

CHEM 232 Syllabus

Course Code	Course Name	Credits	Prerequisite(S)	Classification
CHEM 232	Principles of Organic Chemistry II	4 3T+3L	CHEM 231	Department Requirement

Course Description The course focuses on polyunsaturated hydrocarbons and dienes, α , β -unsaturated carbonyl compounds, dicarbonyl compounds, dicarboxylic acids and their esters, halogen and hydroxyl acids, heterocyclic compounds, and polycyclic aromatic hydrocarbons.

Class Scheduling Classes are held 2 times/week each for 80 minutes. Labs are held 1 time/week for 150 minutes

Textbook(s) Organic chemistry, Graham Solomons Tw, Craig B. Fryhle, 12th ed., 2016
Organic Chemistry by Jonathan Clayden, Nick Greeves, and Stuart Warren, 2nd ed., 2013

Course Coordinator Dr. Amna Nisar Khan, Dr. Heba kashmery, Dr. Dina Bakhotmah,
Dr. Nada Tashkandi, Dr. Eman Ghamdi, Dr. Hassan Mustafa Faizullah, Dr. Mahmoud Ali Hussein Abdo

Relationship to SOs	1	2	3	4	5	6
	X		X			

CLOs By the end of this course student will be able to:

CLO 1. Identify the fundamental properties of conjugated unsaturated systems, carboxylic acid, polynuclear hydrocarbons, heterocyclic compounds, and polymers. (SO1)

CLO 2. Name and classify organic molecules by their functional group found in conjugated unsaturated system, carboxylic acids, polynuclear hydrocarbons and heterocyclic compounds, polymers, and carbohydrates. (SO1)

CLO 3. Prepare the organic compounds containing poly functional groups and illustrate the reaction mechanism of each step involved in the reaction. (SO3)

CLO 4. Correlate the structure activity of the compound (product) to the type of functional group present in starting material and vice versa along with various types of organic reactions. (SO1)

CLO 5. Calculate the percent yield and evaluate chemical scientific information and the industrial applications of prepared poly functional organic compounds. (SO3)

**Grade
Distribution**

Week Due	Task
8th	Exam 1
11th	Exam 2
13th	Practical Exam
All along	Student activity (Homework)
15th	Final exam

Contents

List of Topics	No. of Weeks
Chapter 1. Conjugated Unsaturated System Solomons (Ch. 13, topics 13.1-13.6 and 13.9-13.10)	3
Chapter 2. Condensation and Conjugate Addition Reaction of Carbonyl Compounds Solomons (Ch. 19, topics 19.1-19.8)	3
Chapter 3. Synthesis of α,β -unsaturated Carboxylic acids and its Derivatives Clayden (Ch. 26, p. 743, Ch. 27 p.703-706, Ch.14, p.357,358)	2
Chapter 4. Synthesis and Reactions of dicarbonyl compounds and Heterocyclic Compounds Solomons (Ch.18, topics 18.1-18.7), Clayden (Ch. 44, pg. 1187-1191)	3
Chapter 5. Carboxylic Acids and their Derivatives Solomons (Ch. 17, topics 17.1-17.3, 17.6A, 17.7C, 17.9, 18.3D) http://www.chem.gla.ac.uk/staff/stephenc/teaching/HeterocycleLectures2011_2C_12.pdf	2
Chapter 6. Polycyclic Aromatic Compounds Solomons (Ch.14, topic 14.8A) http://www.uobabylon.edu.iq/eprints/publication_5_7911_1622.pdf	1
Revision and discussion	1

Total	15
Laboratory Section: Preparation of endoanthracenemaleic anhydride, Acetanilide, Phthalimide, Benzylidene Aniline, Dibenzal-acetone, Chalcone, Addition of Aniline to Chalcone, Bi-functional groups in some Organic Compound and Carbohydrate chemistry. Synthesis of Methyl Orange Indicator, Isolation of (R), (+)-limonene from orange peel, and Synthesis of Nylon 66. Fundamental Organic Chemistry II, Lab Manual	15
