

4S_FB_Eco-efficiency and sustainability

Qualification: Degree in Higher Artistic Education in Design in the specialties of graphic design, interior design, fashion design and product design.

Subject: Science applied to design

Type: Basic Training

Credits: 4 ECTS

Total hours: 100 h

Course: 2

Hours/week: 6,3 h

Semester: 4

Face-to-face hours/week: 3 h

Language in which it is taught: Catalan / Spanish

Self-employed hours/week: 3,3 h

Prerequisites:

1. Presentation of the subject

The subject introduces, through the analysis of cases of design artifacts (of conventional materials and processes), the identification of the main design problems based on the consideration of economic, social and environmental parameters and the knowledge of the main concepts of sustainability and degrowth.

The subject has the following main objectives:

- To raise awareness among students in such a way that it leads them to reflect on models of human interaction with the environment, on their ecological footprint.
- Critically assess the environmental problems of our society.
- Use examples of significant cases that take into account eco-efficiency and sustainability, as values incorporated into design processes.
- To rethink the profession more ethically.
- To influence future projects and professional practices in a cross-cutting manner.

2. Course contents

The Eco-efficiency and Sustainability subject presents the following contents:

1. Human cultures and sustainability.
 - Models of human interaction with the environment.
 - Art, Crafts and Technique.
 - The concept of sustainability.
 - The concept of degrowth.
 - Sustainability indicators.

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2. Functioning of ecosystems and dysfunctions of consumer society.
 - Ecosystem management.
 - Closed cycles and open cycles.
 - Resource management.
 - Waste management.
 - Planned obsolescence.
3. Recycling culture.
 - Matter and energy.
 - Recyclable or recycled materials.
 - Economic feasibility.
 - General characteristics of the organic product.
4. Life Cycle Assessment and implications in the design process.
 - Concepts of efficiency and eco-efficiency.
 - Specific strategies for ecological design.
 - Evaluation of the methodological process, results and environmental and social repercussions.
 - The 8 "R" cycle.
5. Profile of the eco-designer.
 - Ethics in Design.
 - Characteristics of ecological or sustainable design.

3. Skills worked on in the subject(Real Decret 633/2010)

Transversal skills		Subject	Subject
CT-11	Develop in work practice a professional ethic based on aesthetic, environmental and diversity appreciation and sensitivity.	x	x
CT-16	Use the means and resources at your disposal responsibly towards cultural and environmental heritage.	x	x

General skills		Subject	Subject
CG-04	Have a scientific view on the perception and behavior of form, matter, space, movement and color.	x	x
CG-16	Be able to find environmentally sustainable solutions.	x	x
CG-18	Optimize the use of the resources necessary to achieve the planned objectives.	x	x

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4. Subject learning outcomes

SUN	Description of the learning outcome	Skills
RA-01	Identify the main design problems related to economic, ergonomic, environmental and social impact.	CT-11
RA-02	Identify and understand the items of the analysis method.	CT-11
RA-03	Learn specific strategies for ecological design.	CT-11
RA-04	Reflect on the models of human interaction with the environment.	CT-11
RA-05	Reflect on and define the profile of the eco-designer and ethics in design.	CT-11
RA-06	Analyze sustainability indicators.	CT-11
RA-07	Examine how ecosystems are managed.	CT-16
RA-08	Define and differentiate between backpack and ecological footprint.	CT-16
RA-09	Develop and explain the concepts of sustainability and degrowth.	CT-16
RA-10	Describe and analyze the concepts of efficiency and eco-efficiency.	CT-16
RA-11	Understand the closed cycles of nature and analyze the open cycles of our industrial systems.	CT-16
RA-12	Describe the factors of environmental problems.	CT-16
RA-13	Selection of significant cases based on certain requirements (sustainability, ergonomics, materials, etc.).	CG-04
RA-14	Analyze design artifacts based on the characteristics and recycling of materials.	CG-16
RA-15	Analyze design artifacts based on Life Cycle assessment and design implications.	CG-16
RA-16	Analyze the concept of planned obsolescence.	CG-18
RA-17	Research on resource management and waste management.	CG-16
RA-18	Apply sustainability and environmental criteria related to the different stages of a material's life cycle based on the analysis of real cases.	CG-16
RA-19	Evaluate the results of an ecodesign using specific evaluation methods.	CG-16
RA-20	Demonstrate through samples knowledge of the properties of materials, as well as their relationship with the environment and the user.	CG-16

5. Teaching methodologies applied to the subject

Get up	Typology	Description	Apply
MD1	Conference and/or master class	The teacher presents and transmits knowledge to the entire group	X

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		of students, the student has a passive role, that of a receiver.	
MD2	Debate and/or discussion	The teacher encourages and moderates debates and/or discussions that promote reflection, critical thinking and active participation of students in the classroom.	X
MD3	Readings and/or comments	Use of selected texts or materials as a starting point to promote reflection, critical understanding and debate among students.	X
MD4	Tests and/or exams	Formal and structured activity to collect evidence on the degree of achievement of knowledge, skills or competencies by students. This can be written, oral or practical and includes a variety of formats: questionnaires, problems, open questions, practical exercises, etc.	X
MD5	Workshops and/or internships	Carrying out practical activities applied in a controlled environment, oriented towards learning through experience and/or the transfer of theoretical knowledge to real or simulated situations.	X
MD6	Presentations and/or defenses	Publicly presenting the results of a work, project or research in front of an audience.	X
MD7	Case study	Analysis of situations or problems within the specialty with the aim of reflecting, analyzing and discussing different intervention or solution proposals through examples or references.	X
MD8	Project work	Project or problem based on the real or professional world that needs to be solved independently or in a group.	X
MD9	Guided practice	The teacher presents and transmits theoretical knowledge applied to practical activities that take place in the classroom. The teacher guides, supervises and gives active feedback during the practice.	X
MD11	Collaborative work	Joint construction of knowledge through interaction and collaboration between students. The teacher has a guiding and dynamizing role.	X
MD12	Agile methodologies	Type of teamwork in which work is carried out in several short periods of time.	X

6. Training activities of the subject

Get up	Description	Duration	Weighting
AF1	Case analysis	30 h	30% - 40%
AF2	Trial	3 h	30%
AF3	Reworking possible alternatives to a problem	15 h	30% - 40%

7. Evaluation systems

Due to their typology and educational program, all subjects in the ESDAPC undergraduate design studies include continuous assessment as a procedure to regulate and qualify the learning achieved by students during the semester.

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In the event of not achieving the level of sufficiency in the evaluation activities within the closing milestones set out in the subject's schedule, the activities not passed may be corrected and/or completed within the recovery procedure defined by the teaching staff in their schedule.

7.1. Continuous evaluation

General evaluation criteria

The ESDAPC sets some general **evaluation criteria** which are common to all teaching guides, without prejudice to specific evaluation and grading criteria of each subject:

- Subject grading: A weighted average of the grades obtained in each of the training activities will be made in accordance with the percentages described in the teaching guide and classroom schedule. The subject will be passed with a grade of 5.0 (Pass). All assessment activities can be corrected and/or completed within the recovery procedure within the continuous assessment that the teaching staff defines in their classroom schedule.
- Class attendance is essential in order to guarantee that learning is progressive, flexible and allows feedback and adjustments in its achievement within the continuous assessment. For this reason, class attendance is mandatory. The teaching staff establishes the mechanisms to control it. The student who does not attend a minimum of 80% of the face-to-face hours of the subject loses the right to continuous assessment and may present for remediation outside of the continuous assessment defined in the teaching guide and classroom schedule for the subject. In cases of serious absenteeism, with attendance of less than 60% of the face-to-face hours of the subject, the student will lose the right to be evaluated and will have a grade of "Not Presented".
- The ability to organize and plan tasks is part of the learning outcomes that the student must achieve within the training process, therefore the deliverables of the evaluation activities must conform to the deadlines, the format and contents defined in the activity statement in order to be qualified. Activities submitted after the deadline, format and/or minimum content will be considered outside the continuous assessment process, will not be evaluated within it and will have to be resubmitted as a recovery.
- In the event of a submission or exam coinciding with a force majeure situation, the student may request to submit an activity after the deadline or repeat an exam, without being considered out of continuous assessment. This submission or exam will be carried out according to the conditions and calendar determined by the teaching staff.
 - Force majeure is understood to mean: serious illness or temporary incapacity (hospitalization) of student or a first-degree relative, coincidence with an official language level or driving license ex inexcusable duties before the administration or death of a first- or second-degree relative. It must be requested in an argued and justified manner in the form of [generic application](#), addressed to the campus management, and must necessarily include the original with a stamp of the document proving the major cause alleged.

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- The evaluation process is based on the student's personal work and presupposes the authenticity of the authorship and originality of the exercises carried out. Any act of copying and/or plagiarism or irregular use of Artificial Intelligence (AI) will result in the immediate and irrevocable suspension of the assessable activity, without the right to recovery.

However, and without contradicting these general criteria, each teacher may define other specific complementary conditions, which must be informed and published in writing at the beginning of the course to all students enroll in their subject.

These complementary conditions cannot in any case result in a penalty or limitation of the qualification of an activity, nor the loss of the right to recover an activity.

Specific evaluation criteria within continuous evaluation

Specific evaluation criteria		Related AR	% of the grade
CA-01	Selection of significant cases.	RA-13	3-4
CA-02	Ability to collect appropriate information. Level of in-depth analysis and ability to relate concepts. Ability to draw conclusions.	RA-14	9
CA-03	Identify and analyze indicators to measure the sustainability index.	RA-06	3-4
CA-04	Reflect on the concept of sustainability and degrowth based on specific cases.	RA-09	3-4
CA-05	Reflect on the concept of planned obsolescence.	RA-16	3-4
CA-06	Understand the functioning of ecosystems.	RA-07	3-4
CA-07	Analyze cases based on the closed cycles and open cycles they generate.	RA-11	6
CA-08	Describe how resources are managed. Describe how waste is managed.	RA-17	3-4
CA-09	Analyze and explain resource and waste management based on specific cases.	RA-12	3-4
CA-10	Analyze and explain the life cycle of a product.	RA-15	3-4
CA-11	Identify the general characteristics of the organic product.	RA-01	3-4
CA-12	Evaluate the 8 "R" cycle in production and analysis methods.	RA-04	6
CA-13	Discuss aspects related to the ethics and profile of the eco-designer.	RA-05	3-4
CA-14	Ability to apply theory to concrete examples. Critical reasoning.	RA-19	9
CA-15	Interpretation and application of both theory and current regulations specific to the specialty. Diversity of alternative proposals.	RA-02-RA-08 RA-10-RA-20	16-12
CA-16	Identification of relevant solutions.	RA-19	2-1
CA-17	Ability to make strategic use of the application of acquired knowledge in complex tasks and decisions. Evaluate the life cycle of a product and plan specific strategies for ecological design.	RA-18	2
CA-18	Know and analyze the strategies planned regarding: - conservation of energy - uses of materials - waste minimization - to the constructive methodology - durability and permanence - reuse and alternative uses - service rental - shared uses	RA-03-RA17 RA-18-RA-19 RA-20	20-15

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- multifunctionality
- adaptability.

Evaluation instruments within continuous evaluation

The following will be used as an evaluation instrument:

- Rubrics.
- Questionnaires.
- Application exercises.
- Individual and/or group feedback: written or oral.
- Monitoring reports.
- Direct observations.
- Observation records.
- Self-assessment.
- Co-evaluation.

7.2. Recovery

General recovery criteria

The ESDAPC sets general recovery criteria that are common to all teaching guides, without prejudice to the specific evaluation and grading criteria of each subject:

- The ESDAPC provides for a single recovery per activity. The recovery of suspended activities will be done within the deadlines defined by the teaching staff in their teaching guide and classroom schedule within the same semester. In the event that the teaching staff has not established a recovery calendar, the student may submit the recovery activities during the last school week of the semester.

Specific recovery criteria within continuous assessment

Within the continuous assessment, the student will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Specific recovery criteria outside of continuous assessment

Outside of continuous assessment, students will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher, including the presentations made and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Subject recovery instruments outside of continuous assessment

Individual submission of individual and group work that has been suspended or not completed throughout the course and taking the test if it has not been taken.

8. Educational care within the framework of an inclusive education system

This Teaching Guide takes into account educational care within the framework of an inclusive educational

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system that includes two reference frames that support it:

- MISU: Universal Measures and Supports to promote personal and social development in equity and equality.
- DUA: Universal Learning Design, which allows flexible learning situations to be created based on a design that detects and minimizes the barriers of the context, from the beginning, and that considers variability.

However, to ensure freedom of thought and opportunities in relation to the gender perspective, a co-educational dynamic is carried out that avoids the predisposition of differential treatment, role attributions or assumptions of abilities determined by gender.

The MISU and DUA will be applied to all ESDAPC students. Those students in need of additional measures and support will be included through an Individualized Support Plan.

9. Copying, plagiarism, and academic honesty

From a legal point of view, plagiarism is an infringement of copyright.

The ESDAPC NOFC describes in section 5.4 irregular conduct in the evaluation procedure, which includes copying or plagiarism in any academic activity.

10. Use of Artificial Intelligence (AI)

ESDAPC recognizes the value of Artificial Intelligence (AI) in the educational field, while highlighting the risks it entails if it is not used ethically, critically and responsibly. In this sense, in each assessment activity, students will be informed about the AI tools and resources that can be used and under what conditions, recommended whenever it is used as an assistant during the research process or as another source. In both cases, it must comply with the [citation regulations established by the APA](#).

For their part, students undertake to follow the instructions of the ESDAPC when carrying out the evaluation activities and citing the tools used and, specifically, to identify the texts or images generated by AI systems, which they may not present as their own.

Misuse of this tool can seriously affect the evaluation of the assessment activities. If in doubt, it is recommended that, before submitting the activity, a consultation be sent to the teacher.

For the evaluation, students are responsible for any possible errors that Artificial Intelligence may make.

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11. Sources of information and teaching resources

Basic bibliography

Latouche, S. (2009). A short treatise on serene degrowth. Barcelona: Icaria.
Raworth, K. (2018) Doughnut Economics: 7 Ways of Thinking About the Economy of the 21st Century. Barcelona: Paidós
Moxon, Siân; (2012). Sustainability in interior design. Barcelona: Blume.

Reference bibliography and other resources

Braungart, M i Mc Donough, W. (2005) Cradle to cradle. Madrid: Mc Graw Hill.
Datschefski, E. (2002). Product Redesign. Barcelona: McGraw Hill.
Fuad-Luke, A. (2002). Ecological Design Manual. Barcelona: Gustavo Gili.
Solanas,T.; Calatayud,D. and Claret,C. (2009.) 34 Kilos of CO2. Barcelona: Linia zero Edicions.
Viñolas, J. (2005). Ecological Design. Barcelona: Blume.
Brown, R. and Farrelly, L. (2012) Materials in interior design. Barcelona: Blume.
Anonymous. (2017). Desert. Postecologist manifesto. Santa Cruz de Tenerife: Melusina.
Bluetool. Available at: http://lapageoriginal.com/blue_tool/
Matitecno: <https://blocs.xtec.cat/matitecno/>

Audiovisuals

Connors, N. and Connors, L. (2007). The Eleventh Hour. Available at:
<http://www.fundaciontierra.es/ca/publicacions/documents-tercer-milleni/la-hora-11-pack-dvdllibre>
Furtado, J. (1989). The Island of Flowers. Available at: <https://www.youtube.com/watch?v=9fEMHB9kksM>
Leonard, A. (2007). The Story of Stuff. Available at: <https://www.youtube.com/watch?v=8UqBuUSn3hY>
Morgan, F. (2003). The Power of Community: How Cuba Survived Peak Oil. Disponible en:
<https://www.youtube.com/watch?v=-O3InwwKnXA>
Stevens, F. (2016). Before the Flood. Disponible en: <https://www.youtube.com/watch?v=8UqBuUSn3hY>

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12. Training activity sheets

ACTIVITY 1	Duration: 10 weeks	Weighting: 30% - 40%
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Description of the activity

Preparation of individual and/or team work:

1. The alumni will prepare a dossier based on questions about the contents of the blog.
2. The answers to the questions will ask about the relationship between different concepts.
3. The activity will combine the contents of the master class with a selection of texts or books and an audiovisual document: films, documentaries, conferences...
4. This activity will include reading a book or dossier of texts related to the topic, such as:
 - Latouche, Serge; (2009) "A Short Treatise on Serene Degrowth". Ed. Icaria. Barcelona.
 - Raworth, K. (2018) Doughnut Economics: 7 Ways of Thinking About the Economy of the 21st Century. Barcelona: Paidós
 - Braungart, M ; Mc Donough, W. (2005) Cradle to cradle. Ed. Mc Graw Hill. Madrid .
5. A real and eco-responsible practice is proposed for everyday life.

This experience must be documented and aims to raise the student's awareness of eco-efficient practices at a professional and/or user level.

Contents

Block 1. Human cultures and sustainability

Block 2. Functioning of ecosystems

Block 3. Recycling culture

Skills

CT-11	Develop in work practice a professional ethic based on aesthetic, environmental and diversity appreciation and sensitivity.
CT-16	Use the means and resources at your disposal responsibly towards cultural and environmental heritage.
CG-04	Have a scientific view on the perception and behavior of form, matter, space, movement and color.
CG-16	Be able to find environmentally sustainable solutions.

Applied teaching methodologies

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MD1	The teacher presents and transmits knowledge to the entire group of students, the student has a passive role, that of a receiver.
MD2	The teacher encourages and moderates debates and/or discussions that promote reflection, critical thinking and active participation of students in the classroom.
MD3	Use of selected texts or materials as a starting point to promote reflection, critical understanding and debate among students.
MD5	Carrying out practical activities applied in a controlled environment, oriented towards learning through experience and/or the transfer of theoretical knowledge to real or simulated situations.
MD6	Publicly presenting the results of a work, project or research in front of an audience.
MD7	Analysis of situations or problems within the specialty with the aim of reflecting, analyzing and discussing different intervention or solution proposals through examples or references.
MD8	Project or problem based on the real or professional world that needs to be solved independently or in a group.
MD9	The teacher presents and transmits theoretical knowledge applied to practical activities that take place in the classroom. The teacher guides, supervises and gives active feedback during the practice.
MD11	Joint construction of knowledge through interaction and collaboration between students. The teacher has a guiding and dynamizing role.
MD12	Type of teamwork in which work is carried out in several short periods of time.

Learning outcomes

RA-01	Identify the main design problems related to economic, ergonomic, environmental and social impact.
RA-05	Reflect on and define the profile of the eco-designer and ethics in design.
RA-06	Analyze sustainability indicators.
RA-07	Examine how ecosystems are managed.
RA-09	Develop and explain the concepts of sustainability and degrowth.
RA-12	Describe the factors of environmental problems.
RA-13	Selection of significant cases based on certain requirements (sustainability, ergonomics, materials, etc.).
RA-15	Analyze design artifacts based on Life Cycle assessment and design implications.
RA-16	Analyze the concept of planned obsolescence.
RA-17	Research on resource management and waste management.

Continuous evaluation

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Specific evaluation criteria within continuous evaluation

CA-01	Selection of significant cases.
CA-03	Identify and analyze indicators to measure the sustainability index.
CA-04	Reflect on the concept of sustainability and degrowth based on specific cases.
CA-05	Reflect on the concept of planned obsolescence.
CA-06	Understand the functioning of ecosystems.
CA-08	Describe how resources are managed. Describe how waste is managed.
CA-09	Analyze and explain resource and waste management based on specific cases.
CA-10	Analyze and explain the life cycle of a product.
CA-11	Identify the general characteristics of the organic product.
CA-13	Discuss aspects related to the ethics and profile of the eco-designer.
CA-14	Ability to apply theory to concrete examples. Critical reasoning.
CA-15	Interpretation and application of both theory and current regulations specific to the specialty. Diversity of alternative proposals.
CA-16	Identification of relevant solutions.
CA-17	Ability to make strategic use of the application of acquired knowledge in complex tasks and decisions. Evaluate the life cycle of a product and plan specific strategies for ecological design.
CA-18	Know and analyze the strategies planned regarding: ● conservation of energy ● alternative uses of materials ● waste minimization ● constructive methodology ● durability and permanence ● reuse and alternative uses ● service rental ● shared uses ● multifunctionality ● adaptability.

Evaluation instruments within continuous evaluation

The following will be used as an evaluation instrument:

- Rubrics.
- Application exercises.
- Individual and/or group feedback: written or oral.
- Monitoring reports.
- Direct observations.

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- Observation records.
- Self-assessment.
- Co-evaluation.

Specific recovery criteria within continuous assessment

Within the continuous assessment, the student will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

Outside of continuous assessment, students will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher, including the presentations made and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery instruments outside of continuous assessment

Individual submission of individual and group work that has been suspended or not completed throughout the course and taking the test if it has not been taken.

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ACTIVITY 2	Duration: 1 week	Weighting: 30%
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Description of the activity

Written test with short answer or multiple choice questions. It will include:

- The contents of the blogs:
 - Block 1. Human cultures and sustainability
 - Block 2. Functioning of ecosystems
 - Block 3. Recycling culture
- The conclusions drawn from the 3 previous activities + textual, audiovisual supports, conferences...
- The obligatory reading:
 - *Serge Latouche: "Treatise on serene degrowth"
 - *Raworth, K. (2018) Doughnut Economics: 7 Ways of Thinking About the Economy of the 21st Century. Barcelona: Paidós.

*Optional: one of the two. To be determined by each teacher.

Contents

Block 1. Human cultures and sustainability

Block 2. Functioning of ecosystems

Block 3. Recycling culture

Skills

CT-11	Develop in work practice a professional ethic based on aesthetic, environmental and diversity appreciation and sensitivity.
CT-16	Use the means and resources at your disposal responsibly towards cultural and environmental heritage.
CG-18	Optimize the use of the resources necessary to achieve the planned objectives.
CG-16	Be able to find environmentally sustainable solutions.

Applied teaching methodologies

MD3	Use of selected texts or materials as a starting point to promote reflection, critical understanding and debate among students.
MD4	Formal and structured activity to collect evidence on the degree of achievement of knowledge, skills or

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competencies by students. This can be written, oral or practical and includes a variety of formats: questionnaires, problems, open questions, practical exercises, etc.

Learning outcomes

RA-04	Reflect on the models of human interaction with the environment.
RA-11	Understand the closed cycles of nature and analyze the open cycles of our industrial systems.
RA-14	Analyze design artifacts based on the characteristics and recycling of materials.
RA-19	Evaluate the results of an ecodesign using specific evaluation methods.

Continuous evaluation

Specific evaluation criteria within continuous evaluation

CA-02	Ability to collect appropriate information. Level of in-depth analysis and ability to relate concepts. Ability to draw conclusions.
CA-07	Analyze cases based on the closed cycles and open cycles they generate.
CA-12	Evaluate the 8 "R" cycle in production and analysis methods.
CA-14	Ability to apply theory to concrete examples. Critical reasoning.

Evaluation instruments within continuous evaluation

The following will be used as an evaluation instrument:

- Rubrics.
- Questionnaires.
- Application exercises.
- Individual and/or group feedback: written or oral.

Specific recovery criteria within continuous assessment

Within the continuous assessment, the student will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

Outside of continuous assessment, students will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher, including the presentations

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made and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery instruments outside of continuous assessment

Individual submission of individual and group work that has been suspended or not completed throughout the course and taking the test if it has not been taken.

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ACTIVITY 3	Duration: 5 weeks	Weighting: 40% - 30%
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Description of the activity

Reworking possible alternatives to a problem.

1. Analysis of a design artifact applying the parameters described based on some method of evaluating results.
2. Proposal for improvement from the eco-efficient point of view of the device.
3. Realization of a report/case.
4. Public presentation of the results.

Contents

Block 4. Life Cycle Assessment

Block 5. Profile of the eco-designer

Skills

CT-11	Develop in work practice a professional ethic based on aesthetic, environmental and diversity appreciation and sensitivity.
CG-16	Be able to find environmentally sustainable solutions.

Applied teaching methodologies

MD1	The teacher presents and transmits knowledge to the entire group of students, the student has a passive role, that of a receiver.
MD2	The teacher encourages and moderates debates and/or discussions that promote reflection, critical thinking and active participation of students in the classroom.
MD5	Carrying out practical activities applied in a controlled environment, oriented towards learning through experience and/or the transfer of theoretical knowledge to real or simulated situations.
MD6	Publicly presenting the results of a work, project or research in front of an audience.
MD7	Analysis of situations or problems within the specialty with the aim of reflecting, analyzing and discussing different intervention or solution proposals through examples or references.
MD8	Project or problem based on the real or professional world that needs to be solved independently or in a group.
MD9	The teacher presents and transmits theoretical knowledge applied to practical activities that take place in the classroom. The teacher guides, supervises and provides active feedback during the practice.
MD11	Joint construction of knowledge through interaction and collaboration between students. The teacher has a guiding and dynamizing role.

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Learning outcomes

RA-02	Identify and understand the items of the analysis method.
RA-03	Learn specific strategies for ecological design.
RA-08	Define and differentiate between backpack and ecological footprint.
RA-10	Describe and analyze the concepts of efficiency and eco-efficiency.
RA-17	Research on resource management and waste management.
RA-18	Apply sustainability and environmental criteria related to the different stages of a material's life cycle based on the analysis of real cases.
RA-20	Demonstrate through samples knowledge of the properties of materials, as well as their relationship with the environment and the user.

Continuous evaluation

Specific evaluation criteria within continuous evaluation

CA-15	Interpretation and application of both theory and current regulations specific to the specialty. Diversity of alternative proposals.
CA-16	Identification of relevant solutions.
CA-17	Ability to make strategic use of the application of acquired knowledge in complex tasks and decisions. Evaluate the life cycle of a product and plan specific strategies for ecological design.
CA-18	Know and analyze the strategies planned regarding: • conservation of energy • alternative uses of materials • waste minimization • constructive methodology • durability and permanence • reuse and alternative uses • service rental • shared uses • multifunctionality • adaptability.

Evaluation instruments within continuous evaluation

The following will be used as an evaluation instrument:

- Rubrics.
- Individual and/or group feedback: written or oral.
- Monitoring reports.
- Direct observations.
- Observation records.

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- Self-assessment.
- Co-evaluation.

Specific recovery criteria within continuous assessment

Within the continuous assessment, the student will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

Outside of continuous assessment, students will recover by submitting the failed individual and group activities, appropriately corrected, within the deadline indicated by the teacher, including the presentations made and taking a new test if this has not been passed; without changing either the learning outcomes or their weighting with respect to the final grade.

Recovery instruments outside of continuous assessment

Individual submission of individual and group work that has been suspended or not completed throughout the course and taking the test if it has not been taken.