

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

Code	33991
Name	Receptacles
Cycle	Grade
ECTS Credits	4.5
Academic year	2020 - 2021

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
LOPEZ RUBIO, AMPARO	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.

Packages are an indispensable tool in food marketing and preservation. There is now 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 packages 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 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 content 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.

OUTCOMES

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.
- Be familiar with the criteria for selecting packaging machinery.

LEARNING OUTCOMES

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

Topic 1. Introduction to the subject. Development of food packages. Food packaging technologies, definitions. Packages as a vehicle for communication and competitiveness. Food packaging materials, general characteristics. Current situation and perspectives in the demand of materials and types of food packages. 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. Materials and composition. Packaging production. Interactions package/product. Applications and examples.



3. Packaging technologies

Topic 6. Canning. Generalities and examples of applications

Topic 7. Aseptic Packaging. Generalities and examples of applications

Topic 8. Vacuum packaging. Generalities and examples of applications

Topic 9. 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. Biopolymers. Problems derived from the massive use of plastic materials. Alternatives. Main characteristics 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 lectures along with the performance, presentation and defense of individual and collective reports. 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 specific agenda. 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.

EVALUATION

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 (70%).

c) Evaluation of laboratory work by means teacher supervision, the ability to solve experimental problems and the ability to make very detailed and organized reports of experimental results. The written test will include questions about practical contents. (20%).

d) Evaluation of the work during the tutorials and the ability to solve the proposed activities (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.

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

ADDENDUM COVID-19



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

3. Teaching methodology

Theory classes: 100% of the planned theory classes will be taught. If they could not be face-to-face in the classroom, they will be held by synchronous videoconference through the Blackboard Collaborate application, respecting the schedule programmed.

Practical classes: If due to limitations in capacity, 100% of the practical contents cannot be taught in the laboratory, complementary non-contact activities will be carried out using audio-visual material and the discussion of practical cases.

4. Evaluation

Continuous assessment: The participation of the students during the classes will be valued. At the beginning of the course, a topic will be assigned to each student to prepare for a presentation. The date of the presentation that will be indicated, taking place during the final half hour of the theory classes. This work will count 50% of the grade corresponding to the written theory test and the final theory test the other 50%. If the grade of the presentation does not exceed 40%, or its average grade is lower than that of the final theory test, the grade of the presentation will be ignored.