

ENVIRONMENTAL CHEMISTRY II

1	Course Title:	ENVIRONMENTAL CHEMISTRY II	
2	Course Code:	CEV2026	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	2018	
6	Semester:	4	
7	ECTS Credits Allocated:	4.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	2	
11	Prerequisites:	none	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. FATMA OLCAY TOPAÇ	
15	Course Lecturers:	Yrd.Doç.Dr. Arzu TEKSOY	
16	Contact information of the Course Coordinator:	olcaytopac@uludag.edu.tr 2942109	
17	Website:		
18	Objective of the Course:	To give basic analysis information and practices about laboratory works related to environmental engineering issues, to evaluate the activities according to their environmental impacts and to provide a systematic and multidisciplinary approach.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Have the ability to explain fundamental concepts, chemical parameters and problems related to water and wastewater.
		2	Have the ability to evaluate environmental impacts of various contaminants.
		3	Have an understanding of the definition of several chemical parameters in environmental engineering applications.
		4	Have the ability to do laboratory tests related to environmental engineering and to evaluate the experimental results.
		5	Have the ability to report experimental results.
		6	Have the ability to evaluate several chemical reactions occurred during the treatment processes.
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Introduction, general information	Laboratory safety rules and introduction of laboratory equipments	

2	Chlorine chemistry	Determination of chlorine in a wastewater sample.
3	Nitrogenated compounds and nitrogen circulation	Determination of ammonium and nitrate nitrogen by steam distillation in a wastewater sample.
4	Sulphur circulation and sulphates	Determination of total nitrogen by wet oxidation in a wastewater sample.
5	Fluoride chemistry	Determination of fluoride by photometric test in a wastewater sample.
6	Phosphorus and related compounds	Analysis methods of phosphorus
7	Repeating courses and midterm exam	
8	Colloids, adsorption, coagulation and peptization	Determination of orto-phosphate by ascorbic acid method in a wastewater sample
9	Ion exchange and ion exchangers, oil and grease	Determination of oil and grease in a wastewater sample
10	Detergents and environment, organic compounds: hydrocarbons, alkanes, alkenes, alkynes	Determination of detergents in a wastewater sample
11	Halogenated hydrocarbon derivatives, alcohols and esters	Examples about calculation of laboratory results
12	Esters, nitrogenated alkyl compounds, organometallic compounds, nitriles	Repetition of some experiments
13	Oxidation products of primer alcohols: aldehydes, ketones, carboxylic acids, soaps, derivatives of fatty acids	Repetition of some experiments
14	Amino acids, polypeptides, polyalcohols, natural oil, poly-basic organic acids, carbonhydrates, aromatic hydrocarbons.	Laboratory examination
22	Textbooks, References and/or Other Materials:	-Environmental Chemistry. (Şengül, F ve Müezzinoğlu, A) -Environmental Engineering Chemistry (Samsunlu,A.,) -Water and Wastewater Analysis (Şengül, F ve Müezzinoğlu, A) -Environmental Laboratory Technique- Lecture Notes (Başkaya,H.S.,) -Chemistry for Enviromental Engineering. (Sawyer and Mc Carty) - Water Chemistry (Vernon L. snoeyink and David Jenkins)
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBE R
Midterm Exam		1
Quiz		3
Home work-project		1
Final Exam		1
Total		6
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	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	1.00	14.00
Homeworks	1	8.00	8.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	3	6.00	18.00
Final Exams	1	20.00	20.00
Total Work Load			126.00
Total work load/ 30 hr			4.20
ECTS Credit of the Course			4.00

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	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
ÖK3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
ÖK6	4	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			