Republic of Iraq
The Ministry of Higher Education & Scientific Research

University: ALmuthana
College: Sciences
Department:Chemistry
Stage: fourth
Lecturer name:Hasan Sabih
Academic Status: profissor
Qualification: Dectorate
Place of work:Colloge of Science

Course Weekly Outline

Course Instructor	Hasan Sabih Jabir				
E_mail	**hassansabih87@mu.edu.iq**				
Title	Quantum chemistry				
Course Coordinator	First semester				
Course Objective	**Study of the Quantum chemistry structure atomic and molecular and relation properties chemistry and rise of different state such as Bonds and Formation compounds different and chemical reaction.** **The Quantum chemistry is one of the most important for study of the relationship between molecular energy and structure and energy change by chemical reaction or reaction between molecular.**				
Course Description	**The study mathematical fundamental and physical such as function, coordinate system, complex number, and operators then explain classical mechanic which include Lagrangian equation and Hamlton. After that study Quantum theory such as Black-body radiation and photoelectric effect and atomic states , also explain study Quantum mechanic include Dirac representation, and schrodinger representation , then explain schroding ger equation applications , then study approximation methods in Quantum chemistry variation methods and perturbation methods.**				
Textbook	**1- Quantum chemistry and molecular spectroscopy.** **Dr. Kais A.K. Ibrahim 1988** **2- Principles of Quatum mechanic** **Dr. Salam.M. Kalil 1982** **3- fundamental of quantum chemistry and spectrum** **Dr. Essam. A. 1990.**				
References	**1- Quantum mechanism chemistry, M.W.Hanna. 1981** **2- Spectrometric Identification of organic compounds. R.M.Silverstien.**				
Course Assessment	Term Tests	**Laboratory**	Quizzes	Project	Final Exam
	(40%)			----	(60%)
General Notes	Type here general notes regarding the course				

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Course weekly Outline

week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1	2/10/2022	Chapter one Mathematic fundamental and physical, Function,Differential,complex number,opeartors ,		
2	9/10/2022	Eigen value eqution,coordinate system		
3	16/10/2022	Chapter two/ classical mechanics, conservative system, Newton's laws of Dynamic ,		
4	23/10/2022	,Lagrang eqution and Hamilton eqution		
5	30/10/2022	Chapter three/The origin Quantum theory 1-black-body radiation		
6	6/11/2022	Oscillator energy varge Application of black body radiation.		
7	12/11/2022	2-Potoelectroc effect and Application,		
8	20/11/2022	3-Atomic spectra Ioniczation energy		
9	27/11/2022	Chapter. four/ Quantum mechanics, Schrodinger Equation,		
10	4/1/2022	Exposition function according schrodinger, maxborn		
11	11/12/2022	Pastulate for Quantum 1 and 2		
12	18/11/2022	Hermitm(OP)properties. pastulate 3.4.5		
13	25/12/2022	Functio Linear combination Exact solutio of schrodinger equation 1-free partical 2-partical in box		

14	**2/1/2023**	3-partical out put the box Body in 2D box		
15	**9/1/2023**	**Hydrogen atom and same hydrogen atom Theories Approximation**		
Half-year Break				
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Dean Signature:

Instructor Signature: