

SCHOOL	FACULTY OF ENVIRONMENT		
ACADEMIC UNIT	FOOD SCIENCE AND TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	FST803	SEMESTER	8
COURSE TITLE	FOOD PACKAGING		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercise, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
Lectures	2		
	2		
Total	4	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>General background, special background, specialised general knowledge, skills development</i>	Special Background		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in Greek)		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

Upon successful completion of the course the student will be able to:

- Classify the materials and the different forms of packaging
- Define the basic functions of food and beverage packaging
- Describe the impact of packaging on product safety, quality and preservation
- Carry out quality control on different food packaging

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which

of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas

Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
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Others...
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- (1) Adapting to new situations
- (2) Decision-making
- (3) Working independently
- (4) Team work
- (5) Criticism and self-criticism
- (6) Production of free, creative and inductive thinking
- (7) Search for, analysis and synthesis of data and information, with the use of the necessary technology

SYLLABUS

LECTURE TOPICS

Definitions and functions of food packaging. Glass materials and packaging means. Metal materials and packaging media. Corrosion of metal packaging. Plastic materials and packaging media. Thermoplastic polymers for food packaging. Processing and molding of thermoplastic polymers. Edible or edible food packaging. Biologically based and biodegradable packaging materials. Permeability of polymers to gases and vapors. Paper packing. Filling, closing and sealing of food and beverage packaging. Packaging in a modified atmosphere. Aseptic treatment and packaging. Active and smart food packaging. Packaging for food heated in a microwave oven. Shelf life of packaged foods. Selection of packaging for representative types of food. Packaging - food interactions. Legislation on food packaging materials and media. Food packaging and environment. New developments in food packaging.

LABORATORY TOPICS

1. Quality control of the double seam of the cans.
2. Grade determination of tin in tinplate sheets. Measurement of the thickness and continuity of the coated lacquered sheets and the degree of resistance to acids and sulfides.
3. Check the closure of glass packaging materials
4. Study of breaking mechanisms of glass containers during the sterilization process due to thermal stress.
5. Quality control of aseptic packaging.
6. Packaging in a modified atmosphere
7. Permeability of plastic films to water vapor.
8. Determining the shelf life of food sensitive to moisture intake.
9. Identification of thermoplastic polymers by density test and combustion test.
10. Separation of layers of laminates and measurement of thickness of each layer.
11. Mechanical properties of plastics - measurement of parameters of mechanical strength of packaging materials.

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of information technology on data collection and information, in teaching and communication. Communication with students via web, e-mail, e-class and online folder sharing options etc.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	78
	Laboratory classes	26
	Total contact hours and training	104
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Written examination on graded multiple choice difficulty plus a written project Language Greek	

ATTACHED BIBLIOGRAPHY

- 1.BOOK [77106804]: *Συσσκευασία Τροφίμων, 2η Έκδοση, Παπαδάκης Σπυρίδων Ε.*
- 2.BOOK [68403482]: *Συσσκευασία τροφίμων, Μπλούκας Ιωάννης Γ.*
- 3.BOOK [17525]: *Στοιχεία τεχνολογίας, μεταποίησης και συσκευασίας τροφίμων, Αρβανιτογιάννης Ιωάννης Σ.,Μποσνέα Λουλούδα Α..*

Performance Statistics of the last 2years			
Grade (descending order)	absolute frequency	relative frequency %	sum of success rates per class
FOOD PACKAGING			
10	0	0%	0%
9	3	4%	4%
8	4	6%	10%
7	10	14%	24%
6	54	76%	100%
	71	100%	