PHYSICAL CHEMISTRY I

1	Course Title:	PHYSICAL CHEMISTRY I
2	Course Code:	KIM3001
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	4.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	It is recommended to be taken the math lesson for chemists.
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. ASIM OLGUN
15	Course Lecturers:	Prof. Dr. Ali KARA 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:	To provide chemistry students understand the basic principles of ideal and real gases and the concept of thermodynamics
19	Contribution of the Course to Professional Development:	Students improve their knowledge on the physical principles that underlie chemistry. they seeks to account for the properties of matter in terms of fundamental concepts and provides a framework of understanding for other branches of chemistry.
20	Learning Outcomes:	
		1	Being able to express the kinetic theory of gases and confirm the ideal gas laws based on the theory.
		2	Examining real gases with equations like Van der Waals, Dietirici, and discussing the conditions for applicability of the ideal gases.
		3	Being able to identify viscosity, mean free path and heat capacity of gases.
		4	Examining the adiabatic and the isothermal processes for the ideal and real gases.
		5	Explaining the law of the conservation of energy.
		6	Applying the laws of thermodynamics for chemical and physical processes.
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21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Ideal gas and ideal gas laws	
2	The kinetic theory of gases	

3	Verification of the basic ideal gas laws with kinetic theory of gases	
4	Molecular velocity distribution, the mean free path and collision frequency	
5	Applicability conditions for the real gases and the ideal gas laws	
6	Magnitude of the viscosity of gases	
7	Heat capacity of gases	
8	Partial molar quantities	
9	Applications of the Course	
10	The conservation of energy and first law of thermodynamics	
11	Mathematical relations for the specific heats of gases	
12	Adiabatic and isothermal processes for the gases: What the adiabatic event is, reversible and irreversible processes for the adiabatic events	
13	Adiabatic and isothermal processes gor the gases: What the isothermal event is Reversible and irreversible processes for the isothermal events	
14	Joule Thomson experiment and Carnot cycle	

22	Textbooks, References and/or Other	Cebe M. Fizikokimya I Uludağ Üniversitesi, 2003.

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	4.00	56.00
Midterm Exam	2	50.00	
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	4.00	56.00
Home work-project	0	0.00	
Homeworks	0	0.00	0.00
Final Exam			
Projects	0		0.00	0.00
Total	3	100.00	
Field Studies	0	0.00	0.00
Midterm exams	2	25.00	50.00
Others	0	0.00	0.00
Final Exams	1	25.00	25.00
Total		100.00	
Total Work Load			237.00
Total work load/ 30 hr			6.23
ECTS Credit of the Course			6.00

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	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0

Measurement and Evaluation Techniques Used in the Course: Measurement and evaluation is carried out according to the priciples of Bursa Uludag University Associate and

ÖK5	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	4	0	0	2	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**