

INDUSTRIAL MICROBIOLOGY

1	Course Title:	INDUSTRIAL MICROBIOLOGY	
2	Course Code:	GIDS112	
3	Type of Course:	Optional	
4	Level of Course:	Short Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	3.00	
8	Theoretical (hour/week):	1.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	-	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Yrd.Doç.Dr. ASUMAN KARAKAŞ ŞEN	
15	Course Lecturers:	Yard. Doç. Dr. Asuman KARAKAŞ ŞEN	
16	Contact information of the Course Coordinator:	Yard. Doç. Dr. Asuman KARAKAŞ ŞEN U.Ü. Yenişehir İ.O.M.Y.O. akarakas@uludag.edu.tr 773 60 42	
17	Website:		
18	Objective of the Course:	To teach, Characteristics of Industrial Microorganisms and Recombinant Microorganisms, The Use of Microorganisms in The Production of Fermented Food and Beverages, Food Additives, Enzymes, Health-care products, Chemicals and Biofuels, The Use of Microorganisms in Waste Treatment.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	The student learns the description and importance of Industrial Microbiology.
		2	The student learns the physiology of microorganisms.
		3	The student knows industrial microorganisms
		4	The student learns fermentation and the end products of fermentation.
		5	The student learns fermentation systems.
		6	The student learns the production of some fermented food and beverages.
		7	The student learns the industrial products produced by microorganisms.
		8	The student learns the creation of the recombinant microorganisms using the techniques of genetic engineering.
		9	The student learns the enviromental roles of microorganisms.
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	

1	The History of Industrial Microbiology and Introduction	Text Books
2	The Physiology of Microorganisms	Text Books
3	Industrial Microorganisms	Text Books
4	Fermentation	Text Books
5	Fermenters and Fermentation in large-scale	Text Books
6	Culture Media Used in Fermenters and The Methods of Fermentation.	Text Books
7	Repeating courses and midterm exam	
8	Fermented Food and Beverages	Text Books
9	Food Additives	Text Books
10	Microbial Enzymes	Text Books
11	Health-care products	Text Books
12	Vitamins, Polymers, Agricultural Products	Text Books
13	Industrial Chemicals and Biofuels	Text Books
14	The Enviromental Roles of Microorganisms	Text Books

22	Textbooks, References and/or Other Materials:	1- Genel Mikrobiyoloji, 4. Baskı. Prof. Dr. M. Öner. Ege Üniversitesi Basımevi, Bornova İzmir. (2001) 2- Industrial Microbiology: An Introduction. Michael J. Waites, Neil L. Morgan, John S. Rockey, Gary Higon (2001) Blackwell Science Ltd. 3- Gıda Mikrobiyolojisi 3. Baskı. Editörler Prof. Dr. Adnan ..
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Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		5	10.00	50.00
Practicals/Labs		14	2.00	28.00
Self study and preperation		10	2.00	20.00
Homeworks		0	0.00	0.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	16.00	16.00
Others		0	0.00	0.00
Final Exams		1	18.00	18.00
Home work-project		0	0.00	0.00
Total Work Load				90.00
Total work load/ 30 hr		2	100.00	3.00
Total				3.00
ECTS Credit of the Course				3.00
Contribution of Final Exam to Success Grade		60.00		
Total		100.00		
Measurement and Evaluation Techniques Used in the Course				

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	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0

ÖK2	1	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK3	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK4	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK5	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK6	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK7	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK8	4	0	0	2	2	1	0	0	0	0	2	2	0	0	0	0
ÖK9	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			