

## SUBJECT TEACHING GUIDE

### G801 - Food Technology

#### Degree in Chemical Engineering First Degree in Chemical Engineering

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Degree in Chemical Engineering First Degree in Chemical Engineering			Type and Year	Optional. Year 4 Optional. Year 4
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Option A: Fundamental Chemical Engineering Optional Module				
Course unit title and code	G801 - Food Technology				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIAS QUIMICA Y BIOMOLECULAR				
Name of lecturer	CLARA CASADO COTERILLO				
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Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 5. SEMINARIO (S5035)				
Other lecturers	MARTA RUMAYOR VILLAMIL				

### 3.1 LEARNING OUTCOMES

- Solution of problems of balances in food industry.
- Knowledge of the main technological processes related to the different food groups .
- Use of the sources of bibliographic information and technical manuals of interest in Food Industry.
- Application of the concepts of calculation and design typical of Chemical Engineering to the Food Industry.

#### 4. OBJECTIVES

- To apply the Chemical Engineering concepts to the Food Industry.
- To know the general principles of food and nutrition.
- Knowledge and application of the principles and regulations of Food Health and Safety.
- Knowledge of the Agrifood Industry and use of the bibliographic information related to it.

#### 6. SUBJECT PROGRAM

CONTENTS	
1	INTRODUCTION TO FOOD TECHNOLOGY. 1.1. Definitions and basic concepts. 1.2. Characteristics and figures of food industry. 1.3. Innovation in food technology.
2	CHEMICAL FOOD TECHNOLOGY 3.1. Food composition. 3.2. Carbohydrates and dietary fibre. 3.3. Proteins. 3.4. Lipids: fats and oils.
3	TECHNOLOGY OF THE NUTRIENTS. HUMAN NUTRITION. 2.1. Nutrients of food. Minerals and vitamins. 2.2. Classification of food. 2.3. Energy and nutritional needs. Energy balance. Tables of food composition. 2.4. Functional foods. 2.5. Recommendations of food hygiene and handling.
4	TECHNOLOGIES OF DIFFERENT FOOD GROUPS. 4.1. Technology of meat, eggs and derivatives. 4.2. Technology of milk, dairy products and derivatives. 4.3. Technology of fats and oils. 4.4. Technology of cereals and derivatives. 4.5. Technology of fish products. 4.6. Technology of alcoholic and non-alcoholic beverages. 4.7. Technology of fruits and vegetable based products.
5	FOOD SAFETY AND LEGISLATION. 5.1. Food Health and Safety 5.2. Food labelling. 5.2. Other innovative technologies.
6	PRACTICE weeks 1-15. 1: Food preservation at low temperatures. Refrigeration. Freezing. 2. Thermal processing. Microorganism thermal degradation. Sterilization. 3. Mass transfer in food technology. 4. Fluid flow management. 5. Pumping. 6. Heat transfer. 7. Other.

### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Realization and oral presentation and defense of a work about a Food Technology group.	Work	No	Yes	30,00
Portfolio of problems	Work	No	Yes	40,00
Individual tasks belonging to blocks 1 to 3.	Activity evaluation with Virtual Media	No	Yes	30,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
<p>Evaluation will be held in continuous mode. Therefore, the progress of the student is measured as a function of his/her participation and efficiency in the classroom activities, including theoretical tests containing the basic concepts (30%), the individual reports on the exercises carried out in the practicum sessions (40%) and the group work (30%).</p> <p>The absence of more than 20% will have to be justified not to cause prejudice to the classmates during group work and alternatives will be offered to the student if applied for.</p> <p>In case of sanitary emergency, evaluation methodologies will be adapted to use available media.</p>				
<b>Observations for part-time students</b>				
The results obtained by part-time students will be maintained during one academic year.				

### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

#### BASIC

Madrid, A.; Esteire, E.; Cenzano, J.M. "Ciencia y Tecnología de los Alimentos. Tomos 1 y 2". 409pp. 2013, Madrid: AMV Ediciones

Ordoñez, J.A. (editor). "Tecnología de los Alimentos. Volumen I: Componentes de los alimentos y procesos", 363pp. 1999. Madrid: Ed. Síntesis.

Heldmann, Dennis R. y Lund, Daryl B. "Handbook of food engineering", 2nd Edition, CRC Press: Boca Raton (EE.UU.) (2007)