

Course guide

2500241 - GEASOSETAM - Sustainability and Environmental Ethics

Last modified: 20/06/2024

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.

Degree: BACHELOR'S DEGREE IN ENVIRONMENTAL ENGINEERING (Syllabus 2020). (Optional subject).

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: ELISABETH ROCA BOSCH

Others: ELISABETH ROCA BOSCH, MERCÈ TABERNA TORRES, MIRIAM VILLARES JUNYENT

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

14458. Apply the methodologies of studies and evaluations of environmental impact and, in general, of environmental technologies, sustainability and waste treatment and of the management of international standards of environmental quality. Life cycle analysis, carbon footprint and water footprint and assess natural hazards (river, coastal floods, droughts, fires, soil erosion and landslides).
14465. Identify renewable energy generation techniques and energy transition concept.

Generical:

14440. Identify, formulate and solve problems related to environmental engineering.
14441. Apply the functions of consulting, analysis, design, calculation, project, construction, maintenance, conservation and exploitation of any action in the territory in the field of environmental engineering.
14442. To use in any action in the territory proven methods and accredited technologies, in order to achieve the greatest efficiency respect for the environment and the protection of the safety and health of workers and users.
14443. Apply the necessary legislation during the professional practice of environmental engineering.
14444. Apply business management techniques and labor legislation.

TEACHING METHODOLOGY

The course consists of 4 hours per week of presential classes.

It is dedicated to theoretical classes 2 hours where the professor explains the basic concepts of the subject, presents examples of actual exercises. The methodology is based on active and participatory learning.

It takes 2 hours to discuss the treatment of complex problems of unsustainability with a great deal of interaction with the student. There are practical exercises, there are fan discussions, there are detailed plans to consolidate the objectives of learning general specifications.

The rest of the weekly hours are dedicated to the preparation of the classes and the threeballs performed independently.

Use support material in detailed teacher format on the virtual ATENEA campus: contents, assessment activity program and learning direction and bibliography.

Since the majority of the sessions will be taught in the language indicated in the guide, the sessions may be composed of the support of other experts who are promptly duquin a terme in another language.

LEARNING OBJECTIVES OF THE SUBJECT

offer to the student a vision of the state of the world from the point of view of the existence of limits and imbalances. Analyze the concept of sustainable development and develop the ability to apply it in the activities of environmental engineering

Know the historical context of the emergence of environmental concern and the discourse of sustainable development, its institutionalization up to the 2030 Agenda and the 17 ODS. Know environmental and sustainable policies and technologies and also their application in the field of engineering: energy technologies, transport, construction.

Analyze the role of engineering and its social and environmental impact. Learn about ethical practices to promote sustainable practices.

Analyze the social dimension of sustainability through the approach to the environmental conflicts of the prevailing economic model. Concepts such as social equity, environmental justice, local identity, appropriation and belonging to the place and participatory processes are discussed through current cases.

Know and apply sustainability measurement tools. Know the bases and methodologies of prospective, that is to say of studies about/the future.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	15,0	10.00
Self study	90,0	60.00
Hours large group	30,0	20.00
Hours small group	15,0	10.00

Total learning time: 150 h

CONTENTS

1. BACKGROUND AND HISTORICAL PERSPECTIVE OF SUSTAINABILITY

Description:

1. BACKGROUND AND HISTORICAL PERSPECTIVE OF SUSTAINABILITY

The concept of sustainable development, interpretations. Ecological phases humanity. Growth limits. Sustainable paradigms, mechanistic vs systemic paradigm.

The state of the world. Indicator systems.

Full-or-part-time: 24h

Theory classes: 8h

Practical classes: 2h

Self study : 14h

2. THE INSTITUTIONALIZATION OF SUSTAINABILITY - REGULATORY FRAMEWORK, PLANS AND POLICIES.

Description:

- Environmental assessment policies. Environmental impact studies. Strategic environmental assessment.
- Policies for the protection of the territory: from the protection of natural spaces and biodiversity to the arrangement of the landscape and its integration in urban planning.
- Urban and urban policies. From agenda 21 to the urban agenda. The principles of urban ecology and sustainable urbanism. Performances of international reference.

Full-or-part-time: 24h

Theory classes: 10h

Self study : 14h

3. THE SOCIAL DIMENSION OF SUSTAINABILITY - CONFLICTS, PERCEPTIONS, ACTORS

Description:

- a. Socio-environmental conflicts. definition Characterization examples
 - b. The actors involved. Perceptions, attitudes and behaviors.
 - c. Environmental justice, equity, unequal distribution of risks.
 - d. Environmental ethics, gender issues, Identity and local knowledge, belonging to place, ways of life.
- Polluter pays principle, prevention principle.

Full-or-part-time: 28h 47m

Theory classes: 8h

Practical classes: 4h

Self study : 16h 47m

4. METHODOLOGIES FOR ASSESSING THE SUSTAINABILITY OF PROJECTS

Description:

- 4. METHODOLOGIES FOR ASSESSING THE SUSTAINABILITY OF PROJECTS
- b. Carbon footprint and water footprint, acv, multi-criteria indicators, assessment of ecosystem services.
- c. The role of citizen participation and collaborative approaches.

Full-or-part-time: 33h 36m

Theory classes: 8h

Practical classes: 6h

Self study : 19h 36m

5. THE SOLUTIONS AND TECHNOLOGY UNDER DEBATE

Description:

new approaches/technologies/solutions to address sustainability challenges: Renewable energies, climate change; fossil fuels. Sustainable urban planning, eco-districts, mobility management, nature-based solutions for the adaptation of the water cycle and coastal risks.

Full-or-part-time: 33h 36m

Theory classes: 8h

Laboratory classes: 6h

Self study : 19h 36m

GRADING SYSTEM

The subject's grade is obtained from the continuous assessment grades.

The continuous assessment consists of doing different activities, both individual and group, of an additive and formative nature, carried out during the course (inside and outside the classroom).

The NF final grade will be the average = $0.4 \times (\text{average grade of deliverable activities carried out in class}) + 0.5 \times \text{Work in progress} + 0.10 (\text{participation and attendance})$.

To pass the course, the final grade must be equal to or higher than 5.

Criteria for qualification and admission to reevaluation (Re):

Students who have failed the ordinary assessment and who have regularly taken the assessment tests for the suspended subject will have the option to take a re-evaluation test in the period set in the academic calendar. Students who have already passed or students classified as not presented or who have not submitted all of the exercises/problems (Pr) and the assignments and reports (Tr) may not take the reevaluation test of a subject.

The reevaluation (RE) will consist of a single exam covering all the content of the course. The maximum mark for the re-evaluation will be five (5.0) and the final mark for the course will be the maximum mark between the continuous evaluation and the re-evaluation exam, i.e. MAX (Ordinary Evaluation/RE).

The non-attendance of a student called to the reevaluation test, held in the fixed period, will not be able to give rise to the completion of another test with a later date. Extraordinary evaluations will be carried out for those students who, due to accredited force majeure, have not been able to do any of the continuous evaluation tests. These tests must be authorized by the corresponding head of studies, at the request of the teacher responsible for the subject, and will take place within the corresponding academic period.

EXAMINATION RULES.

If one of the continuous assessment activities is not carried out in the scheduled period, it will be considered as a zero score.

BIBLIOGRAPHY

Basic:

- Garcia, E. Medio ambiente y sociedad : la civilización industrial y los límites del planeta. Madrid: Alianza, 2004. ISBN 9788420641850.
- Nel-lo, O. Aquí, no!: els conflictes territorials a Catalunya. Barcelona: Empúries, 2003. ISBN 8475963803.
- Sachs W; Santarius T. Un futuro justo. Recursos limitados y justicia global. Barcelona: Icària, 2007. ISBN 9788474269512.
- Sachs, J. La Era del desarrollo sostenible : nuestro futuro esta en juego : incorporemos el desarrollo sostenible a la agenda política internacional. Barcelona: Deusto, 2015. ISBN 9788423421800.