

## SUBJECT TEACHING GUIDE

G801 - Food Technology

Degree in Chemical Engineering

Academic year 2019-2020

1. IDENTIFYING DATA					
Degree	Degree in Chemical Engineering			Type and Year	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				
E-mail	clara.casado@unican.es				
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. COURSE ORGANIZATION

##### 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	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.
3	CHEMICAL FOOD TECHNOLOGY 3.1. Food composition. 3.2. Carbohydrates and dietary fibre. 3.3. Proteins. 3.4. Lipids: fats and oils.
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. Food degradation and preservation. 4.8. Food additives.
5	FOOD SAFETY AND LEGISLATION. 5.1. Food Health and Safety 5.2. Food labelling.
6	PRACTICE weeks 1-8. 1: Flow of fluids in food industry. 2. Pumping of fluids in food industry. 3: Heat transfer in unsteady state: heating of food products.
7	PRACTICE weeks 9-15. 4. Food thermal processing. Thermal destruction of microorganisms. Sterilization. 5. Food preservation by cold. Refrigeration. Freezing. 6. Mass transfer in unsteady state in food industry. 7. Extraction of seed oil.

### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Carrying out and presentation of a work on Food Technology	Work	No	Yes	20,00
Portfolio of problems (I)	Work	No	Yes	25,00
Portfolio of problems (II)	Work	No	Yes	25,00
Objective Test of theory	Written exam	No	Yes	30,00
<b>TOTAL</b>				<b>100,00</b>
Observations				
Observations for part-time students				
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". AMV Ediciones (2013)
Ordoñez, J.A. (editor). "Tecnología de los Alimentos. Volumen I: Componentes de los alimentos y procesos". Ed. Síntesis (1999)
Brennan, J.G.; . Grandison, A.S.(editores). "Food Processing Handbook, 2nd Edition, 2 Volume Set". Wiley-VCH (2011).
Valiente Bardenas, A. "Problemas de Balance de Materia y Energía en la Industria Alimentaria, 2a Ed." LIMUSA- Wiley (2006).
Ibarz, A.; Barbosa-Cánovas, G. V."Operaciones Unitarias en la Ingeniería de Alimentos". Mundi-Prensa, Madrid (2005)