Name of the	College: Governme	ent College of Arts	<mark>s, Science a</mark>	nd Commerce. Sanquelim -	Goa		
Name of Fac	ulty: Vidhita Parab			Subject: Physics			
Paper code:	PYD101			Program: T.Y.B.Sc		Division:	
Academic ye	ear: 2024-25			Semester: V		Total Lectures	: 60
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ourse Obj							
5 unucista			obicitis and	d apply concept to higher le	vereoneeptuar	physics	
ourse Outc	ome: I. Explain inc	e concept of matte	er and state	P De Broglie hybothesis Des	Crine experime	inis in subbori d	nt De Broglie
ypothesis. . describe t	he concept of wave	function, accepta	able wave f	e De Broglie hypothesis. Des unction, max born interpret			-
ypothesis. . describe t elocity, par	he concept of wave ticle and phase velo	function, accepta ocity. Heisenberg's	able wave f s uncertain	unction, max born interpret	tation of wave	function, wave	group, group
ypothesis. . describe t elocity, par . Develop s igen functio	he concept of wave ticle and phase velo chrodinger's time d ons.	function, accepta ocity. Heisenberg's ependent wave e	able wave f s uncertain quation and	unction, max born interpred ity principle. d hence explain the concept	tation of wave	function, wave	group, group rs, eigen value and
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			Review of the bohr's postulate about stationary states in the light of De broglie's hypothesis The concept of quantum nature of radiation Demonstration of wave nature of particles- Davission germer experiment electron diffraction experiment of G.P.Thomson	 Arthur Beiser, Concepts of Modern Physics, 5th Edition, McGraw Hill (1995). Arthur Beiser, Perspectives of Modern Physics, 5th Edition, McGraw Hill (1995). P.S. Bangui & othere Nawy
08-07-2024	13-07-2024	4	Dual nature of radiation/matterComplimentary in DualityRepresentation of a De Broglie wave Velocity of De Broglie wave,Construction of a wave group, Wave packet and its motion in one dimension.,	 others, New Course in Physics, Sheth Publishers. 4. F.K. Richtmayer, E.H.Kennard, J.N. Cooper, Introduction to Modern Physics (1969). 5. H. Semat and J.R.Albright,
15-07-2024	20-07-2024	1 4	Group velocity and particle velocity Max Born ^s interpretation of the wave function, probability concept	Introduction to Atomic and nuclear Physics, HRW (1972). 6. Ghatak and Lokanathan, Quantum

				Acceptable wave function, Normalization of wave functionLimitation of wave mechanics to predict the physical state of a particle/system accuratelyHeisenberg Uncertainty	Mechanics, Theory and Applications, Mc Millan (2004).
	22-07-2024	27-07-2024	- 4	principle Illustration by thought experiments (γ - ray microscope)	
				single slit diffraction and double slit experiment	1. Arthur Beiser, Concepts of Modern Physics, 5th Edition,
			Applications of Heisenberg Uncertainty principle.	McGraw Hill (1995). 2. Arthur Beiser,	
August	29-07-2024	03-08-2024	4	Wave equation for De Broglie waves and Schrodinger's time dependent wave equation	Perspectives of Modern Physics, 5th Edition, McGraw Hill (1995).
				Concept of stationary states.	3. P.S. Bangui & others, New
				Schroedinger"s time independent equation	Course in Physics, Sheth Publishers.
				Postulates of Quantum mechanics,	4. F.K. Richtmayer,
	05-08-2024	10-08-2024		Definition of operators & their necessity	E.H.Kennard, J.N. Cooper,
			4	Expectation values,	Introduction to

12-0	08-2024	17-08-2024	4	Extraction of information from solutions in terms of expectation values of physical variables/observable Eigen value equation Commutation relations.		Modern Physics (1969). 5. H. Semat and J.R.Albright, Introduction to Atomic and nuclear Physics, HRW (1972). 6. Ghatak and Lokanathan, Quantum Mechanics, Theory and Applications, Mc Millan (2004).
				Infinite square well potential: Energy eigen functions and eigen values One dimensional finite square step potential of		 Arthur Beiser, Concepts of Modern Physics, 5th Edition, McGraw Hill
			4	height Vo: Comparison of classical and quantum mechanical results for particle energy E>Vo		(1995).2. Arthur Beiser, Perspectives of Modern Physics, 5th Edition,
19-0	08-2024	24-08-2024		One dimensional finite square step potential of height Vo: Comparison of classical and quantum mechanical results for particle energy E <vo< td=""><td></td><td>McGraw Hill (1995). 3. P.S. Bangui & others, New Course in Physics, Sheth Publishers. 4. F.K. Richtmayer,</td></vo<>		McGraw Hill (1995). 3. P.S. Bangui & others, New Course in Physics, Sheth Publishers. 4. F.K. Richtmayer,

September	26-08-2024	05-09-2024	4	Rectangular potential barrier and penetration through ittunnel effectQualitative discussion of alpha decaytunnel diodescanning tunneling microscopeSimple Harmonic Oscillator – Energy eigen values and eigen functions (Operator method)Simple Harmonic Oscillator – Energy eigen values and eigen functions (Operator method)Simple Harmonic Oscillator – Energy eigen values and eigen functions (Operator method)Calculation of <x> and <px>,</px></x>	E.H.Kennard, J.N. Cooper, Introduction to Modern Physics (1969). 5. H. Semat and J.R.Albright, Introduction to Atomic and nuclear Physics, HRW (1972). 6. Ghatak and Lokanathan, Quantum Mechanics, Theory and Applications, Mc Millan (2004).
September	02-09-2024	05-05-2024	4	<pre>calculation of <x> and <px>, Calculation of <x2> and <px2>. Particle in a three dimensional box Concept of degeneracy</px2></x2></px></x></pre>	
	13-09-2024	14-09-2024	0		
	16-09-2024	21-09-2024		Problem solving	
			-	Problem solving	
				Problem solving	
			4	Problem solving	1. Arthur Beiser, Concepts of
	23-09-2024	28-09-2024		Problem solving	Modern Physics,
			4	Problem solving	5th Edition,

				Problem solving	McGraw Hill
				Problem solving	(1995).
October	30-09-2024	05-10-2024		Problem solving	2. Arthur Beiser,
				Problem solving	Perspectives of
			3	Problem solving	Modern Physics,
	07-10-2024	12-10-2024		Problem solving	5th Edition, McGraw Hill
				revision	(1995).
				revision	3. P.S. Bangui &
			4	revision	others, New
	14-10-2024	22-10-2024		revision	Course in Physics,
				revision	Sheth Publishers.
				Revision	
			4	Revision	
	Component	Max Marks			
	ISA 1	10			
Assessment					
Rubrics	ISA 2	10			
	Practical				
	Project				
	Semester End				

Exam