

SCHOOL	ENVIRONMENT		
ACADEMIC UNIT	FOOD SCIENCE & TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	FST922	SEMESTER	6
COURSE TITLE	ENZYMOLGY		
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	3	6	
Laboratory practice			
Total	3	6	
<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>	Specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (Greek/English)		
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

Enzymology course is focused on enzymes as catalytic tools of various processes aiming to produce chemicals, food ingredients and are also involved in food production.

The aim of Enzymology course is to educate students on issues related to enzymes, the isolation and production techniques of enzymes, the enzymatic mechanisms, as well as on the methodologies for enzymes recovery, purification and application.

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

- describe the basic characteristics of enzymes and their role in catalysis

- classify the enzymes in categories
- elaborate on the reaction mechanisms
- outline the methodologies for isolation, recovery, purification and immobilization of enzymes.
- highlight the applications of enzymes in the food industry.
- Suggest several enzyme applications specifically in the Food Industry.

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
- Working in an interdisciplinary environment

SYLLABUS

1. Introduction and role of enzyme technology
2. Structure of enzymes. Enzyme categories.
3. Factors affecting enzymes.
4. Determination of enzymatic reactions. Definition of enzyme activity.
5. Mechanisms of enzymatic reactions.
6. Enzyme kinetics.
7. Origin of enzymes. Techniques for enzyme production, recovery and purification.
8. Techniques for enzyme immobilization
9. Applications of immobilized enzymes.
10. Enzyme applications in food industry (bread, brewing, fruit juice making)
11. Enzyme applications in food industry (oils and fats, lactose-free milk products, cheese making)
12. Novel enzyme applications in unconventional biocatalysis for the production of added-value chemicals.

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	In class		
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Power point presentation, Whiteboard writing		
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i>	Activity	Semester workload	
	Lectures	117	

<p>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.</p> <p>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</p>			
	Total contact hours and training		117
<p>STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure</p> <p>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</p> <p>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</p>	<p>Final written examination in theory that includes:</p> <ul style="list-style-type: none"> -multiple choice questions -short answer questions -judgment questions -problem solving 		

ATTACHED BIBLIOGRAPHY

1. Enzymology (2007), Klonis I., EMBRIO Press
2. Enzyme Biotechnology (2020). Klonis I., 4th Edition. CUP Press
3. Enzymes in Food Technology (2002). Whitehurst R.J. and Law B.A. (eds). Sheffield Academic Press.
4. Handbook of Food Enzymology (2003). Whitaker J.R., Voragen A.G.J. and Wong D.W.S. (eds). Marcel Dekker, Inc.