	By Shri Pankaj Sarkar	
ecture Number	Plan of action	Students' participation
1	Recapitulation of vectors: Introduction to Vector, types, its importance	Revision and clearing doubts
2	Scalar Product, its geometrical significance, examples, applications	doing exercises
	Properties of vectors under rotations. Scalar product and its invariance	recapitulation and clearing
3	under rotations.	doubts
4	Vector Product, its geometrical significance, examples, applications	to perform the relevant tasks
5	Scalar triple product, its geometrical significance, relevant exercises concept of theia, Scalar theia, vector theia, their examples, introduction to	
6	the particial differentiation and vector operator	clearing doubts
7	Directional derivatives and normal derivative	
8	Gradient of a scalar field and its geometrical interpretation, exercises	clearing doubts
9	Divergence of a vector field and its geometrical interpretation, exercises	, ,
10	Curl of a Vector field and its geometrical interpretation, exercises	
11	Del and Laplacian operators. Vector identities.	
12	Vector identities continued	
13-14	Class Test - 1	
15	Concept of integration, Vector integration	
16	Ordinary Integrals of Vectors, Multiple integrals, applications	to perform the relevant tasks
17	Jacobian, its applications	
18	line integration-examples	
19	Surface integration, examples	clearing doubts
20	Application of surface integration	to perform the relevant tasks
21	Volume integration, examples	
22	Applications of volume integration	to perform the relevant tasks
23-24	Class Teest-2	
25	Flux of a vector field,	
26	Gauss's Divergence theorem, applications	clearing doubts
27	Application of Gauss's theorem continues	to perform the relevant tasks
28	Green's theorem, its applications	clearing doubts
29	Application of Green's theorem continues	to perform the relevant tasks
30	Stokes Theorems and its applications	clearing doubts
31	Applications of Stokes theorem continues	to perform the relevant tasks
32-33	Class Test-3	
	Introduction to Orthogonal Curvilinear Coordinates, scale factors, Covariant	
34	& Contravarient vector components determination of scale factors in Cartesian, Cylindrical and Spherical	clearing doubts
35	coordinate systems	
36	Derivation of Gradient, Divergence, del operator	
37	Derivation of curl, Laplacian	
	Del operator, Laplacian in	
38	Cartesian, Spherical and Cylindrical Coordinate Systems.	to perform the relevant task
39-40	Class Test-4	

Course	Name:	Classica	l Dynan	nics									
Course		BPHSDS											,
Module :			Dynamic	S									
Name of	the teach	er:	Dr. Sapt	arshi Cha	kraborty								
Alloted I	Lectures:		20	(Addition	al Tutoria	l Classes	Required	= 3)					
Objectiv	es of the n	odule:	Student	ts will be	able to an	swer the o	nuestions	related t	o normal	modes of			
										umericals			
							n them.						
				1				ı	1				
Class		Tonio	s to be C						+	+	Mod	e of Teac	hina
1	Minimo				ints of sta	ble equi	librium				WIOG	Online	ning
1	Millillia	or poterit	lai elleig	y and pol		ibie equi	I DI I UIII					Online	
2	Evnonci	on of the	notentio	l 1 enermy	around a	minimi	 m					Online	
	DAPAIISI	011 01 1110	Poterrua				<u> </u>					Omme	
3	Small ar	nnlitude	oscillatio	ns about	the mini	miim						Online	
	oman ar	ipiituut								+		Jiiiii	
4	Calculat	ions of fr	eanencie	es of norn	nal modes	s of oscill	lations of	N-oscil	lators sys	stem		Online	
<u>'</u>	Carcarat	10110 01 11		10000		3 01 00011		Tr oben		Jeenn		Omme	
T-1	One Tuto	rial Regu	ired to dis	scuss the	involved n	umerical	part					Online	
E-1			SENTATIO									Online	
		,											
5	Density	and pres	sure in a	fluid								Online	
6	An elem	ent of flu	id and its	s velocity								Online	
7	Continu	ity equat	ion and r	nass con	servation							Online	
8	Stream 1	ined mot	ion									Online	
9	Laminar	flow										Online	
1.0	D : '11			<u> </u>	11.1	1	<u>.</u>					0.11	
10	Poiseuill	e's equat	tion for a	flow of a	liquid th	rough a	pıpe					Online	
T-2	One Tute	riol Dogu	irod to die	young the	involved n	umorico1	nort					Online	
1-4	One ruic	mai Kequ				lumencar	par t					Omme	
11	Navier-S	tokes eq	uation									Online	
	1.0.101	- Janes oq					1					2	
12	Qualitat	ive descr	iption of	turbulen	ce							Online	
13	Reynold	s numbe	r									Online	
	<u> </u>												
T-3	One Tuto	rial Requ	ired to dis	scuss the	involved n	umerical	part					Online	
E-2			SENTATIO									Online	

Course	Name:		ELECTR	ICITY &	MAGNET	ISM			
Course			BPHSCC						
Module				ity & Mag	netism				
		her: Mou			5-1-0-1-1				
	Lectures:		60		al Tutoria	ı al Classes	Required	L = 10)	
moteu	Dectares.			(ridarcion	ar ratoric		required	10)	
Objectiv	ves of the	module.		ļ					
Objecti	ves or the			students					
				st importa	_				
				e to unde				_	
			oi matte	er and als	o a clear	idea abou	it electric	circuits	
Class		Topics	s to be C	overed					
1	Introduc			Electric fi	eld lines				Online
2	Electric f	lux,Gaus	s' Law						Online
3	Gauess'	Law with	application	ns to cha	rge distri	butions			Online
4	Charge d	istributio	n with sp	herical sy	mmetry				Online
			_		_				
5	Charge d	istributio	ns with c	ylindrical	symmetr	y			Online
6	Charge d	istributio	n with pla	aner symr	netry				Online
T-1	One Tuto	rial Requ	ired to di	scuss the	involved	<mark>numerica</mark>	l part		Online
7	Conserva	ıtive natu	re of elect	trostatic f	ield				Online
8	Electrost	atic Poter	ntial						Online
9	Laplace's	and Pois	sion's equ	ations					Online
10	The Uniq	ueness tl	neorem						Online
11	Potential	and elect	ric field c	f a dipole					Online
12	Force an	d Torque	on a dipo	le					Online
13	Electrost	atic Ener	gy of syst	em of cha	rges				Online
14	Electrost	atic Ener	gy of a ch	arged sph	iere				Online
T-2	One Tuto	rial Requ	ired to di	scuss the	involved	numerica '	1 part		Online
15	Conducto	ors in an	Electrosta	atic field					

16	Surface charge and Force on a conductor	Online
17	Capacitance of a system of charged conductors	Online
18	Parallel-plate capacitor	Online
T-3	One Tutorial Required to discuss the involved numerical part	Online
E-1	CLASS TEST/PRESENTATION/QUIZ	Online
19	Capacitance of an isolated conductor	Online
20	Uniqueness theorem	Online
21	Method of image and its application to plane infinite sheet	Online
22	Application of Method of image for a sphere	Online
T-4	One doubt clearing class	Online
23	Electric field in matter	Online
24	Polarization & polarization charges	Online
25	Electric susceptibility and Dielectric constant	Online
26	Parallel plate capacitor filled with dielectric	Online
27	Spherical and cylindrical capacitors filled with dielectrics	Online
28	Discussion on displacement vector	Online
29	Relations between E,P and D	Online
30	Gauss' law in dielectrics	Online
T-5	One Tutorial Required to discuss the involved numerical part	Online
E-2	Class Test on previous topic	Online
31	Magnetic Force between current elements and definition of Magnetic Fiel	d Online
32	Biot Savart's Law	Online
33	Application of Biot savart law	Online
34	Current loop as a magnetic dipole and it's dipole moment	Online

35	Ampere's Circuital L	l _aw and its applic	ation		Online
36	Calculation of B for	an infinite straigh	nt wire & a infinite	planar surface cur	Online
37	Solenoid and toroid				Online
	D .: 6D 1	0.5:			0.11
38	Properties of B: curl	& Divergence			Online
39	Axial vector property	v of B and its con	seguences		Online
39	Axiai vector property	y of B and its con-	sequences		Offinite
40	Vector potential and	l Magnetic Force			Online
	The state of the s				
41	Torque on a current	loop in a uniforn	n magnetic field		Online
T-6	One Tutorial Require	ed to discuss the	involved numerica	al part	Online
42	Magnetization Vecto	r & Magnetic Inte	ensity		Online
40	M 4: 0 4:1:	11:4 0 D 1:11:4			0.1
43	Magnetic Susceptibi	lity & Permeabilit	.y		Online
44	Relations Between B	2 H M			Online
	Relations Between L	5,11,101			Offiffic
45	Ferromagnetism ,B-	H curve and Hvst	eresis		Online
					0111110
T-7	One Doubt Clearing	Class			Online
46	Faraday's Law & Lei	nz"s Law			Online
47	Self Inductance				Online
10	26 . 1: 1				0.11
48	Mutual inductance				Online
49	Reciprocity theorem	Fnerm stored in	a Magnetic field		Online
 		, Divigy Stored II.	a magnetic neid		Omme
50	Introduction to Max	well's equations			Online
		1			-
51	Charge conservation	ı & Displacement	Current		Online
E-2	Class test on previou	us topics			Online
52	Kirchoff's Laws for A	AC circuits			Online
		1. 1			0.1
53	Complex resistance	and impedance			Online
54	Series LCR Circuit				Online
J4	Deries DCV Cilcuit				Omme
1				1	
55	Parallel LCR Circuit				Online

T-8	One Tutorial Required to discuss the involved numerical part	Online
56	Ideal constant voltage & constant current sources	Online
57	Network theorem: Thevenin theorem & Norton theorem	Online
58	Superposition theorem & Reciprocity theorem	Online
59	Maximum Power transfer theorem	Online
60	Applications to DC circuits	Online
T-9	One Tutorial Required to discuss the involved numerical part	Online
T-10	Doubt Clearing Session(Whole Chapter)	Online
E-3	Terminal Exam	Online

Course I	Name:	Mathem	atical Ph	ysics-II							
Course (Code:	BPHSCC		Ť							
Module 1	Name:	Mathem	atical Ph	vsics-II							
	the teach			tarshi Cha	krabortv						
	Lectures:	<u> </u>	28		al Tutoria	l Classes	Required	= 3)			
				(1144101011			lioquirou				
Objective	es of the n	odule.					<u> </u>		_!!		-
Objectiv			Studer	nts will be	able to sol	ve the pr	oblems or	the Pos	wer series so	olutions —	-
			Studer	itto wiii be		-	ecial integ		wer berieb be		-
									1		
	1										-
Class		Tonic	s to be C	overed						Mode of	Teaching
1	Singular			Order Linea	r Differen	tial Fana	tions and	their im	nortance	Mode of	Online
	Siligulai					nai Equa					Offinic
		<u> </u>			1		1				-
											Combin
2	Frohings	mothod o	and ita or	oplication t	to different	tiol cannot	ion				ed mode
	Fiobilius		Tilu its af			ilai cyuai	1011 				- Cu mouc
3	Legendre	Ressel I	 	and Laguer	rre differer	tiol equa	tions				Online
<u> </u>	Legenare	, Dessei, 1		T Laguer		mar cqua	10113				Omne
4	Propertie	s of Leger	dre Poly	 nomials: R	odrimaes I	Formula	 Generatin	g Funct	ions		Online
				rrence rela							Omne
		Polynom:			10113 06 122	spansion					
	Legenare	/ 1 01y110111.	lais								
5	Ressel fi	Inctions of	f First Izir	nd, Genera	ting funct	ion Simr	le recurre	nce rela	tion		Online
<u> </u>		Bessel fun		& Orthog		1011, SIIII _L	T Tecurre	TICC TCIA			Offinic
	20108 01 1	Jesser run		Of thos							
T-1	One dou	t bt clearing	r ologo								Online
E-1	_			ON/QUIZ							Online
E-1	CLASS I	LSI/PKL	SENTATI	T CN/QUIZ							Online
	Data and	Common	Errentine	s and relat	ion botus	o					Online
6	Beta and	Gaiiiiia I	r uncuon:	s and relat	lon betwe	en mem					Online
Т.О.	0	· 1 D	. 1. 1.						 		
T-2	One Tuto	oriai Requi	irea to di	scuss the	involved n	umerical	part				Online
——————————————————————————————————————	C	<u> </u>		1							0.1:
7	Error fur	nctions									Online
m 0	0				. , .		<u> </u>				
T-3				scuss the	involved n	umerical	part				Online
E-2	CLASS T	EST/PRE	SENTATI	ON/QUIZ							Online
_	<u> </u>	<u> </u>		1							
8	[Terminal	Exminati	ion								Online

Course I	Name:	Mecha	nics							
Course (Code:	BPHS	CCHC102							
Module 1	Name:	Oscilla	ations							
Name of	the teacher:	Dr. Sa	Dr. Saptarshi Chakraborty							
Alloted I	Lectures:	7	(Addition	al Tutoria	l Classes	Required	= 3)			
Objective	es of the mod		ents will be will also	able to an		-			ns. They	
Class		Topics to be							Mod	e of Teaching
1	Simple Harr	nonic Oscillat	ions (SHM)							Online
2	Differential	equation of SI	HM and its s	olution						Online
3	Kinetic ener	gy, Potential e	energy, Total	energy ar	nd their ti	me-avera	ge values			Online
T-1	One Tutorio	l Required to	discuss the	involved n	umerical	part				Online
E-1		T/PRESENTA			umericar	part				Offline
5	Damped osc	cillation								Online
T-2	One Tutoria	1 Required to	discuss the	i <mark>nvolved n</mark>	umerical	part				Online
6	Forced oscil	llations: Trans	ient and ste	l ady state						Online
7	Resonance 6	& sharpness o	of resonance							Online
8	Power dissip	pation and qua	ality factor							Online
T-3	One Tutoria	1 Required to	discuss the	involved n	umerical	part				Online
E-2		T/PRESENTA		02.03.11		T- C-C-				Online
9	Terminal Ex	in ation								Online
9	Terminal Ex	ammation								Oilline

Course I	Name:		Solid Sta	ate Phys	ics					
Course (BPHSCC							
Module l	Name:		Solid sta	ate physi	ics					
Name of	the teach	er:	Dr. Sapt	arshi Ch	akraborty	7				
Alloted I	ectures:		32	(Addition	nal Tutoria	al Classes	Required	l = 10)	6)	
							_			
Objective	es of the n	nodule:	Cirro the	atudont	s a clear &	dotoiled	idea abai	ıt one of	the most	
					a clear of p					
					tructure of	•				
					onse to ex					
				<u> </u>	T		T		1	
C1										
Class			s to be Co		1					0 11
1	Lattice vi	ibrations :	and Phon	lons						Online
	T . 34	<u> </u>	1 D.							0.1:
2	Linear M	onoatomi I	c and Dia	itomic Ch	iains T					Online
2	A	o1 on -1 O	tical Di-	1						Omline -
3	Acoustica	al and Op I	ucai Phoi	lions					 	Online
1	Ovalitati	La Dagaria		a Dhana	. Casatma	m in Colis	1.			Online
4	Quantan	ve Descri	рион ог и	ne Phono:	n Spectru: T	III III S0IIC	18			Online
5	Dulong	nd Dotitio	10***							Online
3	Dulong a	ınd Petit's I	law							Omme
6	Finatain	and Dobr	o theorie	of anosi	l fic boot of	colida on	d TA2 lorr			Online
0	Emstem	and Deby		s or speci	fic heat of T	sonus an	.u 1/3 iaw	v I		Omne
T-1	One Tute	riol Regu	ired to di	oouga the	e involved	numerica	1 part			Online
1-1	One rute					ilullici ica	i part			Omme
7	Sommerf	feld's free	electron t	theory of	l metals					Online
•										Omme
8	Free elec	tron gas i	n three d	ı imension	 S					Online
	1100 0100	lion gas i								O I I I I I
9	Fermi en	ergy, tem	perature,	velocity a	and mome	ntum				Online
			<u> </u>							
10	Concepts	of energy	y bands ii	n solids						Online
	<u> </u>									
11	Periodic	potential	and Bloch	theorem	n (proof no	t required	i)			Online
12	Qualitati	ve discus	sion on K	ronig-Per	nny model	and ener	gy band s	tructure		Online
13	Conducte	or, Semice	onductor	(P & N ty	pe) and In	sulator				Online
14	Conducti	ivity of me	etal and s	emicond	actor					Online
T-2	One Tuto	orial Requ	ired to di	scuss the	involved	<mark>numerica</mark>	l part			Online
15	Hall effec	et and exp	erimenta	1 measur	ements of	Hall coffi	cent			Online

16	Introduction to Superconductivity	Online
17	Critical temperature, critical magnetic fie	d Online
18	Meissner effect	Online
10	Wielssher effect	Offinie
T-3	One Tutorial Required to discuss the invo	ved numerical part Online
E-1	CLASS TEST/PRESENTATION/QUIZ	Online
19	Type I and type II superconductors	Online
20	London's equation and Penetration depth	Online
20	London's equation and renetration depart	Offinic
21	Isotope effect	Online
22	Idea of BCS theory (No derivation)	Online
T-4	One doubt clearing class	Online
23	Reciprocal lattice	Online
	Recipiocal lattice	Offinie
24	Brillouin zones	Online
25	Diffraction of X-rays by crystals	Online
26	Effective mass of electron concepts	Online
27	Bragg's law and Laue equation derivation	Online
41	Dragg's law and bade equation derivation	Online
28	Concepts of internal force in solids	Online
29	Atomic and Geometrical factors	Online
T-5	One doubt clearing class	Online
T-6	One Tutorial Required to discuss the invo	ved numerical part Online
1-0	One rutorial required to discuss the live	Ved Hamerical part Offinite
E-2	Class Test on total topic	Online
30	Terminal examination	Online

Course Code:		BPHSCCHC!	501					
Module name:		Quantum N	Леchanics a	nd Applicati	ons			
Name of the teacher:	•	Dr. Binoy D						
Alloted Lectures:		22		ı (Additiona	ı al tutorial cla	ı asses requir	ed = 3)	l
Objectives of the mode	nle.			. (,	
	1							
1. Angular momentum	of electron	in hydroger	l like atom					
1. Angular momentum	T CICCUION	I	l like atom.					
2. Concept of space qu	l Jantization							
2. Concept of space qu								
3. Space quantizationa	and zooma	n offoct						
3. Space quantizationa								
4. Introduction of elect	tron snin an	d calculation	of cnin and	ular mama	ntum			
4. Introduction of elect	tron spin an	u calculatioi	i oi spili ang	guiar momei	ntum.			
C. Lawrence de the accessor								
5. Larmor's theorem a	na caiculatio	on of spin m	agnetic mor	nent.				
	<u> </u>							
6. Stern-Gerlach exper	iment.							
	L	<u> </u>						
7. Electron magnetic m	noment and	electron ma	ignetic ener	gy				
8. Concept of gyromag	netic ration	and Bohr m	agneton.					
T1: One Tutorial Requi	red to discu	ss the involv	ed numeric	al part				
E1: Class test on previo	ous topics							
9. Splittings of energy	levels due to	normal Zee	eman effect					
10. Splitting of energy	levels due to	o anomalou	is Zeeman e	ffect.				
Ī								
11. Splitting of energy	levels due to	o Paschen B	Back effect.					
12. Concept of Stark ef	fect.							
	1							
E2: Class test on previo	l ous tonics							
LZ. Class test on previo								
13. Pauli's exclusion pr	incinlo							
13. Fault 3 Exclusion pr	Пісіріе.							
14. Symmetric and Ant	icummetric	Lugue functi						
14. Symmetric and Ant	.isymmetric	wave runcu	on.					
15 Davis die tall								
15. Periodic table.								
16.5		<u></u>						
16. Fine structure due	to spin orbi	t coupling.						
	<u> </u>							
17.Spectral notations f	or atomic st	ates.						
18. Concept of total an	igular mome	entum.						

19. Vector	atom model	l: L-S couplir	ng				
20. Vector	atom model	l: J-J couplin	g				
21. Hund's	rule						
22. Spectra	of Hydroge	n and Alkali	atoms.				
T3: One Tu	torial Requi	red to discu	ss the involv	ed numerio	al part		
E3: Test Exa	am					·	·

Course Name:	Mechanics						
Course Code:	ВРНЅССНС	102					
Module Name:	Mechanics						
Name of the teac	her: . Dr. Binoy D	as					
Alloted Lectures:	5		(Additional	Tutorial Cla	sses Require	ed = 1)	
Objectives of the	module:						
Class			Topics to I	e covered			
1. Concept of elas	sticity, stress stra	in curve.					Offline
2. Relation betwe	en elastic consta	nts.					Offline
3. Twisting torque	e on a Cylinder or	Wire					Offline
4.Concept of fluid	d motion.						Offline
							Offline
5. Poiseuille's Equation for Flow of a Liquid through a Capillary Tube.							
T1. One Tutorial F	Required to discu	ss the invol	ved numerio	al part.			Online
E1- Class Test on	previous topics.						Online

Course Na	me:	Thermal P	hysics						
Course Code: BPHSCCHC302									
Module Name: Thermal Ph		hysics							
		Dr. BINO							
Alloted Le				(Additiona	l 1 Tutorial (L Classes Re	 		
I moteu Be	etares.			(riaditiona	T T COTTACT		quirea ij		
Objectives	of the mo	l dule:		Cive the s	tudonto o	ı clear & det	l tailed idea	about one	
Objectives						ant Chapte			
						understar			
				gases	, molecula	r collisions	and real g	gases.	
Class			Topic	s to be co	vered				
1. Derivati	ion of Max	well-Boltzn	nann Law o	of Distribu	tion of Velo	ocities in a	n Ideal Ga	S .	Online
2. Derivation	of Maxwell-	-Boltzmann L	aw of Distrib	ution of Velo	cities in an Id	deal Gas , Eva	luation of A	and b terms.	Online
3. Experimen	ntal Verificat	ion of Maxwe	ell-Boltzmanr	Law of Distr	ibution of Ve	elocities, Dop	pler broader	ning of spectr	Online
4. Experimer	ntal Verificati	ion of Maxwe	ell-Boltzmanr	n Law of Distr	ibution of Ve	elocities, Ster	n's experime	ents.	Online
5. Derivation	of Mean, R	MS and Most	t Probable Sp	eeds.					Online
6. Concept o	f Degrees of	Freedom. La	w of Equipar	tition of Ener	gy .				Online
7. Concept o	f Specific hea	ats of Gases.							Online
T1. One Tuto	rial Required	d to discuss t	he involved r	numerical par	t.				Online
8. Concept a	nd estimatio	n of Mean Fr	ee Path.						Online
		<u> </u>							
9. Deduction	of coefficier	nt of viscosity	/.						Online
40 5 1 1	C.1 1	1	l (C: :						0 1:
10. Deductio	on of thermal	conductivity	and coeffici	ent of almusi	on.				Online
11 Concept	of Drownian	motion and i	its significans						Online
11. Concept	OI BIOWIIIAII	motion and i	its significant	.e.					Offliffe
T2 One Tute	rial Poquiro	d to discuss t	ho involved r	umorical par	+				Online
12. One ruto	mai Kequilet	a to discuss ti	ile ilivoiveu i	iumencai pai	ι.				Offilitie
E1- Class Tes	t on nreviou	s tonic							Online
	it on previou	s topic							O I III I I
12.Behavior	of Real Gase	s: Deviations	from the Ide	al Gas Equat	ion.				Online
				- 4-36					
13. The Viria	l Equation.								Online
	-								
14. Andrew's	s Experiment	s on CO2 Gas	5.						Online
15. Concept	of Continuity	of Liquid an	d Gaseous St	ate.					Online
16.Deductio	n of Van der	Waal's Equat	ion of State	for Real Gase	s.				Online
17. Values o	f Critical Con	stants and La	aw of Corres	oonding State	es				Online
18. Joule's E	xperiment ar	nd Free Adiab	atic Expansio	on of a Perfec	ct Gas.				Online

19. Joule-Thomson Poro	us Plug Expe	riment.				Online
20. Joule- Thomson Effe	ct for Real an	d Van der Wa	al Gases.			Online
21. Temperature of Inve	ersion. Joule-	Thomson Co	oling.			Online
T3. One Tutorial Require	d to discuss t	he involved r	numerical pa	rt.		Online
T4. Doubt Clearing Sessi	on(Avove top	ics)				Online
E3-Terminal Exam				Online		

Course Co	ode:		BPHSCCHC!	501						
Module name: Quantum Mechanics and Applications										
	he teacher:		Dr. Nityana							
Alloted Lo						es required =	-			
Objective	s of the mo	dule:				-		the Quantum		
							-	o be able to		
				-		-	omena relat			
				bitrary po	tentials and	l quantum t	theory of hy	drogen like		
			atom.							
					I	1	1	T		
topic to b	e covered				ı	1	1			
										<u> </u>
1. Concep	t of wave fi	unction and	Discussion	Properties c	of wave fund	tion				Online
2.6	(.1.11							0.15
2. Concep	t of time de	ependent an	a time inde	pendent Sc	nrodinger e I	quation. I				Online
2	+ of al =	igal avaluati	on of access	um ctata	d wave for	etion must	hilitar a seed on	ahahilita		Online
3. concep	ot of dynam	icai evaluati	on of quant	um state ar	id wave fun I	ction proba	bility and pr	obability currer	nt density I	Online
4 6	+ -f :		f f		 			d C		Outing
4. Concep	t of physica	н ассертівііі І	ty of wave f	unction and	i its normali	zation and	Linearity an	d Superposition	i principies	Online
F. Conson	t of position	n mamantu	m and anar	tors and av	nostation	lucs of nos	ition and m			Online
5. Concep	t or position	n, momentu I	m and oper	tors and ex	pectation va	l	ition and me	l		Online
6 Mayo fi	unction of f	ree particle.								Online
b. wave it	unction of i	l ee particie.								Offilite
T1:Ono Tı	itorial Pogu	l iired to disci	ucc the inve	lyod numor	ical part					Online
11.0ne ru	itoriai Kequ		uss the invo	ived Hulliel	lcai part.					Offilite
7 Time in	denendent	Schrodinge:	r equation a	nd introduc	tion to Han	l niltonian on	erator erator			Online
7. Tillie iii	асрепасне	Jenrounige	cquation							Onnic
8 Concen	t of sationa	ry states an	d energy eig	en values						Online
			u 0.1.0.87 0.8	5011 1010001						-
9. Expansi	ion of an ar	bitrary wave	function.							Online
										1
10. Conce	pt of linear	combinatio	n of energy	eigen funct	ions.					Online
	•		O,							
11. Solution	on of the tir	ne depende	nt Schrodin	ger equatio	n.					Online
				-						
12. Spread	d of Gaussia	an wave-pac	ket for free	particle in 2	 1D.					Online
13. Introd	uctory cond	cept of wave	e-packet.							Online
				-						
14. Conce	pt of mome	entum space	<u> </u>							Online
15. Fourie	r transform	of positon	space and n	nomentum	space.					Online
										ļ
16. Conce	pt of uncer	tainty princi	ple.							Online
		<u> </u>		<u> </u>	<u> </u>					
T2: One T	utorial Requ	uired to disc	uss the invo	lved numer	rical part					Online
F4 6'										
£1: Class t	est on prev	rious topics								Online
17.0		<u> </u>	vals = 1.1.							Ontin
17. Conce	pt of aiscre	te energy le	veis and its	wave funtio	ris.					Online
10 Eigas	functions	f one dimen	cional pota	ntial hay						Offling
To. Figen	iunctions o	f one-dimen	isional pote	iitiai DOX.	<u> </u>					Offline

19. Eigenvalues of one-dimensional potent	al box.						Offline
20.Eigen functions of step potential.							Offline
21. Eigenvalues of step potential.							Offline
21. Eigenvalues of step potential.							Offline
22. Eigen functions of one dimensional rect	l angular pote	l ntial barrier					Offline
23. Eigenvalues of one dimensional rectang	ular potentia	l barrier.					Offline
24. One dimensional rectangular potential v	vell.						Offline
							- 600
25. Derivation of energy eigenfunctions of h	iarmonic osc	illator.					Offline
26. Energy levels of harmonic oscillators.							Offline
20. Energy levels of flatmonic oscillators.							Offilite
27. Concept of ground state and zero point	energy.						Offline
28. Uncertainty relation for the oscillator.							Offline
T3: One Tutorial Required to discuss the inv	olved numer	ical part					Offline
	1 11 11						0.00
29. Time independent Schrodinger equation	n in three din	nensional sp I	herical pola	ar coordinat I	e. I		Offline
30. Wave functions of particle in a three di	mensional ho). .v					Offline
30. Wave functions of particle in a timee un) <u>,</u>					Offilite
31. Concept of angular momentum operator	r and guanti	ı ım number:	L S.				Offline
32. Continuation of angular momentum ope	erator and qu	uantum nun	nbers.				Offline
33. Introduction of central field problem.							Offline
							- 6511
34. Derivation of wave functions of hydroge	n-like atom	using Frobe I	nius method	d. I			Offline
35. Continuation of the derivation of wave	junctions of h	hydrogen-lik	re atom usir	ag Erobenius	method		Offline
35. Continuation of the derivation of wave		lydrogen-iir	e atom usii		l metriou.		Offilite
36. Shape of the probability densities for gr	ound and firs	t excited st	ates.				Offline
37. Concept of orbital angular momentum.							Offline
38. Concept of s, p, d shells.							Offline
	<u> </u>						- 6614
T4: One Tutorial Required to discuss the inv	olved numer	ical part					Offline
TE: Doubt clearing classes (Whole shorter)							Offline
T5:Doubt clearing classes(Whole chapter)							Offilite
E2: Class test on previous topics							Offline
F. C. Todo topico	1	ļ.		l	<u> </u>	l	

Cour	rse Name:		Mechanic	:s					
Cour	rse Code:		BPHSCCH	IC102					
Mod	ule Name:		Mechanic	:s					
Nam	e of the tea	acher: Mou	ımita Patra	l.					
Allot	ed Lecture	s:	25	(Additiona	l Tutorial	Classes Re	quired = 3)		
Obje	ctives of th	ne module:	Students	will be able	e to answe	r the quest	ions related	d to centre	
							ent types of		
			They will	also be abl		be/ explair tion.	ı the variou	as types of	
				<u> </u>	III0	T		<u> </u>	
Class		Tonic	s to be Co	vered					
1			aws of mot		nce Frame	<u> </u>			Online
-	11011011 01					<u> </u>			0111110
2	Galilean t	ransformat	tion & Gali	lean invari	ance				Online
3	Momentu	m of variat	ole mass sy	stem:Rock	et motion				Online
									Online
4	Motion of	projectile i	n uniform	gravitation	al field				
<u> </u>									
5	Dynamics	of a syster	m of partic	les,Centre	of mass			Combin	ed mode
T-1	One Tuter	iol Doguie	d to diana	as the inve	lred nume	rical part			Offline
1-1	One rutor	lai Kequii e	ed to discu			Ticai part			Onnie
6	Principle (l of conserva	tion of mo	 mentum In	l nnulse				Offline
 	Timespie								Omme
7	Work and	Kinetic en	ergy theore	ı em.Conser	vative and	non conse	rvative forc	es	Offline
8	Potential e	energy,Qua	alitative stu	dy of 1-D	motion fro	m potentia	l energy cu	rve	Offline
9	Stable and	d unstable	equilibriu	n,work & p	ootential e	nergy			Offline
10	Workdone	by non-co	nservative T	forces.Law	of conser	vation of e	nergy		Offline
11	D14:	1:14:	11:-: 1-			1			Oca:
11	Elastic an	d meiasuc		etween par	rticies in la	iboratory fr	ame		Offline
12	2-D elasti	c collision	l in centre o	l f mass frat	 ne				Offline
12	Z B clasti			l mass mar					Onme
13	Introducti	on to rotat	ional dyna	mics					Offline
14	Angular n	nomentum	of a partic	le and syat	em of part	icle		Combin	ed Mode
15	Torque or	moment o	f force						Offline
						<u> </u>			
T-2	One Tutor	rial Require	ed to discu	ss the invo	lved nume	rical part			Offline
	OI 4 00 77	NOW ADDROX	ONTO A COLORY	/OUT					Ota.
E-1	CLASS TE	ST/PRESE	ENTATION,	/Ų∪IZ I					Offline
			L			L			

16	Principle of Conservation of angular momentum							
17	Rotation about a fixed axis							
18	Moment of inertia,Parallel and perpendicular axis theorem	Offline						
		O.c.						
T-3	One Tutorial Required to discuss the involved numerical part	Offline						
E-2	CLASS TEST/PRESENTATION/QUIZ	Offline						
19	Calculation of moment of inertia for uniform bodies	Offline						
20	calculation of moment of inertia for rectangular, cylindrical and spherical bodies	Offline						
21	Motion in a vertical circle	Offline						
22	Kinetic energy of rotation	Offline						
23	Motion involving both translational and rotational	Offline						
		- Contraction						
24	pure rolling on inclined plane	Offline						
25	Terminal Exmination	Offline						