

Course Unit:

Energy Policy and Investment Analysis

Field of study:

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Year of study:

1

Semester:

1

Academic Year:

2009/2010

Code:

-

Type:

-

Level:

-

Name(s) of lecturer(s):

Luís Manuel Frolen Ribeiro, Humberto Nuno Rito Ribeiro

Master in:

Renewable Energy and Energetic Efficiency

School:

Escola Superior de Tecnologia e de Gestão de Bragança

ECTS credits:

6.0

Workload (hours):

162.0

Contact hours:

T	TP	PL	TC	S	E	OT	O
30.0	30.0	-	-	-	-	-	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Learning outcomes and competences:

At the end of the course unit the learner is expected to be able to:

1. Evaluate different financial, economical and associated risk scenarios of a renewable energy plants
2. Understand the frame of a financial operation and the meaning of the three variables involved: capital, time and interest, as well the concepts of active and passive operations, prime rate, index Euribor, spread, and capitalisation process amongst others
3. Being able to identify the core aspects of an investment in order to find the optimum structure that enable project funding

Prerequisites:

Before the course unit the learner is expected to be able to:

1. Linear algebra
2. Statistics

Course contents:

Concept of energy and energy service. Energy and Environment. Energy markets and electric sector. Regulatory systems. Basic concepts of finances. Selection criteria of the most suitable investment type

Course contents (extended version):

1. Introduction
  - Energy, definition and concepts
  - Energy and progress; energy intensity
  - Dominant cultural energy; change in energy paradigm; energy policy vectors
  - Oil and coal markets; Oil and energy markets; geopolitics marks and dependencies
2. Energy and Environment
  - Traditional fuels
  - Environmental problems associated with traditional fuels
  - Quioto protocol and commerce of CO2 emmissions
  - Energy dilemma in modern societies
  - Energy saving measures
3. Renewable energy sources
  - Renewable/alternative; concept of "renewable"
  - Origin and renewable types - solar radiation; renewable energy sources, technologies and maturity degree
  - Future global energy positioning
4. Energy markets and electric sector
  - Formation and evolution of Portuguese energy policy
  - Energy planning
  - Evolution of EU energy policy
  - Market regulation
  - Economic Regulation, the natural monopoly
  - Regulation types: traditional, subsidised policies; regulation flaws
  - EU electricity marke
  - Electricity public service
  - Evolution of regulatory market, control prices for electricity consumers
  - Economic regime of electricity producers (small hydro, cogeneration, wind, photovoltaic)
5. Basic concepts of Finances
  - The time value of money; time, capital and interest; interest rate and discount; real and accumulated value
  - Capitalisation regime and equivalencies of capital
  - Rents and amortisation of short term loans, average and long term loans
  - Frame and relative concepts of investment projects and studies of viability of a project
  - Criteria and evaluation methods
  - Prize system and considerations regarding project selection

Recommended reading:

1. Energy Policy in America since 1945: A Study of Business-Government Relations" (Studies in Economic History and Policy: USA in the Twentieth Century), R. H. K. Vietor, Press Syndicate of the University of Chicago, 1984
2. Organizacio'n de la Unio'n Europea", A. Calvo Hornero, Segunda Edicio'n, Centro de Estudios Ramo'n Areces, Madrid, 2001
3. Power Struggle- The Hundred Year War over Electricity, R. Rudolph & S. Ridley, Harper & Row, Publishers, New York.
4. Manual de Avaliação Financeira de Projectos, N. Pereira, Amibússola, Santarém, 2006
5. Principios de Finanzas Empresariais, R. Brealey, e S. Muers, McGraw-Hill, 3a edição, Lisboa, 1998

Teaching and learning methods:

Theoretical sessions supporting the resolution of exercises and working cases, and tutorial sessions

Assessment methods:

1. Geral - (Student Worker, Regular) (Final, Supplementary, Special)  
- Development Topics - 50%  
- Final Written Exam - 50%

Language of instruction:

Portuguese, with additional English support for foreign students.

Electronic validation:

Luís Manuel Frolen Ribeiro	Rui Alberto Madeira Macedo de Lima	Ana Paula Carvalho do Monte	Luís Manuel Frolen Ribeiro	Albano Agostinho Gomes Alves
2009-12-10	-	-	-	-

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