

# ENVIRONMENTAL INSTRUMENTAL ANALYSIS

1	Course Title:	ENVIRONMENTAL INSTRUMENTAL ANALYSIS	
2	Course Code:	CEV5102	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
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:	Doç.Dr. FATMA OLCAY TOPAÇ	
15	Course Lecturers:	Yrd.Doç.Dr. F. Olcay TOPAÇ ŞAĞBAN	
16	Contact information of the Course Coordinator:	Prof.Dr. Hüseyin S.BAŞKAYA başkaya@uludag.edu.tr 2942100	
17	Website:		
18	Objective of the Course:	To give basic principles of instrumental analysis methods and relations between the related concepts. To introduce basic laboratory equipments. To gain practice experience in laboratory skills.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Have an understanding of working principles of laboratory equipments. Have the ability of using them properly and securely.
		2	Be able to recognize and use several laboratory materials (glassware and chemicals).
		3	Have an understanding of preparation processes which should be done prior to instrumental analysis
		4	Have the ability to compare the instrumental analysis methods which are used in several areas of environmental engineering ( air, water, soil,...) for the determination of different parameters. Have the ability to express related results.
		5	Have the ability to define the factors that affect instrumental analysis
		6	Have the ability to pursue the new instrumental analysis methods which develops/alters in parallel to the development of science and technology. Have the ability to choose the optimum method under the prevailing conditions.

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21	Course Content:			
	Course Content:			
Week	Theoretical	Practice		
1	Introduction to the course, introduction to the laboratories.	Introduction to pHmeter and pH measurement.		
2	Instrumental analysis, the relationship between beam and matter, absorption of the beam.	Introduction to conductivity meter and measurement of electrical conductivity.		
3	Photometric analysis	Introduction to flame photometer and preparation of solutions for the determination of sodium-potassium.		
4	Colorimetric analysis	Determination of sodium-potassium with flame photometer		
5	Spectrophotometric analysis	Introduction to wastewater photometer and analysis with kits		
6	Turbidimetric and nefelometric analysis	Introduction to turbidimeter and measurement of turbidity.		
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	6.00	84.00
Homeworks		1	45.00	45.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		0	0.00	0.00
Others		0	0.00	0.00
Final Exams		1	55.00	55.00
Total Work Load				240.00
Total work load/30 hr				8.00
ECTS Credit of the Course				6.00
22	Textbooks, References and/or Other Materials:	-Instrumental Analysis, Turgut Gündüz, Bilge Publ., 1993, Ankara. -Instrumental Analysis, Emin Dikman, Çağlayan Publ., 1985, İstanbul -Instrumental Analysis, Atilla Yıldız, Hacettepe Univ. Publ.,1993, Ankara -The Principles of Instrumental Analysis / Douglas A. Skoog, F. James Holler, Timothy A Nieman ; trans.. ed. :Esma Kılıç, Fitnat Köseoğlu, Hamza Yılmaz, Bilim Yayınevi, 2000, Ankara.		
23	Assesment			
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT	
Midterm Exam		0	0.00	

Quiz	0	0.00
Home work-project	1	30.00
Final Exam	1	70.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade	30.00	
Contribution of Final Exam to Success Grade	70.00	
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	5	4	4	3	3	3	3	3	3	3	2	2	2	3	3	5
ÖK2	5	4	4	3	3	3	3	3	3	3	2	2	2	3	3	5
ÖK3	5	4	4	3	3	3	3	3	3	3	2	2	2	3	4	5
ÖK4	5	4	4	3	3	3	4	4	5	4	3	2	2	5	4	5
ÖK5	5	4	4	3	3	3	3	3	4	3	2	2	2	5	4	5
ÖK6	5	4	4	4	4	4	4	4	5	4	4	2	2	5	4	5
LO: Learning Objectives    PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							