INDUSTRIAL ENZYMOLOGY

1	Course Title:	INDUSTRIAL ENZYMOLOGY
2	Course Code:	BYL0512
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	3
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. Elif Demirkan
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	Prof. Dr. Elif DEMİRKAN Fen-Edebiyat Fakültesi, Biyoloji Bölümü, Görükle Kampüsü, 16059 Bursa (0224) 2941794 , edemirkan@uludag.edu.tr
17	Website:	
18	Objective of the Course:	The purpose of the course is to teach students about technologies of industrial enzymes manufacturing and advantages of using enzyme preparations in food technology, animal nutrition and other branches of the industry.
19	Contribution of the Course to Professional Development:	The student knows that the subjects in the field of industrial enzymology are professional subjects, which makes it easier for her/him to participate in the studies for her/his professional development.
20	Learning Outcomes:	
	1	The ability of grip of structure-property relationships of enzymes
	2	Transfer in the related fields of Enzyme accumulation
	3	Create relationship between the technical and scientific ability with other disciplines
	4	Be aware of the multidisciplinary cooperation in the production of the enzyme
	5	Create awareness of the team
	6	Transferring to technology the subject of the enzyme
	7	Have to conscious the necessity of lifelong learning
	8	Be informed about impacts of enzymes on health and environmental

	9	
	10	

21	Course Content:

Course Content:

Week	Theoretical	Practice
1	Enzyme and properties	
2	General characteristics of technical enzymes: how enzymes work	
3	General characteristics of technical enzymes:enzyme structure and mechanism	
4	Enzyme sources: Microorganisms (Bacteria, fungi and yeast)	
5	Enzyme technology, Enzyme production methods	
6	Production of industrial enzymes by Recombinant DNA Technology	
7	Enzyme isolation, purification and charaterization	
11	Amylase, protease, lipase, phytase	
13	Fungal Technology	
14	Repeating courses	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	2	10.00	20.00
Homeworks	2	14.00	28.00
Projects	1	15.00	15.00
Field Studies	0	0.00	0.00
Midterm exams	1	20.00	20.00
Others	0	0.00	0.00
Final Exams	1	25.00	25.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

22	Textbooks, References and/or Other Materials: E.B.Smirkan, Industrial Enzymology Lecture Notes H.Uhling, Industrial Enzymes and Their Applications, John
23	Assesment

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00

Measurement and Evaluation Techniques Used in the Course	In the course, 1 midterm and 1 final exam are held. Exams are in a classical written style. Each written paper is carefully evaluated and graded.

24	**ECTS / WORK LOAD TABLE**

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				