

820766 - CSE - Contract for the Supply of Energy

Coordinating unit:	240 - ETSEIB - Barcelona School of Industrial Engineering
Teaching unit:	709 - EE - Department of Electrical Engineering
Academic year:	2019
Degree:	MASTER'S DEGREE IN ENERGY ENGINEERING (Syllabus 2013). (Teaching unit Optional) MASTER'S DEGREE IN ENERGY ENGINEERING (Syllabus 2013). (Teaching unit Optional)
ECTS credits:	5
Teaching languages:	Catalan, Spanish

Teaching staff

Coordinator:	Jordi de la Hoz Casas
Others:	Helena Martín Cañadas Jordi de la Hoz Casas

Teaching methodology

The course teaching methodologies are as follows:

- Lectures and conferences: presentation of knowledge by lecturers or guest speakers.
- Participatory sessions: collective resolution of exercises, debates and group dynamics, with the lecturer and other students in the classroom; classroom presentation of an activity individually or in small groups.
- Theoretical/practical supervised work (TD): classroom activity carried out individually or in small groups, with the advice and supervision of the teacher.
- Homework assignment of reduced extension: carry out homework of reduced extension, individually or in groups.
- Homework assignment of broad extension: design, planning and implementation of a project or homework of broad extension by a group of students, and writing a report that should include the approach, results and conclusions.
- Evaluation activities (EV).

Learning objectives of the subject

Objectives

The aim of the course is to present the fundamentals associated with the procurement of energy supply to the student, providing them with sufficient knowledge to enable the student to understand the current framework and necessary tools to facilitate analysis in different contexts of the most beneficial types of contracts.

Learning outcomes

Upon completing the course, the student should:

- Know the legal framework associated with the procurement of energy supply
- Define the main problems associated with the procurement of energy supply
- Learn to formulate the main elements associated with the procurement of energy supply
- Know the main mechanisms for managing risk associated with the process of procuring energy supply
- Analyse the results obtained from the definition and formulation of problems associated with procuring energy supply



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Study load

Total learning time: 125h	Hours small group:	30h	24.00%
	Guided activities:	15h	12.00%
	Self study:	80h	64.00%

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Content

<p>1.Introduction</p>	<p>Learning time: 12h Theory classes: 2h Self study : 10h</p>
<p>Description: This module will introduce the students to the main ways of procuring energy supply, both in wholesale markets and retailers.</p> <p>Related activities: PA_1</p> <p>Specific objectives: At the end of the module the student should know:</p> <ul style="list-style-type: none"> - What a supply contract is - What the main options for procuring energy on the wholesale market are - What the main options for procuring energy in the retail market are - What the financial contracts in the electricity sector are 	
<p>2. Definition of the problem of procurement of energy supply</p>	<p>Learning time: 27h Theory classes: 2h Guided activities: 5h Self study : 20h</p>
<p>Description: This module aims to provide students with information associated with the main elements of the problem of procuring energy supply in order to clarify what the objective function is.</p> <p>Related activities: PA_1 and PA_2</p> <p>Specific objectives: At the end of the module the student should know:</p> <ul style="list-style-type: none"> - What the energy costs are - What a portfolio of contracts is - What the problem of energy supply consists of - What the objective function is 	

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<p>3. Formulation of the problem of procurement of energy supply</p>	<p>Learning time: 34h Theory classes: 4h Guided activities: 10h Self study : 20h</p>
<p>Description: This module aims to provide students with the main notions associated with the formulation of the problem of procuring energy supply.</p> <p>Related activities: PA_1, PA_2 and PA_3</p> <p>Specific objectives: At the end of the module the student should know:</p> <ul style="list-style-type: none"> - How to draw schematically the main relationships associated with procuring energy supply - The principles of the main elements of the system to analyse - How to determine the energy balance of the system to analyse - How to integrate and make all the elements associated with procuring energy supply (variable functions, constraints, objective function) 	
<p>4. Introduction to risk management</p>	<p>Learning time: 2h Theory classes: 2h</p>
<p>Description: This module aims to provide students with the main notions regarding the risks associated with procuring energy supply.</p> <p>Related activities: PA_1, PA_2 and PA_3</p> <p>Specific objectives: At the end of the module the student should know:</p> <ul style="list-style-type: none"> - What the main risks associated with the procurement of energy supply are - What the risk management models are - How to integrate risk management into the procurement problem 	

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<p>5. Integration of results</p>	<p>Learning time: 50h Theory classes: 5h Guided activities: 15h Self study : 30h</p>
<p>Description: This module, with the help of the guided project, aims to deepen knowledge of the optimal energy management of a consumer integrating all the elements described above, providing a framework in which students apply the learned notions.</p> <p>Related activities: PA_1, PA_2 and PA_3</p> <p>Specific objectives: At the end of the module the student should know:</p> <ul style="list-style-type: none"> - What the problem or problems associated with the development of procuring energy supply is/are - What the main characteristics and constraints of the problem are - What the objective function is 	

Qualification system

Oral test (PO). 20%
Work performed individually or in groups (TR). 70%
Quality and performance of group work (TG). 10%

Bibliography

Basic:

Becker Zuazua, Fernando. Tratado de regulación del sector eléctrico (Tomo I y II). Primera. Navarra: Aranzadi, 2009. ISBN 9788483559024.

Calancha Marzana, Fernando; Soler Tappa, Eduardo. Código comentado de la energía. Navarra: Aranzadi, 2010. ISBN 9788447035588.