

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : Science

اسم الكلية:

Name of Department: Chemistry

اسم القسم العلمي:

Course Name	Applied Organic Chemistry: Spectroscopy	اسم المقرر
Course No.	CHEM 452	رقم المقرر
No. of Credits	3	عدد الوحدات
Theoretical Hours	3	عدد الساعات النظرية
Practical Hours	0	عدد الساعات المحلّة
Course topics	مواضيع المقرر	
Mass spectrometry, Infrared Spectroscopy, Nuclear Magnetic Resonance Spectroscopy.		
Text book: (Name, Author , Year , Publisher)	عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)	
R. M. Silverstein & F. X. Webster, Spectrometric Identification of Organic Compounds, Wiley, 8th Edition, 2014.		
References: (Name , Author , Year . Publisher)	عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)	
D. L. Pavia, G. M. Lampman, G. S. Kriz and J. R. Vyvyan, Introduction to Spectroscopy, 5th Edition, 2013.		

Prerequisites CHEM 355		متطلبات المقرر			
Grading	Exams		%		الاختبارات
	Quizzes		%		امتحانات قصيرة
	H.W.		%		واجبات
	Project (field study)		%		مشاريع (دراسة ميدانية)
	Final		%		الاختبار النهائي
آلية رصد المقرر					

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Chapters included:

Chapter	Topic	Sections Included	Sections Excluded
CH.1	MASS SPECTROMETRY	All	
CH.2	INFRARED SPECTROSCOPY	All	
CH.3	PROTON (1H) MAGNETIC RESONANCE SPECTROSCOPY	All	
CH.4	CARBON-13 NMR SPECTROSCOPY	All	
CH.5	TWO-DIMENSIONAL NMR SPECTROSCOPY	All	
CH.7	SOLVED PROBLEMS*	All	
CH.8	ASSIGNED PROBLEMS*	All	

Course objectives					
No.	Course Objectives (Learning Outcomes)	Example(s) of relevant (Topics and activities)	Recommended Level to satisfy the objectives		
			High	Medium	Low
1	To introduce the concept of Mass Spectrometry, basic theory, different instrumentation, techniques used in mass spectroscopy, and mass spectral fragmentation of organic compounds.		X		
2	To introduce the basics of IR spectroscopy, interpretation of IR spectra, Infrared absorption, and characteristic vibrational		X		

	frequencies of different functional groups.				
3	To introduce the basic theory and techniques of nuclear magnetic resonance (NMR).			X	
4	To introduce in detail the development of ¹³ C NMR techniques.		X		
5	To introduce advanced NMR techniques including two-dimensional experiments.			X	
6	To combine and integrate the different spectral data to assign and/or confirm the structure of complex organic molecules.		X		
Fields					
Skills					
Coordinator (Name and Rank) :	Convener of the organic chemistry				
Signature and stamp :					
Date:	11\ 11 \2025				