

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 hydrocarbons.
- Recognize their physical properties.
- Give names and structural formula of hydrocarbons according IUPAC system.
- Recognize different methods for synthesis of different classes of hydrocarbons
- Predict the outcome of different reactions of these compounds.
- Consider the laboratory safety instructions and regulations.
- Investigate different solid and liquid organic compounds.

Description :

Chemistry of hydrocarbon aliphatic, aromatic, nomenclature systematic and general; hybridization in different classes, physical properties, isomerism, empirical formula Industrial and laboratory synthesis chemical reactions, uses in fuel industry. Identification of functional, groups. Petroleum refining.

Course outcomes :

a. Knowledge and Understanding: :

1 -	Classify the hydrocarbons according to their structures.
2 -	Describe the rules of IUPAC system for nomenclature of hydrocarbons.
3 -	Describe physical and chemical properties of different hydrocarbons.
4 -	Describe different methods for synthesis of hydrocarbons
5 -	Relate between petroleum and hydrocarbon in fuels and polymer industry.

b. Intellectual Skills: :

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

3 -	Solve problems on 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 on simple chemical reactions.
d. General and Transferable Skills :	
1 -	Communicate effectively.
2 -	Work as a part of teamwork.
3 -	Work effectively individually.
4 -	Effectively manage tasks, time, and resources

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basic concepts to organic chemistry	4	2	2
Classification of hydrocarbons, Hybridization in different classes of hydrocarbons, Systematic nomenclature of linear & branched alkanes, Physical properties different classes of hydrocarbons, Systematic nomenclature of linear & branched alkanes, Physical properties	8	4	4
Alkanes structure, synthesis, and reactions	4	2	2
(Alkenes, alkynes) Nomenclature, Physical properties, Isomerism, Industrial uses, Methods of preparation, and reactions	8	4	4
(Naphthenes) Nomenclature, Physical properties. Industrial uses, Methods of preparation, Reactions, uses in petroleum industry	8	4	4
Types of the functional groups, Nomenclature, Synthesis and reactions.	8	4	4
(Aromatic compounds) Nomenclature Aromaticity, Conjugation, Structure of benzene, Isomerism, Electrophilic substitution. Inductive & mesomeric effect.	8	4	4
Empirical formula and problems on	4	2	2
Types of the chemical reactions	4	2	2
Application of hydrocarbons uses and polymer industry.	4	2	2

Teaching And Learning Methodologies :

Interactive Lecturing

Discussion

Problem Solving

Experiential Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final exam	40.00		
Mid- Exam	25.00		
Participation	10.00		
Practical Exams	15.00		
Quizzes	10.00		

Recommended books :

Organic chemistry, Francis A. Carey Robert M. Giuliano 8th edition, 2009.

Web Sites :

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