AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
MATHEMATICS AND SCIENCE EDUCATION
SCIENCE EDUCATION
SCIENCE EDUCATION MASTER
COURSE INFORMATION FORM

Course Title	General Chemistry II								
Course Code	İFB514		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The main objective of this course, examine the behavior of atoms and molecules and the molecules in reactions of this kind is to predict behavior by students.								
Course Content	Solutions and their properties, chemical kinetics, chemical equilibrium, acids and bases, acid-base equilibria, solubility and complex ion equilibria, thermodynamics, electrochemistry, metals, nuclear chemistry, organic chemistry.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading	
1	Charles E. Mortimer ‘’Chemistry A Conceptual Approach’’
2	Atasoy, B. Genel Kimya. Gündüz Eğitim ve Yayıncılık, Ankara: 2000.
3	R.H.Petrucci, W.S.Harwood, F.G.Herring“General Chemistry Principles and Modern Applications”, Prentice Hall 2002

Week	Weekly Detailed Course Contents	
1	Theoretical	Know general properties of solutions and factors affecting solubility.
	Preparation Work	
2	Theoretical	Solids and liquids
	Preparation Work	
3	Theoretical	description of the collision theory and activation energy, and know effects of them on reaction rate
	Preparation Work	
4	Theoretical	Defining and writing of chemical equilibrium.
	Preparation Work	
5	Theoretical	Use in determining the direction of the chemical reaction equilibrium constant.
	Preparation Work	
6	Theoretical	Listing of acid-base properties and pH, pOH concepts.
	Preparation Work	
7	Theoretical	Prediction of solubility of salts
	Preparation Work	
8	Intermediate Exam	midterm
9	Theoretical	Writing and reducing redox reactions, oxidizing, reduced and oxidized determination.
	Preparation Work	
10	Theoretical	Using the Gibbs free energy calculation and determination of the direction the steering wheel.
	Preparation Work	
11	Theoretical	to describe of Volta and galvanic cells and to know electrolytic cell, the working principles
	Preparation Work	
12	Theoretical	to describe types of batteries and find out the importance of them in terms of industry
	Preparation Work	
13	Theoretical	to define the concepts of radioactivity, nuclear proliferation, nuclear fission, nuclear decay and half-life.
	Preparation Work	
14	Theoretical	to know bond types of organic compounds, compound structure, reactions

14	Preparation Work	
15	Theoretical	to know bond types of organic compounds, compound structure, reactions
	Preparation Work	
16	Final Exam	term

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Assignment	5	10	0	50
Reading	5	9	0	45
Midterm Examination	1	10	2	12
Final Examination	1	20	3	23
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be able to acquire the general properties of solutions and factors affecting the resolution.
2	To be able to understand Collision theory and activation energies of the definitions and know the effects of the reaction rate.
3	To be able to understand the acid-base properties and pH, pOH to define the concepts.
4	To be able to determine the redox reaction and reduce and oxidize.
5	To be able to comment on the direction of Entropy, enthalpy, and the effect of temperature on reaction.
6	To be able to understand the concepts of half-life, Radioactivity, nuclear proliferation, nuclear fission, nuclear fission.
7	To be able to understand the types of organic compounds bond definitions, structures and reactions ofcompounds

Programme Outcomes *(Science Education Master)*	
1	To be able to have an expert theoretical knowledge within the field of science educatıon.
2	To be able to transfer expert knowledge gained in science education into various instructional environment.
3	To be able to integrate science education knowledge with the other disciplines and product functional knowledge
4	To be able to use information and communication technologies efficiently in conceptual learning
5	To be able to find scientific solutions to the problems in the field of science education
6	To be able to evaluate the knowledge critically in the field
7	To be able to participate in team projects in the science education field
8	To be able to adopt lifelong learning strategies to his/her studies
9	To be able to use at least one foreign language efficently in oral and verbal communication
10	To be able to share national and international data in the field of science education
11	To be able to comprehend and evaluate science-technology-society and environment interactions
12	To be able to comprehends science under the ethical values and take account of ethical considerations
13	To be able to use scientific information in the other domains that is gained in the masters field and have the transfer skills
14	To be able to follow the current development in the science education field
15	To be able to develop strategical plans and evaluate them in the context of quality processes

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5	L6	L7
P1	5	5	5	5	5	5	5
P6	4	2	4	4	4	4	4
P8	3		3	3	3	3	3
P14	4	4	4	2	4	4	4