GAU, Faculty of Engineering

Course Unit Title	General Chemistry
Course Unit Code	CH101
Type of Course Unit	Compulsory, All engineering students
Level of Course Unit	1st Year BSc
National Credits	3
Number of ECTS Credits Allocated	6 ECTS
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	1
Mode of Delivery	Face to Face, E-learning activities
Language of Instruction	English
Prerequisities and co-requisities	-
Recommended Optional Programme Components	Basic background in mathematics, physics

Objectives of the Course:

- This course explores the fundamental laws, theories, and mathematical concepts of chemistry. Designed primarily for engineering majors.

Learning Outcomes

When this course has been completed the student should be able to		Assesment.
1	Identify the common elements by name and symbol.	1
2	Describe the nuclear and electronic structure of an atom of any element in the periodic table and predict the properties of the element on the basis of these structures.	1
3	Write and balance equations for chemical reactions, and describe verbally the processes which occur in these reactions.	1
4	Describe the general properties of gases, carry out gas law calculations, and discuss kinetic molecular theory and deviations from ideality in gases	1
5	Answer questions relating to the chemical laws, theories, and concepts described in the assigned chapters and in the lectures; and apply these laws, theories, and concepts by solving representative problems.	1

Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5 Lab. Work

Course's Contribution to Program

		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	5
2	Ability to design and conduct experiments as well as to analyze and interpret data	4
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	2
4	Ability to apply systems thinking in problem solving and system design	3
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	4
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	3
7	Ability to express their ideas and findings, in written and oral form	3
8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints	3
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High)

Course Contents

Week			Exams
1		Introduction	
2	Chapter 1	Matter and Measurement	E-Quiz 1
3	Chapter 2	Atoms molecules and ions; introduction to periodic table and nomenclature	E-Quiz 2
4	Chapter 3	Relative atomic mass and Avogadro's number	
5		Mole Concept and mass relations in formulas	Class-Quiz 1
6		Mass relations in reactions	E-Quiz 3
7		Tutorial	
8			Midterm
9	Chapter 5	Gas Laws	
10		Ideal gas law calculations and kinetic theory of gases	E-Quiz 4
11	Chapter 6	Electronic structure	
12		Quantum numbers, electronic configuration and periodic table	E-Quiz 5
13			Class-Quiz 2
14		Tutorial	
15			Final

Recommended Sources

Textbook: "Chemistry-Principels and Reactions", Masterton and Hurley, Saunders College Publications, 4th.Edn.,2006.

Supplementary Material(s): Any College level General Chemistry book would be helpful.
GAU elearning site (www.http://elearning.gau.edu.tr).

Assessment

Attendance& E-learning	10%
Laboratory	-
Midterm Exam (Written)	30%
Quiz (Written)	20%
Final Exam (Written)	40%
Total	100%

ECTS Allocated Based on the Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including the Exam week)	15	3	45
Labs and Tutorials	2	3	6
Assignments	1	6	6
Project/Presentation/Report Writing	-	-	-
E-learning Activities	5	4	20
Quizzes	2	8	16
Midterm Examination	1	12	12
Final Examination	1	18	18
Self Study	14	3	42
Total Workload			165
Total Workload/30 (h)			5.5
ECTS Credit of the Course			6