLIOGRAPHY

Basic bibliography

Basque Ecodesign Center. Obsolescencia programada: ¿mito o realidad?. Cuaderno de Ideas nº6. Gobierno Vasco, 2014.

Doménech-Quesada J.L., Huella ecológica y desarrollo sostenible. AENOR, 2007.

Life Cycle Assessment: a metric for the Circular Economy. Royal Society of Chemistry. 2021

Etiquetas ecológicas y declaraciones ambientales. Principios generales. UNE-EN ISO 14020. Madrid. AENOR, 2002

Gestión ambiental: Análisis del ciclo de vida. Principios y marco de referencia. UNE-EN ISO 14040. Madrid. AENOR, 2006

Global Footprint Network, Ecological Footprint Accounting: Building a Winning Hand. Global Footprint Network, 2007.

Guidance on Organizational Life Cycle Assessment. Life Cycle Initiative. UNEP SETAC, 2015.

Ihobe - Sociedad Pública de Gestión Ambiental. Etiquetado ambiental de producto. Guía de criterios ambientales para la mejora de producto. Gobierno Vasco, 2011.

Recomendación de la Comisión de 9 de abril de 2013 sobre el uso de métodos comunes para medir y comunicar el comportamiento ambiental de los productos y las organizaciones a lo largo de su ciclo de vida (2013/179/EU). Comisión de las Comunidades Europeas, 2013.

Detailed bibliography

Braungart M., McDonough W. Cradle to Cradle: Remaking the Way We Make Things. Farrar, Straus and Giroux, 2002.
Ihobe - Sociedad Pública de Gestión Ambiental. Etiquetado ambiental de producto. La declaración ambiental de producto. Un instrumento de información y comparación ambiental entre productos. Gobierno Vasco, 2015.

Journals

Journal of Cleaner Production - Elsevier
Journal of Management and Sustainability | CCSE
Journal Of Life Cycle Assessment - Springer Journal

Web sites of interest

http://www.aenor.es
https://www.ellenmacarthurfoundation.org
http://www.ihobe.eus
http://www.iso.org