INTRODUCTION TO ATOMIC SPECTROSCOPY

1	Course Title:	INTRODUCTION TO ATOMIC SPECTROSCOPY
2	Course Code:	KIM5010
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):	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. ELİF TÜMAY ÖZER
15	Course Lecturers:	Prof.Dr.Belgin İZGİ Prof.Dr. Saliha ŞAHİN
16	Contact information of the Course Coordinator:	Prof.Dr. Elif TÜMAY ÖZER etumay@uludag.edu.tr 0 224 29 42 866
17	Website:	
18	Objective of the Course:	Basic information about atomic spectroscopic techniques, calibration of systems, experimental designs, transferring latest developments in techniques.
19	Contribution of the Course to Professional Development:	learn analysis techniques.
20	Learning Outcomes:	

	1	Students assess spectroscopic data.
	2	To have knowledge about the theoretical bases of spectroscopic techniques.
	3	To know which method to choose in analysis.
	4	Students know the techniques to use in their research.
	5	Understand the importance of spectroscopy in analyzing unknown substances.
	6	Learn how different spectroscopic techniques complement each other.
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Spectroscopy and spectroscopic measurements	
2	Electromagnetic waves, mirrors, prisms, interferometers	

3	Dark room structure, laser sources, signalproceses	
4	Signal-to-noise ratios, noise sources and types	
5	Introduction to atomic spectroscopy.	
6	Rotation and vibration spectra	
7	Electronic absorption spectrum of molecules	
8	Midterm + repetition of previous topics	
9	Flame atomic absorption spectrometry (FAAS)	
10	Atomic Emission Spectrometer (AES)	
11	Electrothermall atomic absorption spectrometry (ET-AAS)	
12	Coupled inductive spectrometry (ICP)	
13	Improved atomic spectroscopic techniques I; Pt-ring, atom-trapped systems	
14	Improved atomic spectroscopic techniques II; trap systems, carbon, slotted tube and so on.	

22	Textbooks, References and/or Other Materials:	1. AnalyticalChemistry, J. -M. Mermet, M. Otto, H. M. Widmer, Willey-VCH, Wenheim, 1997. 2. Symmetry and spectroscopy, Daniel C. Harris and Michael D. Bertolucci, Oxford University, New York, 1989. 3. Spectrochemical Analysis, James D. Ingle, Jr, Stanly R. Crouch, PrenticeHall,New Jersey, 1988.

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	14	6.00	84.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	20.00	20.00
Others	0	0.00	0.00
Final Exams	1	30.00	30.00
Total Work Load			196.00
Total work load/ 30 hr			5.87
ECTS Credit of the Course			6.00

23 Assessment		
TERM LEARNING ACTIVITIES	**NUMBE**	**WEIGHT**
Midterm Exam	1	40.00
Home work-project	0	0.00
Midterm exams	2	100.00
Success Grade		100.00
Total		100.00

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	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0

ÖK4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	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

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**