SYLLABUS
YEAR 2021-2022

SYLLABUS

Course	
Name	Finance and Cost Analysis
Code	DOI-TEL-580
Degree	Máster Universitario en Ingeniería de Telecomunicación
Year	1
Semester	Fall or Spring
ECTS credits	6 ECTS
Character	Basic
Department	Operations management
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 engineering. This course goes through the fundamentals of financial management and budgeting, 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 analyze financial statements, to valuate investment projects, to compromise between risk and return, to produce budgets and to manage the firm's net-working 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 Results[1]
CMG1. Knowledge and ability to organise and manage business. **CMG4. Knowledge of financial and cost accounting** RA1. To know the concepts of financial accounting and its relation with commercial law RA2. Analyze the economic and financial information of a company and make decisions RA3. Understand the different costing systems and their application to decision making RA4. Learn the basic tools for the financial analysis of the company RA5. Evaluate and select investing and financing decisions RA6. Present and justify, both orally and in writing, economic and financial results of a firm, or investment decisions. Additional learning results: RA7. Understand the basic elements of the Time Value of Money and their implications in financial decision-making RA8. Know the major financial statements that firms must prepare and provide RA9. Calculate and interpret major ratios and appreciate how they relate to one another RA10. Design and estimate cash flows on investment projects RA11. Evaluate projects under risk RA12. Calculate, analyze and compare the accounting vs the financial break-even RA13. Describe, read and interpret bond characteristics and compute their yields RA14. Understand the stock market and compute and calculate stock values RA15. Recognize the risk-return relationship and its implications: Measure and evaluate the total

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

risks of an investment

RA16. Analyze, understand, use and weight capital budgeting decision techniques.

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CONTENTS AND MODULES

Contents
MODULE 1: Basic concepts
1 OVERVIEW
1 The firm and its legal framework
2 Sources of finance
3 Business finance and the financial manager
4 The goal of financial management
2 THE TIME VALUE OF MONEY
1 Interest and future value
2 Present value
3 Effective annual interest rates
4 Inflation and the time value of money
MODULE 2: Financial statements and ratios
3 FINANCIAL STATEMENTS
1 Balance sheet,
2 Income statement
3 Statement of cash flows & free cash flow
4 Statement of retained earnings
4 RATIOS
1 Liquidity
2 Asset management
3 Debt management
4 Profitability
5 Market value
6 Dupont analysis
MODULE 3: Project cash flows
5 PROJECT CASH FLOWS
1 Pro forma financial statements.
2 Incremental cash flows.
3 Net working capital.
4 Depreciation, book value versus market value
6 CAPITAL BUDGETING TECHNIQUES
1 Net present value
2 Internal Rate of Return and Modified Internal Rate of Return
3 Profitability Index
7 EVALUATING PROJECTS UNDER RISK
1 Decision trees
2 Break even analysis and operating leverage
3 Sensitivity analysis and scenario analysis
4 Real options
MODULE 4: Risk and return

8 VALUATION OF STOCK AND BONDS
1 Valuing bonds: Bond market, Bond valuation, Bond yields
2 Valuing stock: Stock markets, Stock valuation methods
9 RISK AND RETURN
1 Returns, Certainty and Uncertainty: Capital Asset Pricing Model
2 Risk, cost of capital and capital budgeting
3 Cost of capital: The WACC
4 Elements of portfolio management

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 related to the course objectives. 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.

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
CRÉDITS ECTS: 6 (180 hours)		

EVALUATION AND GRADING CRITERIA

Evaluation activities	Grading criteria	Weight
• Test 1 (week 10)* • Final exam* *A two-sided A4 size cheat sheet is allowed	- Understanding of concepts. - Application of concepts to problem solving. - Analysis and interpretation of problem results. - Quality of writing and overall presentation.	65% (20% midterm, 45% final exam)
The minimum grade to pass the final exam (and subsequently pass the course) is 3.5 out of 10.		
Homework given for out-of-classroom work	- Handing them in **before** the corresponding session	25%
Active participation	- Class attendance and participation	10%

Grading

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

- **65%** from the grade in the mid-season test and final exam. The mid-season test grade will represent 20% and the final exam will represent 45% of the overall grade. The tests will include multiple-choice, theory and problems. No books will be allowed. Only non-programmable calculators will be allowed. A one-page cheat sheet will be allowed.
- **25%** from handing in the homework given for out-of-classroom work. **Homework should be handed in prior to the beginning of the lecture. Late homework will not be graded.**

  50% of 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). Class discussion of the homework represents the remaining 50%.
- **10%** from the grade corresponding to attendance to and active participation in class.

Extraordinary session

The same criteria are valid, except that the 65% of the grade, previously obtained from both, midterm and final exams, will correspond solely to the final exam.

WORK PLAN AND SCHEDULE[2]

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:

- 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.
- Interim exam.

REFERENCES AND RESOURCES

Basic references
Ross, S. Westerfield, R. Jafe, J. and Jordan, B. (2017) *Corporate Finance. Core principles and applications* (Fifth Edition). McGrawHill.
Complementary references
Brealey, R., Myers, S. and Marcus, A. (2012) *Fundamentals of Corporate Finance*, 7th Edition. McGrawHill. Cornett, M. Adair, T. and Nosfinger, 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.