

Faculty of Engineering & Technology

Chemistry 1

Information :

Course Code : CHM 151 **Level :** Undergraduate **Course Hours :** 2.00- Hours

Department : Faculty of Engineering & Technology

Instructor Information :

Title	Name	Office hours
Lecturer	Aya Hanfay Reda Hanfy Mohamed	40
Teaching Assistant	Ahmed Abdelfattah Abdelaziz Abdelfattah	16
Teaching Assistant	Mohamed Osama Mohamed Abbas	

Area Of Study :

Overall aims of the course are:

- Enrich the students' knowledge about the field of Engineering Chemistry.
- Elevate the students' knowledge about the effect of the environment.
- Enrich the students with idea about construction materials and cement chemistry.
- Develop students' practical skills for solving the water pollution problems.

Description :

Gases, Mass balance and heat balance in combustion process of fuels, Solutions, Dynamic equilibrium in physical and chemical processes, Electrochemistry and corrosion, Water treatment, Building materials, Environmental engineering selected chemical industries: fertilizers, dyes, polymers, sugar, petrochemicals, semi-conductors, oil and fats, industrial systems.

Course outcomes :

a. Knowledge and Understanding: :

1 -	- Define the main physical and chemical phenomena and terms related to the above-mentioned subjects.
2 -	- Describe the general idea about construction of materials and cement chemistry.
3 -	- Identify the effect of the environment and problems of water pollution

b. Intellectual Skills: :

1 -	Examine different solutions for calculation of numerical problems related to gases, liquid, solid, thermo-chemistry and electro-chemistry.
2 -	Analyze chemical reactions and their characteristics to process industries.
3 -	Solve industrial problems related to polymers, petrochemicals and electro-chemistry.

c. Professional and Practical Skills: :

1 -	Utilize accurate use of different glass wear used for qualitative and quantities chemical analysis.
2 -	Predict the physical properties of petroleum oil analysis using standard equipment.

- 3 - Apply chemistry background to solve problems related to gases, liquid, solid, thermochemistry and electro-chemistry.

d.General and Transferable Skills :

- 1 - Collaborate effectively within multidisciplinary team.
2 - Work coherently and successfully as a part of a team in the Lab and assignments.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Gasses State	8	2	2
The Properties of Liquids and Solids	8	2	2
Thermo-chemistry	8	2	2
Thermodynamics	4	1	1
Electrochemistry and Corrosion of Metals	8	2	2
Solutions Chemistry	8	2	2
Water and its Treatment	4	1	1
Chemistry of Cement	4	1	1
Mass balance in combustion process of fuels	8	2	2

Teaching And Learning Methodologies :

Interactive Lecture
Discussion
Problem-based Learning
Cooperative learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignment	5.00		
Final Exam	40.00		
Participation	5.00		
Quizzes	10.00		
Two Mid- Exams	40.00		

Course Notes :

Course notes and Handouts

Recommended books :

Hill, J., Petrucci, R. and Perry S., "General Chemistry ", 4th Edition, 2005, Pearson and Prentice Hall.
Bardy and Holum, "The Study of Matter and Its Changes ", 4th Edition, 2005.

