



## FICHA TÉCNICA DE LA ASIGNATURA

Datos de la asignatura	
Nombre completo	Regulación y Nuevos Modelos de Negocio
Código	DIE-MII-615
Impartido en	Máster Universitario en Ingeniería Industrial + Máster in Smart Grids [Segundo Curso]
Créditos	7,5 ECTS
Carácter	Optativa
Departamento / Área	Departamento de Ingeniería Eléctrica

## Datos del profesorado

### Profesor

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### Profesor

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## DATOS ESPECÍFICOS DE LA ASIGNATURA

### Contextualización de la asignatura

### Competencias - Objetivos

## BLOQUES TEMÁTICOS Y CONTENIDOS

## METODOLOGÍA DOCENTE

### Aspectos metodológicos generales de la asignatura

#### Metodología Presencial: Actividades

BA02, CG01

#### Lectures and case example discussions

Description of the course contents and open discussion of concepts. The students have also to try to respond to the numerous questions posed by the instructors throughout the lecture.



BA02, CG01

### Term task discussion

The individual tasks will be discussed with the instructors and class mates in groups of four or five people.

with no presentations (as the instructors have read already the papers, the session will consist of just discussion on the content of the term papers, which, admittedly, cover many topics so the discussion could be broad

BA02, CG01

### Tutorial activities

Available according to the need of the student

## Metodología No presencial: Actividades

BA02, CG01

Teaching resources require the active participation of the student. In addition, the classroom activity should be complemented by the individual student work performed out of class. Both aspects are taken into account in the evaluation method

BA02, CG01

Term task. Regulatory analysis of a current issue, proposed by the instructor. The student has to face her own research, in order to develop the ability to first investigate the current state of the regulation of a real case, and also to apply the critical skills acquired to build regulatory

recommendations (40 hours).

BA02, CG01

Personal work of the student. Study of the course contents.

## EVALUACIÓN Y CRITERIOS DE CALIFICACIÓN

Mid-term exam: 25%

Final exam: 35%

In order to pass the course, the mark of the final exam must be greater or equal to 4 out of 10 points.

Participation in class will account for 5%

Term paper will account for the remaining 35%

In order to pass the course, the mark of the term paper must be greater or equal to 4 out of 10 points

## Calificaciones

### Retake

The student has two periods of final evaluation during one academic year. The first one will be carried out at the end of course (end of the semester). In case that this was not passed obtaining 5 or more points, the student has another opportunity of final evaluation at the end of the academic year. The dates of evaluation periods will be announced in the web page.

The new grade will be obtained as follows:

65% New exam covering the whole course.

5% Participation in class



30% Term task (the student can resubmit to improve the first grade received).

The mark of the retake final exam must be greater or equal to 4.5 out of 10 points and the mark of the final project must be at least 5 out of 10 points. Otherwise, the final grade will be the lower of the two marks.

## PLAN DE TRABAJO Y CRONOGRAMA

Actividades	Fecha de realización	Fecha de entrega
<b>LECTURES</b>		
WHAT'S REGULATION ABOUT?		
THE REGULATORY FUNCTION		
REGULATORY MODELS <ul style="list-style-type: none"> <li>• Energy services pricing: from regulated costs to price competition: Cost-of-service regulation. Incentive regulation. Competitive bidding. Market competition</li> <li>• Energy systems' governance: activities, structure, and stakeholders' roles: Unbundling. System and market operation</li> </ul>		
FUNDAMENTALS OF ENERGY SYSTEMS ECONOMICS <ul style="list-style-type: none"> <li>• Centralized versus market-based planning: Costs' characterization: investment, average and marginal costs. Cost minimization versus profit maximization</li> <li>• Basics on energy contracts: Physical versus financial contracts</li> </ul>		
COST ALLOCATION METHODOLOGIES <ul style="list-style-type: none"> <li>• Basic pricing principles. Locational marginal pricing. Monopoly pricing</li> </ul>		
PRICING ELECTRICITY GENERATION <ul style="list-style-type: none"> <li>• Investment and operation planning: From central planning and operation to wholesale markets</li> <li>• Energy markets design elements: Market-based economic scheduling: Market models, bidding formats and clearing algorithms</li> </ul>		
COMPLEMENTS TO ENERGY MARKETS <ul style="list-style-type: none"> <li>• Flexibility markets: Intraday, reserves and regulation markets.</li> <li>• Capacity and RES-support mechanisms: Design elements of capacity and RES promotion mechanisms</li> </ul>		



EXAM 1		
INTERPLAY BETWEEN TRANSMISSION AND GENERATION <ul style="list-style-type: none"><li>• Exercise: single vs. nodal pricing. Congestion rents. Financial Transmission Rights</li><li>• Characterization of transmission. Regulatory treatment of transmission investment planning (golden rules), business models</li></ul>		
REGULATED REVENUES AND COST ALLOCATION <ul style="list-style-type: none"><li>• Remuneration mechanisms for distribution: Cost-of-service, RPI-X, TOTEX...</li><li>• Network costs allocation: Transmission and distribution tariffs</li></ul>		
END-USER TARIFFS <ul style="list-style-type: none"><li>• Principles and basic tariff structures: Efficiency &amp; equity. Additivity, components.</li><li>• Time and locational granularity: Dynamic, TOU, fixed, ...</li></ul>		
RETAIL MARKETS <ul style="list-style-type: none"><li>• Business models: Retail activities, stakeholders' roles.</li><li>• Consumer protection: Data management, switching, vulnerable customers</li></ul>		
EXAM 2		
TERM PAPERS' DISCUSSION		

## BIBLIOGRAFÍA Y RECURSOS