

COURSE GUIDE

2025/26

Faculty 345 - Faculty of Engineering - Bilbao

Degree DIPRO13a - Master in Project Management

Cycle .

Year .

COURSE

504914 - Technologies for Project Management

Credits, ECTS: 3

COURSE DESCRIPTION

In today's rapidly changing world, sustainability is more important than ever for project success. Project sustainability requires both individual and organizational responsibility to ensure that outputs, outcomes, and benefits are sustainable over their entire life cycles and during their creation, disposal, and decommissioning. Including sustainability in the project vision from the outset ensures that it is not traded or forgotten. Sustainability is relevant across all areas of project-based working. For instance, the procurement team is seeking opportunities to buy from sustainable sources and to make the supply chain more efficient. Project professionals have a responsibility to ensure that their work minimizes, or ideally positively affects, ongoing sustainability.

Sustainability requires balancing between four key concerns: the environment, society, the economy, and administration. Throughout this course, we will learn on the latest technology tools available specifically focused towards environmental and economic sustainability for project managers. The environmental sustainability at different levels, including material acquisition, product manufacturing and organization-level will be studied using life cycle assessment (LCA) according to ISO standards. A computer aided design (CAD) tool will be utilized as well to obtain quick yet relevant information on the environmental impact of manufactured products so the information obtained could guide decision-making during the early stages of a project management. The economic aspects will be also explained utilizing techno-economic assessment (TEA), a tool resulting especially useful at low technology readiness levels (TRLs). Besides, EPDs (Environmental Product Declarations) will be understood as a relevant novel driver in the field of consultancy. Finally, digital passport, and material circularity will be also included to provide a wide perspective on the novel trends in the field.

COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

COMPETENCIAS DE LA ASIGNATURA

To apply and develop the methodologies, technologies and tools used in research in the discipline of project management

RESULTADOS DE APRENDIZAJE DE LA ASIGNATURA

- The student who successfully completes this subject should be able to:
- Structure an organization, product or service to carry out a Life Cycle Assessment (LCA).
 - Through LCA, calculate the environmental impacts, using different softwares.
 - Evaluate and interpret the results of LCA and be able to propose optimization improvements.
 - Evaluate the economic sustainability of a new design.
 - Delve into novel market and project trends in the sustainability field: material circularity and digital passport.
 - Acquire competences in writing by reinforcing the statements using literature references.

Theoretical and Practical Contents

Taking into account the objectives and competences that students should acquire by taking this subject, we propose a division of the theoretical content into the following topics:

- 1 Introduction: Framework and sustainability in project management.
- 2 Solid Works Sustainability: We will use a general-purpose CAD software to quickly assess the sustainability of products. Exercises.
- 3 Techno-economic assessment (TEA): Introduction. Examples. Exercises utilizing Excel spreadsheet templates.
- 4 Life Cycle Assessment and Environmental Product Declaration: Introduction. LCA software use. Exercises. Environmental Product Declaration introduction. How to retrieve product Category Rules. Exercise.
- 5 Material Circularity and Digital Passport: Introduction. Examples. Exercises.
- 6 Managing references. Quick guide; available software.

METODOLOGIA (ACTIVIDADES FORMATIVAS)

Actividad Formativa	Hours	Porcentaje presencialidad
Groupwork	20	10 %
Exercises	25	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		10		10				
Horas de Actividad No Presencial del Alumno/a	10		20		15				

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	0 %	15 %
Written examination	0 %	15 %
Presentations	0 %	45 %
Practical tasks	30 %	80 %

ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The assessment of the subject is carried out continuously throughout the course. The following factors are taken into account in the grading of the course:

Attendance and participation (20%): Although attendance is not compulsory, it is highly recommended due to the contents developed in the classroom. For this reason, attendance forms part of the calculation of the final grade.

Team work (groups of two) (40%): At the beginning of the course, students will be assigned to work teams of two people. Teamwork in this class is considered very relevant and therefore has a significant importance in the evaluation of the students. Each team must deliver a designated paper at the beginning of the course. The work will be presented orally on the last day of the course in Power Point format, and will be shared with the rest of the students. In order to pass the course, the work must have obtained a grade higher than 5 out of 10.

Exam (40%): As in the certification exams of the professional associations of project management, the exam will be in the form of a multiple-choice test. In order to pass the course, the work must have obtained a grade of more than 4 out of 10.

- The grade for the course will be obtained by applying the corresponding weight to each of the factors (attendance, team work and exam).
- If any of the 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.
- If the student decides to waive the Continuous Assessment of this subject, he/she must communicate it in writing before the deadline for the submission of the individual work. This date can be found in the Student Guide available on the eGela platform.

In this case, in order to pass the course, the student will be assessed by means of a written exam that may contain additional questions to those posed in the exam to which students who are assessed on a continuous basis are submitted and which will include all the contents studied throughout the four-month period corresponding to the exam. This assessment will be completed with an oral exam which will take place on the same day as the written exam, by prior appointment for students registered for this exam. In the oral exam, students will be asked about the contents studied in the classroom, as well as about the activities carried out during the corresponding four-month period. In order to pass the course, students must pass both tests.

In the event that health conditions prevent the completion of a teaching activity and/or face-to-face assessment, a non-face-to-face modality will be activated, of which students will be promptly informed (applicable to all exams: ordinary, extraordinary and advance).

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 (team work and 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, team work and exam).

If any of the work (individual or 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

To guarantee the understanding and acquisition of the contents of the theoretical program, different activities will be carried out, including:



- Theoretical exposition by the teacher.
- Individual and/or group case studies during classroom teaching.
- Reading documents / watching videos during the non face-to-face teaching.
- Development of two individual works in pairs and their oral presentation. This work will be assigned on the first day of class and will be presented on the second and third day of class.

The materials necessary for the realization of the activities will be provided through the eGela platform (<https://egela.ehu.eus/login/index.php>). The activities will be fed back through this tool and/or in the classroom. This material includes the regulations governing the subject, the syllabus of the subject, the audiovisual material used by the teaching staff and the script of the activities to be carried out. In addition to this teaching material, links to complementary information sources will be provided, in order to complement and deepen the aspects developed during the different thematic blocks.

The students have the contact information of the teaching staff to ask any questions, problems or issues that may arise in the development of the subject.

BIBLIOGRAPHY

Basic bibliography

- ISO 14006:2020 Environmental management systems — Guidelines for incorporating ecodesign: <https://www.iso.org/standard/72644.html>.
- The European Green Deal - Plan de Acción de Economía Circular: https://ec.europa.eu/commission/presscorner/detail/es/ip_20_420
- Basque Ecodesign Center (2016). Ecodiseño para una Economía circular: Claves para fomentar un modelo económico sostenible. Cuaderno de Ideas nº13. Edita: Eusko Jaurlaritza / Gobierno Vasco.
- SolidWorks: <https://www.solidworks.com/es>
- <https://www.euskadi.eus/documentacion/2017/guia-para-la-aplicacion-conjunta-de-los-analisis-de-ciclo-de-vida-ambiental-lca-y-de-costes-lcc/web01-a2ingkut/es/>
- Department of Energy: <https://www.energy.gov/eere/iedo/techno-economic-energy-carbon-heuristic-tool-early-stage-technologies-techtest-tool>
- EPD International <https://www.environdec.com/home>
- <https://www.uselessgroup.org/files/wellmet2050-going-on-a-metal-diet.pdf>
- Eurostat <https://ec.europa.eu/eurostat>
- The Circular Economy Foundation: http://economiacircular.org/EN/?page_id=62
- AENOR Gestión del Ecodiseño ISO 14006: <https://www.aenor.com/certificacion/medio-ambiente/ecodiseno>
- Ihobe: <https://www.ihobe.eus/inicio>
- Basque Ecodesign Center: <http://www.basqueecodesigncenter.net/Default.aspx?IdMenu=20552758-7739-4933-b86f-8a063bb65abc&Idioma=es-ES>

Detailed bibliography

Journals

- International Journal of Sustainable Design
- Journal of Cleaner Production
- Journal of Industrial Ecology
- Sustainability
- ACS Sustainable Resource Management
- Nature Sustainability
- Project Management Network.
- PMI Project Management Journal. PMI
- International Journal of Project Management. Elsevier
- Journal of Business Research. Elsevier

Web sites of interest