UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course:	CEREALS AND DERIVATIVES	**Code:**	58334
Type:	ELECTIVE	**ECTS credits:**	6
Degree:	383 - UNDERGRADUATE DEGREE PROGRAMME IN FOOD SCIENCE AND TECHNOLOGY	**Academic year:**	2022-23
Center:	1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY	**Group(s):**	22
Year:	4	**Duration:**	C2
Main language:	Spanish	**Second language:**	English
Use of additional languages:		**English Friendly:**	Y
Web site:		**Bilingual:**	N

Lecturer: **JUSTA MARIA POVEDA COLADO** - Group(s): **22**

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

The basic knowledge that students must possess, in general, and that will be very useful when taking the subject, can be summarized in the following points:

1. Food microbiology, industrial fermentation, biotenology
2.Composition of food
3. Food technology
4. Physico-chemical properties of food

Therefore it is recommended that the student has passed the first three years of the Degree before enrolling in this subject.

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

Cereals are the basis of the diet of most of the world's population and their production is the largest of all food. Its importance is high for its consumption in the form of grain in the case of some cereals, such as rice, and it is also very important its transformation into derivatives such as flours, bread, bakery products, semolina, pasta, breakfast cereals, and drinks like beer, whiskey, sake, etc.

The subject of Cereals and Derivatives is part of the curriculum within the Food Technology module, in the Food Industries II field.

The aim of the course is for the student to know in depth all the aspects related to cereals, as well as to study their transformation processes into elaborated products, to be able to design and control these processes and to guarantee the quality of the final products. .

It is an optional subject, which is taught in the last year of the Degree, when the student already has a fairly complete knowledge of Food Science and Technology and has acquired skills related to these disciplines. The skills acquired by the student in this subject will be essential when developing a professional activity related to the cereal industries.

4. Degree competences achieved in this course

Course competences

Code	Description
E05	To know the composition, phyco-chemical properties, nutritional value and sensory properties of foods
E06	To know and be able to handle the techniques and procedures of food analysis
E08	To be able to apply the technological advances and the innovation in foods and food processing processes in the food industry and to evaluate their acceptability by consumers
E09	To know, optimize and control the production and conservation food processes
E10	To acquire knowledge on equipments and systems for the automatization and control of food processing
E11	To qualify to be able to evaluate the effects of processing on the components and properties of foods
E12	To acquire knowledge on microbiology and biotechnology and their applications in the food processing
E13	To know the organoleptic properties of foods and be able to apply methodology and techniques of sensory analysis
E18	To adquire knowldege on food legislation and normalization. To counsel legaly, scientifically and technocally the food industry and consumers.
E19	To know the fundamentals of quality and traceability systems and be able to perform their deploy, as well as to evaluate and control the food quality
E20	To manage sub-products and residues of the food industry according to an effective environmental management
E22	To perform formation of staff in the food sector
E24	To assure and improve the nutritional quality and the health properties of ingredients and foods
G05	To understand and to use the English language, both written and spoken, applied to the area of the Food Science and Technology. (To be able to acquire this hability, a series of actions that will be specified in every module will be peformed).

G06	To dominate the Technologies of the Information and the Communication (TIC) to user's level, which allows to work in virtual spaces, Internet, electronic databases, as well as with common software packages (e.g. Microsoft Office).
G07	To possess ability of organization and planning, initiative, entrepreneurship and aptitude to be employed in teamworks. To possess capacity of resolution of specific problems of the professional area and to develop the critical reasoning and decision making.
G09	To develop the motivation for quality, the capacity to adapt to new situations and the creativity.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To advance in the physico-chemical, nutritional and functional properties of meat, dairy, wine, fats and oils products.

To know and to design the specific aspects of the food proceeding of cereals, fruits and other vegetables.

Aptitude to develop and formulate new products from from cereals, fruits and other vegetables.

To be capable of evaluating and establishing mechanisms to support the traceability for the food proceeding of cereals, fruits and other vegetables.

To be capable of establishing mechanisms that assure the quality of the products during their production, storage and transportation.

To know the strategies of utilization of the by-products of the industries of derivatives of cereals and drinks.

To know the official methodology of analysis and quality control applied to the cereals and derivatives and alcoholic and non alcoholic drinks.

6. Units / Contents

Unit 1: Main cereals in food industry

Unit 2: Flours and semolas

Unit 3: Quality control of flours. Rheology

Unit 4: Yeasts

Unit 5: Sourdough

Unit 6: Enzymes

Unit 7: Fats

Unit 8: Gasifiers and oxidants. Other additives

Unit 9: Baking: Physico-chemical bases of kneading, fermentation, cooking

Unit 10: Cold applications in baking: refrigerated doughs, frozen doughs, controlled fermentation

Unit 11: Bread quality criteria. Defects: causes and solutions

Unit 12: Pasta

Unit 13: Bakery products

Unit 14: Biscuits

Unit 15: Snacks and breakfast cereals

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures		1.43	35.75	Y	N	
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities		0.7	17.5	Y	Y	
Group tutoring sessions [ON-SITE]	Group tutoring sessions		0.1	2.5	Y	N	
Workshops or seminars [ON-SITE]	Case Studies		0.05	1.25	Y	N	
Final test [ON-SITE]	Assessment tests		0.12	3	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study		3.6	90	Y	N	
		Total:	**6**	**150**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.6					**Total hours of out of class work: 90**

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
Final test	70.00%	70.00%	There will be a final exam on the theoretical contents.
Portfolio assessment	30.00%	30.00%	Evaluation of practical activities and other academically supervised activities, such as seminars or resolution of practical cases.
Total:	**100.00%**	**100.00%**	

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 a minimum of 4/10 in each part and an average grade equal to or greater than 5/10 applying the percentages will be required.

Non-continuous evaluation:

The same as continuous evaluation, facilitating the carrying out of tests or presentations electronically.

Specifications for the resit/retake exam:

The same criteria of the ordinary call will be applied.

Specifications for the second resit / retake exam:

The same criteria of the ordinary call will be applied.

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
Callejo González, María Jesús	Industrias de cereales y derivados	AMV Mundi-Prensa		84-89922-63-2 (AMV E	2002	
Cauvain, S. P., Young, l.	Fabricación de pan	Acribia		84-200-0983-0	2002	
Kirk, R.c., Turnbull, K.	Tecnología de la elaboración de pasta y sémola	Acribia		84-200-1031-6	2004	
Manley, D.J.R.	Tecnología de la industria galletera	Acribia		84-200-0651-3	1989	
Miralbés, Carles	Enzimas en panadería	Montagud		84-7212-081-3	2000	
Tejero, F	Panadería española:	Montagud Editores			1992	
VALLEJO DIEZ, C.	Manual práctico de panadería	Progensa		84-86505-26-7	1990	
Varios autores	Panificación: aspectos socio-económicos, materias primas	Montagud Editores			1996	