MODULE DESCRIPTION FORM

Module Information					
Module Title	Organic Chemistry				
Module Type	Basic	☒ Theory ☒Lecture ☒ Lab ☒ Tutorial ☒Practical ☒ Semina			
Module Code	Zu-Sc-CRORGCHE				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		Semester of Delivery	2	
Administering Department	MPHY		College	College of Science	
Module Leader	Lec. Dr. Ameer Mohammed Abbas		e-mail	ameeralhilali25@gmail.com	
Module Leader's Acad. Title	Lecturer Doctor		Module Leader's Qualification	PhD	
Module Tutor			e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	2/3/2026		Version Number	1.0	

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Equip students with a foundational understanding of organic chemistry. 2. Cover essential topics such as chemical bonding, structure, nomenclature of organic compounds, reactivity of basic functional groups and the chemistry of single, double, and triple bonds. 3. Exploring molecules of significance in life. 4. Serve as a universal baseline of organic chemistry knowledge for incoming first-year students. 5. Construct the practical skills of organic chemistry for students.
Module Learning Outcomes	1. The student will be able to recognize and name different types of organic molecules based on their structure, functional groups, and systematic nomenclature rules of alkanes, alkenes, and alkynes. 2. Describe the bonding and shape of organic molecules: Understanding the types of bonds present in organic molecules (e.g., covalent bonds) and how these bonds influence the three-dimensional shape or geometry of the molecules. 3. Understanding the factors that influence the reactivity of organic molecules, such as the presence of functional groups, steric hindrance, and electronic effects. 4. Being able to describe the physical and chemical properties of alkanes, alkenes, and alkynes, as well as methods for preparing them and their typical reactions. 5. Being able to use the information about organic compound structure, bonding, reactivity, and functional groups to predict and explain the outcomes of organic reactions and to solve problems related to organic chemistry.
Indicative Contents	1. Structure and bonding in organic molecules: This covers the basics of molecular structure, including the shapes of organic molecules and the nature of chemical bonds within them. 2. Functional groups: Organic molecules are classified based on functional groups, which are specific arrangements of atoms within the molecule that confer characteristic chemical properties. 3. Nomenclature: Organic chemistry has a systematic way of naming compounds, which is essential for communication within the field. This includes the IUPAC (International Union of Pure and Applied Chemistry) naming system. 4. Isomerism: Organic molecules can exist as different isomers, compounds with the same molecular formula but different structural arrangements or spatial orientations, leading to distinct

	chemical properties. 5. Organic reactions: Understanding how organic reactions occur at the molecular level is fundamental to organic chemistry. 6. Stereochemistry: This branch of organic chemistry focuses on the spatial arrangement of atoms within molecules and how it influences the properties and reactivity of compounds.

Learning and Teaching Strategies	
Strategies	The primary approach for introducing this unit will involve fostering student engagement through active participation in homework exercises, aiming to enhance and broaden their critical thinking abilities. This will be facilitated through class sessions and interactive tutorials, supplemented by the exploration of simple experiments designed to incorporate sampling activities tailored to students' interests.

Student Workload (SWL)			
Structured SWL (h/sem)	65	Structured SWL (h/w)	4.3
Unstructured SWL (h/sem)	60	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	-	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
	Seminar	1	10% (10)	7	LO # 1-7
Summative assessment	**Midterm Exam**	2 hr	10% (10)	15	All
	Final Exam	3 hr	50% (50)	5, 10	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	**Introduction to organic chemistry**
Week 2	**The structural theory of matter**
Week 3	**Bonds and Lewis structures**
Week 4	**Hybridization of atomic orbitals**
Week 5	**Acids and bases**
Week 6	**Alkanes: the nomenclature and physical properties**
Week 7	**Alkanes: free radical reactions**
Week 8	**Midterm Exam**
Week 9	**Synthesis of alkanes**
Week 10	**Alkenes: nomenclature and physical properties**
Week 11	**Synthesis of alkenes**
Week 12	**Reactions of alkenes**
Week 13	**Alkynes: nomenclature and physical properties**
Week 14	**Synthesis of alkynes**
Week 15	**Reactions of alkynes**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
Weekly Lab	**Material Covered**
Week 1-2	Lab 1: Lab safety guide and laboratory glass wares
Week 3-4	Lab 2: Crystallization
Week 5-6	Lab 3: Liquid-liquid extraction
Week 7	Lab 4: Soxhlet extraction
Week 8	Mid Exam
Week 9-10	Lab 5: Extracting Caffeine from tea
Week 11-12	Lab 6: Simple and fractional distillation
Week 13-14-15	Lab 7: Determination of melting point and boiling point
Week 16	Final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Bruice, Paula Yurkanis. (2014). Organic Chemistry, 7th ed. New Jersey: Pearson Education International, pages 1392.	YES
Recommended Texts	McMurry, John E., (2016). Organic Chemistry, 9th ed., Cengage Learning, pages 1518.	YES
Websites	https://www.khanacademy.org/science/organic-chemistry https://www.masterorganicchemistry.com/	

Grading Scheme			
Group	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

Note: NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Name of the Instructor:

Dr. Ameer Mohammed Abbas Alhilali