

## 66326 - Energy sustainability

### Información del Plan Docente

<b>Academic Year</b>	2017/18
<b>Faculty / School</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	535 - Master's in Renewable Energies and Energy Efficiency
<b>ECTS</b>	5.0
<b>Year</b>	1
<b>Semester</b>	Half-yearly
<b>Subject Type</b>	Optional
<b>Module</b>	---

### **1.General information**

#### **1.1.Introduction**

The course of Energy Sustainability, is eminently practical. Its aim is to analyse the social, economic and technological impact of different energy alternatives and its associated problems.

Discussion will always be raised in class, and both teachers and students will participate in the presentation of topics, thus enriching the debate.

The course will not explain in depth each of the renewable technologies and energy efficiency options. Rather, other related aspects that are not explained in conventional classes will be addressed. Thus, issues of social impact, environmental, political and economic environment will be explained.

#### **1.2.Recommendations to take this course**

The course is a good complement to the other subjects of the master, since an overview of the current energy landscape is offered.

This is a very interactive course where discussions and interaction teacher-students in class about the different topics explained are always required. Hence, presence in class is mandatory.

Certain books and texts used in class will be in English, so a sufficient knowledge of this language is necessary (level B1 is recommended).

No knowledge of previous courses is necessary.

#### **1.3.Context and importance of this course in the degree**

The subject is the starting point for understanding the current economic state of the energy sector and its environmental, social and political consequences. The course will offer students an overview of the energies that will serve as a decision tool for the subsequent choice of more in-depth studies of one or another energy technology alternative.

#### **1.4.Activities and key dates**

This course will be given in the second semester of the Master's degree.

### **2.Learning goals**

#### **2.1.Learning goals**

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- Knowledge of the interactions between energy, development, the environmental impact of growth and economic needs. The world, European and national levels.
- Analyze current energy consumption and future trends; global and local impacts and social sustainability models associated with energy and material consumption.
- Critical analysis on the sustainability of the different energy models.

### 2.2.Importance of learning goals

The course will provide students with a critical view of the various options for energy savings and energy production. It will bring of alternative decision elements other than purely technical, including social, environmental, political and economic aspects.

### 3.Aims of the course and competences

#### 3.1.Aims of the course

The expected results of the course respond to the following general aims:

- Acquire a global knowledge of the problems associated with the use of energy and materials and their socioeconomic implications.
- Learn to make a good presentation and be able to defend a certain topic to a general audience.

#### 3.2.Competences

The student will be able to discuss and make a critical analysis of the topics and most important recommended books. He or she will reach an international vision of the energy problems in the world.

### 4.Assessment (1st and 2nd call)

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

The student must demonstrate that it has achieved the intended learning outcomes through the following evaluation activities:

Since this course is aimed at creating discussions in class, attendance is highly valuable.

The final score involves the following:

1. (70%) Reading a book between the list provided. Extensive summary of the report and class presentation (20 min.)
2. (30%) work presentation of one of the following topics that will be provided throughout the course (15 min.):

To pass the course , the student needs to get at least an average score of 5 and should not have obtained less than 4 in each of the asignments.

In case a student has not passed one or another part, it may do so in June or September with that part(s). The score of each part is saved only during the academic year.

The summary of the book must have the following structure:

- Initial data with the book and authors page.
- Summary of about 8 pages.
- Critical analysis of the book.
- Additional information (optional).

### 5.Methodology, learning tasks, syllabus and resources

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### 5.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. It is a course open to discuss the current energy situation and the social, economic and technological impact of different energy alternatives and its associated problems. A wide range of teaching and learning tasks are implemented, such as:

- Lectures will be combined with videos, case studies and student presentations.
- The reading and presentation of a book in class, which encourages autonomous learning and critical thinking. Students can also develop additional skills, such as teamwork, oral and written expression, preparing powerpoint presentations, clear and organized presentations, proper time management, etc.
- The oral presentation of the book and the proposed topic will be held in class and evaluated in situ, promoting in this way the participation of all students. It will be assessed according to the following criteria:
  - o Preparation
  - o Organization
  - o Slides
  - o Presentation
  - o Message
  - o Impact
  - o Time
  - o Contents
  - o Security

Students will learn from the mistakes that have been done by the previous groups, thereby improving their presentations.

Emphasis on the use of new information technologies (ICT) is made. The ADD constitutes the basic computer tool on which the course will be built. Content, additional information, forums and grades will be available at the virtual platform Moodle 2. It will also be the communication tool where topics and books will be assigned to students.

Teachers will therefore be a means for students to achieve learning of the course through a semi-autonomous way. Teachers will be available to students through tutorials. But through the ADD, and the forum, the students themselves can raise and solve doubts.

### 5.2. Learning tasks

The course includes the following learning tasks:

- Lectures open to discussion
- Practical exercises
- Audiovisual and interactive material: Videos and software programs
- Student presentations in class
- Teamwork
- Roleplay

### 5.3. Syllabus

The course will address the following topics:

1. Energy and sustainability
2. The real value of money
3. Climate change
4. The climate conference
5. The depletion of minerals
6. Alternative technologies
7. The energy efficiency laws

8. Industrial ecology

**5.4.Course planning and calendar**

Further information concerning the timetable, classroom, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA web page.

**5.5.Bibliography and recommended resources**

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- George, Susan. Informe Lugano / Susan George ; prólogo de Manuel Vázquez Montalbán . - 12ª ed. Barcelona : Icaria : Intermón, 2007
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