

## CHEM 333 Syllabus

Course Code	Course Name	Credits	Prerequisite(S)	Classification
<b>CHEM 333</b>	Spectroscopy of Organic Compounds	3	CHEM 232	Department Requirement

<b>Course Description</b>	<p>Teaching the methods of spectroscopic analysis and their applications in organic chemistry. Scientific contents for this course are:</p> <p>Learning how to use and apply electronic spectroscopy, Infrared spectroscopy, nuclear magnetic resonance spectroscopy and mass spectroscopy.</p> <p>Employing these spectroscopic methods to determine the structural and stereo formulas of organic compounds.</p>
---------------------------	--

<b>Class Scheduling</b>	Classes are held 2 times/week each for 50 minutes. Labs are held 1 time/week for 150 minutes.
-------------------------	---

<b>Textbook</b>	<p>Introduction to spectroscopy, D.L.Pavia, G.M.Lampman, G.S.Kriz, 3rd Ed., 2000.</p> <p>Spectroscopic analysis In Organic Chemistry, M. Abdul-Mogeeb, T. Sobahi, S. Basaif and A. Asiri, 1<sup>st</sup> Ed., 2004</p>
-----------------	--

<b>Course Coordinator</b>	<p>Prof. Tariq R. Sobahi</p> <p>Dr. Hajer Alorfi</p> <p>Dr. Nahed Bawakid</p>
---------------------------	---

Relationship to SOs	1	2	3	4	5	6
	X	X			X	

<b>CLOs</b>	<p>By the end of this course student will be able to:</p> <p>CLO1. Recognize the spectroscopic methods to determine the structural and stereo formulas of organic compounds. (SO1)</p> <p>CLO2. Identify the spectra of each spectroscopic methods. (SO1) CLO3. Explain the Factors affecting of spectroscopy. (SO1)</p> <p>CLO4. Calculate the Unsaturation # of M.F of organic compounds. (SO2)</p> <p>CLO5. Discuss and analyze lots of spectroscopy problems and applications, in practical session, to deduce the structural of organic compounds. (SO2)</p> <p>CLO6. Illustrate effective oral skills and writing skills. (SO5)</p>
-------------	---

<b>Contents</b>	<table> <tr> <th>List of Topics</th><th>No. of Weeks</th></tr> <tr> <td>Introduction to the course and electronic absorption</td><td>1</td></tr> </table>	List of Topics	No. of Weeks	Introduction to the course and electronic absorption	1
List of Topics	No. of Weeks				
Introduction to the course and electronic absorption	1				

	UV spectroscopy	2
	IR infrared spectroscopy	2
	NMR Nuclear magnetic resonance spectroscopy	5
	Mass spectroscopy	2
	Applications and analysis of organic compounds spectra	1
	General Revision & Quizzes	2
	Total	15
	Laboratory Section: Calculate Un # of M.F of organic compounds. IR Spec, Identification of functional groups bands of aliphatic olefinic, aromatic and carbonyl compounds, $^1\text{H}$ NMR spectroscopy, Factors effecting chemical shift of $^1\text{H}$ NMR Spectroscopy, Splitting signals spectra, (n+1) rule, Determination of structural formula of organic compounds by IR and NMR spectra, $^{13}\text{C}$ NMR spectroscopy, mass spectroscopy, Problems of MS Spectra of organic compounds, Applications and problems of IR, $^1\text{H}$ NMR $^{13}\text{C}$ NMR and Ms spectroscopy.	15