بسم الله الرحمن الرحيم

Republic of Iraq

The Ministry Of Higher Education

& Scientific Research

University: Baghdad
College: College Science for women
Department: Chemistry
Stage:4th
Lecturer name: Dr. Saadiyah Ahmed Dhahir
Qualification: PhD in Analytical chemistry
Place of work: College of Science for Women

Syllabus Form

Instructor Name	Dr. Saadiyah Ahmed Dhahir				
E-mail	sadiataher@yahoo.com sadiataher@csw.uobaghdad.edu.iq				
Course Title	Instrumental analysis and spectroscopy				
Course Coordinator					
Course Objectives	▪ Demonstrate knowledge of sampling methods for all states of matter. ▪ Recognize interferences in instrumental analysis. ▪ Comprehend the concept of and perform instrument and method calibration. ▪ Apply and assess concept of availability and evaluation of analytical standard and formulate standardization methodology. ▪ Integrate a fundamental understanding of the underlining physics principles as they relate to specific instrumentation used for electro analytical methods, atomic and molecular, spectrometry chromatography and thermal analysis. ▪ Understand and be able to apply the theory and operational principles of analytical instrument. ▪ Distinguish between qualitative and quantitative measurements and be able to effectively compare and critically select methods for elemental and molecular analyses.				
Course Description	This course describe the basic principles and the instrumental design of a variety of analytical techniques, including:, spectrochemical (molecular and atomic), chromatographical, of analysis and covers the instrument of thermal analysis and electrochemistry with basic electronics and signal-to-noise enhancement .				
Textbook	▪ Douglas A. Skoog ,James Holler, Stanly R. Crouch., "Principles of instrumental analysis" 7th Edition, 2007 .				
References	▪ Douglas A. Skoog ,James Holler, Stanly R. Crouch., "Principles of instrumental analysis" 7th Edition, 2007 . ▪ D.C. Harris, "Quantitative Chemical Analysis", 6th edition,2003. ▪ Understanding Chemistry, Instrumental Analysis 2008 ▪ John Kenkel ,"Analytical Chemistry for Technicians". Third Edition,2003.				
Course Assessments	**Term Tests**	**Laboratory**	**Quizzes**	**Project**	**Final Exam**
	As(26%)	As(12%)	As(2%)	-	As(60%)
General Notes	Define and Identify appropriate instrumental methods for certain chemical analysis and their application in for quantitative and qualitative for different chemical compounds				

Republic of Iraq

The Ministry Of Higher Education

& Scientific Research

University :Baghdad
College: : College Science for women
Department: Chemistry
Stage:4th
Lecturer name: Dr. Saadiyah Ahmed Dhahir
Qualification: PhD in Analytical chemistry
Place of work: College of Science for Women

Course Weekly Outline

Week	Date	Topes Covered	Lab. Experiment Assignments	Notes
1	30/9/2015	Introduction of Instrumental analysis	Preparations and Discussions	
2	7/10/2015	Statistical analysis Error Analysis and propagation	Preparations and Discussions	
3	14/10/2015	Classification of analytical methods	Determination of percent relative standard deviation	
4	21/10/2015	Electromagnetic radiation , Spectral Regions,- the interaction of radiation with the material - the absorption and emission of radiation by atoms and molecules	A. spectroscopic estimation iron	
5	28/10/2015	UV-Visible Luminescence spectroscopy, Fluorescence	B. Nickel estimate	
6	4/11/2015	phosphorescence (photoluminescence), Chemiluminescence	Quantitative analysis of benzoic acid using UV spectrum, part 1	
7	11/11/2015	First Exam	Quantitative analysis of benzoic acid using UV spectrum ,part 2	
8	18/11/2015	Instrumentation for optical spectroscopy	An assessment of iron Flow photometric Titration an indirect method	
9	25/11/2015	Methods of molecular absorption in the visible and ultraviolet – Beer's law and deviations from Beer's law	Conductometric titrations for acid weak with base strong	
10	2/12/2015	Flame photometry, , instrumentation, application Spectrophotometric Titrations	Spectrophotometer determination of formula structure of Complexes 1 – Mole- Ratio methods	
11	9/12/2015	Calibration of Instrumental analysis	2 – continuous variation	
12	16/12/2015	Chemical Application of UV-Visible Spectra	3 – Slope- Ratio methods	
13	23/12/2015	Fundamentals of Infrared spectroscopy	Infrared spectra of Alcohols	

			and carboxylic acids compounds	
14	30/12/2015	Instrumentation of Infrared spectroscopy	Infrared spectra of aliphatic and aromatic Amines and Amide compounds	
15	13/1/2016	Chemical Application of Infrared Spectra	Oral Exam of Lab. Experiment	
16		Second Exam	Theoretical Exam of Lab. Experiment	
Half – year break				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Instructor Signature: **Dean Signature:**

Prof .Assist. Dr. Saadiyah Ahmed Dhahir **Prof. Dr. Ahlam Mohammad Farhan**