PHYSICAL CHEMISTRY LABORATORY II

1	Course Title:	PHYSICAL CHEMISTRY LABORATORY II	
2	Course Code:	KIM3004	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	3	
6	Semester:	6	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	0.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	4	
11	Prerequisites:	-	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. ASIM OLGUN	
15	Course Lecturers:	Doç. Dr. Beyhan ERDEM	
16	Contact information of the Course Coordinator:	asimolgun@uludag.edu.tr 0 224 29 42863	
17	Website:		
18	Objective of the Course:	Have students practical experience according to the contents of Physical Chemistry II Course	
19	Contribution of the Course to Professional Development:	Gaining students' practical application skills related to events affecting chemical processes	
20	Learning Outcomes:		
		1	Being able to determine concentration with different spectroscopic techniques ;
		2	Comprehending the thermodynamical events;
		3	Learning methods to determine molecular weight;
		4	Examining the solubility curves of two-and three-component systems;
		5	Being able to review pseudo-first order reaction kinetics with polarimeter and understanding kinetics of the first order reactions;
		6	Being able to determine the concentration of solutions with conductivity method.;
		7	
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		10	
21	Course Content:		

Course Content:

Week	Theoretical	Practice
1		Determination of Concentration by Atomic Absorption Spectrophotometer: Application of Lambert-Beer Law
2		Spectrophotometer and colorimeter (Flame Photometry): Application of Lambert-Beer Law

3		Determination of Empirical Formula and free formation energy of the complex occuring between Fe3+ ions and salicylic acid: Application of Lambert-Beer Law, Determination of the free energy of formation and the formation of a complex
4		Determination of Ratio of Heat Capacities of a Gas: Adiabatic and reversible expansion
5		Determination of Molecular Weight with Cryoscopy Method: Freezing point depression
6		Resolution Three-Component Systems: Gibbs phase rule, Roozeboom diagram
7		Partially Miscible Liquids with each other and Variation of the Mixture: The phase rule, phase diagrams of partially soluble liquids and determination of the upper critical temperature
8		Calculation of molecular diameter and surface area: The volume of molecules containing hydrophilic and hydrophobic groups
9		Repetition of previous lessons and MIDTERM EXAM
10		Determination of Inversion Kinetic of Saccaroz: Examination of the second order of the reaction catalyzed by acid, Optical activity, polarimetry
11		Determination of Solution with Condutivity Method: The equivalent conductivity, molar conductivity, self (specific) conductivity, relationship of conductivity with a solution
12		Potentiometric Acid-Base Titrations: Weak acid-strong base and strong acid-strong base titrations, determination
14		Refraction Index: equity (specific) refractive index, molar refractive index, refrakor account
22	Textbooks, References and/or Other Materials:	General Chemistry , Principles and Modern Applications. Petrucci Harwood

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	0	0.00	0.00
Practicals/Labs	14	4.00	56.00
Self-study and preperation	14	1.00	14.00
Homeworks	10	6.00	60.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	0	0.00	0.00
Final Exams	1	10.00	10.00
Total Work Load			160.00
Total work load/ 30 hr	2	100.00	5.00
ECTS Credit of the Course			5.00

TERM LEARNING ACTIVITIES	NUMBE	WEIGHT
Midterm Exam	1	40.00
Home work-project	0	0.00
Total	2	100.00

Success Grade	
Contribution of Final Exam to Success Grade	60.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	Measurement and evaluation is carried out according to the priciples of Bursa Uludag University Associate and Undergraduate Education Regulation.

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	3	2	3	1	4	2	3	4	1	4	0	0	0	0	0	0

ÖK2	0	0	4	3	4	4	3	4	1	4	0	0	0	0	0	0
ÖK3	0	3	3	4	5	5	4	5	1	5	0	0	0	0	0	0
ÖK4	5	4	5	4	4	5	4	5	1	5	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**