Universidad Zaragoza

Academic Year/course: 2022/23

66360 - Wind, hydroelectric and marine energy

Syllabus Information

Academic Year: 2022/23
Subject: 66360 - Wind, hydroelectric and marine energy
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 636 - Master's in Renewable Energies and Energy Efficiency
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Compulsory
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, assignments, computer lab 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, as well as other course-specific learning materials, including a discussion forum.

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

4.2. Learning tasks

This is a 6 ECTS course organized as follows:

- Lectures (12 hours). The teacher explains the course contents and solves representative applied problems. Regular attendance is highly recommended.
- Practice sesión (30 hours). The whole group of students will resolve exercises and cases.
- Computer lab sessions (15 hours). Students will work together in groups.
- Assignments (24 hours). Students will complete assignments, problems and exercises related to concepts seen in laboratory sessions and lectures.
- Autonomous work (63 hours). Students must spend about 63 hours studying theory, solving problems, preparing sessions, and taking exams.

4.3. Syllabus

Wind power:

- Basic aspects and analysis of the wind resource.
- Wind turbine technology.
- Construction of wind farms.
- Operation and maintenance. Economic aspects.
- Integration with other energy sources

Hydroelectric power:

- Basic aspects of hydroelectric generation.
- Hydraulic concepts and civil works.
- Electromechanical equipment.
- Design, installation, operation and maintenance.

Ocean energy:

- Basic aspects of ocean energy resource evaluation.
- Descriptive of the different technologies.

There will be 5 computer lab sessions.

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).

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=66360