NEAR EAST UNIVERSITY – COMMON COURSES COORDINATION UNIT

Department of Materials Science and Nanotechnology Engineering
Course Information Sheet & Course Outline
2021-22 Spring Semester

Course Code	Course Name	Credit	ECTS
PHY201	Introduction to Quantum Physics	4	6

Pre-requisite: PHY102, MAT102

Language: English	Course Type:Must	Year: 2	Semester:4

Weekly Hours	Class Hours	Laboratory	Practicum	Learning Sessions			
				PS	C	R	T
	3	-	-	1	1	1	1

Learning Outcomes	After the completion of this course, the student will be able to ► Use of evaluation criteria for an assessment of quantum physics ► Demonstrate and reconstruct a specific quantum physics problems ► Apply quantum physics principles for verification of the problems ► Analyze variables of quantum physics problems
Course Description	Black body radiation, Photoelectric effect, The Comptom effect, Wave packets and uncertainty relations, The Schrödinger equation, free particle equation, Eigenfunctions and eigenvalues, the energy eigenvalue equation, particle in a box, one dimensional potentials
Course Objectives	• To provide a student with the necessary tools for the critical evaluation of existing and future quantum phenomena • To teach the concepts and principles of constructions of quantum physics • To enable a student to evaluate and choose a quantum physical tools to match the problem

Textbooks and/or References		
	1	Quantum physics Written by Stephen Gasiorowicz
	2	Introduction to quantum mechanics Written by David J. Griffiths
	3	
	4	
	5	
Course Content		
Methods and Techniques Used in the Course	Face to Face	

WEEKLY OUTLINE

Week	Date	Topic	Activities	Reference
1	14 February-18 February	**Introduction to Classes**		
2	21 February-25 February	Introduction, Black body radiation		1
3	28 February - 4 March	Photoelectric effect, The Comptom effect		1
4	7 March -11 March	Photoelectric effect, The Comptom effect,		1
5	14 March - 18 March	Wave packets and uncertainty relations		1
6	21 March -25 March	Wave packets and uncertainty relations		1
7	28 March -1 April	The Schrödinger equation		1
8	4 April- 8 April		Midterm Exams	1
9	11 April- 15 April	The Schrödinger equation		
10	18 April- 22 April	free particle equation		1
11	25 April - 29 April	Eigenfunctions and eigenvalues, the energy eigenvalue equation		1
12	2 May- 6 May	Eigenfunctions and eigenvalues, the energy eigenvalue equation		1
13	9 May- 13 May	one dimensional potentials		1
14	16 May- 20 May	one dimensional potentials		1
15	23 May- 27 May	The potential Barriers		
16	30 May – 8 june	Final Exams		

Attendance: Minimum 70 %

Assessment Breakdown		Type	%	Reference/Source	Relevant Competencies
	1	Homeworks (4)	20	1	
	2	Mid-term (4)	35	1	
	3	Final	45	1	
	4				
	5				

Learning Program

Educational Tool	Amount	Student Work Load(Hours)	Educational Tool	Amount	Student Work Load(Hours)
Course duration in live lecture	15	15*4=60			
Assignment					

Midterm	1	1*24=32			
Homeworks	4	4*2=12			
Self study	4	4*8=28			
Final	1	1*48=48			
			Total	141	
		Recommended ECTS Credit (Total Hours / 30):	**172/30 = ~6**		