	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	Organic Chemistry	**Module Delivery**	
Module Type	CORE		☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**
Module Code	CREQ1104		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	**Semester of Delivery**	2
Administering Department	MPHY	**College**	College of Science
Module Leader	Dr. Talib Hamid Mawat	**e-mail**	Dr.talib_h@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor	Shams aws ismael	**e-mail**	Shams.aws@nahraininiv.edu.iq
Module Reviewer	Dena ahmed hashem		Dina.ahmed@nahrainuniv.edu.iq
Peer Reviewer Name		**e-mail**	
Review Committee Approval	18/1/2026	**Version Number**	1.0

Relation With Other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide students with a solid foundational understanding of organic chemistry principles. 2. Introduce and explain core topics, including chemical bonding, molecular structure, organic nomenclature, the reactivity of fundamental functional groups, and the chemistry of single, double, and triple bonds. 3. Explore organic molecules of biological and life-related significance, highlighting their roles and importance. 4. Establish a unified baseline of organic chemistry knowledge for all incoming first-year students, ensuring academic consistency and preparedness. 5. Develop students' practical and laboratory skills in organic chemistry, enabling them to apply theoretical concepts through hands-on experimentation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student will be able to identify, classify, and systematically name organic compounds based on their molecular structure, functional groups, and the IUPAC nomenclature rules for alkanes, alkenes, and alkynes. 2. The student will be able to describe the nature of bonding in organic molecules and explain how different types of bonds influence molecular geometry and three-dimensional structure. 3. The student will be able to explain the key factors that affect the reactivity of organic molecules, including functional groups, steric effects, and electronic effects. 4. The student will be able to describe the physical and chemical properties of alkanes, alkenes, and alkynes, as well as their methods of preparation and characteristic reactions. 5. The student will be able to apply knowledge of organic molecular structure, bonding, reactivity, and functional groups to predict reaction outcomes and solve fundamental problems in organic chemistry.

Indicative Contents المحتويات الإرشادية	1. Structure and bonding in organic molecules: 2. An introduction to molecular structure, including bond types, bond polarity, and the three-dimensional shapes of organic molecules, and how bonding influences molecular stability and behavior. 3. Functional groups: 4. Classification of organic compounds based on functional groups, with emphasis on how specific atomic arrangements determine characteristic chemical and physical properties. 5. Nomenclature: 6. Principles of systematic organic nomenclature, including the IUPAC naming rules used for clear and consistent identification of organic compounds. 7. Isomerism: 8. Types of isomerism in organic chemistry, including structural and stereoisomerism, and how different atomic arrangements or spatial orientations result in distinct chemical properties. 9. Organic reactions: 10. Fundamental concepts of organic reactions, focusing on reaction types, reaction mechanisms at the molecular level, and factors affecting reaction pathways. 11. Stereochemistry: 12. The study of the three-dimensional arrangement of atoms in organic molecules and its effect on molecular properties, reactivity, and biological interactions.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The primary approach to delivering this unit focuses on promoting active student engagement through regular homework assignments that encourage analysis and critical thinking. Learning will be supported through interactive lectures and tutorial sessions, alongside simple, guided experiments that introduce basic sampling activities aligned with students' interests to reinforce conceptual understanding and practical skill

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	135	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

		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	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	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	Synthesis of alkanes
Week 9	Alkenes: nomenclature and physical properties
Week 10	Synthesis of alkenes
Week 11	Reactions of alkenes
Week 12	Alkynes: nomenclature and physical properties
Week 13	Synthesis of alkynes
Week 14	Reactions of alkynes
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	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	Lab 7: Determination of melting point and boiling point
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	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.	No
Websites	https://www.khanacademy.org/science/organic-chemistry https://www.masterorganicchemistry.com/	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي