

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: :

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| 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: :

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| 1 - | - Examine different solutions for calculation of numerical problems related to the above-mentioned subjects. |
| 2 - | - Analyze chemical reactions and their characteristics to process industries. |
| 3 - | - Solve industrial problems in a scientific method. |

c. Professional and Practical Skills: :

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| 1 - | - Utilize accurate use of different glass wear used for qualitative and quantities chemical analysis. |
| 2 - | - Analyze the physical properties of petroleum oil analysis using standard equipment. |
| 3 - | - Use the knowledge of Chemistry to solve engineering problems. |

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	4	4
The Properties of Liquids and Solids	8	4	4
Thermo-chemistry	8	4	2
Thermodynamics	4	2	2
Electrochemistry and Corrosion of Metals	4	2	2
Solutions Chemistry	8	4	4
Water and its Treatment	4	2	2
Polymers Chemistry	4	2	2
Chemistry of Cement	4	4	4
Mass balance in combustion process of fuels	8	4	4

Teaching And Learning Methodologies :

Interactive Lecture
Discussion
Problem Solving
Experimental Learning
Cooperative learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00		
Final exam	40.00		
Lab Exam	15.00		
Mid-Term Exam	25.00		
Participation and performance	5.00		
Quizzes	10.00		

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.