

Faculty of Engineering & Technology

Organic Chemistry

Information :

Course Code : CHM 301

Level : Undergraduate

Course Hours : 2.00- Hours

Department : Department of Petroleum Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Aya Hanfay Reda Hanfy Mohamed	6
Assistant Lecturer	MOAMEN AHMED GASSER HASSAN KAMEL IBRAHIM KAMEL	
Teaching Assistant	Abdelrahman Adel Abdullah Abdelghany Kandil	
Teaching Assistant	Taha Abdelhamid Abdelmaqsoud Abdelhamid Yehia	
Teaching Assistant	Akram Rabie Hamed Ragheb Tobar	
Teaching Assistant	AHMED NAGUIB ABDELAZIZ ABDELAZIZ GHONIM	

Area Of Study :

Classify different aliphatic and aromatic classes of organic compounds and recognize their physical properties, use the IUPAC system to name and draw these classes. Recognize different methods for synthesis of different organic compounds and predict the outcome of different reactions of these compounds, and recognize aromatic compounds and their chemistry, Consider the laboratory safety instructions and regulations and investigate organic compounds.

Description :

Molecular composition and structure of organic compounds: determination and calculation of empirical and molecular formulae, pictorial treatment of hybridization. Organic Reactions: Bond formation and fission, classification of reagents and reactions, reaction intermediates: Carbonations, free radicals, carbanions. Hydrocarbons: (aliphatic, alicyclic and aromatic), structure and nomenclature. Homologous series, and gradation of properties, preparation, reactions.

Course outcomes :

a. Knowledge and Understanding: :

1 -	Classify the hydrocarbons according to their structures.
2 -	Recognize the rules of IUPAC system for nomenclature of hydrocarbons.
3 -	Recognize physical and chemical properties and methods for synthesis of different classes of organic compounds.
4 -	Identify physical and chemical properties of hydrocarbons.
5 -	Relate between petroleum and hydrocarbons.

b. Intellectual Skills: :

1 -	Apply the IUPAC system to name different classes of organic compounds.
2 -	Predict the outcome of the reactions of different hydrocarbon classes.

c. Professional and Practical Skills: :

1 -	Consider the laboratory safety instructions and regulations.
2 -	Investigate organic compound; physically and chemically.
3 -	Construct simple chemical reactions.
4 -	Solve problems.

d. General and Transferable Skills: :

1 -	Use internet in research and communications
2 -	Learn how to work as a part of teamwork
3 -	Learn proper use of equipment used in analysis
4 -	Work effectively in a team.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Lec: Introduction to organic chemistry Lab. Lab. Safety, Identification of Aldehydes.	2		
Lec. Classification of hydrocarbons, nomenclature of alkanes Lab. Identification of carboxylic acids	2		
Lec. Hybridization ,synthesis and reactions of alkanes Lab. Identification of ketones and Alcohol	2		
Lec. (Alkenes) Hybridization, Nomenclature, Physical properties. Industrial uses, Methods of preparation, and reactions. Lab. Identification of Immiscible liquids	2		
Lec. (Alkynes or acetylene) Hybridization, Nomenclature, Physical properties. Industrial uses, Methods of preparation and ,Reactions	2		
Lec.(Alicyclic compounds) Nomenclature, Synthesis, Reactions, Industrial source, physical properties. Lab: Identification of solid acid and aniline salts.	2		
Lec. Empirical formula. Quiz(2) Lab. Identification of ammonium salts& metallic salt s of acids& urea.	2		
Lec. . Aromaticity Lab: Revision	2		
Lec. Nomenclature of benzene derivatives	2		
Lec. Types of chemical reactions	2		
Lec. Mechanism of unimolecular SN1and BimolecularSN2 Nucleophylic Substitution	2		
Lec. Reducing agent	2		
Lec.: Oxidizing agents	2		
Lec :Revision	2		
Lec. Revision	2		

Teaching And Learning Methodologies :

Lectures.
Discussions
Problem classes

Workshops

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00	15	
Homework	5.00	1	
Mid-term exam	50.00	5	
Oral discussions	5.00	7	
Quizzes	5.00	3	

Course Notes :

Practical organic chemistry hand's out(Petroleum engineering)

Recommended books :

March's Organic chemistry: Reactions, Mechanisms, and structure 6.4- Periodicals, Web sites, etc

<http://www.black-tides.com/uk/oil/oil-everyday-lives/products-obtained-from-crude-oil.php>

<http://www.youtube.com/watch?v=Jfz8cmuwhuc>

<http://www.youtube.com/watch?v=cm6lisiSxaQ&list=PL9DB26BAA82BA1E59> <http://www.youtube.com/watch?v=g1fGXDRxS6k>

<http://www.youtube.com/watch?v=xKivZNY5RNw&list=PL9DB26BAA82BA1E59>