SCHOOL	ENVIRONMENT		
ACADEMIC UNIT	FOOD SCIENCE & TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**FST404**	**SEMESTER**	4
COURSE TITLE	**FOOD PROCESSING II**		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	2	
Laboratory practice	3	
Total	5	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *General background, special background, specialised general knowledge, skills development*	Specialised general knowledge
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*

The course of **Food Processing II** falls under the issues of food drying, condensation, extraction, extrusion and microbial or enzymatic bio-conversion, among other methods.

Food Processing II course aims to educate students on the physical and chemical changes occur during food processing, the principles and methodologies to perform drying extraction, condensation, extrusion, bio-conversion, irradiation of foods. Also, advanced food processing methods are explained.

Upon successful completion of the course students will have knowledge to:

- Describe the physicochemical changes of foods
- Identify and select the most suitable method and instrument for food processing

- Select the appropriate methodology to perform food processing
- Calculate the parameters that affect food processing

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* *.....* *Others...* *.....*

- Working independently
- Team work
- Decision-making
- Solving problems

SYLLABUS

Theoretical part

- Physical properties of foods. Glass transition. Water activity.
- Drying and dehydration processing technology.
- Drying and dehydration processing methods.
- Extraction processes. Conventional and un-conventional.
- Condensation. Evaporation. Membrane processing.
- Extrusion processing methods.
- High Pressure processing technology.
- Food irradiation process. Ultraviolet. Microwave. Infrared. Ultrasonics.
- Fermentation processing methods. Biotransformation of foods.
- Food additives. Preservation using salt and sugar. Edible coating.
- Advanced food processing methods. Pulsed electric fields. Ohmic heating etc.

Laboratory practice

1. Water activity I.
2. Water activity II.
3. Condensation.
4. Drying I. Pretreatment of foods prior to drying. Hot-air drying. Sun-drying. Drying kinetics.
5. Drying II. Freeze-drying.
6. Fermentation I. lactic acid fermentation. Fermented pickle production.
7. Fermentation II. lactic acid fermentation. Determination of pH, acidity. Preservation of fermented pickles.
8. Food additives. Salt and sugar as additives.
9. Food irradiation process
10. Novel non -thermal processing methods.
11. Multi-barrier technology.

TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>In teaching class</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Power point presentation, Whiteboard writing, solving problems

Laboratory practice</td></tr>
<tr><td>TEACHING METHODS

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</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>78</td></tr>
<tr><td>Laboratory practice</td><td>39</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total contact hours and training</td><td>117</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION

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.</td><td>Final written examination in theory and in laboratory that includes:

-multiple choice questions

-short answer questions

-judgment questions

-problem solving

-presentation</td></tr>
</table>

ATTACHED BIBLIOGRAPHY

(1) Conventional and advanced Food Processing Technologies (2015). S. Bhattacharya, (Ed.). John Willey & Sons, Ltd. UK.

(2) Food Processing 2 (2016). 2nd Edition, E. S. Lazos, A. E. Lazou, Papazisis Press, Athens.

Performance Statistics of the last 2years			
Grade (descending order)	**absolute frequency**	**relative frequency %**	**sum of success rates per class**
FOOD PROCESSING			
10	13	8%	8%
9	16	10%	19%
8	22	14%	33%
7	50	32%	65%
6	54	35%	100%
	155	100%	