

Academic Year/course: 2022/23

66383 - Environmental impact of renewable energies

Syllabus Information

Academic Year: 2022/23

Subject: 66383 - Environmental impact of renewable energies

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 636 - Master's in Renewable Energies and Energy Efficiency

ECTS: 6.0

Year: 1

Semester: Second semester

Subject Type: Optional

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented toward achieving the learning objectives. It is based on participation, and the student's active role favours the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, guided assignments, laboratory sessions, autonomous work, and tutorials. Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, and other course-specific learning materials.

Further information regarding the course will be provided on the first day of class.

4.2. Learning tasks

The course includes the following learning tasks:

- **Lectures** (30 hours, in-person). Explanation of the theory of the syllabus and solving of "model" problems.
- **Practice sessions** (15 hours, in-person). In these classes, students solve problems supervised by the teacher. Problems or case studies will be related to the theoretical part explained in lectures.
- **Practice sessions, simulation** (10 hours, in-person). These will be made individually or in pairs and will be supervised by teachers. The assessment of the work informs of the student's level of achievement of the programmed learning objectives.
- **Study** (90 hours). It is recommended to study continuously throughout the semester.
- **Assessment tests** (5 hours, in-person). An exam will be conducted to evaluate the theoretical and practical knowledge gained by the student.

4.3. Syllabus

The course will address the following topics:

1. Introduction. Environmental problems of renewable energy technologies.
2. Environmental Impact Assessment and the Integrated Environmental Authorization as legal tools for the prevention of environmental impact.
3. Study and analysis of the environmental impact of renewable energy projects.
4. Ecodesign and Life Cycle Assessment applied to renewable energy technologies.
5. Environmental Management Systems and Agenda 2030 in companies and institutions.

4.4. Course planning and calendar

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 EINA website (<http://eina.unizar.es>).

The practise sessions will be scheduled depending on the number of students and will be previously announced in the moodle course: <http://moodle.unizar.es>. These sessions will focus on practical cases of the environmental impact of renewable energy technologies.

4.5. Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

BB: Ecodiseño : estado de la cuestión : prospectiva del ecodiseño para su impulso en Aragón / [autores, Luis Clarimón, Ana Cortés, Elena Aragonés ; colabora Departamento de Medio Ambiente, Gobierno de Aragón]

<http://roble.unizar.es:9090/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat00574a&AN=cbzara.b1600562>

BB: Ecodiseño : necesidad social y oportunidad empresarial / autor, José Ángel Rupérez ; colaboración, Noelia Vela, Aurelio García.

<http://roble.unizar.es:9090/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat00574a&AN=cbzara.b1826490>

BB: Análisis del ciclo de vida (Autores: Pere Fullana y Rita Puig)

http://roble.unizar.es/search~S1*spí?XAnalisis+de+ciclo+de+vida&searchscope=1&SORT=D/XAnalisis+de+ciclo+de+vida&se

BB: H. Scott Matthews, Chris T. Hendrickson, and Deanna Matthews, Life Cycle Assessment: Quantitative Approaches for Decisions that Matter, 2014. Open access textbook, retrieved from

<https://www.lcatextbook.com/>

BB 3. Evaluación de impacto ambiental / Alfonso Garmendia Salvador...[et al.] Madrid [etc.] : Pearson/Prentice Hall, cop. 2005.

Enlace al libro en Alcorze

BB 4. Conesa Fernández-Vítora, Vicente. Guía metodológica para la evaluación del impacto ambiental / Vicente Conesa Fdez.-Vítora ; colaboradores, Vicente Conesa Ripoll, Luis A. Conesa Ripoll ; prólogos de María Teresa Estevan Bolea . - 4ª ed. Madrid: Mundi-Prensa, 2010

BB Carretero Peña, Antonio. Aspectos ambientales : identificación y evaluación / Antonio Carretero Peña . - [2ª ed.] Madrid : AENOR, D. L. 2007

[Roble]

BB Gestión ambiental . - 3ª ed. Madrid : AENOR, 2011

BB Autodeclaraciones: la promoción medioambiental de los productos: UNE-EN ISO 14021 / Autores: Nadia Boeglin, Philippe Wetterwald. Madrid: AENOR, D. L. 2003.