COURSE SYLLABUS
2026-2027

GENERAL INFORMATION

Course information	
Name	Economy of the Electric Power Industry
Code	ECO
Degree	Master in the Electric Power Industry (MEPI)
Year	2026-27
Semester	1st
ECTS credits	6 ECTS
Type	Required
Coordinator	José Pablo Chaves Ávila

Instructor	
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DETAILED INFORMATION

Contextualization of the course

Contribution to the professional profile of the degree

The objective of the course is to become familiar with electric power systems’ microeconomic, strategy and financial fundamentals. The concepts presented in this course will set the foundations for properly understanding stakeholders’ decision-making processes in the electricity industry.

Prerequisites

There are no prerequisites for this course. The course assumes the student is not familiar with either microeconomics or financial analysis.

Use of IA in the course

Students will be allowed to use Artificial Intelligence (AI) tools to consult and solve theoretical questions, as well as to research and deepen their understanding of topics and concepts developed during the classes.
These AI tools may also be used to translate and filter financial news, and to obtain or refine financial ratios and market variables, thus allowing more time for analysis and interpretation of results.
AI can serve as a support tool for solving exercises, but it must never be used in exams.
It is important for students to become familiar with AI technologies, which will form part of their daily work in their future careers. However, it should be made clear that AI, even when used properly, is not always sufficiently reliable to provide 100% correct answers on every subject, and in no case should it replace financial judgment or students’ analytical skills.

CONTENTS

Contents
Theory
Chapter 1. Microeconomic Analysis of the Electric Power Industry
1.1 Demand and supply 1.2 Centralized context 1.3 Perfect competitive markets 1.4 Monopoly 1.5 Oligopoly
Chapter 2. Financial Statements Analysis
2.1 Financial statements. Structure of balance sheet and income statement 2.2 Balance sheet analysis: assets, equity and liabilities 2.3 Income statement analysis: revenues & expenses 2.4 Cash flow statement analysis 2.5 Case study
Chapter 3. Costs and Return Analysis
3.1 Economic and Financial Return. Value Creation and Financial Leverage. 3.2 Economic and Financial Analysis. Ratios. 3.3 Case studies.Regulation impact on economic and financial analysis (I). 3.4 Case studies.Regulation impact on economic and financial analysis (II).
Chapter 4. Electricity Industry Financing
4.1 Objectives of the Company and Financial Policies. 4.2 Cost of Capital. Optimal Financial Structure 4.3 Short-term Financial Needs and Working Capital Management 4.4 Funding Alternatives and Derivatives 4.5 Risk Management / Project Financing - Non Recourse Debt 4.6 Analysis and valuation of electricity companies by Financial Markets
Chapter 5. Strategy in the Electricity Sector
5.1 Introduction to strategy in the electric power industry 5.2 Business models in the electricity industry 5.3 Build, borrow or buy a framework 5.4 Case presentations

Competences and Learning Outcomes

Competences

Basic Competences

CB2	Being able to apply and integrate the knowledge, their comprehensiveness, the scientific founding, and their abilities to solve problems in new environments and defined in an imprecise manner, including multidisciplinary contexts as highly qualified researchers and professionals.

Specific Competences

CE7	Being able to transfer theoretical concepts of Microeconomics to the study and analysis of the real markets.
CE8	Understand the accounting and financial regime of a company and know the general mechanisms for settlement of the sector. To be able to realize the investment analysis in an electricity company and understand the main aspects of strategic management of the sector.

Learning outcomes

By the end of the course, students should be able to:

LO1. Understand the drivers behind demand and supply behaviour.

LO2. Understand the efficiency gains a market environment can achieve,

LO3. Understand why the market does not always do its job. In this respect, the student will be able to identify the most relevant market failures affecting electricity markets

LO4. Understand the most relevant financial concepts, with a particular focus on the electricity industry.

LO5. Use some well-known techniques and methods aimed to analyze electricity companies' financial position.

LO6. Understand the electricity company's strategy

TEACHING METHODOLOGY

General methodological aspects of the course	
Classroom Methodology: Activities	**Competences**
Lectures. Description of the course contents and open discussion of concepts. The students also have to try to respond to the numerous questions posed by the instructors throughout the lecture (54 hours).	**CB2, CE7, CE8**
Oral presentations. The students have to discuss the most relevant aspects of their work (6 hours).	**CB2**
Tutorial activities. Available according to the need of the student. (5 hours)	**CB2, CE7, CE8**
Non-Classroom Methodology: Activities	**Competences**
The classroom activity should be complemented by the individual student work performed out of class.	
Personal study. Study of the course contents (90 hours).	**CB2, CE7, CE8**
Term task. The student has to apply the theoretical concepts reviewed in class real cases (25 hours).	**CB2**

GRADING

There are five blocks in the course. Each of these blocks has a different instructor and a different grading system (described below). The total grade of the course will be the weighted average of the five parts, where each part is given a weight in the weights of sessions.

To pass the course in the regular assessment period, a minimum average equal to or above 5 is needed.

In case the student does not pass the course, the student will have to retake all the blocks with less than 5 points (the grade corresponding to blocks with 5 or more points will be maintained). After the retake, the total grade of the course will again be the weighted average of the five parts, where each part gives weights concerning the sessions.

3.1 Grading in the regular assessment period:

Block 1: Microeconomics

Evaluation activities	Evaluation Criteria	Weight
Exams Exams are a combination of short questions, multi-option tests and problems.	- Concept understanding - Application of concepts to the solution of practical problems	**90 %**
Participation in the class	- Contribution to the class discussions	**10%**

Block 2: Financial Statements Analysis

Evaluation activities	Evaluation Criteria	Weight
Exam Exams are a combination of short questions, multi-option tests and problems.	- Concept understanding - Application of concepts to the solution of practical problems	**80%**
Participation in the class	- Contribution to the class discussions	**10%**
Business case • Analysis of a real business case.	- The team task will be evaluated based on the quality of the analysis and the application of the concepts introduced in class.	**10%**

Block 3: Cost and Return Analysis

Evaluation activities	Evaluation Criteria	Weight
Exam	- Concept understanding	**90 %**

Exams are a combination of short questions and multi-option tests.	- Application of concepts to the solution of practical problems	
Participation in the class	- Contribution to the class discussions	**10%**

Block 4: Electricity Industry Financing

Evaluation activities	Evaluation Criteria	Weight
Exam Exams are a combination of short questions, multi-option tests and problems.	- Concept understanding - Application of concepts to the solution of practical problems	**90 %**
Participation in the class	- Contribution to the class discussions	**10%**

Block 5: Strategy in the Electricity Sector

Evaluation activities	Evaluation Criteria	Weight
Participation in the class	- Contribution to the class discussions	**35%**
Business case	The final case presentation will be evaluated from two points of view: - The quality of the analysis itself, the clarity and the comprehensiveness of the assessment. - The oral presentation of the work, the way the students build up their discussions and their ability to back their proposals and respond to the questions received.	**65%**

Overall course grading

Evaluation activities	Evaluation Criteria	Weight
Exams Exams are a combination of short questions, multi-option tests and problems.	- Concept understanding - Application of concepts to the solution of practical problems	**70%**

Participation in the class	- Contribution to the class discussions	**15%**
Business case Analysis of a real business case.	- The team task will be evaluated based on the quality of the analysis and the application of the concepts introduced in class.	**15%**

3.2 Retake

Retakes
In case the student does not pass the course in the regular period, she/he will have to retake all blocks. The dates of the retake evaluation period will be agreed with the course coordinator. The grading system of each block in the retake is described below. Each of the five chapters (parts) will have the following grading system in the corresponding retake: • Block 1 (Microeconomics): exam (100%) • Block 2 (Financial Statements Analysis): exam (100%) • Block 3 (Cost and Return Analysis): exam (100%) • Block 4 (Electricity Industry Financing): exam (100 %) • Block 5 (Strategy): case presentation (100 %). A minimum grade of 5 out of 10 points (the grade corresponding to the blocks with 5 or more points in the regular period will be maintained to compute the average).

WORK PLAN AND SCHEDULE[1]

Class	Content
1	Introduction to the course - Introduction to Microeconomics
2	Microeconomic analysis of the electric power industry - Demand and supply (i)
3	Microeconomics analysis of the electric power industry - Demand and Supply (ii)
4	Microeconomics - Centralized context (i)
5	Microeconomics - Centralized context (ii)
6	Microeconomics - Perfect competitive markets
7	Monopoly
8	Test
9	Economic and Financial Return. Value Creation and Financial Leverage
10	Economic and Financial analysis. Ratios

[1] A detailed work plan of the subject can be found in the course summary sheet (see the last pages).

11	Case studies
12	Generation and distribution costs. Discounted cash flow valuation.
13	Financial statements. Structure of balance sheet and income statement.
14	Balance sheet analysis: assets, equity and liabilities
15	Income statement analysis: revenues & expenses
16	Cash flow statement analysis
17	Case studies
18	Intro. Objectives and financial policies
19	Cost of capital. Optimal financial structure
20	Short Term Financial needs and Working Capital Management
21	Funding Alternatives and Derivatives
22	tRisk Mangement / Project Financing - Non Recourse Debt
23	Analysis and valuation of electricity companies by Financial Markets
24	Exam Finance
25	Introduction to strategy in the electric power industry
26	Value innovation. Business plan
27	Strategy in the electric power industry (1)
28	Strategy in the electric power industry (2)
29	Strategy in the electric power industry (3)
30	Case presentations

SCHEDULE

SUMMARY OF WORKING HOURS OF THE STUDENT			
CLASSROOM HOURS			
Lectures	**Oral presentations**		
54	6		
NON-CLASSROOM HOURS			
Personal study	**Personal work in case studies**	**Tutoring**	
95	25	5	
		ECTS CRÉDITS:	**6 (180 hours)**

BIBLIOGRAPHY

Basic bibliography

- Presentations provided by the instructors

Complementary bibliography

Microeconomics

- 2013, I.Pérez-Arriaga “Regulation of the Power Sector”. Chap. 2,“Power System Economics“, M.Ventosa, P.Linares,I.Pérez-Arriaga
- 1986, Samuelson and Nordhaus, “Economics”
- 2005, Viscusi, Harrinton & Vernon “Economics of Regulation and Antitrust
- 1992, Varian, “Microeconomic Analysis”

- 1990, Tirole, “The Theory of Industrial Organization”

Financial Analysis

- 1999, G. Bennett Stewart III “The Quest for Value”
- 2010, Mckinsey & Company, “Valuation, Measuring and Managing the Value of Companies”.
- 2000, Richard A. Brealey and Stewart C. Myers, “Principles of Corporate Finance”.
- Aswath Damodaran, “Applied Corporate Finance: A User’s Manual”.
- 2003, Anthony Rice, “Account Demystified”, Pearsons education

Strategy

- 2008, David J. Collis and Michael G. Rukstad, “Can You Say What Your Strategy Is?” HBR 2008
- 2004, W. Chan Kim, Renée Mauborgne, “Value Innovation - The Strategic Logic of High Growth”, , HBR 2004
- 2007, Robert S. Kaplan and David P. Norton “Using the Balanced Scorecard as a Strategic Management System”, July–August 2007
- 2003, Paul M. Healy and Krishna G. PalepuPaper, “The Fall of Enron”, Journal of Economics Perspectives, Volume 17, Number 2. (Spring 2003), pp. 3-26; Up to page 10
- 2010, McKinsey, “The five types of successful acquisition”, McKinsey on Finance Number 36, Summer 2010

WORK PLAN (i/ii)

			In-class activities			Out of Class activities			Learning outcomes	
h/w	Class	Content	Lecture and problem solving	Assessment	h/w	Self-study	Problem solving	Individual and in-group assignments	Learning outcomes	Description
4	1	Introduction to the course - Introduction to Microeconomics			6	Review and self-study			LO1	Introduction to the course
	2	Demand and supply (i)							LO1	Introduction to Economics and to general principles of Microeconomics
4	3	Demand and supply (ii)			6	Review and self-study			LO1	Understand supply and demand diagrams Introduce demand and supply elasticity. Consumer and producer surplus
	4	Economics in the centralized context (i)							LO1	Understand supply and demand diagrams Introduce demand and supply elasticity. Consumer and producer surplus
4	5	Economics in the centralized context (ii)	Problem solving		6	Review and self-study	Problem solving		LO1	The all-knowing, all-powerful perfect benevolent planner. The concept of net social welfare
	6	Perfect competitive markets	Problem solving						LO2	The all-knowing, all-powerful perfect benevolent planner. The concept of net social welfare
4	7	Monopoly	Problem solving		6	Review and self-study	Problem solving		LO2, LO3	Characterization of a perfect competitive market Analysis of supply and demand equilibrium in the electricity markets
	8	Test		Exam					LO3	Imperfect competition and monopolies. Oligopolistic models and market agent's behavior in oligopolistic markets. Market power indexes. Final Text.
4	9	Economic and Financial Return. Value Creation and Financial Leverage			6	Review and self-study			LO4, LO5	The Electricity Business: Departing from UNESA's income account a description of the main cost items of the electricity business is made for both operating and capital costs
	10	Economic and Financial analysis. Ratios							LO4, LO5	Ratios: the use of financial ratios by the financial analysis is explained. The notions of financial leverage and value creation are introduced
4	11	Generation and distribution costs. Discounted cash flow valuation.			6	Review and self-study			LO4, LO5	The time value of money is introduced to explain the discounted cash flow methodology. Application to the case of a generation plant and to a distribution network. The link between this methodology and the analysis usually performed by financial analysis is explained.
	12	Case studies							LO4, LO5	Case studies: the previously explained concepts and analytical tools are applied to the consolidated financial statements of a relevant electricity group of companies.
4	13	Financial statements. Structure of balance sheet and income statement.	Problem solving		6	Review and self-study	Problem solving	Case study	LO4, LO5	Introductory session to the Financial Statements: information contained, different types, basic principles used to prepared them, objectives and main users. Preliminary analysis of the structure and basic concepts of the Balance Sheet and the Income Statement.
	14	Balance sheet analysis: assets, equity and liabilities	Problem solving						LO4, LO5	Different types of balance Sheet. Practical approach, analysing Iberdrola's Financial Statement
4	15	Income statement analysis: revenues & expenses			6	Review and self-study			LO4, LO5	Analysis of the Income Statement, Study of the different margins shown in an Income Statement: contribution margin, EBIDTDA, EBIT, EBT and Net Result.
	16	Cash flow statement analysis							LO4, LO5	Basic concepts and methods to prepare a Cash Flow Statement, Review of the different kinds of Cash Flows. Free Cash Flows and Net Cash Flow. Analysis of Iberdrola's Cash Flow.

WORK PLAN (ii/ii)

				In-class activities			Out of Class activities			Learning outcomes	
Week	h/w	Class	Content	Lecture and problem solving	Assessment	h/w	Self-study	Problem solving	Individual and in-group assignments	Learning outcomes	Description
9	4	17	Case study		Case studies	6	Review and self-study			LO4, LO5	Case studies: the previously explained concepts and analytical tools are applied to the consolidated financial statements of a relevant electricity group of companies.
		18	Intro. Objectives and financial policies							LO4, LO5	The time value of money is introduced to explain the discounted cash flow methodology. Application to the case of a generation plant and to a distribution network. The link between this methodology and the analysis usually performed by financial analysis is explained.
10	4	19	Financial needs and working capital management			6	Review and self-study			LO4, LO5	The objective of the firm, the positioning of the financial function within the company and the strategic decisions of financial management (investment, financial infrastructure, dividend, financial communication).
		20	Cost of capital. Optimal financial structure							LO4, LO5	The cost of the financial resources used by the company (WACC). Optimal financial structure. Rating Agencies and the rating process.
11	4	21	Alternatives for financing. Risk management (1/2)			6	Review and self-study			LO4, LO5	Financial Planning Process (short and long term). Working Capital Management. Banking instrument for the short term financial management.
		22	Risk Management (2/2). Project Finance and non-recourse debt							LO4, LO5	The relationship bank-company. Alternatives for funding the company (long term), including equity, banking products and capital markets. Financial Derivatives. The risk management process.
12	4	23	Industry Valuation. Analysis of electricity industry by Financial Markets			6	Review and self-study			LO4, LO5	Analysis and valuation of electricity companies by financial markets: Quantitative and Qualitative analysis. Different methods used to valuate a company/project. Valuation using dynamic models (cash flow discount).
		24	Exam Finance		Exam					LO4, LO5	Exam
13	4	25	Introduction to strategy in the electric power industry			6	Review and self-study			LO4, LO5	Key concepts of Business Unit Strategy. Readings & Discussion: What is strategy?
		26	Business models in the electricity industry						Case study	LO6	Strategy and Financial Statements Review of financial statement analysis- relationship with strategy.
14	4	27	Build, borrow or buy (I)			6	Review and self-study			LO6	Business Plans. Readings & Discussion: How to write a great business plans.
		28	Build, borrow or buy (II)							LO6	Mergers & Acquisitions. Readings & Discussion: Making Acquisitions, Valuation Methods.
15	4	29	Strategy in the electric power industry			6	Review and self-study			LO6	
		30	Case presentations		Presentations					LO6	