

معلومات المقرر * (Course Information):

اسم المقرر:	كيمياء التحليل الطيفي والكهربي
رقم المقرر:	CHM413
اسم ورقم المتطلب السابق:	كيمياء كهربيه CHM 334
اسم ورقم المتطلب المرافق:	لا يوجد
مستوى المقرر:	المستوي السابع
الساعات المعتمدة:	3
Module Title:	Spectroscopic and electric analysis
Module ID:	CHM413
Prerequisite:	Electrochemistry- CHM 334
Co-requisite:	None
Course Level:	7th level
Credit Hours:	3

Module Description

وصف المقرر:

This course is an introduction to the theoretical background and practical use of modern instruments in the analytical laboratory. Emphasis is on the operational principles and application of instrumental methods for quantitative determination of chemical compounds. The course describes the scientific and operational principles of the spectroscopic and electrical methods, the operation of different instruments used in these methods, the calculation of analyte concentrations and uncertainty from typical measurements and evaluation of results of measurements using figures of merit and/or knowledge of noise and common interferences

Module Aims

أهداف المقرر:

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| 1 | Recognize the importance and basis for analysis of electrical equipment, including analysis methods and Potential Calorimetric, Voltammetry and Amperometry. |
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2	Studying the principles of spectrum	٢
3	Identify the different types of spectrum: UV, Vis, nmr	٣
4	Studying the Methods of molecular spectroscopy and atomic spectroscopy.	٤
5	Studying the practical ways for different spectrum measurements	٥

Learning Outcomes:

مخرجات التعليم:

1	1-1 Identify the basic principles of the electrolytic methods include Potentiometric analysis, colorimetric analysis, gravimetric analysis and Electrolytic analysis. 1-2 Describe the spectral analysis methods include visible spectroscopy	١
2	2-1 -Performing different types of molecular spectroscopy and atomic spectroscopy. 2-2 Solving different exercises and questions concerning with spectroscopic and electric analysis. 2-3 writing lab reports	٢
3	1-3 Group working in the lab and in introducing presentation and writing reports 2-3 Show competence and ability in, mathematical and problem-solving skills	٣
4	1-4 Communicate effectively in oral and written form. 2-4 Using different web sites in chemistry, group learning and problem solving.	٤
5	Demonstrate good and safe handling of laboratory chemicals, glassware and equipment during experiments	٥

Course Contents

محتوى المقرر :

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
6	2	General introduction in the electrolytic methods include Potentiometric, coulometric and gravimetric analysis and Electrolytic
6	2	Amperometry and voltammetry titration
3	1	Introduction to the spectral analysis methods include visible spectroscopy.
3	1	Components of Optical Instruments: Sources of radiation, wavelength





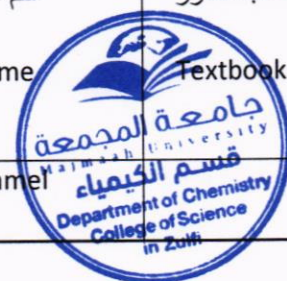
		selectors, signal processor
6	2	Introduction to Spectrophometric methods: Properties of electromagnetic radiation, UV-Visible and IR Molecular Absorption Spectroscopy.
3	1	Applications of UV-Visible Molecular Absorption Spectrophotometry
3	1	Optical Atomic Spectroscopy
3	1	Atomic Absorption and Fluorescence
3	1	Atomic Emission Spectroscopy
3	1	Applications of Infrared Spectroscopy
3	1	Methods of molecular spectroscopy.
3	1	Methods of atomic spectroscopy.

8	4	Practical part Different experiments using UV-visible spectrophotometre
4	2	Demonstration of solvent effects on florescence spectra of fluorophore
4	2	Atomic absorption spectroscopy for determination of metals
4	2	pH effects on absorption spectra: pka determination by spectrophotometric method
2	1	Determination of molar absorptivity of a light absorbing molecule
2	1	Verification of beer-lambert law
2	1	Determination of unknown concentration of an analyte by using beer-lambert law

Textbook and References:

الكتاب المقرر والمراجع المساندة:

ISBN	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
3d. addition	1425	Alkeregy	Ibrahim Al-Zamel	



صفحة ٣ من 3



	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
liparary				Instrumental Analysis Chemistry
2d. addition	1994.	John Wiley and Sons ,Inc New York,London	Silverstein and G . Gayton Bassler	spectrometric identification of organic compounds
ISBN;0470859040,978070859049	2007	,John Wiley and SONS	Francis Rouessac,Annick Rouessac	Chemical analysis :modern instrumentation methods and techniques
ISBN;0495012017,978- 0495012016	2006	Brooks Cole;	D.A.Skoog,F.J.Holler,SR.Crouch	Principles of instrumental analysis

* يتم تعبئة معلومات المقرر فقط باللغتين العربية والانجليزية وباقي المعلومات بلغة التدريس المعتمدة ويكرر لكل مقرر في الخطة الدراسية

* Course Information should be filled in Arabic and English. Other information should be filled using the approved teaching language at the college.



