

**COURSE DATA****Data Subject**

Code	33945
Name	Culinary Technology
Cycle	Grade
ECTS Credits	6.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
1205 - Degree in Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	3	Second term
1211 - D.D. in Pharmacy-Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	5	Second term

Subject-matter

Degree	Subject-matter	Character
1205 - Degree in Human Nutrition and Dietetics	13 - Culinary technology	Obligatory
1211 - D.D. in Pharmacy-Human Nutrition and Dietetics	1 - Asignaturas obligatorias del PDG Farmacia-Nutrición Humana y Dietética	Obligatory

Coordination

Name	Department
GANDIA GOMEZ, MONICA	265 - Prev. Medicine, Public Health, Food Sc., Toxic. and For. Med.

SUMMARY

The Culinary Technology course is a obligatory subject of the third year of the Degree of Human Nutrition and Dietetics and fifth year of Dual and Joint Degree in Pharmacy and Human Nutrition and Dietetics, which is taught in the Faculty of Pharmacy, University of Valencia. This course has a total of 6 ECTS taught in the second term.



Different cooking techniques are used in preparation of food and they will significantly affect to the sensory and nutritional quality of food. On the other hand, the evolution of social habits, especially in developed countries has changed the way we eat, both on the quality of our diet and the type of cuisine that are made in our menus. So, in the exercise of the professional work of a dietitian, a thorough knowledge of culinary techniques, as well as the effect caused in the properties of food, is essential for the assessment of diets, and to establish recommendations in food preparation. It is also intended to obtain ideas about the spaces in which these processes take place. Thus culinary technology appears as one of the minimum training content must exist within the degree in Human Nutrition and Dietetics.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

To study the subject it is interesting to have basic knowledge of physics, chemistry and biochemistry of foods that will allow them to understand the changes in the composition of foods and the theoretical concepts of Culinary Technology. Moreover, it is also interesting to have knowledge in Food Science, Nutrition and Food Technology, without which they would be very difficult to understand some issues developed in the subject.

OUTCOMES

1205 - Degree in Human Nutrition and Dietetics

- Recognise the essential elements of the profession of the dietitian-nutritionist including ethical principles, legal responsibilities and the practice of the profession, apply the principle of social justice to professional practice, and work with respect to people, their habits, beliefs and cultures, from a gender perspective.
- Practise the profession with respect for other health professionals and acquire skills to work in teams.
- Communicate effectively, both orally and in writing, with people, with health or industry professionals and with the media, knowing how to use information and communication technologies, especially those related to nutrition and lifestyles.
- Recognise the need to maintain and update professional competence, with particular emphasis on independent and lifelong learning of new facts, products and techniques in the field of nutrition and food, and on motivation for quality.
- Know, judge and know how to use and apply the sources of information related to nutrition, food, lifestyles and health.



- Know the changes undergone by food as a result of technological and cooking processes.
- Understand the processes of culinary transformation of food and their implications in diet therapy.
- Know mass catering establishments and their different types, organisation and running.
- Know the cooking techniques that optimise the organoleptic and nutritional characteristics of foodstuffs, with regard to traditional gastronomy.

LEARNING OUTCOMES

SKILLS TO ACQUIRE

- Understand and critically evaluate the culinary treatments that may suffer fresh and processed foods leading to the production of cooked food and its implications for diet therapy.
- Knowing how these treatments affect the chemical composition of foods.
- Understand and assess critically the consequences in the biochemical, physical, nutritional and organoleptic qualities of cooked foods.
- Knowing catering spaces and its different variants, as well as its organization and operation.

SOCIAL SKILLS AND ABILITIES

- Critical thinking that allows them to argue and defend judgments with integrity and tolerance.
- Ability to work individually and in groups, in concert.
- Ability to apply knowledge to practice.
- Ability to build a written text or an oral presentation understandable and organized.

DESCRIPTION OF CONTENTS

1. Introduction

Topic 1. Introduction to Culinary Technology. Definition of Culinary Technology. Objectives. Some milestones.

Topic 2. Kitchen communities. Defining kitchen. The classic cuisine. Key factors in the evolution of catering. Identification of variants of catering.

Topic 3. The culinary space. Areas of the culinary space. Personal. The rational distribution



2. Preparative culinary operations

Topic 4. Preparative culinary operations without application of heat. Operations of sorting, cleaning and cutting. Operations of sorting, cutting and cleaning.

Topic 5. Preparative culinary operations without application of heat. Operations of binding ingredients. Emulsions and types of emulsion. Production of cold sauces.

Topic 6. Preparative culinary operations with application of heat. Operations of binding ingredients. Development of funds and hot sauces.

Topic 7. Spice and flavoring. Spices, herbs and essential oils. Factors affecting the taste. Confit. Marinade. Adobo.

3. Cooking: operations with heat

Topic 8. Cooking I. Application of heat to food. Overview cooking. The generation of heat and transfer to food. Changes of heat on food.

Topic 9. Cooking II. Chemical and physical changes on food. Chemical changes of food by the heat. Maillard and caramelization reactions. Physical changes of food. Culinary application.

Topic 10. Dry cooking I. The roast and Smoking. Preliminary considerations about roast. Direct roast or grilled directly on the grill. Indirect roast in the oven. Smoking.

Topic 11. Dry cooking II. Frying. Overview frying. Operations prior to frying. Characteristics of frying oils. Effect on food.

Topic 12. Cooking in aqueous media. Overview and types of cooking in aqueous media. Importance of water in the application of heat. Effect on food.

Topic 13. Mixed Cooking. Overview and types of mixed cooking.

Topic 14. Vacuum cooking. Overview. Process. Advantages and disadvantages.

Topic 15. Microwave cooking. Fundamentals and physical principles of heating. Penetration depth of microwaves. The process of heat transfer. Applications to food.

4. Practices

BLOCK 1: Emulsions and Sauces

BLOCK 2: Microwave

BLOCK 3: Bakery and pastry-making

BLOCK 4: Cooking the egg and pasta

BLOCK 5: Culinary modifications on the physical and chemical properties of food

BLOCK 6: Molecular Gastronomy

BLOCK 7: The culinary space

BLOCK 8: Frying

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	38,00	100
Laboratory practices	15,00	100
Seminars	2,00	100
Tutorials	2,00	100
Development of group work	10,00	0
Development of individual work	5,00	0
Study and independent work	10,00	0
Readings supplementary material	5,00	0
Preparation of evaluation activities	30,00	0
Preparing lectures	15,00	0
Preparation of practical classes and problem	10,00	0
Resolution of case studies	5,00	0
TOTAL	147,00	

TEACHING METHODOLOGY

Method	Hours
Seminars	2
Theory	38
Practice	15
Tutoring	2

The **theoretical teaching** methodology will be based on the delivery of lectures along with the 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



Individual study of the topics above will be strengthened by organizing **tutorials**. Prior to the date of tutoring, the student must have prepared the proposed activities to reinforce the learning aspects of the program.

The **seminars** are group work that will include the delivery of a report on a working topic that relates the Sustainable Development Goals (SDGs) to the contents of the course and a public presentation in the classroom. Examples of the applications of the subject content in relation to the SDGs will be given, thus providing students with the knowledge, skills and motivation to understand and address the SDGs, while promoting reflection and critique.

The **laboratory practices** will be conducted in a professional kitchen where students can extend and implement the knowledge. He 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.

EVALUATION

Implementation, presentation and defense of individual and group reports on topics related to the contents explained and discussed in the classroom during the **seminars**. They appreciate the level of understanding of content and skills to their exposure, advocacy and discussion (10%).

Evaluation of the work during the **tutorials** and the ability for resolving the proposed activities (10%)

Make a **written test** to ensure knowledge and understanding of established theoretical minimum content for the subject (60%)

Assessment of **laboratory** 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. The laboratory work will be evaluated according to the written test of test and short questions that will include questions about practice (10%) and the practical report carried out (10%).

It is necessary to acquire 4.5 out of 10 points in the written test that includes questions of theory and practice to pass the subject.

To obtain “with honors” mention (matrícula de honor), it is a preferred criterion to pass the subject in the first convocation.

Attendance at practices, tutorials and seminars is mandatory to pass the subject. It is not obligatory for repeaters during the two subsequent courses to its realization. During this time the califications will be preserved.



REFERENCES

Basic

- Armendáriz, J.L. (2001). Procesos de cocina. Ed. Thomson-Paraninfo. Madrid.
- Bello, J. (1998). Ciencia y tecnología culinaria. Ed. Díaz de Santos. Madrid.
- Coenders, A. (1996). Química culinaria. Ed. Acribia, Zaragoza.
- Harol McGee (2007) La cocina y los alimentos. Ed Debate, Barcelona
- Harol McGee (2010) La buena cocina. Ed Debate, Barcelona
- Pérez, N., Mayor, G., Navarro, V.J. (2002) Técnicas Culinarias. Ed. Síntesis, S.A., Madrid.
- Potter, N., Hotchkiss, J.H. (1999) Ciencia de los alimentos. Ed. Acribia, Zaragoza.
- Taylor, E., Taylor, J. (2001). Fundamentos de la teoría y práctica del catering. Ed. Acribia, Zaragoza.
- Myhrvold N., Young C., Bilet M. (2011). Modernist Cuisine. El arte y la ciencia de la cocina. Ed. Taschen.
- Myhrvold N, Youngy C, Bilet M (2013). Modernist cuisine at home. Ed. Taschen
- Cazor A., Liénard C. (2011). Molecular cuisine : twenty techniques, forty recipes. CRC Press.

Additional

- Barham, P. (2002). La cocina y la ciencia. Ed. Acribia, Zaragoza
- Blasco, A. (2006) Manual de gestión de producción de alojamiento y restauración. Ed. Síntesis, S.A., Madrid.
- Botella, T (2010). Cocinar al vacío. Ed. Akal, Madrid
- De moret Ros, X (2007). El bulli desde dentro. Ed RBA libros
- Cambón C., Martín S., Rodríguez E (2007). Ciencia a la cazuela. Madrid. Alianza Editorial
- Iglesias, P. (2005). El libro de las salsas. Madrid: Alianza Editorial.
- Llamas, M.V. (2005). La cocina del microondas. Madrid: Alianza Editorial.
- Lister T and Blumenthal H. (2005). Kitchen Chemistry. Royal Society of chemistry. London
- Neirinck E., Poulain J.P (2001). Historia de la cocina y de los cocineros. Ed. Zendera Zariquiey, Barcelona
- Núñez, R (2007). Un científico en la cocina. Barcelona. Planeta
- Pérez Conesa, J. (1998) Cocinar con una pizca de ciencia. Proceso culinarios. IJK Editores.
- Santamaría S (2008). La cocina al desnudo. Barcelona. Planeta



- Sociedad Española de Bioquímica y Biología Molecular (SEBBM) (2010). Bioquímica culinaria. Nº 166
- Schwed G. (2006). Experimentos en la cocina. La cocción, el asado, el horneado. Editorial Acribia, SA. Zaragoza
- Tablado C.F y Gallego J.F (2004). Manual de Higiene y Seguridad Alimentaria en Hostelería. Paraninfo SA. Madrid
- This, H. (1996). Los secretos de los pucheros. Ed. Acribia, Zaragoza.
- This, H. (2000). La cocina y sus misterios. Ed. Acribia, Zaragoza.
- This, H. (2000). Los niños en la cocina. Ed. Acribia, Zaragoza.
- This, H. (2002). Tratado elemental de cocina . Ed. Acribia, Zaragoza.
- This, H. (2002). Cacerolas y tubos de ensayo . Ed. Acribia, Zaragoza.
- This, H. (2005). Tratado elemental de cocina . Ed. Acribia, Zaragoza.
- This, H. (2009). La cocina es amor arte y técnica. Ed. Acribia, Zaragoza
- Zarzalejos, M. (2008). La cocina de la olla a presión. Madrid: Alianza Editorial.
- Zipprick J (2009). No quiero volver más al restaurante. Madrid. Foca

ADDENDUM COVID-19

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

1. Contents

The contents initially included in the teaching guide are maintained

2. Workload and time planning of teaching

The workload for the student, derived from the number of credits, is maintained, but the methodology of the activities changes with respect to the conventional teaching guide, due to the current situation which makes it necessary to adopt a hybrid teaching model

3. Teaching methodology

- Theoretical teaching: it will be carried out through synchronous sessions (synchronized videoconferences at the BBC, or other technology indicated by the Centre) and in person. The distribution of students will be done by groups, so that 50% will be in the Faculty classroom while the other 50% will be online, alternating their attendance by weeks. The class will always follow the schedule (date and time) approved by the Board of the Centre



- Tutorials: All of them will be in accordance with the dates indicated in the course calendar
- Coordinated or non-coordinated seminars: All of them will be held according to the dates indicated in the course calendar
- Practical classes: They will be attended and according to the course schedule, but with the appropriate modifications to comply with the security regulations against CoVid19. These will consist of:
 - Limiting laboratory capacity to 50% by establishing shifts in each group
 - Use of audiovisual descriptions to complement some practices that will be reduced due to the modification of some contents (virtual classroom)
 - Some blocks of practice will be approached through the knowledge given in theory and through activities that the student will develop, to guarantee the safety of these

If a state of total lockdown were to occur, all face-to-face teaching would go online.

4. Evaluation

If the evolution of the current pandemic allows, it will be face-to-face and in the terms indicated in the teaching guide. Only in the event that this is not possible, the evaluation will be carried out using the virtual classroom with tasks or online questionnaires with single or multiple choice questions, which can be complemented with short questions and/or on certain occasions by an oral examination by videoconference.

The relative weight of theory, practice and seminars is maintained as indicated in the teaching guide. Only in the case of total lockdown will there be continuous evaluation through exercises and activities proposed in the virtual classroom, reducing the weight of the final exam in favour of the student.