

BIOLOGICAL TREATMENT OF WASTEWATER

1	Course Title:	BIOLOGICAL TREATMENT OF WASTEWATER	
2	Course Code:	CEV4055	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	7	
7	ECTS Credits Allocated:	3.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	-	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Yrd.Doç.Dr. BERRAK EROL NALBUR	
15	Course Lecturers:	Öğr. Gör. Dr. Sevil ÇALIŞKAN ELEREN	
16	Contact information of the Course Coordinator:	bnalbur@uludag.edu.tr 224 2942111 Uludağ Üniversitesi, Müh.-Mim. Fakültesi, Çevre Mühendisliği Bölümü.	
17	Website:		
18	Objective of the Course:	Teaching the importance of biological treatment in preventing environmental pollution, fundamentals of aeration, basic biological treatment processes and their characteristics, design of biological reactors.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	The student will be able to evaluate bacterial growth and kinetics.
		2	The student will be able to assess the mechanism and principles of biological treatment.
		3	The student will be able to design basic biological treatment systems.
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	

1	Principles of biological treatment.			
2	Bacterial growth. Kinetics of biological treatment.			
3	Fundamentals of reactor design.			
4	Reactor Hydraulics			
5	Tracer assays in continuous flow reactors.			
6	Estimation of dispersion number. Quiz 1			
7	Correlation of Reactor Hydraulics- REactor performance. Factors affecting selection of reactor type.			
8	Activated Sludge system and modifications.			
9	Principles of aeration in activated sludge systems.			
10	Repeating courses and midterm exam			
11	Modelling of activated sludge system (Traditional approach)			
12	Modelling of carbon removal in activated sludge system Quiz 2			
13	Design of Sequencing Batch Reactors.			
14	New approaches in modelling.			
22	Textbooks, References and/or Other Materials:	Balman A.H., Balman V. (2002) Çevre Kirliliği Kontrolünde Atıksu Arıtımı, Atılım Ofset, ISBN: 975-92817-0-8. Metcalf&Eddy Tchobanoglous G., Burton F.L., Stensel		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		ISBN: 0-8247-8919-9.	2.00	28.00
Practicals/Labs		0	0.00	0.00
Self study and preperation		Wesley Publishing Company, Massachusetts ISBN: 0-201-05488-7	10.00	13.00
Homeworks		1	10.00	10.00
Projects		systems: theory and operation. John Wiley & Sons, Great Britain ISBN: 0471022587	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	11.00	11.00
Others		2	7.00	14.00
Final Exams		1	17.00	17.00
Midterm Exams		4	20.00	
Total Work Load				104.00
Quiz		1	10.00	
Total work load/ 30 hr		4		3.07
Homeworks project		4	10.00	
ECTS Credit of the Course				3.00
Final Exam		1	60.00	
Total		4	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				
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	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	4	4	0	0	0	0	3	3	0	0	0	0	0	0	0	0
ÖK3	0	0	5	0	0	0	0	0	0	0	0	0	0	3	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			