

**1. General information****Course:** ECONOMY AND CHEMICAL INDUSTRY**Type:** BASIC**Degree:** 344 - CHEMICAL ENGINEERING**Center:** 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY**Year:** 2**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 57708**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 21**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** PABLO GARCIA ANSOLA - Group(s): 21

| Building/Office    | Department                 | Phone number | Email                | Office hours |
|--------------------|----------------------------|--------------|----------------------|--------------|
| EIMIA/EIHuyar/2.06 | ADMINISTRACIÓN DE EMPRESAS | Vía Teams    | pablo.garcia@uclm.es |              |

**Lecturer:** JUAN RAMON TRAPERO ARENAS - Group(s): 21

| Building/Office      | Department                 | Phone number | Email                     | Office hours                     |
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**2. Pre-Requisites**

Not established

**3. Justification in the curriculum, relation to other subjects and to the profession**

This subject is aimed at providing the student of the Chemical Engineering degree with basic training on aspects related to the economy and the chemical industry. In this way, topics related to: economic theory, the structure of the company, its main functional areas, the basic characteristics of the chemical industry and the main tools that managers have for decision-making will be analyzed. Thus, we can consider that one of the main objectives will be to provide the student with knowledge and skills (related to the different functional areas of the company: production, financing and marketing) so that in the development of their future functions in the business activity in the chemical industry can contribute to improving the competitiveness of the company.

Chemical engineers are typically involved in feasibility studies and economic evaluations of processes that rely on company financials. Since many costs come from typical operations in the chemical process industries, technical as well as managerial and financial knowledge is required. Therefore, in order for engineers to be able to communicate with the different departments of a company, it is important that they know how to interpret the most relevant concepts in finance, costs and accounting.

Given the high volatility and uncertainty of the environment, it is necessary for companies to carry out continuous internal and external analysis. In this way, the entity will know its strengths and weaknesses, at the same time that it will detect the opportunities and threats that come from the environment. With these elements, the company can develop a strategy that tends to guarantee its survival in the sector. Therefore, it is important that all employees have this capacity for continuous analysis to contribute to the development of the optimal strategy.

The subject is part of the basic module and will be important for a better understanding of the subject Planning and Control of Production and Industrial Organization of the first quarter of the fourth year. In this subject, the productive subsystem will be analyzed in depth, for which a minimum knowledge of business economics is required. In addition, the graduate who later wishes to pursue a research master's degree in chemical engineering will take credits related to applied knowledge of business organization.

**4. Degree competences achieved in this course****Course competences**

| Code | Description                                                                                                                                                                                      |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CB03 | Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.                 |
| E06  | Adequate knowledge of the concept of company, institutional and legal framework of the company. Organization and management of companies.                                                        |
| G03  | Ability to solve problems with initiative, decision making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Chemical Engineering. |
| G09  | Ability to work in a multilingual and multidisciplinary environment.                                                                                                                             |
| G17  | Synthesis capacity                                                                                                                                                                               |

**5. Objectives or Learning Outcomes****Course learning outcomes****Description**

To know the nature of the company and its different legal forms, as well as the peculiarities of the chemical industry.

To have knowledge about the formation of supply and demand curves in the market.

To know the main tools in the production subsystem of a company to optimize decision making in reference to productivity, cost analysis, production capacity and inventory management.

To know the different competitive strategies that a company can develop and be able to perform the SWOT analysis of a company.

To understand the main macroeconomic variables of a country such as the Gross Domestic Product and the Consumer Price Index among others.

To understand the key objectives in the marketing subsystem.

To understand the main accounting concepts of a company and be able to understand its main accounts such as the balance sheet, the income statement and the economic-financial analysis through the use of ratios.

To analyze the economic viability of a project using the main investment evaluation methods such as NPV and IRR. Know the implementation of these financial functions in MS-Excel.

## 6. Units / Contents

**Unit 1: Introduction to economics**

**Unit 2: Microeconomics**

**Unit 3: Macroeconomics**

**Unit 4: Nature of companies and chemical industry**

**Unit 5: Fundamentals of business strategy**

**Unit 6: Finance subsystem**

**Unit 7: Operations subsystem**

**Unit 8: Marketing subsystem**

## 7. Activities, Units/Modules and Methodology

| Training Activity                              | Methodology                          | Related Competences<br>(only degrees before RD<br>822/2021) | ECTS                                        | Hours      | As | Com | Description |
|------------------------------------------------|--------------------------------------|-------------------------------------------------------------|---------------------------------------------|------------|----|-----|-------------|
| Class Attendance (theory) [ON-SITE]            | Combination of methods               | E06 G03 G09                                                 | 1.6                                         | 40         | N  | -   |             |
| Workshops or seminars [ON-SITE]                | Project/Problem Based Learning (PBL) | CB03 E06 G09 G17                                            | 0.4                                         | 10         | Y  | N   |             |
| Group tutoring sessions [ON-SITE]              | Combination of methods               | CB03 E06 G17                                                | 0.2                                         | 5          | Y  | N   |             |
| Progress test [ON-SITE]                        | Assessment tests                     | CB03 E06 G03 G09 G17                                        | 0.1                                         | 2.5        | Y  | N   |             |
| Study and Exam Preparation [OFF-SITE]          | Self-study                           | CB03 E06 G03 G09 G17                                        | 3.6                                         | 90         | N  | -   |             |
| Computer room practice [ON-SITE]               | Practical or hands-on activities     | G03 G09 G17                                                 | 0.1                                         | 2.5        | Y  | N   |             |
| <b>Total:</b>                                  |                                      |                                                             | <b>6</b>                                    | <b>150</b> |    |     |             |
| <b>Total credits of in-class work: 2.4</b>     |                                      |                                                             | <b>Total class time hours: 60</b>           |            |    |     |             |
| <b>Total credits of out of class work: 3.6</b> |                                      |                                                             | <b>Total hours of out of class work: 90</b> |            |    |     |             |

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

## 8. Evaluation criteria and Grading System

| Evaluation System                                 | Continuous assessment | Non-continuous evaluation* | Description |
|---------------------------------------------------|-----------------------|----------------------------|-------------|
| Assessment of problem solving and/or case studies | 30.00%                | 0.00%                      |             |
| Final test                                        | 70.00%                | 100.00%                    |             |
| <b>Total:</b>                                     | <b>100.00%</b>        | <b>100.00%</b>             |             |

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

### Evaluation criteria for the final exam:

#### Continuous assessment:

To pass the subject, the average mark should be equal or greater than 5 out of 10.

#### Non-continuous evaluation:

In case the student do not deliver the assessment of problem solving and/or case studies, the final test would weigh the 100% of the evaluation.

### Specifications for the resit/retake exam:

In the resit/retake exam, all the passed evaluations will be kept and students will only be examined of the failed parts. To pass the subject, the average mark should be equal or greater than 5 out of 10.

## 9. Assignments, course calendar and important dates

| Not related to the syllabus/contents |       |
|--------------------------------------|-------|
| Hours                                | hours |

## 10. Bibliography and Sources

| Author(s)                  | Title/Link                                                                                                                                                                                                                              | Publishing house                | Citv | ISBN              | Year | Description |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------|-------------------|------|-------------|
| Mochón Morcillo, Francisco | Principios de economía                                                                                                                                                                                                                  | McGraw Hill                     |      | 84-481-4656-5     | 2006 |             |
| Pérez Gorostegui, Eduardo  | Introducción a la economía de la empresa                                                                                                                                                                                                | Centro de Estudios Ramón Areces |      | 84-8004-512-4     | 2002 |             |
| Trapero Arenas, Juan Ramón | Dirección y gestión empresarial                                                                                                                                                                                                         | Mc Graw Hill Education          |      | 978-84-481-9038-5 | 2013 |             |
|                            | <a href="http://blog.uclm.es/juanramontrapero/2014/01/27/ya-esta-disponible-el-libro-direccion-y-gestion-empresarial/">http://blog.uclm.es/juanramontrapero/2014/01/27/ya-esta-disponible-el-libro-direccion-y-gestion-empresarial/</a> |                                 |      |                   |      |             |

