

University of Al-Anbar

College of Pharmacy

Department of Pharmaceutical Chemistry

Title of the course: *Advanced Pharmaceutical Analyses* **Course number: 5210**

Level: 5th Class, 2nd Semester

Credit hours: **Theory 3 hours Laboratory 1 hour**

Tutors:

Reference text: *1. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill; Latest edition. 2. Applications of absorption spectroscopy of organic compounds by Dyer JR; Latest edition. 3. Organic Chemistry by McMurry; Thomason learning CA, USA; Latest edition.*

Objectives: To study spectrometric methods used for identification and characterization of organic compounds, including UV, IR, MASS and NMR spectroscopy; it enables students to understand the applications of these techniques for qualitative and quantitative analysis of organic compounds.

No	Lecture title	hours
1.	UV / visible spectroscopy; Sample handling and instrumentation; Characteristic absorption of organic compounds; Rules for calculation of lambda max and application; Application of UV/visible; spectroscopy; Problems and solutions.	10
2.	Infra Red spectroscopy (theory and H-bonding effect; Sampling techniques and interpretation of spectra; Characteristic group frequencies of organic compounds; Application of IR spectroscopy; Problems and solutions.	14
3.	H ¹ –Nucleomagnetic Resonance (NMR) and C ¹³ -NMR spectroscopy; Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H ¹ -NMR spectroscopy; C ¹³ -NMR spectroscopy: introduction and characteristics, DEPT C ¹³ -NMR spectroscopy.	12
4.	Mass spectroscopy: Introduction and interpreting Mass spectra; interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.	9