COURSE DATA

Data Subject	
Code	33991
Name	Receptacles
Cycle	Grade
ECTS Credits	4.5
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1103 - Degree in Food Science and Technology	Faculty of Pharmacy and Food Sciences	4	First term

Subject-matter

Degree	Subject-matter	Character
1103 - Degree in Food Science and Technology	35 - Packaging	Optional

Coordination

Name	Department
GIL PONCE, JOSE VICENTE	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

SUMMARY

Food Packaging is an elective subject for fourth course of Science and Food Technology, which is taught in the Faculty of Pharmacy, University of Valencia. This course has a total of 4.5 ECTS taught in the first quarter.

Packaging of food products is a fundamental and an indispensable tool in food marketing and preservation. There is a wide variety of packages, which are key to guarantee an optimal food distribution, helping to maintain the hygienic and quality standards currently required for food marketing. The most important groups of food packaging include the metallic, glass and plastic ones. The overall objective of the subject is precisely to present the different types of food packages that are used in the food industry, the packaging processes, the needs and characteristics of packaging according to the to specific technologies or products, the equipments that are used and the new alternatives to face the environmental problems caused by the massive use of synthetic plastics. Therefore, most of the course is

devoted to describing the composition, most important characteristics and role of the packaging materials for food applications. In addition, the graduate in Science and Technology Food should have knowledge about basic characteristics of food packages depending on the type of food. Another object of this course is to show the trends in this area, especially in relation to plastic packages and its alternatives to palliate the contamination problems. Thus, the subject of food packages listed as one of the educational contents of interest that must exist within the degree of Science and Food Technology.

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 is of interest to have done the courses: chemistry, food chemistry, food processing and preservation and food industries.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

1103 - Degree in Food Science and Technology

- Have knowledge and understanding in the area of food science and technology.
- Know the methodology for the proper selection of containers according to the product to be packed and the marketing planned.
- Know about new trends in food packaging: active and smart packaging and its application in the food industry.
- Know the practical aspects of wrapping and packaging technology and its impact on food quality and safety.
- Conocer los criterios para la selección de la maquinaria de envasado.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

SKILLS TO ACQUIRE

Understand and critically evaluate the role of packages in food marketing and preservation.

Knowing the general aspects of packaging processes, equipment used and trends in the area of food packaging

To know the packaging needs of the different food products and the various alternatives available to keep the quality and safety of food products.

To know the problems associated to the massive use of plastic packages and the biodegradable alternatives that are being developed.

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 or an oral form understandable and organized

DESCRIPTION OF CONTENTS

1. Introduction to the subject

Topic 1. Introduction to the subject. Development of food packages. Packaging as a vehicle for communication and competitiveness. Food packaging materials, general characteristics. Basic legislation.

2. Packaging materials

Topic 2. Metallic packages. Materials and composition. Packaging production. Interactions package/product. Applications and examples.

Topic 3. Glass Packages. Materials and composition. Packaging production. Interactions package/product. Applications and examples.

Topic 4. Paper and cardboard. Materials and composition. Packaging production. Interactions package/product. Applications and examples.

Topic 5. Plastic packaging 1. Classification, characteristics and properties of commonly used plastics.

Topic 6. Plastic packaging 2. Manufacture of plastic packaging. Packaging/product interactions, migration and legislation. Applications and examples.

3. Packaging technologies

Topic 7. Canning. Generalities and examples of applications

Topic 8. Aseptic Packaging. Generalities and examples of applications

Topic 9. Vacuum and Modified atmosphere packaging. Generalities and examples of applications

Topic 10. Packaging of frozen and freeze-dried products. Generalities and examples of applications

Topic 11. Active and intelligent packaging. Types and examples

4. Packaging trends

Topic 12. Recycling and reuse of packages. Technical situation about the recovery and recycling of packaging materials. Residual management.

Topic 13. Innovation in food packaging. Biopolymers. Innovation strategies and perspectives. Problems derived from the massive use of plastic materials. Alternatives. Main characteristics of biopolymers and applications. Recent developments.

5. Practicals

PRACTICAL 1. Visit to a plastic company

PRACTICAL 2. Practical cases

PRACTICAL 3. Visit company

PRACTICAL 4. Practical work in groups

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	25,00	100
Laboratory practices	15,00	100
Seminars	2,00	100
Tutorials	1,00	100
TOTAL	**43,00**	

TEACHING METHODOLOGY

The theoretical teaching methodology is based on the delivery of interactive lectures with the participation of the students. Individual study of the topics above will be strengthened with this participation. The seminars are group work that will include the delivery of a report on the subject of work and a public exhibition in the classroom.

Practice sessions will serve to extend and implement the knowledge and they will include visits to companies.

Along the theoretical and laboratory classes, examples of the applications of the contents of the subject in relation to the Sustainable Development Goals (SDG) will be addressed, as well as in the proposals of topics for the coordinated seminars. The aim is to provide students with knowledge, skills and motivation to understand and address these SDGs.

EVALUATION

Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents. In the event of fraudulent practices, the “Action Protocol for fraudulent practices at the University of Valencia” will be applied (ACGUV 123/2020): https://www.uv.es/sgeneral/Protocols/C83sp.pdf.

a) Producing, presentation and defense of works related to the contents explained and discussed in the classroom related to one of the subjects studied during the semester (coordinated seminars). Written work will be evaluated and the level of understanding of the content and skills to their exposure, advocacy and discussion. (10%).

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

c) Evaluation of collaborative work in the practices (20%).

d) Evaluation of the work during the classes and the ability to orally expose the contents (10%)

Should be obtained 4.5 points out of 10 on the written test to pass the subject.

Attendance at practices is obligatory for passing the subject except for those students that have undertaken these classes previously. Unjustified non-attendance to tutorials and coordinated seminars imply zero points in the corresponding evaluation section except for those students that have undertaken these classes in previous years.

The activities of practices, tutorials and seminars, are of MANDATORY ATTENDANCE and, therefore, NOT RECOVERABLE, in accordance with the provisions of Article 6.5 of the Regulation of Evaluation and Qualification of the UV for Bachelor and Master degrees. If it is not possible to attend any of these activities for justified reasons, it must be communicated in advance. In this way, the person in charge of the subject will determine the actions to be carried out.

Attendance at practices, tutorials and seminars is mandatory to pass the subject. Attendance is NOT mandatory for repeating students who have completed these activities in the two courses after their completion, during which the grades will be kept. Non-attendance without justified cause in the tutorials or in the coordinated seminars will imply a zero in the corresponding evaluation section, on the other hand, the non-presentation of the coordinated seminar will imply the failure of the subject, except for the repeating students who have attended and presented in previous courses.

REFERENCES

Basic

- Robertson, G.L. (1992). Food Packaging. Principles and Practice. Marcel & Decker

Lee, Dong Sun, Yam, Kit L, Piergiovanni, Luciano, (1950). Food Packaging Science and Technology. Boca Raton : CRC Press, cop. 2008.

Han, Jung H. Innovations in Food Packaging. Amsterdam : Elsevier, 2014. 2nd ed.

Coles, Richard; McDowell, Derek; Kirwan, Mark J. Food Packaging Technology. Oxford etc. : Blackwell : CRC Press, cop. 2003.

Additional

- Ahvenainen, R. Novel Food Packaging Technologies. Woodhead Publishing, 2003

Kerry, J. & Butler, P. Smart Packaging Technologies for Fast Moving Consumer Goods. Wiley, 2008. ISBN: 978-0-470-0282-5

Silvestre, C., Cimmino, S. Ecosustainable Polymer Nanomaterials for Food Packaging. CRC Press, 2013. Print ISBN: 978-90-04-20737-0
eBook ISBN: 978-90-04-20738-7

Cerqueira, Pereira, Ramos, Teixeira & Vicente. Edible Food Packaging: Materials and Processing Technologies. CRC Press, 2016 ISBN 9781482234169