



POLITÉCNICA

INTERNATIONAL
CAMPUS OF
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COORDINATION PROCESS OF
LEARNING ACTIVITIES
PR/CL/001



E.T.S. de Ingenieros
Industriales

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

53000683 - Energy And Commodities Markets

DEGREE PROGRAMME

05BD - Master Universitario En Ingenieria De La Organizacion

ACADEMIC YEAR & SEMESTER

2021/22 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	53000683 - Energy And Commodities Markets
No of credits	3 ECTS
Type	Optional
Academic year of the programme	Second year
Semester of tuition	Semester 3
Tuition period	September-January
Tuition languages	English
Degree programme	05BD - Master Universitario en Ingenieria de la Organizacion
Centre	05 - Escuela Tecnica Superior De Ingenieros Industriales
Academic year	2021-22

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Francisco Javier Urbano Lopez De Meneses (Subject coordinator)		franciscojavier.urbano@upm.es	--

* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Skills and learning outcomes *

3.1. Skills to be learned

CB08 - Que los estudiantes sean capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de una información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios

CB09 - Que los estudiantes sepan comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades

CB10 - Que los estudiantes posean las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo

CE03 - Identificar y caracterizar las implicaciones económicas y estratégicas de las decisiones empresariales

CE10 - Comprender y aprovechar la estructura de opciones subyacente en los proyectos de inversión y su aplicación para la valoración de proyectos, empresas y negocios

CE12 - Conocer las fuentes e instrumentos de financiación empresarial, los mercados de capitales y los fundamentos de las decisiones de financiación corporativa

CT06 - Es responsable. Comprensión de la responsabilidad ética y profesional

CT07 - Comunica. Habilidad para comunicar eficazmente

CT09 - Se actualiza. Reconocimiento de la necesidad y la habilidad para comprometerse al aprendizaje continuo

CT10 - Conoce. Conocimiento de los temas contemporáneos

CT11 - Usa herramientas. Habilidad para usar las técnicas, destrezas y herramientas ingenieriles modernas necesarias para la práctica de la ingeniería

CT12 - Es bilingüe. Capacidad de trabajar en un entorno bilingüe (inglés/español)

3.2. Learning outcomes

RA32 - Diseñar y valorar estructuras financieras alternativas para la empresa

RA10 - Identificar, elegir y aplicar herramientas y metodologías para el diseño y análisis de estrategias y políticas empresariales en contextos competitivos

RA3 - Elegir y aplicar técnicas de predicción para variables cuantitativas y cualitativas

RA34 - Elegir los instrumentos y fuentes de financiación disponibles para la empresa

RA29 - Dominar habilidades y técnicas específicas de trabajo en equipo y de dirección y gestión de equipos

* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

The aim of this course is to provide the students with a broad knowledge of the energy markets.

It is focused on commodities (oil, gas and coal) and how commodities are produced and traded. Also how power is produced from different sources and how new needs arise from the shift to a greener and more sustainable world is affecting these markets.

Last but not least students will learn how physical deals work and how energy derivatives are traded.

4.2. Syllabus

1. Geopolitics
 - 1.1. Introduction
 - 1.2. Geopolitics of energy
2. Oil, Gas & Coal production, transportation and marketing
 - 2.1. Oil and Gas Exploration and Production
 - 2.2. Oil and Gas transport and marketing
 - 2.3. Oil and Gas Contracts
 - 2.4. Coal Production and marketing
3. Power Generation
 - 3.1. Load, Generation and transmission
 - 3.2. Contracts & Trading
 - 3.3. PPAs and tolling agreements
 - 3.4. Emissions markets
4. Energy derivatives
 - 4.1. Futures
 - 4.2. Swaps
 - 4.3. Options

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
2	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
3	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
4	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
5	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
6	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
7	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
8	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
9	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15

10	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
11	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
12	Duration: 02:00 Lecture			Test Written test Continuous assessment Presential Duration: 00:15
13	Simulador Duration: 02:00 Cooperative activities			Simulador Problem-solving test Continuous assessment Presential Duration: 02:00
14	Presentaciones Duration: 02:00 Cooperative activities			Presentación Group work Continuous assessment Presential Duration: 02:00
15				
16				
17				Examen final Written test Final examination Not Presential Duration: 02:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

* The schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
1	Test	Written test	Face-to-face	00:15	5%	/ 10	
2	Test	Written test	Face-to-face	00:15	5%	/ 10	
3	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
4	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
5	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10

6	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
7	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
8	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
9	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
10	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11

							CB08 CE10
11	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
12	Test	Written test	Face-to-face	00:15	5%	/ 10	CT09 CE03 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10
13	Simulador	Problem-solving test	Face-to-face	02:00	20%	/ 10	CB10 CE12 CT11 CE10 CT12
14	Presentación	Group work	Face-to-face	02:00	20%	/ 10	CT09 CE03 CT07 CT12 CT10 CT06 CB10 CE12 CB09 CT11 CB08 CE10

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Examen final	Written test	No Presential	02:00	100%	/ 10	CT10 CT09 CE03 CT06 CB10 CE12 CB09 CT11

								CB08 CE10
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6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

6.2. Assessment criteria

Evaluación continua:

-Tests en clase

-Presentaciones

-Simulador

-Prueba final

Evaluación final:

-Examen final de problemas de todas las partes del curso.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
CME group	Web resource	
Energy derivatives pricing and risk management	Bibliography	

anatomy of crude prices	Web resource	
BP Statistical Review	Others	