

Partner University		Universitat Politècnica de Catalunya · BarcelonaTech					
Degree		MSc Energy Engineering					
Code	820730	Name	Energy Resources				
ECTS	5	Year	1	Semester	1	Character	Mandatory
Pre-requisites		none					
Objectives		<p>The main objective of this course is providing insights into</p> <ul style="list-style-type: none"> • The need and importance for energy and its relationship to human and sustainable development. • The transformations of energy from its status as a "energy resource" to its use as "energy services". • The strategic implications for the security of supply of different energy sources <p>Additionally, this course aims to:</p> <ul style="list-style-type: none"> • Sensitize students to face issues such as energy efficiency, environmental impact security of supply, etc. • Work in students the values of justice, solidarity and equality. 					
Learning outcomes		The student must understand, describe and analyze in a clear and complete way the energy conversion chain; beginning from the "energy source" up until its final use as a "energetic service". Identify, describe and analyze the characteristics of the different energy resources and the final use of the energy, considering its economical, social and environmental dimensions.					
Course main content		<p>Block 1: Introduction.</p> <ol style="list-style-type: none"> 1. Basic concepts. 2. The energetic problem. The energy economy. 3. Energy storage and transformation. 4. Legal framework. <p>Block 2: The energy sources and its technological applications. Actual and future trends.</p> <ol style="list-style-type: none"> 5. Oil. 6. Natural gas. 7. Coal. 					
Methodology		The course is structured in a series of lectures (participatory conferences) to provide transversal items useful for other courses, and an overview of the energy system from different points of view. At the same time students will do several assignments (lectures and exercises). During the course the students will do, in teams of 3 people, a supervised work on a particular energy issue that will en by writing a technical informative article that they will orally present to the supervisor.					
Bibliography:		V. Smil, Energy at the Crossroads. Global Perspectives and Uncertainties. Massachusetts Institute of Technology, 2003 (and further editions). MIT Press.					
Student assessment		The evaluation is based on grading student's self-learning activity (40%), the course supervised work (30%), activities made in the classroom (10%) and a final exam (20%). Self-learning activities are divided into exercise (10% - 20%) and others (20% - 30%).					
Contact person		Lluís Batet http://directori.upc.edu/directori/dadesPersona.jsp?id=1002339					
Link							