Universidad Zaragoza

Year : 2020/21

28719 - Evaluation of Effects on the Environment

Syllabus Information

Academic Year: 2020/21
Subject: 28719 - Evaluation of Effects on the Environment
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 423 - Bachelor's Degree in Civil Engineering
ECTS: 6.0
Year: 2
Semester: First semester
Subject Type: Compulsory
Module: ---

1.General information

1.1.Aims of the course

On 25 September 2015, the United Nations General Assembly adopted the Resolution "Transforming our world: the Agenda 2030 for Sustainable Development". The Resolution, supported by the 193 member countries, includes two essential contents: the Agenda 2030 and the 17 SDG. Agenda 2030 is a roadmap that aims to achieve Sustainable Development by that date and, in order to achieve it, sets out 17 objectives, the so-called Sustainable Development Goals.

The official implementation of Agenda 2030 began on 1 January 2016, and since then countries have carried out their gradual process of implementation and produced follow-up reports at national and regional level. The Agenda aims to respond to the most pressing challenges facing global society.

This subject and its expected results respond to the following approaches and objectives aligned with the SDG:

- Knowing the legal framework of environmental impact assessments (EIA)
- Knowing the administrative procedure of the EIA
- Having the tools and being able to decide if an activity should be subject to EIA
- Knowing and knowing how to elaborate the different parts of an Environmental Impact Study
- To know and know how to use the main existing tools for the elaboration of Environmental Impact Studies
- Learning to work alone and in multidisciplinary teams
- Ability to analyse social, economic and environmental realities and, therefore, to identify and characterise the challenges we must face
- Ability to shape solutions to our society's problems.
- Capacity to promote critical and systemic thinking.
- Capacity to exercise social leadership role.
- Capacity to become a reference in the implementation of measures aimed at sustainability.
- Capacity to generate new questions to inspire new lines of research and development of socially relevant and pertinent knowledge.
- Potential to generate alliances with other social agents (Public Administrations, companies, social entities) for the joint development of knowledge and its practical application.

1.2.Context and importance of this course in the degree

The objective of this course is to provide the student with the knowledge and skills necessary to intervene in processes of Environmental Impact Assessment in the broad sense of the term, since the environmental impact assessment is an administrative procedure, of which the environmental impact study is only a part, although it is true that it is usually the most complex and laborious part of the entire assessment process, and is the one that occupies most of the contents of the program of the subject that we present.

The subject of Environmental Impact Assessment is part of the Degree in Civil Engineering taught by EUPLA, within the group of subjects that make up the module called Compulsory Training Common to the Civil Branch. This is a second year subject located in the first semester and of a compulsory nature (OB), with a teaching load of 6 ECTS credits.

The need for the subject within the syllabus of the present degree is more than justified since being a subject with a marked transversal character influences the approach of the rest of the subjects taught, adding the environmental variable.

1.3.Recommendations to take this course

The development of the subject of Environmental Impact Assessment requires putting into play knowledge and strategies from subjects related to social and natural sciencies

This subject is part of the compulsory common training to be taken in this Degree and does not have any normative prerequisite nor does it require specific complementary knowledge. Therefore, what has been expressed above is understood from a formal point of view, although it is necessary to be clear that an adequate training base is needed in the disciplines indicated above.

2.Learning goals

2.1.Competences

By passing the course, the student will be more competent to...

G01 Organizing and Planning.
G02 Solve problems.
G03 Make decisions.
G04 Communicate verbally and in writing.
G05 Analyze and synthesize.
G06 Managing information.
G07 Working in teams.
G08 Reasoning critically.
G09 Working in an interdisciplinary team.
G10 Working in an international context.
G11 Improvising and adapting to new situations.
G12 Leading.
G14 Positive Social Attitude towards Social and Technological Innovation.
G15 Reasoning, discussing and presenting own ideas.
G16 Searching, analysing and selecting information.
G17 Learning autonomously.
G18 Possessing and understanding knowledge in an area of study that is at the base of general secondary education, and is usually at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.
G19 Apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the development and defence of arguments and problem-solving within their area of study.
G20 To gather and interpret relevant data (usually within their area of study) to make judgements that include reflection on relevant social, scientific or ethical issues.
G21 Conveying information, ideas, problems and solutions to both specialized and non-specialized audiences.
G22 To develop those learning skills necessary to undertake further study with a high degree of autonomy.
G23 To know and understand respect for fundamental rights, equal opportunities between women and men, universal accessibility for people with disabilities, and respect for the values of the culture of peace and democratic values.
G24 To promote entrepreneurship.
G25 Information and communication technology skills
C11 Apply methodologies for environmental impact studies and assessments.

2.2.Learning goals

In order to pass this course, the student must demonstrate the following results...

- Understand the specific approach, concepts, terminology and language of Environmental Impact Assessment.
- Understand the administrative procedure of Environmental Impact Assessment and the role played by the different agents involved.
- Knows the methodology to carry out an Environmental Impact Study and, in detail, all its phases.
- It develops its observation skills and capacity to interpret the interrelationship between project and environment and the causal relationship between environmental component actions, at different scales.
- It develops the scientific character, the capacity of valuation, the objectivity and the critical spirit.
- The student is aware of an ethic for the environment.

2.3.Importance of learning goals

This course offers a holistic view of the environment. In the development of it, a global vision of the knowledge and interrelation of environmental factors is given.

This subject will allow students to integrate the environmental variable in all the activities of their profession, with this action they will be able to determine and prevent the environmental impacts of their activity before they occur. As well as using tools of minimization and correction once produced.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that he/she has achieved the intended learning outcomes through the following assessment activities

The evaluation process will include two types of action:

-A system of continuous assessment, which will be carried out throughout the learning period.

- A comprehensive assessment test reflecting the achievement of learning outcomes, at the end of the learning period.

A system of continuous assessment

The system of continuous evaluation will have the following group of qualifying activities:

-Individual and group activities in class

-Exercises, theoretical issues and proposed works.

-Written assessment tests: These will be carried out in order to regulate learning, stimulate the distribution of effort over time and provide a more individualised assessment tool for the educational process. These tests will include theoretical and/or practical questions, from the different subjects to be evaluated. The total number of tests will be two distributed throughout the semester with a maximum duration of two hours.

Block 1.Introduction. Legislation. General knowledge 5 points

Exam (70%).

Internship (30%)

Block 2. Environmental Impact Study 5 points

Exam (70%)

Internship (30%)

To pass the course it will be necessary to have, at least, a score of 4 points in each of the theoretical exams that make up the course, since with lower scores it will not be averaged with the practical part.

A fundamental requirement for passing the course by continuous assessment is to attend a minimum of 80% of the classroom activities of the course.

Overall final assessment test

The overall assessment test will have the same groups of activities. Students who are going to use this assessment system will have to hand in the same papers prepared in the continuous assessment system and take the same exams as those taken in the continuous system, only that they are taken in the same examination session.

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, laboratory sessions, and tutorials.

A strong interaction between the teacher/student is promoted. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

The current course is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each topic, the solving of problems or resolution of questions and laboratory work, at the same time supported by other activities.

> *"If classroom teaching were not possible due to health reasons, it would be carried out on-line."*

4.2.Learning tasks

This course is organized as follows:

- **Lectures**: Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the course are displayed, highlighting the fundamentals, structuring them in topics and or sections, interrelating them. It involves the active participation of the student.
- **Practice sessions**: The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching complements the theory shown in the lectures with practical aspects.
- **Laboratory sessions**: The lecture group is divided up into various groups, according to the number of registered students, but never with more than 20 students, in order to make up smaller sized groups.
- **Tutorials**: Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.
- **Autonomous work and study.**
    - Study and understanding of the theory taught in the lectures.

- Understanding and assimilation of the problems and practical cases solved in the practice sessions.
- Preparation of seminars, solutions to proposed problems, etc.
- Preparation of laboratory workshops, preparation of summaries and reports.
- Preparation of the written tests for continuous assessment and final exams.

The course has 6 ECTS credits, which represents 150 hours of student work in the course during the term, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the course file in the Accreditation Report of the degree, taking into account the level of experimentation considered for this course is moderate.

Activity	Weekly hours
Lectures	3
Laboratory sessions	1
Other Activities	6

4.3.Syllabus

This course will address the following topics:

- **Topic 1 Introduction to the Environment. Normative**
  Introduction. Environment and sustainable development. Concepts.
  Pollution.
  Relationships between Environmental and Economic Social Development.
  Urban Environment.
  Environment and Business.
  Terminology. Concept of Environmental Impact Assessment and Environmental Impact.
  Risk Society.
  Environmental Compliance.
- **Topic 2. The environmental impact assessment.**
  Background.
  UE, national and regional legislation.
  Types of environmental impact assessment: ordinary, strategic and simplified. The assumptions subject to EIA.
  Ecologically sensitive areas.
  Screening.
- **Topic 3. The environmental impact study: technical legal content and basic methodology.**
  Analysis and description of the project.
  Shares of construction, operation, and abandonment.
  Analysis of technically feasible alternatives: preliminary studies location.
  Scoping Phase
- **Topic 4.- The environmental inventory**
- Description of preoperational state.
  Components and physical processes.
  Components and biological processes.
  Casuistry by natural means receivers.
  Landscape, cultural and socio-economic components.
- **Topic 5.- Identification and assessment of impacts**
  Types of Impact: concepts and official nomenclature.
  Characterization and qualitative assessment.
  Environmental impact indicators.
  Transformation functions.
  Identification techniques and evaluation of impacts.
- **Topic 6.- The proposed corrective, compensatory and restorative measures. Environmental monitoring program**
  Basic types of corrective measures.
  The environmental monitoring program: experimental design and implementation.
- **Topic 7.- The synthesis report. and other technical considerations on the dissemination of environmental**

impact study

Comparative analysis of public participation techniques.

- **Topic 8.- Strategic Environmental Assessment.**
- **Topic 9.- Study of cases**

Practical contents
Each topic discussed in the previous section carries associated practical exercises on real cases of application in several companies: engineering, industry and the free exercise of the profession.

4.4.Course planning and calendar

The planning orientation shown below

- **Week 1, 2 and 3**: Topic 1.
- **Week 4 and 5**: Topic 2.
- **Week 6** : Topic 3.
- **Week 7, 8 and 9**: Topic 4.
- **Week 9,10 and 11**: Topic 5.
- **Week 13**: Topic 6.
- **Week 14**: Topic 6.
- **Week 14**: Topic 7.
- **Week 15**: Topic 8.

MATERIAL RESOURCES

Material	Format
Topic theory notes Topic problems	Paper/repository
Topic theory notes Topic presentations Topic problems Related links	Digital/Moodle E-Mail
Educational software	Web page

The timetables and dates of the final exams will be those published officially at;

https://eupla.unizar.es/asuntos-academicos/calendario-y-horarios

https://eupla.unizar.es/asuntos-academicos/examenes

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of EUPLA website and Moodle.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=28719&year=2020