VNIVERSITAT DE VALÈNCIA

Course Guide
36376 Food technology

COURSE DATA

Data Subject	
Code	36376
Name	Food technology
Cycle	Grade
ECTS Credits	6.0
Academic year	2019 - 2020

Study (s)

Degree	Center	Acad. year	Period
1212 - Degree in Gastronomic Sciences	Faculty of Pharmacy and Food Sciences	2	First term

Subject-matter

Degree	Subject-matter	Character
1212 - Degree in Gastronomic Sciences	17 - Food Technology	Obligatory

Coordination

Name	Department
SOLER QUILES, CARLA MARIA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

SUMMARY

The subject "Food Technology" is a compulsory subject of the second year of the Degree of Gastronomic Science, which is taught in the Faculty of Pharmacy, University of Valencia. This course has a total of 6 ECTS credits to be given in the first semester.

With this subject is intended that students acquire basic knowledge about fundamental aspects of food as well as basic operations and process used in the food industry for production, processing and preservation.

Our main goal is for our students to acquire an overview on Food Technology and its relationship with food production, food security and the nutritional and organoleptic quality of food.

Special emphasis is placed on the technological processes that transform raw materials into food, specific technologies are studied for several types of food: plant foods (fruits and vegetables, cereals, oils, ...), food of animal origin (meat, milk, eggs, fish products, ...), fermented food and drink and special food and beverage (alcoholic beverages, stimulant food and beverages, food sweeteners, ...).

To this end, study the properties of the raw materials used in food processing and identify and interpret the basic operations of the food industry. Thus, each of the processes will be analyzed in order to be able to schedule the processes of conservation and transformation.

It is intended that the student understands the problem of food preservation and how this issue examines possible conservation techniques, mainly focused on controlling the temperature and the depression of water activity to prevent possible chemical and microbiological changes that food can suffer.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

1212 - Degree in Gastronomic Sciences

- Have knowledge and understanding in the field of gastronomic sciences.
- Be able to engage in new fields of gastronomy in general through independent study.
- Be able to work in a team and to organise and plan activities, always taking account of gender perspective.
- Be able to take the approaches required to reduce a problem to a manageable level.
- Know the basic technological processes in the agro-food industry and the modifications that food undergoes as a result of these.

LEARNING OUTCOMES

- To know and evaluate critically the basic processes in the production, processing and preservation of food of animal and vegetable origin.

- To know the modifications suffered by foods as a result of technological processes.

- To know the main types of food industries.

DESCRIPTION OF CONTENTS

1. Introduction to food technology

TOPIC 1. Introduction to Food Technology. What is food technology? Historical development of food technology. Objectives of food technology. Relationship of food technology with other disciplines.
TOPIC 2. Food industry production. Agro-food sector. Types of food industries. Processes and unitary operations. Flow diagrams: examples.

2. Operations of food industry

TOPIC 3. Raw materials pre-treatment operations. Raw materials: reception, classification, selection, washing, blanching. transport system in food industry. packaging, storage and distribution.
TOPIC 4. Processing operations in the food industry. Separation. Changes in size. Mixtures. Extrusion. Molding. Other processing operations. Packaging operations. Changes in volume. Mixtures and moulding. Texture modifications. Separation
TOPIC 5. Food preservation by heat. Thermal resistance of microorganisms and proteins. Factors influencing the heat treatment of food. Heat conservation techniques. Effect of heat on food.
TOPIC 6. Food preservation by cold. Cooling and freezing. Relationship with spoilage agents. Cooling and freezing systems. Storing and thawing.
TOPIC 7. Food preservation by depression of the water activity. Water activity and microbial growth. Evaporation. Dehydration. Reconstitution of dehydrated foods.
TOPIC 8. Other methods of preservation. Ph. Acidity in the conservation. Modified atmospheres. High hydrostatic pressures. Food irradiation. Other techniques.
TOPIC 9. Packaging and storage. Types of packaging. Active and intelligent packaging. Storage.

3. Processing of animal products.

TOPIC 10. Meat and meat products. Meat processing. Slaughterhouses. Meat preparations. Cured meat products. Process technology. Other meat products.
TOPIC 11. Fish and fishery products. Fresh fish: processing and conservation. Fishery products. Shellfish. Fishery byproducts.
TOPIC 12. Eggs and egg products. Processing from start to market. Alteration and preservation of eggs. Egg products.
TOPIC 13. Milk and dairy products. Processing of milk. Heat treatments. Drinking milk. Fermented milks, yogurt, kefir and cheese. Dairy products: butter, cream and ice cream

4. Vegetable food

TOPIC 14. Food oils and fats. Industrial preparation of vegetable oils. The specific case of animal fats and oils. Refining.
TOPIC 15. Cereals and derivatives. Cereals. Wheat processing. Grinding industry: flours and semolina. Storage. Baking process. Preparation of pasta, cookies, pastries, cakes and breakfast cereals. Other cereals.
TOPIC 16. Fruits, vegetables and their derivatives. Post-harvest technology. Preservation of fruits and

vegetables. Fruit and vegetable juices. Canned vegetables. Jams and jellies.

5. Special food and beverages processing.

TOPIC 17. Alcoholic beverages. Alcoholic fermentation. Wine and wine making. Technology of beer production. The alcoholic distillates.
TOPIC 18. Functional, organic and GM foods. Functional foods: definitions and types. Organic food: assessment and marketing. Genetically engineered foods: definition, types and evaluation.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Laboratory practices	15,00	100
Other activities	15,00	100
Study and independent work	90,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

The theoretical teaching methodology will be based on the delivery of lectures along with the possible performance, presentation and defense of individual and collective reports. Classes are taught using audio-visual technical equipment. The student will have this material in the virtual classroom

The practice sessions will be conducted in a professional kitchen and/or laboratory according to the necessities, where students can extend and implement the knowledge. He/She distributed a booklet of practices with the necessary materials and the development of each of the perfectly organized practices. The teacher will monitor the practice, will address the doubts in the implementation and provide guidance on how to make reports, organizing results and conclusions. At the end of the internship, the teacher will distribute a series of questions that students will develop and deliver to the teacher within a certain time.

In classroom practical classes problem and cases will be resolved taking place the specific application of knowledge that the students have acquired in the theory classes.

Seminars will be used to enhance teamwork and improve oral presentation, by performing theoretical and practical training to complement that is acquired in class work, and also for another series of complementary activities types varied.

Visits to centers of interest for the subject will be scheduled. The aim of them is to show in site day to day, process and facilities of a company to apply theoretical knowledge. To make the most of the experience, a previous study of the company will be asked, whenever possible, and the professor will address the doubts. At the end of the visit, a report will be delivered to the teacher.

EVALUATION

Written test to ensure knowledge and understanding of established theoretical minimum content for the subject (**70%**).The written test will include questions about theorical sessions, seminars, lab sessions and visits.

Continuous evaluation with the possible implementation, presentation and defense of individual and group reports on seminars and visits were carried out. The level of understanding of content and skills to their exposure, advocacy and discussion will be appreciated (**10%**)

Assessment of practice sessions work by monitoring the work of the same, the ability to solve experimental problems and the ability to make very detailed and organized reports of experimental results. (**10%**).

In the assessment of seminars (**10%**) it will be taken into account the work in writing, presentation, defense and proposed activities, the level of understanding of the contents as well as the skills for its presentation and discussion, aspects agreed for coordinated seminars (which will be published in the virtual platform).

Attendance at practices is mandatory to pass the subject. It is necessary to acquire 5 out of 10 points in the written test that includes questions of theory and practice to pass the subject.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

English version is not available