

29989 - Energy, Economy and Sustainable Development

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology 438 - Bachelor's Degree in Telecommunications Technology and Services Engineering 440 - Bachelor's Degree in Electronic and Automatic Engineering 430 - Bachelor's Degree in Electrical Engineering 470 - Bachelor's Degree in Architecture Studies 558 - Bachelor's Degree in Industrial Design and Product Development Engineering 434 - Bachelor's Degree in Mechanical Engineering 476 - 435 - Bachelor's Degree in Chemical Engineering 439 - Bachelor's Degree in Informatics Engineering
ECTS	4.0
Course	XX
Period	Half-yearly
Subject Type	Optional
Module	---

1. Basic info

1.1. Recommendations to take this course

This is a very interactive course. The learning is achieved through discussion in class, the use of multimedia means such as videos, online software, etc., team work, role playing, presentations by students in class, etc.

It should provide an ethical background of sustainability issues not covered in regular courses.

The main language in class is English.

1.2. Activities and key dates for the course

The information will be available at the EINA website. The communication with students will be carried out through Moodle platform.

2. Initiation

2.1. Learning outcomes that define the subject

The student, in order to pass the course, will have to show her/his competence in the following skills:

The student is able to critically analyse and make an oral presentation of a topic related to the course as well as one of the recommended books.

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2.2.Introduction

Brief presentation of the course

The aim of this course is to critically analyse the current and future global situation relating to the exponential increase of the energy and material consumption, the associated environmental impacts and how world economies are putting at risk the sustainability of planetary resources.

The main language in class will be English. However, although positively valued, it is not mandatory to write and present in class the assignments in English.

Warning: such students attending this course will see the world with new eyes!

3.Context and competences

3.1.Goals

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.
- Improve oral communication in English.

3.2.Context and meaning of the subject in the degree

The student will acquire an international vision of the energy, economy and environmental problems of the world.

3.3.Competences

After completing the course, the student will be competent in the following skills:

- C04 - Ability to solve problems and make decisions initiative, creativity and critical thinking.
- C07 - Ability to analyze and assess the social impact, environmental technical solutions acting with ethics, professional responsibility and social commitment
- C08 - Ability to work in a multidisciplinary group and in a multilingual environment
- C11 - Ability to apply information technologies and communication engineering.

3.4.Importance of learning outcomes

This course will provide the student with key non-technical abilities very demanded by companies, industries and the

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academic environment.

4.Evaluation

The student will prove that he/she has achieved the expected learning results by means of the following assessment tasks:

Class attendance is strongly recommended

30%: Presentation in class with a classmate of a topic selected from a list of relevant issues related to the subject.

70%: Reading and critical analysis of a book to be selected from a list and presentation in class.

5.Activities and resources

5.1.General methodological presentation

The learning process that has been designed for this course is based on the following activities:

Learning activities:

- Dynamic master lectures.
- Role playing.
- Resolution of problems in class.
- Presentation of several topics by students (evaluation).

5.2.Learning activities

5.3.Program

Some of the aspects covered are:

- 1) energy and sustainability;
- 2) the true value of money;

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3) climate change and the conference of the parties;

4) exponential growth;

5) criticality of mineral resources;

6) biomass and food scarcity

7) the principles of resource efficiency.

5.4.Planning and scheduling

This course is offered in the spring semester. The exact starting day is published in the EINA website.

5.5.Bibliography and recommended resources

Resources and bibliography:

A complete list of recommended books will be provided in class. Some of these are the following:

"¿Cuánto es bastante?". La sociedad de consumo y el futuro de la Tierra Durning, Alan Thein Ediciones Apóstrofe, S.L.

"Cradle to cradle (de la cuna a la cuna). Rediseñando la forma en que hacemos las cosas" McDonough, William; Braungart, Michael McGraw-Hill / Interamericana de España, S.A.U.

"Factor 4. Duplicar el bienestar con la mitad de los recursos naturales". von Weizsäcker, Ernst Ulrich; Lovins, L. Hunter; Lovins, Amory B. Galaxia Gutenberg, S.A.

"Gaia, una nueva visión de la vida sobre la tierra2. Lovelock, James E. Ediciones Orbis, S.A.

"Industrial ecology". Graedel, Thomas.E.; Allenby, Braden R. AT&T / Prentice Hall a Simon & Schuster Company Englewood Cliffs

"Informe Lugano". George, Susan Encuentro. Icaria editorial. Intermon Oxfam

"La Ley de la Entropía y el proceso económico". Georgescu-Roegen, Nicholas Fundación Argentaria - Visor Distribuciones

Students could find resources in the library, for example click in
<http://biblioteca.unizar.es/como-encontrar/bibliografia-recomendada>

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