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 :

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 idustry .
Identification of functional,groups. Petroleum refining.

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 of different hydrocarbons.
4 -	Recognize different methods for synthesis of hydrocarbons
5 -	Relate between petroleum and hydrocarbon in fuels and polymer industry.
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.
3 -	Solve problems.

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. Basic concepts to organic chemistry	2		
Lec. Classification of hydrocarbons, Hybridization in different classes of hydrocarbons, Systematic nomenclature of linear& branched alkanes, Physical properties	4		
Lec. Alkanes structure, synthesis, and reactions	2		
Lec. (Alkenes, alkynes) Nomenclature, Physical properties, Isomerism, Industrial uses, Methods of preparation, and reactions	4		
Lec. (Naphthenes) Nomenclature, Physical properties. Industrial uses, Methods of preparation ,Reactions, uses in petroleum industry	4		
Lec. Types of the functional groups, Nomenclature, Synthesis and reactions.	4		
Lec. (Aromatic compounds) Nomenclature Aromaticity, 4 4 8 Petroluem Engineering Program Page 34 of 307 CHM 301: Organic chemistry Page 3 of 6 Conjugation, Structure of benzene, Isomerism, Electrophilic substitution. Inductive & mesomeric effect.	4		
Lec. ï Emprical formula and problems on	2		
Lec. Types of the chemical reactions	2		
Lec. Application of hydrocarbons uses and polymer industry.	2		

Teaching And Learning Methodologies :

Lectures.
Discussions
Problem classes
Workshops
Laboratory

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Attendance	10.00		
Final exam	40.00	15	
Mid-term Exams	15.00	7	
Performance	10.00		
Practical Exams	15.00	7	
Quizzes in class	10.00		

Course Notes :

Practical organic chemistry hand's out(Petroleum engineering)

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
9. Facilities required