



Course Specifications

Institution:	Zulfi college of education .
Academic Department	Physics Department
Programme :	Physics Department
Course :	Quantum Mechanics (1)
Course Coordinator :	Dr.Nagwa Ibrahim.
Programme Coordinator :	Dr.Nagwa Ibrahim..
Course Specification Approved Date :	12./ 2 / 1437 H <input type="checkbox"/>



A. Course Identification and General Information

1 - Course title : ... Quantum Mechanics		Course Code: PHYS311	
(1).			
2. Credit hours		(3hours)	
<input type="checkbox"/>			
3 - Program(s) in which the course is offered:		.....physics	
... <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
4 - Course Language :		.....Arabic.....	
<input type="checkbox"/>			
5 - Name of faculty member responsible for the course: ...Dr.Nagwa Ibrahim..			
6 - Level/year at which this course is offered :		...Fivth. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<input type="checkbox"/> <input type="checkbox"/>			
7 - Pre-requisites for this course (if any) :			
• PHYS 221 - PHYS 224			
8 - Co-requisites for this course (if any) :			
• <input type="checkbox"/>			
9 - Location if not on main campus :			
(.....) <input type="checkbox"/>			
10 - Mode of Instruction (mark all that apply) <input type="checkbox"/>			
A - Traditional classroom <input type="checkbox"/>	<input checked="" type="checkbox"/>	What percentage? <input type="checkbox"/>	100..... % <input type="checkbox"/>
B - Blended (traditional and online) <input type="checkbox"/>	<input type="checkbox"/>	What percentage? <input type="checkbox"/> % <input type="checkbox"/>
D - e-learning <input type="checkbox"/>	<input type="checkbox"/>	What percentage? <input type="checkbox"/> % <input type="checkbox"/>
E - Correspondence <input type="checkbox"/>	<input type="checkbox"/>	What percentage? <input type="checkbox"/> % <input type="checkbox"/>
F - Other	<input type="checkbox"/>	What percentage? <input type="checkbox"/> % <input type="checkbox"/>
Comments :			
..... <input type="checkbox"/>			

B Objectives

What is the main purpose for this course? **Introduce students to: the principles of quantum mechanics, behavior waveform and beams of particles and interpretation of probabilistic function wave and equation Schrödinger equation, equation Hydrogen in one dimension, effects in quantum mechanics, the theory of angular momentum, the equation**





Hodnger of a particle in three dimensions and the hydrogen atom, determined angular momentum , perturbation theory of independent time

Briefly describe any plans for developing and improving the course that are being implemented :

The use of interactive lecture halls

...



C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
The principles of quantum mechanics,	1	3
Follow the principles of quantum mechanics	1	3
Waveform behavior	1	3
The beams of the particles and the probabilistic interpretation of the wave function	1	3
Schrödinger equation	1	3
Hydrogen equation in one dimension	1	3
Theory of angular momentum	1	3
Effects in quantum mechanics,	1	3
Hydrogen equation for a particle in three dimensions	1	3
Hydrogen quation independent of time	1	3
Perturbation theory	1	3
Angular momentum and spin	1	3

2. Course components (total contact hours and credits per semester):

<input type="checkbox"/>	Lecture	Tutorial	Laboratory	Practical	Other:	Total





Contact Hours	45 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	45. <input type="checkbox"/>
Credit	45. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>45. <input type="checkbox"/>

3. Additional private study/learning hours expected for students per week.

.3hours.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Recognize the importance of modern physics.	Debate and discussion within the classroom tests.	Tests.
1.2	Identify some of the important aspects and applications of quantum physics.	Give explanations examples for the Anterior lectures	Give the student calendar questions after each lecture
١, ٣	Identify the theoretical foundation for Theoretical Physics.	Scientific activities and cooperation within the halls	Responding to the student by the cost of duties
2.0	Cognitive Skills		
2.1	The student learns the principles of quantum mechanics,	Debate and discussion within the classroom tests.	Give the questions to see how the student's understanding
2.2	The student should be able to solve the Schrodinger equations	Debate and discussion within the classroom tests.	Give the questions to see how the student's understanding
٢, ٣	To know the importance of modern physics in the development of modern scientific	Debate and discussion within the classroom	Give the questions to see how the student's



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		tests.	understanding
3.0 Interpersonal Skills & Responsibility			
3.1	Division students to groups to conduct joint research group	Commissioning analysis and interpretation of research in the ring discussion for, discuss the collective search.	Know the contribution of each student in the interpretation and analysis of search through dialogue and discussion.
3.2	Skills take responsibility and lead the team	Assigning some students, to lead research groups.	Know the contribution of each student's leader of the team through dialogue and discussion.
4.0 Communication, Information Technology, Numerical			
4.1	Ability to use the World Wide Web in search of the latest findings of modern science	.....	.....
4.2	- Ability to use computers in research writing and presentation using power point	.....	.....
٤,٣	use - The computers in the provision of research and scientific reports required	.....	.....
٤,٤	- use the modern techniques in scientific research	.....	.....
٤,٥	- The ability to analyze research information required	.....	.....
٤,٦	.....	.....	.....
5.0 Psychomotor			
5.1	.not require in this course .	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	. Test Mid term .	Seventh week.	..20%.
2	..Final test	.fifteenth week.	.. 40%





3	quiz + home works		.40%
---	-------------------	--	------





D. Student Academic Counseling and Support

Is providing consultancy and academic advice to students where there is a professor in office hours to 4 hours per week

E. Learning Resources

1. List Required Textbooks :

..Quantum Physics, By: Stephen Gasiorowicz, 3rd edition, Wiley, 2003
ISBN:978-471-05700

2. List Essential References Materials :

..Quantum Physics, By: Stephen Gasiorowicz, 3rd edition, Wiley, 2003
ISBN:978-471-05700

3. List Recommended Textbooks and Reference Material :

.. introduction to **Quantum Mechanics**, David J. Griffiths (2nd Ed. 2004).

4. List Electronic Materials :

. Quantum Mechanics

-
-

5. Other learning material :

- **Attend lectures related**
- **Attend workshops and conferences**
-
-

. Facilities Required

1. Accommodation

Classrooms capacity of 50 student

2. Computing resources

- **Hall of interactive.**





<ul style="list-style-type: none">••
3. Other resources <ul style="list-style-type: none">•••

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching: <ul style="list-style-type: none">•••
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor : <ul style="list-style-type: none">•••
3 Processes for Improvement of Teaching : <ul style="list-style-type: none">•••
4. Processes for Verifying Standards of Student Achievement <ul style="list-style-type: none">•••
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement : <ul style="list-style-type: none">•••

Course Specification Approved
Department Official Meeting No (four) Date 12 / 2 / 1437 H





Course's Coordinator

Name : Nagwa Ibrahim.

Signature :

Date : 15/ 2 / 1437 H

Department Head

Name : Nagwa Ibrahim.

Signature :

Date : 15/ 2 / 1437 H

