

Academic Year: ( 2023 / 2024 )

Review date: 12-02-2024

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: MORCILLO BELLIDO, JESUS

Type: Basic Core ECTS Credits : 6.0

Year : 4 Semester : 2

Branch of knowledge: Engineering and Architecture

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

No prerequisites

**SKILLS AND LEARNING OUTCOMES**

CB1. Students have demonstrated possession and understanding of knowledge in an area of study that builds on the foundation of general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.

CB4. Students should be able to communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

CG3. Solve problems with initiative, decision making, creativity, and communicate and transmit knowledge, skills and abilities, understanding the ethical, social and professional responsibility of the engineering activity. Capacity for leadership, innovation and entrepreneurial spirit.

CT1. Work in multidisciplinary and international teams as well as organize and plan work making the right decisions based on available information, gathering and interpreting relevant data to make judgments and critical thinking within the area of study.

CT4. Acquire and handle basic humanistic knowledge to complete the student's cross-sectional formative profile.

CT5. Handle interpersonal skills about initiative and responsibility, negotiation, emotional intelligence, etc. as well as calculation tools that allow to consolidate the basic technical skills that are required in any professional environment.

CT4. Acquire and handle basic humanistic knowledge to complete the student's cross-sectional formative profile.

CT5. Handle interpersonal skills about initiative and responsibility, negotiation, emotional intelligence, etc. as well as calculation tools that allow to consolidate the basic technical skills that are required in any professional environment.

RA1. To have acquired sufficient knowledge and proved a sufficiently deep comprehension of the basic principles, both theoretical and practical, and methodology of the more important fields in science and technology as to be able to work successfully in them.

RA2. To be able, using arguments, strategies and procedures developed by themselves, to apply their knowledge and abilities to the successful solution of complex technological problems that require creating and innovative thinking.

RA3. To be able to search for, collect and interpret relevant information and data to back up their conclusions including, whenever needed, the consideration of any social, scientific and ethical aspects relevant in their field of study.

RA4. To be able to successfully manage themselves in the complex situations that might arise in their academic or professional fields of study and that might require the development of novel approaches or solutions.

RA6. To be aware of their own shortcomings and formative needs in their field of specialty, and to be able to plan and organize their own training with a high degree of independence.

**OBJECTIVES****COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.**

By the end of this subject, students will be able to have:

1. knowledge and understanding of the scientific and mathematical principles underlying the branch of industrial engineering;
2. awareness of the wider multidisciplinary context of engineering, applying knowledge of

mathematics, statistics, economics and other scientific fields to the analysis of business situations.

3. the ability to apply their knowledge and understanding to analyse engineering products, processes and methods;

4. an understanding of methodologies, and an ability to use them in the analysis of business situations;

5. the ability to select and use appropriate methods in the management of the companies;

6. an awareness of the non-technical implications of engineering practice within the management of the companies;

7. function effectively as an individual and as a member of a team;

8. demonstrate awareness of the health, safety and legal issues and responsibilities of engineering practice, the impact of engineering solutions in a societal and environmental context, and commit to professional ethics, responsibilities and norms of engineering practice;

9. demonstrate an awareness of project management and business practices, such as risk and change management, and understand their limitations.

## DESCRIPTION OF CONTENTS: PROGRAMME

1. The Firm: management and organization

1.1. Concept and nature of the firm. The entrepreneur and the firm

1.2. The management function. Business functions

1.3. Types of companies and legal forms

1.4. Corporate governance

1.5. The role of engineering and engineers in Business Administration

2. Strategic analysis and value creation

2.1. Strategic analysis. Objectives and strategies of the firm

2.2. Analysis of the business environment, competition and externalities

2.3. Firm's internal analysis and value chain

2.4. Value creation. Competitive strategy and business models

3. Financial management: firm's economic-financial analysis

3.1. Accounting and financial statements

3.2. Accounting principles. Auditing

3.3. Preparation of the financial statements

3.4. Analysis of economic and financial performance

4. Financial management: investment and financing

4.1. Investment decisions

4.2. Time value of money

4.3. Evaluation of investment projects

4.4. Financing decisions. Internal and external sources of financing

5. Marketing and sales management

5.1. The marketing Plan

5.2. Segmentation and positioning

5.3. Sales objectives. Demand estimation

5.4. Marketing-mix decisions

6. People and team management

6.1. The management role. Leadership and motivation

6.2. People management

6.3. Projects and teams management

7. Innovation and business growth. Tech companies

7.1. Concept and types of innovation

7.2. Innovation Management. Strategies for the protection and exploitation of technology

7.3. Tech companies. Tech ecosystems

## LEARNING ACTIVITIES AND METHODOLOGY

Lectures, exercises, practical sessions, cases and assignments to be carried out by the students and discussed during the sessions, readings assigned by the instructor or identified by the students.

## ASSESSMENT SYSTEM

60% Final written exam.

40 % Continuous evaluation. Partial exams will be held, approximately in the tentative weeks indicated in the schedule. Optionally, complementary evaluation system. May apply sampling based grading.

Minimum grade required in the final exam: 4

% end-of-term-examination: 60

% of continuous assessment (assignments, laboratory, practicals...): 40

**% end-of-term-examination:** 60

**% of continuous assessment (assignments, laboratory, practicals...):** 40

## BASIC BIBLIOGRAPHY

- Navas López, J.E. y Guerras Martín, L.A. Fundamentals of strategic management. , Thomson, 2018

- Professor Instructor provided material: Slides, exercises... URLs and other Internet resources provided by the instructor., Through Aula Global., Uc3m.

## ADDITIONAL BIBLIOGRAPHY

- B Erasmus, S Rudansky-Kloppers, J Strydom, JA Badenhorst-Weiss, y otros (eds.). Introduction to Business Management. , Oxford University Press. , 2019

- Richard A. Brealey, Stewart C. Myers Alan J. Marcus Fundamentals of Corporate Finance,, McGraw-Hill, 2014

- Schilling, M. Strategic Management of Technological Innovation,, McGraw Hill,, 2017

## BASIC ELECTRONIC RESOURCES

- Navas López, J.E. y Guerras Martín, L.A. (2018) . Fundamentals of strategic management. : [https://bibliotecas.uc3m.es/permalink/f/63b8kq/34UC3M\\_ALMA51302368630004213](https://bibliotecas.uc3m.es/permalink/f/63b8kq/34UC3M_ALMA51302368630004213)

- Professor . Professor presentation: <https://aulaglobal.uc3m.es>