

**1. General information****Course:** RAW MATERIALS IN THE FOOD INDUSTRY**Code:** 58307**Type:** CORE COURSE**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:** 2**Duration:** First semester**Main language:** Spanish**Second language:** English**Use of additional languages:****English Friendly:** Y**Web site:****Bilingual:** N

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2. Pre-Requisites

Not established

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

Livestock and Plant Production covers a wide field, made up of the morphological and physiological bases of animal and crops, for the offering to the market and food industry raw plant and animal products obtained in the best conditions of quality and health security.

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

Code	Description
E07	To know the production processes of raw materials employed in the food industry
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
E10	To acquire knowledge on equipments and systems for the automatization and control of food processing
E12	To acquire knowledge on microbiology and biotechnology and their applications in the food processing
E14	To know knowledge on microbiology and parasitology and food toxicology
E16	To know and manage behaviour guidelines on personal hygiene, food handling and hygienic control of food processing
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
G01	To develop the aptitude to gather and interpret information and data to issue critical judgments that include a reflection on relevant topics of social, scientific or ethical nature.
G02	To possess a correct oral and written communication. To transmit information, ideas, problems and solutions to a both specialized and not specialized public.
G04	To develop the necessary skills of learning to undertake later studies with a high degree of autonomy.

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

Analyze critically new trends in agricultural production systems: sustainable systems, integrated and precision agriculture, biotechnology and transgenics. Critical analysis of the new agricultural pseudo-sciences: ecology and organic agriculture.

Determine the industrial quality of the raw material for use in the agri-food industry: definition of concepts such as food safety, economic profitability, environmental impact and traceability

Differentiate the peculiar characteristics of the agricultural sector that make it different from the other productive sectors. Frame the current agricultural sector in its economic, political and social reality worldwide and in the EU.

Know the origin and diversity of the different raw materials used in the agri-food industry.

Understand the importance of agriculture (crops and livestock) from rise of domesticated to nowadays and the subsequent technological improvements to increase their production

Know briefly the production processes of raw materials of plant and animal origin used in human food.
Evaluate the natural limiting factors in the farming systems that affect the profitability and quality of the products

Additional outcomes

6. Units / Contents

Unit 1: Vegetable raw materials (crops production)

- Unit 1.1** Introduction. Agronomy concept. Origin and evolution of agriculture. Statistics of agricultural production.
- Unit 1.2** Agricultural production factors. Agricultural systems. Agricultural production techniques and management.
- Unit 1.3** Cereals: production and quality factors.
- Unit 1.4** Legumes (pulses) for human consumption: production and quality factors.
- Unit 1.5** Others arable crops (oil, sugar and vegetable crops): production and quality factors.
- Unit 1.6** Overview, concept and basis of the integrated protection. Etiology and expression of the disease or pest.
- Unit 1.7** Diagnosis and nature of the disease.
- Unit 1.8** Pest management strategy. Integrated protection and sustainable agriculture.

Unit 2: Raw Materials of Animal Origin (Animal Production)

- Unit 2.1** Introduction to Animal Husbandry and Animal Production: Concepts. Importance. Evolution and Future. Conditioning factors of Animal Production.
- Unit 2.2** Livestock farming worldwide, from the U.E. and from Spain: Censuses. Productions Current situation.
- Unit 2.3** Meat poultry: Production systems. The bait. Sacrifice. Commercialization.
- Unit 2.4** Laying poultry: The laying hen. Laying cycles. The commercial egg.
- Unit 2.5** Pig livestock: The animal base in pig farms. The bait. The channel. Bases of extensive exploitation. The Iberian pig.
- Unit 2.6** Cattle: The animal base in dairy and meat cattle. The lactation curve. Milk treatment and storage. Meat production systems. The channel.
- Unit 2.7** Sheep production: The animal base. Production systems. The channel and marketing. Sheep milk production. Cheeses
- Unit 2.8** Goat production: Production systems. Goat milk production. Milk characterization and marketing.
- Unit 2.9** Rabbit farming: Production systems. Marketing of rabbit products.
- Unit 2.10** Alternative poultry: Chickens "Label". Free-range and picantón chicken. Organic chickens and eggs. Laying layers. The capon and the pularda. The duck and the pularda. The duck and the goose. Dove.
- Unit 2.11** Beekeeping: Production and management of the hive. Honey, wax, and royal jelly.

ADDITIONAL COMMENTS, REMARKS

Although in this guide the program has been divided into only two topics, in reality each of them corresponds to very different areas of knowledge (different departments). The subtopics presented correspond to the of each of the two parts.

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	E07 E12 E14 E16 E19 E20 G01 G02 G04	1.2	30	Y	N	Presentation of the syllabus of the subject
Workshops or seminars [ON-SITE]	Project/Problem Based Learning (PBL)	E14 E16 E19 E20 G01	0.6	15	Y	N	Approach of questions that deepen the knowledge of the areas of plant and animal production. Visits to agricultural and livestock farms
Final test [ON-SITE]	Assessment tests	E07 E12 E14 E16 E19 E20 G01 G02 G04	0.1	2.5	Y	N	Assessment of acquired knowledge
Project or Topic Presentations [ON-SITE]	Group Work	E07 E08 E10 E12 E14 E16 E19 E20 G01 G02 G04	0.5	12.5	Y	N	Presentation in class of the work carried out
Writing of reports or projects [OFF-SITE]	project-based learning	E07 E12 E14 E16 E19 E20 G01 G02 G04	1.1	27.5	Y	N	Preparation of a report on the topic addressed
Study and Exam Preparation [OFF-SITE]	Self-study	E07 E12 E14 E16 E19 E20 G01 G02 G04	2.5	62.5	N	-	exam preparation
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
Oral presentations assessment	10.00%	0.00%	
Theoretical papers assessment	10.00%	0.00%	
Final test	70.00%	100.00%	final test with a value of 70% of total evaluation.
Assessment of active participation	10.00%	0.00%	
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:

In the final evaluation of "continuous assessment", will be had into account all of items cited below with different weight on the total score according to current legislation:

final test 70 % of total score

oral presentations 10 % total score

practical activities 10 % total score

assistance and active participation 10 % total score

The Animal Production and Plant Production sections are independent in their evaluation, requiring at least a score of 4 in each of them to make the average of overall subject.

Non-continuous evaluation:

final test with a value of 100% of total evaluation. The subject evaluated in the final test will be the one corresponding to the theoretical content of the subject and the one referring to the practical, work and laboratory material.

Specifications for the resit/retake exam:

final test with a value of 100% of total evaluation.

Specifications for the second resit / retake exam:

final test with a value of 100% of total evaluation.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Unit 1 (de 2): Vegetable raw materials (crops production)	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	16
Workshops or seminars [PRESENCIAL][Project/Problem Based Learning (PBL)]	6.5
Final test [PRESENCIAL][Assessment tests]	1.5
Project or Topic Presentations [PRESENCIAL][Group Work]	6
Writing of reports or projects [AUTÓNOMA][project-based learning]	13.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	30.5
Group 22:	
Initial date: 08-09-2022	End date: 22-12-2022
Unit 2 (de 2): Raw Materials of Animal Origin (Animal Production)	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	16.5
Workshops or seminars [PRESENCIAL][Project/Problem Based Learning (PBL)]	6
Final test [PRESENCIAL][Assessment tests]	1.5
Project or Topic Presentations [PRESENCIAL][Group Work]	6
Writing of reports or projects [AUTÓNOMA][project-based learning]	14
Study and Exam Preparation [AUTÓNOMA][Self-study]	32
Group 22:	
Initial date: 08-09-2020	End date: 15-12-2020
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	32.5
Workshops or seminars [PRESENCIAL][Project/Problem Based Learning (PBL)]	12.5
Final test [PRESENCIAL][Assessment tests]	3
Project or Topic Presentations [PRESENCIAL][Group Work]	12
Writing of reports or projects [AUTÓNOMA][project-based learning]	27.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	62.5
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Harlan, Jack R.	Crops and man	American Society of Agronomy Crop Science Soc		0-89118-107-5	1992	
Jornadas técnicas sobre ganado porcino (1995. Ciudad Real)	I Jornadas Técnicas sobre ganado porcino	Escuela Universitaria de Ingeniería Técnica Agr		84-8250-005-8	0	
Loomis, R. S.	Crop ecology : productivity and management in agricultural s	University Press		0-521-38776-0	1992	
López Bellido, Luis	Cereales	Mundi-Prensa		84-7114-324-0	1991	
López Bellido, Luis	Cultivos industriales	Mundi-Prensa		84-8476-075-8	2003	
Maroto i Borrego, Josep Vicent (1945-)	Horticultura herbácea especial	Mundi-Prensa		84-7114-495-6	2002	
	Zootecnia : bases de producción animal	Mundi-Prensa		84-7114-581-2 (v.5)	1995	
Buxadé Carbó, Carlos	El desafío : la ganadería española en la CEE de los doce	Mundi-Prensa		84-7114-186-8	1988	
Buxadé Carbó, Carlos	El pollo de carne : sistemas de explotación y técnicas de pr	Mundi-Prensa		84-7114-158-2	1985	

Buxadé Carbó, Carlos	La gallina ponedora : sistemas de explotación y técnicas de	Mundi-prensa	84-7114-880-3	2000
Buxadé Carbó, Carlos	Ovino de leche : aspectos claves	Ediciones Mundi-Prensa	84-7114-739-4	1998
	El SECTOR porcino : aspectos básicos	Mundi-Prensa	84-7114-434-4	1993
Buxadé Carbó, Carlos	Prespectivas de la ganadería española	Editorial Instituto de Empresa	84-85669-16-9	0
Elzebroek, Ton	Guide to Cultivated Plants/	CABI Pub.,	9781845933562 (alk.	2008
Guerrero García, Andrés	Cultivos herbáceos extensivos	Mundi-Prensa	84-7114-797-1	1999
Agrios, George N.	Fitopatología	Limusa	978-968-18-5184-2	2006
Coscollá, Ramón	Introduccion a la protección integrada	Phytoma-España	84-932056-5-6	2004
Domínguez García-Tejero, Francisco	Plagas y enfermedades de las plantas cultivadas /	Mundi-Prensa,	84-7114-767-X	2004
Roberts, Daniel A.Daniel Altman1922-	Fundamentos de patología vegetal	Acribia	84-200-0394-8	1978
			84-7114-767-X	
Manners, J. G.	Introducción a la fitopatología = Principles of plant pathol	Limusa,	968-18-1975-6	1986