COURSE DATA

DATA SUBJECT

Code: 36377
Name: Material and teams
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1212 - Degree in Gastronomic Sciences	Facultat de Farmácia i Ciències de L'alimentació	2	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1212 - Degree in Gastronomic Sciences	Food Technology	COMPULSORY

COORDINATION

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SUMMARY

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

Recommended previous knowledge of Food Technology

COMPETENCES / LEARNING OUTCOMES

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Be able to engage in new fields of gastronomy in general through independent study.

Conocer los procesos tecnológicos básicos en la industria agroalimentaria y las modificaciones que sufren

los alimentos como consecuencia de estas.

Have knowledge and understanding in the field of gastronomic sciences.

Plan, order and channel activities in such a way that unforeseen events are avoided as much as possible, possible problems are foreseen and minimised, and solutions are anticipated.

Ser capaz de realizar las aproximaciones requeridas con el objeto de reducir un problema hasta un nivel manejable.

Ser capaz de trabajar en equipo y de organizar y planificar actividades, teniendo en cuenta, siempre, una perspectiva de género.

Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.

Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.

Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.

DESCRIPTION OF CONTENTS

1. Food transformation by heat

Topic 1. Baking and roasting processes. Equipment.
Topic 2: Frying and grilling processes. Types of oils for frying and equipment. Grilling: fundamentals and applications.
Topic 3. Microwave cooking. I industrial equipments and applications in food industry.

2. Food preservation by thermal processing

Topic 4. Installations for heat processing and applications. Pasteurization and sterilization equipment for batch processing of foods. Continuous processing and aseptic packaging. New heating technologies.
Topic 5. Applications of heat in the food industry. New systems.

Topic 6. Chilling systems. Shelf life of refrigerated food and safety and quality issues. Others applications in the food industry.
Topic 7. Food Preservation by Freezing. Mode of preserving action. Effects of freezing and frozen storage on the quality of foods. Thawing process.
Topic 8. Food Freezing Methods. Industrial Freezing Production. Equipment and Methodology for freezing

3. Food cold preservation by cold

Topic 6. Chilling systems. Shelf life of refrigerated food and safety and quality issues. Others applications in the food industry.
foods. Description of Storage Cameras for refrigerated and frozen foods.

4. Food preservation by water depression

Topic 9. Food drying. Food drying basic principles and objectives. Psichrometric notions. Effects of moisture on solid properties. Thermal drying process.
Topic 10. Equipments and Methods for Drying. Principal characteristics of drying equipments. Classification of Drying Methods. Freeze-Drying Technique. Osmotic dehydration.
Topic 11. Food preservation by Concentration. Fundamentals of Food Concentration. Vacuum system for food concentration. Principal compounds of evaporators for food concentration. Multi-effect plate evaporators. Different types of evaporators used in the food industry. Freeze Concentration. Food Concentration by Reverse Osmosis.

5. Other preservation methods

Topic 12. Food preservation by modified-atmosphere. Use of modified-atmospheres for preservating food. Equipment and facilities. Future trends.
Topic 13. Food preservation by irradiation. Sources and equipments of ionizing irradiation. Applications of irradiation in foods. Technological problems and limitations of irradiation.
Topic 14. High hydrostatic pressures. Fundamentals of high hydrostatic pressures.. Facilities and current uses of high pressures in the food industry.
Topic 15. Pulse electric fields processing. Fundamentals of pulse electric fields processing. Commercial applications
Topic 16. Other emerging food preservation technologies. Ohmic heating. Light pulses. Ultrasound. Combined processes.

6. Packing and storing

Topic 17. Filling and packaging systems for food. The concept of packaging. Types of packaging. Packaging systems. Closure systems.

7. Food technology of vegetal and animal food.

Topic 18. Specific materials and equipments of food industry

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Other activities	30,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	90,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

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

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%).

Continuous evaluation with the possible implementation, presentation and defense of individual and group reports on topics related to the contents explained and discussed during visits will be implanted. Assistance, the level of understanding of content and skills to their exposure, advocacy and discussion will be appreciated (20%). In addition, exams with questions about visits will be held (10%).

It is necessary to acquire 5 out of 10 points in the written test to pass the subject. Attendance at practices

is mandatory to pass the subject.

REFERENCES