

Academic Year/course: 2022/23

## 30826 - Industrial Cooking and Collective catering

### Syllabus Information

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**Academic Year:** 2022/23

**Subject:** 30826 - Industrial Cooking and Collective catering

**Faculty / School:** 105 - Facultad de Veterinaria

**Degree:** 568 - Degree in Food Science and Technology

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

Culinary techniques, both at the domestic level and in deferred and comunal catering and in industrial cooking processes, decisively affect the physico-chemical, sensory and nutritional qualities of food. Thus, in-depth knowledge of culinary techniques, as well as of the changes they cause to the properties of food, are essential to preserve the characteristics of the food as it arrives in the kitchen to which much knowledge, technical developments, hygienic care, etc... have previously been invested and which can be altered or get lost to a bad culinary preparation.

Culinary Technology can be defined as that part of Food Technology that deals with all the operations and processes that are necessary in order that the food ingredients can be transformed properly to prepared dishes suitable for consumption. The main purpose of Culinary Technology is to find and establish the processes that are most suitable for maintaining food quality.

These culinary preparation processes are not only applicable to the industry of ready-to-eat meals (currently in full expansion), or to catering companies (also more and more numerous), but they are also a must for the Food Science and Technology graduate from virtually all sectors of the food industry. Most of the products that are currently manufactured involve the application of culinary technology in their industrial production (for example, fried snacks, frozen cooked or pre-cooked products, biscuit dough, confectionery, bakery, sauces, fresh prepared products such as croquettes, etc...). But, in addition and no less important, current foods require knowledge on the part of the technician about their intended culinary use. This knowledge is essential, both to carry out the processes leading to obtaining a product with certain characteristics, as well as to give the consumer guidelines for the domestic use of the product avoiding losses to their quality attributes at the cooking time. Likewise, collective social restoration brings concern for food safety, as well as for a healthy diet, aspects that will be treated in the area of ??Nutrition and Bromatology.

Consequently, the general objective of this subject is to instill in the student the ability to apply (KNOW-HOW) the theoretical knowledge acquired (KNOWLEDGE) in the subjects studied previously that allows US to select and use the most appropriate cooking technique to each case. It is not about just executing kitchen recipes, but for the student to know the basis of each cooking technique and its effects on the food and to be able to decide which is the most appropriate in each case and to learn how to apply it.

These approaches and objectives are aligned with the following sustainable development goals (SDG) of the Agenda 2030 of the United Nations, in such a way that the acquisition of learning outcomes of the subject provides skills and competencies to contribute to some extent to its achievement:

- Goal 2: Zero Hunger
- Goal 3: Health and Well-being
- Goal 8: Decent work and economic growth
- Goal 9: Industry, Innovation and Infrastructure
- Goal 12: Responsible production and consumption
- Goal 13: Climate Action

### 1.2. Context and importance of this course in the degree

The subject of Industrial Cooking and Collective Restoration represents an innovation in the degree of Science and Food Technology, which responds to the demands of today's way of life and the advances experienced by Food Technology.

The culinary preparation of food is the last of the operations that is carried out before the consumption of many dishes and in it very diverse and specific techniques are used, clearly different from those applied for the conservation of food, which is why in the Degree in Food Science and Technology of the University of Zaragoza there has been included as a differentiated and compulsory subject this subject.

### 1.3. Recommendations to take this course

To take this subject, it is recommended that students have previously taken General Chemistry, Physics General and Physical Analysis of Food, Chemistry and Biochemistry of Food, Bromatology, Nutrition and Dietetics and Food Technology I.

## 2. Learning goals

### 2.1. Competences

CG1 - Manage information, search for sources, collection and analysis of information, etc.

CG2 - Use ICTs.

CG3 - Work as a team.

CG4 - Think and reason critically.

CG5 - Work autonomously and carry out a self-assessment.

CG6 - Respect the diversity and plurality of ideas, people and situations.

CG7 - Transmit information, orally and in writing, both in Spanish and in English.

CG8 - Show environmental sensitivity, assuming an ethical commitment.

CG9 - Negotiate both with specialists in the area and with people who are not experts in the field.

CG10 - Adapt to new situations and solve problems.

CG11 - Undertake and be motivated by quality.

CB1 - That students have shown to possess and understand knowledge in an area of ??study that is part of the foundation of general secondary education, and is usually found at a level that, while supported by textbooks advanced, it also includes some aspects that involve knowledge coming from the forefront of its field of study.

CB2 - That students know how to apply their knowledge to their work or vocation in a professional way and have the competencies typically demonstrated through making and defending arguments and solving problems within your study area.

CB3 - That students have the ability to collect and interpret relevant data (normally within their area of study) to make judgments that include a reflection on relevant issues of a social, scientific or ethical nature.

CB4 - That students can transmit information, ideas, problems and solutions to a public both specialized as unspecialized.

CB5 - That students have developed those learning skills necessary to undertake studies with a high degree of autonomy.

CE5 - Prepare, transform and preserve food considering quality and safety standards, integrating the environmental management.

CE9 - Formulate new foods choosing the ingredients and additives as well as the most suitable treatments for the obtaining safe, nutritious and attractive products for the consumer.

CE12 - Provide scientific and technical advice to the food industry.

CE13 - Communicate knowledge in food science and technology, using the concepts, methods and tools fundamentals of this discipline.

### 2.2. Learning goals

**In order to pass this course, students must demonstrate the following results...**

1. Be able to identify the main food transformation techniques used in industrial cooking and collectivities.
2. Understand the development of technological processes involved in the culinary preparation of food intended to form part of the menus that make up the collective human diet.
3. Understand the positive and negative effects of these processes on the components of the foods that are used in the preparation of the dishes, as well as the impact on their quality and nutritional value.
4. Know the most relevant hygienic-sanitary and dietary aspects of collective social restoration and is capable of design menus in accordance with current dietary recommendations.
5. Master the current approaches required by industrial cooking and collective catering and their different systems of production and distribution.
6. Be capable to obtain, interpret and synthesize information about a culinary technique and the transformations it produces in foods, and to present their findings in a report using accurate terminology, both in Spanish as well as in English.

## 2.3. Importance of learning goals

They contribute, together with the rest of the skills acquired in the subjects of and to the training of students for the performance of professional profiles Management and Quality Control of products in the food field, Processed that students will be able to practice in food, Food Safety and Development and Innovation of processes and products both in food industries in which any type of culinary preparation is carried out for food production, as in those that manufacture food that must undergo subsequent culinary preparation.

On the other hand, the strengthening of basic generic or transversal competences, interpersonal relationships and systemically, they will contribute, together with the rest of the subjects, to the integral formation of future Graduates in Science and Food Technology.

## 3. Assessment (1st and 2nd call)

### 3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

**The student must demonstrate that she has achieved the expected learning outcomes through the following evaluation activities**

A) Continuous evaluation:

\* Evaluation of the theoretical teaching It will consist of two tests that will be carried out at the end of the didactic units. The evaluation of the tests will be carried out with multiple choice test questions (via Moodle) in which they are related concepts seen in the theoretical sessions, or an exam of short questions of free development. The multiple choice test will consist of a battery of 40 to 50 questions with 4 response options. Wrong answers will be penalized or it will require 60% correct answers to pass the test. Only Moodle will be used for the continuous evaluation. Passing these tests will accredit the achievement of learning outcome 1, 2, 3, 4 and 5. The average mark of the evaluations of the theoretical teaching carried out during the course will constitute 50% of the final grade.

\* Evaluation of practical teaching:

a) A Moodle task will be done after the end of each practice. These tasks will collect the results of the practices and conclusions obtained, as well as the problems, questions and debates that may have arisen during them. Personal contributions on each topic will be valued, as well as comments from related news. These activities will be carried out within a maximum period of 15 days after having completed the practice.

b) A summary of each visit will be presented in the week following its completion.

Passing this test will accredit the achievement of learning outcome 1, 2, 3, 4 and 6. The practice grade will mean 35% of the final grade.

c) A summary of each seminar will be presented in the week following its delivery. The evaluation of the seminars seminar grade will account for 15% of the final grade.

B) Overall test

For students who do not pass the continuous evaluation, a global evaluation test will be carried out.

The final evaluation written test will consist of 20 short questions, of which eight will correspond to teaching practice, four to seminars and the rest to theoretical teaching. Passing this test will accredit the achievement of the learning outcomes 1, 2, 3, 4 and 5. The grade obtained will account for 70% of the final grade. In addition, there will be a practical exam in which the student must correctly perform at least two of four selected activities among those made in the practice sessions of the subject. The note of the practical exam will represent 30% of the Final note.

Evaluation Criteria

Evaluation criteria and levels of demand

A) Continuous evaluation

\*: The correct use of Spanish, the capacity for synthesis, clarity will be valued. Evaluation of theoretical teaching expository, coherence in reasoning, the adequacy of the answer to what is asked and the degree of knowledge of the treated topic.

\*: The skills acquired in carrying out the practices will be followed Evaluation of practical teaching through continuous evaluation, taking into account attendance, participation, skills that the student is acquiring throughout the development of practices and visits and the workbook and summaries delivered by the student.

\*E: The skills acquired in conducting the seminars will be followed through the evaluation of the seminars

\*E: The skills acquired in conducting the seminars will be followed through the evaluation of the seminars continuous evaluation, taking into account attendance, participation, contributions, and the delivered summary.

Each assessment activity will be graded from 0 to 10. To pass the subject and demonstrate that the student has reached the expected learning outcomes, the grade obtained in each of the assessment activities must be the equal to or greater than 4 and the weighted average of the three tests equal to or greater than 5.

If the student achieves a grade higher than 5 in any of the tests, even if the overall grade was lower than 5, the qualification achieved in these evaluation tests will be maintained in successive exams.

B) Overall test

In the written test, the correct use of Spanish, the capacity for synthesis, expository clarity, and coherence in reasoning, the adequacy of the answer to what is asked and the degree of knowledge of the subject matter will be assessed.

The global test will be graded from 0 to 10, an average grade of 5 being necessary to pass the course.

In accordance with the Regulation of Learning Assessment Standards of the University of Grading System:

Zaragoza (Governing Council Agreement of December 22, 2010), the results obtained by the student will be graded according to the following numerical scale from 0 to 10, with the expression of a decimal, to which their corresponding qualitative qualification might be added:

0-4.9: Failed (SS).

5.0-6.9: Approved (AP).

7.0-8.9: Remarkable (NT).

9.0-10: Outstanding (SB).

The mention of "Honors" may be awarded to students who have obtained a grade equal to or higher to 9.0. Their number may not exceed five percent of the students enrolled in the corresponding academic course.

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

**The learning process that is designed for this subject is based on the following:**

The course is structured in 26 participatory master classes, 7.5 hours of seminars and 26.5 hours of practice of laboratory and visits organized in small groups to central kitchens, as well as a joint visit to an industry of ready meals.

In relation to the participatory master classes, it is planned to deliver in advance the documentation of each topic with in order for the student to review it in detail before the corresponding class. Additionally, students will find ADD the presentations of the classes, the practice protocols, the additional support material, a discussion forum, a "Current news" section and the continuous assessment tests once completed.

The practice sections will take place in sessions of 4 hours. Visits will be made to companies and/or restoration institutions collective. The seminars will be held in sessions of 2 and a half hours and in them videos will be projected, comments will delve with current issues and prestigious professionals in the field of Culinary Technology, industrial cooking and collective restoration will be invited, which will transmit their personal experiences to the students and establish with them a discussion to answer their questions. An important part of the materials that the students will handle in the seminars will be in English.

During the development of the classes, the students will have to take into account all the procedures and the norms that are collected in the following documents:

"Preventive Guide for the Student of the University of Zaragoza", which is available at the following address:

[https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/guia\\_preventiva\\_para\\_estudiantes.pdf](https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/guia_preventiva_para_estudiantes.pdf)

Manual of security in the laboratories of the University of Zaragoza and norms marked by the Unit of Prevention of occupational hazards:

[https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/manual\\_de\\_seguridad\\_en\\_los\\_laboratorios\\_de\\_la\\_unive](https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/manual_de_seguridad_en_los_laboratorios_de_la_unive)

In addition, the indications given in terms of safety by the teacher responsible for the classes will be followed.

### 4.2. Learning tasks

**The subject costs 6 credits divided as follows:**

- Theoretical sessions: 26 hours
- Practical Sesions: 5 Sesions
- Seminars : 4 seminars
- Seminars : 4 seminars
- Visits organized in small groups to central kitchens, as well as a joint visit to a dish industry prepared
- Lectures: the teacher will explain the theoretical contents of the course and solve the applied problems through the I use graphic material. Although not a required activity, regular attendance is highly recommended.
- Laboratory sessions and pilot plant: 5 sessions of 3 hours duration will be held. In these five sessions Students will apply different cooking techniques and basic operations. In groups of 3-4 they will different elaborations. In the last session diets will be carried out by computer.
- Seminars given by specialists in the sector in which the theoretical and practical contents of the subject will be emphasized
- Visits organized in small groups to central kitchens, as well as a joint visit to an industry of ready meals. These visits will focus on the challenges and opportunities facing the sector

### 4.3. Syllabus

**TOPIC I: General Aspects (2 teaching hours)**

Home kitchen and business kitchen. Concepts and objectives of culinary technology. Industrial cooking. The collective catering. Chemical and physical processes in culinary processes.

**TOPIC II: Culinary technology and cooking (3 teaching hours)**

Effects of culinary techniques on the main nutrients and on the organoleptic characteristics of foods.

Kitchen utensils and industrial equipment. Culinary space and organization of the industrial kitchen. cooked and industrial precooked: formulation, processes, equipment and facilities.

### **TOPIC III: The current Collective Restoration (3 teaching hours)**

Collective restoration and deferred restoration. Peculiarities and technological needs of mass catering and deferred. Distribution and storage systems: hot, refrigerated, frozen. systems regeneration. Equipment and facilities.

### **TOPIC IV: Culinary Techniques (12 teaching hours)**

Complementary culinary operations: selection, cleaning, and division. Cooking processes: cooking in aqueous medium, air cooking, medium fat cooking, microwave cooking, vacuum cooking, mixed cooking. join operations, fillers and coatings. Preparation of sauces and broths. Bakery and pastry doughs.

### **TOPIC V: Hygienic and dietary aspects in collective social catering (6 teaching hours).**

Hygienic design of kitchens and catering facilities. Elements of food hygiene in restoration. Elaboration and dietary evaluation of school menus, for the elderly and special menus (allergies and intolerances, vegetarians, cultural diversity and pathologies related to nutrition).

#### **- Practical sessions (The practical sessions are four hours long)**

##### 1.- Union operations: foams and emulsions

a) Preparation and chemical fundamentals of the elaboration of emulsions, foams and airs. know the different types of emulsions. Whipped egg whites, making mayonnaise. Microscopic observation.

b) Factors that influence the stability of an emulsion, emulsifying agents. Conditions required for achieve emulsion stability. Emulsion and foam breaking experiments.

##### 2.- The textures

Manufacture of products with different hydrocolloids. Experimental verification of its solubility, of the type of gel that form and their behavior against heat.

Elaborations: with gelatin, with carrageenan gum, with xanthan gum, with pectins.

##### 3.- Cooking in fatty and aqueous medium

a) Culinary operations for the preparation of vegetables cooked in boiling water, steamed in a pressure and vacuum. Cleaning, selection and size reduction operations. Vacuum packed. oven cooking wet steam. Handling equipment. QA. Evaluation of the texture of cooked foods and measurement of its color. Microscopic observation and sensory analysis.

b) The importance of the temperature and size of the product in frying.

c) Culinary operations for the preparation of battered foods for frying. Comparison of different batter formulations. Pre-floured, battered, fried and frozen.

d) Evaluation of the quality of the frying oil. Determination of the smoke point in different oils. Determination of polar compounds in the frying oil.

##### 4.- Cooking in a dry medium and mixed cooking: application to bread doughs

a) Operations for the preparation of the different types of dough: panarias, batidas, and pastries. Selection of ingredients, mixing, kneading, fermentation and baking. Handling equipment. Process variations.

b) Quality control. Evaluation of the physical-chemical characteristics of the doughs and final products. Sensory evaluation.

##### 5.- Elaboration of restaurant menus

Use of computer programs and web pages for the preparation and nutritional assessment of menus in accordance with current dietary recommendations.

#### **\* Seminars (The estimated duration of the seminars is 2 hours and a half)**

Seminar 1: Prepared dishes

Seminar 2: Reinventing the texture and flavor of food

Seminar 3: Cooking under vacuum

Seminar 4: Healthy bread

#### **\* Visits**

Visits will be made to company kitchens and collective catering institutions (ARAMARK; SERAL; COMBI-CATERING HOSPITAL MIGUEL SERVET) and, if possible, to a ready meals industry (Obrador INNOVA).

Each student will make at least two visits.

## **4.4. Course planning and calendar**

The dates and key milestones of the subject are described in detail, along with those of the rest of the third-year subjects in the Degree of Food Science and Technology, on the website of the Faculty of Veterinary. This link will be updated at the beginning of each academic year. <http://veterinaria.unizar.es/gradocta/>