

## COURSE GUIDE

<b>Course Data</b>	
<b>Name</b>	<b>Energy and Sustainability</b>
<b>Code</b>	
<b>Degree</b>	<b>MBA in the Global Energy Industry</b>
<b>Year</b>	
<b>Semester</b>	
<b>ECTS Credits</b>	<b>1 ECTS</b>
<b>Type</b>	<b>Elective</b>
<b>Department</b>	<b>Industrial Engineering</b>
<b>Area</b>	
<b>Coordinator</b>	<b>Pedro Linares</b>

<b>Information of Professors</b>	
<b>Professor</b>	
<b>Name</b>	<b>Pedro Linares Llamas</b>
<b>Department</b>	<b>Industrial Engineering</b>
<b>Area</b>	
<b>Office</b>	<b>IIT – Santa Cruz de Marcenado 26</b>
<b>e-mail</b>	<b>pedro.linares@comillas.edu</b>
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<b>Tutoring hours</b>	<b>Check the professor's website (<a href="http://www.comillas.edu/personal/pedrol">www.comillas.edu/personal/pedrol</a>)</b>

## SPECIFIC INFORMATION OF THE COURSE

<b>Course context</b>	
<b>Contribution to the professional profile of the degree</b>	
<p>This course will contribute to the professional profile of the student by enabling him/her to become knowledgeable about the major challenges that the energy sector faces regarding sustainability, and in particular its environmental component; to be familiar with the methods used to quantify these environmental impacts; to understand and be able to compare the regulatory instruments available to control environmental impacts in the power industry; and to learn about renewable energy and energy efficiency policies. This knowledge will be very useful to work in power utilities, consulting companies, or to become a regulator in the power sector.</p>	
<p>Benefits</p> <p>The benefits of the course are:</p> <ul style="list-style-type: none"> <li>- A solid understanding of the challenges for sustainability of the global energy sector</li> <li>- The development of sound judgment about the merits and problems of environmental regulation instruments for the energy sector, as well as of renewable energy and energy efficiency policies.</li> </ul>	
<b>Pre-requirements</b>	
None	

## CONTENTS

<b>Contents</b>
<b>MODULE 1: Sustainable Energy Models: The challenges</b>
1.1. Energy sustainability 1.2. Assessing the environmental impacts of the power sector
<b>MODULE 2: Sustainable Energy Models: The answers</b>
2.1. Environmental regulation policies 2.2. Technology policies 2.3. Energy efficiency policies

## TEACHING METHODOLOGY

<b>General methodological aspects of the course</b>
In order to achieve the learning objectives stated above, the course will focus on the students' activity and on their active learning. Therefore, the methodology will be oriented towards a more active role of the student.
<b>Classroom Methodology: Activities</b>
The lectures will have an emphasis on the practical, problem solving approach. Generally, each session will feature:  An introduction of the subject matter, answering questions the students may have after they have completed the pre-reading and self-study materials.  A practical section relating theory to practice via group work, short case studies and real-life examples and topical issues  Clarifying concepts and issues using assignments and previous exam questions  A summary identifying learning points, main issues and possible outcomes of the regulation process.
<b>Non-Classroom Methodology: Activities</b>
The objective of non-classroom activities is to read the recommended materials, and after the course, to work on the assignment.

## EVALUATION ACTIVITIES AND CRITERIA

Evaluation activities	Evaluation Criteria	Weight Percentage
This module will be assessed through a group assignment (small groups).	The students will be required to apply the concepts reviewed during the class to a case study.	100%

### Qualification Criteria

The final grade of the course will be formed exclusively from the grade given to the assignment

## WORK PLAN AND SCHEDULE<sup>1</sup>

In and out-of-class activities	Date/Periodicity	Deadline
<ul style="list-style-type: none"> <li>Reading and study of the materials</li> </ul>	Before the session	
<ul style="list-style-type: none"> <li>Assignment</li> </ul>	After the session	To be determined

SUMMARY OF WORKING HOURS OF THE STUDENT			
CLASSROOM HOURS			
Lectures	Case studies		
5	5		
NON-CLASSROOM HOURS			
Pre-lecture readings	Assignment		
10	10		
<b>ECTS CRÉDITS:</b>			<b>1 (30 hours)</b>

<sup>1</sup> A detailed work plan of the subject can be found in the course summary sheet (see following page). Nevertheless, this schedule is tentative and may vary to accommodate the rhythm of the class.

## BIBLIOGRAPHY AND RESOURCES

### Basic References (pre-lecture readings)

Lechón, Y., N. Caldés and P. Linares (2013). Environmental implications of energy production. In Dyer, H. and J. Trombetta (eds.). International handbook of energy security. Edward Elgar.

IPCC 5th Assessment Report. Summary for Policy Makers / Synthesis

Linares, P., C. Batlle, I.J. Pérez-Arriaga (2013). Environmental regulation, sections 11. In Pérez-Arriaga, I.J. (ed.) (2013). Regulation of the power sector. Springer.

Labandeira, X. and P. Linares (2010). Energy efficiency: economics and policy. Journal of Economic Surveys (2010) Vol. 24, No. 3, pp. 573–592

### Additional References

Holdren, J.P., and K.R. Smith (1999). Energy, the environment and health. World Energy Assessment: Energy and the challenge of sustainability.

European Commission (2003). External Costs: Research results on socio-environmental damages due to electricity and transport.

Stavins, R.N. (2001) Experience with market-based environmental policy instruments. In Maler, K-G, and J. Vincent, The Handbook of Environmental Economics. North-Holland/Elsevier Science

Labandeira, X. and P. Linares. Second-best instruments for energy and climate policy. In Markandya, A., I. Galarraga, M. González (Eds.). Handbook of Sustainable Use of Energy, Edward Elgar.

Hanemann, M. (2009). The role of emissions trading in domestic climate policy. The Energy Journal, Volume 30 (Special Issue 2). Climate Change Policies After 2012.