

SYLLABUS

Course	
Name	Financial and Cost Analysis
Code	DOI-IND-580
Degree	Máster Universitario en Ingeniería Industrial
Year	1
Semester	Fall or Spring
ECTS credits	6 ECTS
Character	Basic
Department	Industrial Engineering
Area	Economics and Business Administration
University	Comillas
Schedule	
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Descriptor	

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COURSE SPECIFICS

Context of the course

Contribution to the professional profile

This course introduces the student to the basic concepts of corporate finance, and some advanced elements of cost accounting, developing further those aspects more relevant to industrial engineering. This course goes through the fundamentals of financial management, budgeting and cost analysis, bringing together skills and techniques previously learnt in the degree.

During the course, students will learn about the time value of money, how to interpret and analyse financial statements, to value investment projects, to compromise between risk and return, to produce budgets and standard-cost operating statements and to manage the firm's networking capital..

Pre-requisites

Previous knowledge of economic theory, financial accounting and cost accounting is required for attending this course.

Competences – Goals

Generic competences

CG1 Acquire appropriate knowledge of scientific and technological aspects of: mathematical, analytical and numerical methods in engineering , electrical engineering, power engineering , chemical engineering , mechanical engineering, industrial electronics , automation, manufacturing , materials, managerial quantitative methods, industrial computing , urban planning, infrastructure, etc.

CG3. Directing, planning and supervising multidisciplinary teams.

CG6. Manage technical and economic projects , installations, facilities , and technology centers .

CG7. Be able to exercise general management , technical leadership and R+D+I project management in plants, companies and research centers.

CG8. Apply acquired knowledge and solve problems in new or unfamiliar environments within broader and multidisciplinary contexts.

CG9. Being able to integrate knowledge and formulate complex judgments based on information that was incomplete or limited, including reflection on social and ethical matters linked to the application of their knowledge and judgments.

CG10. Knowing how to communicate, clearly and unambiguously, conclusions and findings - and the knowledge and rationale underpinning these- to specialist and non-specialist audiences.

CG11. Acquiring learning skills that will allow both, self-directed or autonomous further study

Specific Competences and Learning Results¹

CMG1. Knowledge and ability to organise and manage business.

CMG4. Knowledge of financial and cost accounting

RA1. Acquire the capacity to understand the theory and apply, in real world situations, the financial tools and techniques

RA2. Learn about the main sources of finance and identify the goals of financial management.

RA3. Understand the basic elements of the Time Value of Money and their implications in financial decision-making

RA4. Know the major financial statements that firms must prepare and provide

RA5 Explain how taxes influence corporate's managers and investors' decisions

RA6 Calculate and interpret major ratios and appreciate how they relate to one another

RA7 Design and estimate cash flows on investment projects

RA8 Describe, read and interpret bond characteristics and compute their yields..

RA9 Understand the stock market and compute and calculate stock values.

RA10 Recognise the risk-return relationship and its implications: Measure and evaluate the total risks of an investment

RA11 Analyse, understand, use and weight capital budgeting decision techniques.

RA12 Understand the purpose and process of budgeting and budgetary control

RA13 Understand the nature, purpose and process of standard costing and variance analysis

RA14 Analyse the firm's operating and cash cycles to determine the short term financial needs and networking capital management.

¹ Learning results are observable indicators of the competences acquired, which allow assessing the degree of competence of the students.

CONTENTS AND MODULES

Contents
MODULE 1: Basic concepts
1 OVERVIEW
1.1 Sources of finance
1.2 Business finance and the financial manager
1.3 The goal of financial management
2 THE TIME VALUE OF MONEY
2.1 Interest and future value
2.2 Present value
2.3 Effective annual interest rates
2.4 Inflation and the time value of money
MODULE 2: Financial statements and cash flows
3 FINANCIAL STATEMENTS AND RATIOS
3.1 Financial statements: Balance sheet, Income statement, Statement of cash flows & free cash flow, Statement of retained earnings
3.2 Ratios: Liquidity, asset management, debt management, profitability, market value, Dupont analysis
4 PROJECT CASH FLOWS AND CAPITAL BUDGETING TECHNIQUES
4.1 Project cash flows and Pro forma financial statements.
4.2 Incremental cash flows. Net working capital. Depreciation, book value versus market value
4.3 Capital Budgeting Techniques: net present value, Internal Rate of Return and Modified Internal Rate of Return, Profitability Index
4.4 Evaluating projects under risk: Scenario and sensitivity analysis
MODULE 3: Risk and return
5 VALUATION OF STOCK AND BONDS
5.1 Valuing bonds: Bond market, Bond valuation, Bond yields, Credit risk
5.2 Valuing stock: Stock markets, Stock valuation methods
6 RISK AND RETURN
6.1 Returns, Certainty and Uncertainty: Capital Asset Pricing Model
6.2 Cost of capital: The WACC
MODULE 4: Budgeting and short-term financing
7.1 BUDGETING
7.1.1 Budgeting and budgetary control
7.1.2 Fixed and flexible budgets
7.2 STANDARD COSTING
7.2.1 Operation and performance measures
7.2.2 Cost and sales variances
7.3 SHORT-TERM FINANCING
7.3.1 The operating and cash cycles
7.3.2 Short-term financial planning

TEACHING METHODOLOGY

General methodological aspects

In order to achieve the learning objectives stated above, the course will focus on the students' activity and on their active learning. Therefore, the methodology will be oriented towards a more active role of the student.

Classroom methodology: Activities

1. Lectures: the instructor will start from a case or a problem of corporate finance or cost analysis. These cases will have previously been given to and read by the students. Then the situation will be discussed, and the concepts and tools required to address it will be introduced and explained. This will help students to identify the basic elements of financial and cost analysis, and to face related problems.
2. Problem solving/Case discussion: In these sessions, tasks previously given to students (problems and case studies) will be discussed, solved and explained. In order to participate in these sessions the student must hand in previously the task

Non-classroom methodology: Activities

The objective of non-classroom activities is to understand the concepts and methodologies described in class, and to apply them to the different problems or case studies presented in the classroom or given by the instructor.

1. Individual and group study of the concepts, methodologies and techniques learnt during the lectures
2. Problem solving
3. Case analysis and preparation (in groups).

In addition, instructors will address the questions of students individually or in groups during their office hours, and will also help them orient their learning process

SUMMARY OF THE STUDENT WORKING HOURS

CLASSROOM ACTIVITIES		
Lectures	Problem/case solving	Tests
20	38	2
NON-CLASSROOM ACTIVITIES		
Autonomous work – theory	Autonomous work – problems	Test preparation
40	70	10
CRÉDITOS ECTS: 6 (180 hours)		

EVALUATION AND GRADING CRITERIA

Evaluation activities	Grading criteria	Weight
Open-book and open-notes exam: <ul style="list-style-type: none"> • Test 1 (week 8) • Final exam 	<ul style="list-style-type: none"> - Understanding of concepts. - Application of concepts to problem solving. - Analysis and interpretation of problem results. - Quality of writing and overall presentation. 	70% (30% midterm, 40% final exam)
To be allowed to do the final, cumulative exam, students must get at least 3.5 out of 10 in the intermediate test. The minimum grade to pass the final exam (and subsequently pass the course) is 4 out of 10.		
Problems and case studies given for out-of-classroom work	<ul style="list-style-type: none"> - Handing them in before the corresponding session 	20%
Active participation	<ul style="list-style-type: none"> - Test answering 	10%

Grading

The final grade of the course will result from adding the following elements:

- 70% from the grade in the mid-season test and final exam. The mid-season test grade will represent 30% and the final exam will represent 40% of the overall grade.
- 20% from handing in the problems and/or cases given for out-of-classroom work. **Homework should be handed in prior to the beginning of the lecture. Late homework will not be graded.**

Each hand-in will be assessed for Content (whether something was written and to what degree), Expression (how something was written, how well it was written), and Formatting (number of words, presentation, etc).

- 10% from the grade corresponding to participation in class/multiple choice test answering.

Extraordinary session

The same criteria are valid, except that the 70% of the grade, previously obtained from both, midterm and final exams, will correspond solely to the final exam.

WORK PLAN AND SCHEDULE²

The specific schedule for each session of the course, in addition to all materials, will be available for the students at the start of the course.

Depending on the specific lesson, the activities will include:

- Multiple choice questions: after theoretical sessions, the students will answer a short multiple choice test. The results will be considered for their “Active participation” grade.
- Case study preparation (out-of class group-work is required) and discussion (to be done in class).
- Case hand-ins on due date.
- Lectures.
- Problem solving. Some of the problems will be solved in class, while the rest will be proposed as voluntary homework. The answers to the problems will be available for the students since the beginning of the course.
- Short quizzes might be performed at any point during the course, not necessarily warned in advance. They can consist of short multiple choice questions or short problems. They will be taken into account for the “active participation” grade.
- Mid-term exam that covers from Lesson 1 (Overview) to Lesson 4 (Project Cash-Flows and Capital Budgeting) and will be performed on week 8.

REFERENCES AND RESOURCES

Basic references

Ross, S. Westerfield, R. Jafe, J. and Jordan, B. (2011) *Core principles and applications of Corporate Finance*, Global Edition. McGrawHill.
Dyson J.R. (2010) *Accounting for Non-accounting Students (8th edition)* Pearson

Complementary references

Brealey, R., Myers, S. and Marcus, A. (2012) *Fundamentals of Corporate Finance*, 7th Edition. McGrawHill.
Cornett, M. Adair, T. and Nofsinger, J. (2014) *Finance*, 2nd Edition, McGrawHill.
Crundwell, F.K. (2008). *Finance for Engineers. Evaluation and Funding of Capital Projects*. Springer.
Higgins, R.C. (2011) *Analysis for Financial Management*, 10th Edition. McGrawHill.
Ross, S. Westerfield, R. and Jordan, B. (2014) *Essentials of Corporate Finance*, 8th Edition. McGrawHill.
Valdez, S. and Molyneux, P. (2010) *An Introduction to Global Financial Markets*, Palgrave MacMillan.

² A detailed planning of the course may be found in the schedule. This planning is indicative and may change along the course.

SCHEDULE

Week	MF	GM	JMM	CC	Session	Lesson	Contents	Activity	Hand in	Reference
1	04-sep	04-sep	07-sep	04-sep	1	0+1	Presentation+ Overveiw			Study guide+ Ross 1, Crundwell, 16
	04-sep	04-sep	07-sep	04-sep	2	2	The time value of money	T+P		Cornett 4+5, Ross 4
	07-sep	07-sep	08-sep	07-sep	3	2	The time value of money	P		Cornett 4+5, Ross 4
	07-sep	07-sep	08-sep	07-sep	4	3	Financial statements	T		Cornett 2+ 3, Ross 2+3
2	11-sep	11-sep	14-sep	11-sep	5	3	Financial statements	T+P	Test 11-12Sept	Cornett 2+ 3, Ross 2+3
	11-sep	11-sep	14-sep	11-sep	6	3	Financial statements	T+P		Cornett 2+ 3, Ross 2+3
	14-sep	14-sep	15-sep	14-sep	7	3	Financial statements	T+P		Cornett 2+ 3, Ross 2+3
	14-sep	14-sep	15-sep	14-sep	8	3	Financial statements	T+P		Cornett 2+ 3, Ross 2+3
3	18-sep	18-sep	21-sep	18-sep	9	3	Financial statements	T+P		Cornett 2+ 3, Ross 2+3
	18-sep	18-sep	21-sep	18-sep	10	3	Financial statements	T+MC (Sunset)		Cornett 2+ 3, Ross 2+3
	21-sep	21-sep	22-sep	21-sep	11	3	Financial statements	T+P		Cornett 2+ 3, Ross 2+3
	21-sep	21-sep	22-sep	21-sep	12	3	Ratios	T+P		Cornett 2+ 3, Ross 2+3
4	25-sep	25-sep	28-sep	25-sep	13	3	Ratios	T+P		Cornett 2+ 3, Ross 2+3
	25-sep	25-sep	28-sep	25-sep	14	3	Ratios	T+MC (S+S Air)		Cornett 2+ 3, Ross 2+3
	28-sep	28-sep	29-sep	28-sep	15	3	FS+R (review)	T+P	Unidentified Co	Cornett 2+ 3, Ross 2+3
	28-sep	28-sep	29-sep	28-sep	16	3	FS+R (review)	C (Unidentified Co)	Test 29 -30 Sept	Cornett 2+ 3, Ross 2+3
5	02-oct	02-oct	05-oct	02-oct	17	3	FS+R (review)	C (Unidentified Co)		Cornett 2+ 3, Ross 2+3
	02-oct	02-oct	05-oct	02-oct	18	3	FS+R (review)	C (Unidentified Co)		Cornett 2+ 3, Ross 2+3
	05-oct	05-oct	06-oct	05-oct	19	3	FS+R (review)	C (Unidentified Co)		Cornett 2+ 3, Ross 2+3
	05-oct	05-oct	06-oct	05-oct	20	4	Project cash flows and capital budgeting techniques	T		Cornett 12+13, Ross7+8+9
6	09-oct	09-oct	13-oct	09-oct	21	4	PCF&CBT	T+P		Cornett 12+13, Ross7+8+9
	09-oct	09-oct	13-oct	09-oct	22	4	PCF&CBT	T+P		Cornett 12+13, Ross7+8+9
	16-oct	16-oct	19-oct	16-oct	23	4	PCF&CBT	T+MC (Baldwin)	Test 14-15 Oct	Cornett 12+13, Ross7+8+9
	16-oct	16-oct	19-oct	16-oct	24	4	PCF&CBT	MC (Baldwin)		Cornett 12+13, Ross7+8+9
7	19-oct	19-oct	20-oct	19-oct	25	4	PCF&CBT	T+P		Cornett 12+13, Ross7+8+9
	19-oct	19-oct	20-oct	19-oct	26	4	PCF&CBT	P		Cornett 12+13, Ross7+8+9
	23-oct	23-oct	26-oct	23-oct	27	4	PCF&CBT (Review)	MC (Maxine Peru)	Maxine Peru	Cornett 12+13, Ross7+8+9
	23-oct	23-oct	26-oct	23-oct	28	4	PCF&CBT (Review)	MC (Maxine peru)		Cornett 12+13, Ross7+8+9
8	26-oct	26-oct	27-oct	26-oct	29					
	26-oct	26-oct	27-oct	26-oct	30					
	30-oct	30-oct	02-nov	30-oct	31	5	Bond valuation	T+P		Cornett 7, Ross 5
	30-oct	30-oct	02-nov	30-oct	32	5	Bond valuation	P		Cornett 7, Ross 5
9	02-nov	02-nov	03-nov	02-nov	33	5	Bond valuation	P		Cornett 7, Ross 5
	02-nov	02-nov	03-nov	02-nov	34	5	Stock valuation	T+P	Test 3-4 Nov	Cornett 8, Ross 6
	06-nov	06-nov	10-nov	06-nov	35	5	Stock valuation	P		Cornett 8, Ross 6
	06-nov	06-nov	10-nov	06-nov	36	5	Stock valuation	P	Test 11-12 Nov	Cornett 8, Ross 6
10	12-nov	12-nov	12-nov	12-nov	37	6	Risk and return-CAPM	T+P		Cornett 9+10, Ross 10+11
	12-nov	12-nov	12-nov	12-nov	38	6	Risk and Return WACC	T+P		Cornett 9+10, Ross 11+12
	13-nov	13-nov	16-nov	13-nov	39	6	WACC+CAPM	P (Defense electronics)	Sea Shore Salt	Cornett 11, Ross 11+12
	13-nov	13-nov	16-nov	13-nov	40	6	WACC	MC (Sea Sohre Salt)		Cornett 11, Ross 11+12
11	16-nov	16-nov	17-nov	16-nov	41	7	Budgeting	T+P	Test 17-18 Nov	Dyson, 15
	16-nov	16-nov	17-nov	16-nov	42	7	Budgeting	MC (Sefton)		Dyson, 15
	23-nov	23-nov	23-nov	23-nov	43	7	Standard costing	T+P (Frost)		Dyson, 16
	23-nov	23-nov	23-nov	23-nov	44	7	Standard costing	T+P (Blue Rail)		Dyson, 16
12	27-nov	27-nov	24-nov	27-nov	45	7	Short-Term financing	T+P		Cornett 14, Ross 17
	27-nov	27-nov	24-nov	27-nov	46	7	NWCapital management	T+P		Cornett 14, Ross 17
	30-nov	30-nov	30-nov	30-nov	47		Comprehensive case			
	30-nov	30-nov	30-nov	30-nov	48		Comprehensive case	Income statement, Balance sheet, External financing, Ratios, Cash flows, Asset beta, Target capital structure,WACC	Flash Memory	
13	04-dic	04-dic	01-dic	04-dic	49		Comprehensive case			
	04-dic	04-dic	01-dic	04-dic	50		Comprehensive case			