



CLASS- XI - PHYSICS

MONTH	CHAPTER	EXPECTED LEARNING OUTCOMES	PEDAGOGICA L APPROACH (TEACHING METHODS/ STRATEGIES)	ASSESSME NT TOOLS	RUBRICS	ART INTEGRATION	ICT INTEGRATIO N
	BASIC MATHEMATICAL TOOLS	Basic Calculus, binomial theorem, trigonometric relations	Constructivist, inquiry	assignment problem solving	Content Neatness completion		
ATOF	UNIT AND MEASUREMENT	Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Significant figures. Dimensions of physical quantities, dimensional analysis	Constructivist, reflective, inquiry	classroom discussion problem solving assignment experiment	Concept Presentation application		
Ec	MOTION IN A STRAIGHT LINE	and its applications.Motion in a StraightLine-Frameofreference, Motion in astraightlineElementaryconceptsofdifferentiationandintegrationfordescribingmotion,uniformandnon-	Constructivist, reflective, inquiry	Problem based classroom discussion	Concept Presentation Application	Draw Graphs	5





		uniform motion and					
		uniform motion, and					
		instantaneous velocity,					
		uniformly accelerated					
		motion, velocity - time					
		and position-time					
		graphs. Relations for					
		uniformly accelerated			SA		
		motion (graphical			E		
		treatment).			181		
		PI	RE MID TERM EX	AMINATION	- Charles		
			~				
	MOTION IN A	Motion in a Plane	Constructivist,	Brain	Content		Module-
	PLANE	Scalar and vector	reflective, inquiry	storming	Neatness		projectile and
	1000	quantities; position	based	Problem	completion		circular motion
		and displacement	~~~~	based		100	
		vectors, general		classroom			
E		vectors and their		discussion			
AUGUST		notations; equality of			And Person in Concession, Name		
D		vectors, multiplication		assignment			
AL		of vectors by a real					
		number; addition and			1 1 1 1 1 A		
		subtraction of vectors					
		Unit vector; resolution					
		of a vector in a plane,					
		rectangular					
		components, Scalar	A 4				
	C	and Vector product of					
		vectors. Motion in a					
		plane, cases of					
	1	uniform velocity and	01			1 .	
FC	nicat	uniform acceleration	n(n)				
	nuul	,projectile motion,		un	10		





	uniform circular				
	motion	-		~	
LAWS OF MOTION	Intuitive concept of	Constructivist,	Brain	Content	Share daily life
	force, Inertia,	reflective,	storming	Neatness	examples of
	Newton's first law of	inquiry based	Problem	completion	newtons three laws
	motion; momentum		based		of Motion.
	and Newton's second		classroom	Ser.	
	law of motion;		discussion	E.	
	impulse; Newton's			181	
	third law of motion.		assignment	1-1-1	
	Law of conservation			- Aller	
	of linear momentum				
	and its applications.				
	Equilibrium of	0 0	-		
	concurrent forces,				
	Static and kinetic				
	friction, laws of				
	friction, rolling			And the second second	
	friction, lubrication.				
	Dynamics of uniform				
	circular motion:			1 1 1 1 1 1	
	Centripetal force,				
	examples of circular		$\langle \circ \rangle$		
	motion (vehicle on a				
	level circular road,				
	vehicle on a banked				
C	road).		CC	2	
WORK ENERGY	Work done by a	Constructivist,	Brain	Concept	Draw diagrams
AND POWER	constant force and a	reflective,	storming	Sequencing	
N	variable force; kinetic	Inquiry based	classroom	accuracy	
H R R	energy, work energy	1	discussion		
	theorem, power.		problem	10	
$\mathbf{\bar{s}}$	Notion of potential		solving		





	energy, potential energy of a spring, conservative forces: non- conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.			the second second		
MOTION OF	System of Particles	Constructivist,	Brain	Concept		Module-rigid
SYSTEM OF	and Rotational Motion Centre of mass of a	reflective	storming classroom	Sequencing Accuracy		bodies ,moment of inertia
PAR <mark>TICLES</mark> AND ROTATION	two-particle system,	inquiry based	discussion	Accuracy		or mertia
ROTATION	momentum		problem			
	conservation and	Nord N	solving			
	Centre of mass motion. Centre of					
	mass of a rigid body;			And Inc.		
	centre of mass of a					
	uniform rod. Moment		LJ A			
	of a force, torque,					
	angular momentum, law of conservation of		0			
	angular momentum					
	and its applications. Equilibrium of rigid	1				
	bodies, rigid body		dd	211		
	rotation and equations					
	of rotational motion,					
Educat	comparison of linear	Ch	on	NO	lino	~
Euucal	and rotational motions. Moment of		all	JE	LIVES	
	inertia, radius of					

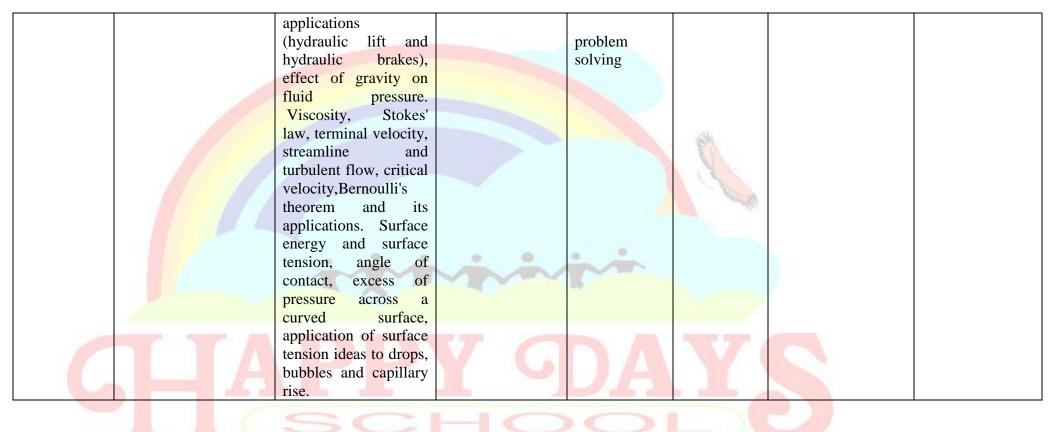




		gyration, values of moments of inertia for simple geometrical objects (no derivation)					
		Ν	MID TERM EXAMI	NATION			
OCTOBER	GRAVITATION	Gravitation, Newtons universal gravitational law, Kepler's laws, acceleration due to gravity and its variation with altitude and depth, gravitational field, potential and potential energy, escape velocity, orbital velocity, satellites,	Constructivist reflective, inquiry based	Brain storming classroom discussion problem solving experiment	Concept Presentation Application		
C	MECHANICAL PROPERTIES OF SOLIDS	Mechanical Properties of Solids: Elastic behaviour, Stress- strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.	Constructivist reflective, inquiry	Brain storming classroom discussion problem solving	Concept Presentation Application	Draw diagrams	three modulus of elasticity
Ec	MECHANICAL PROPERTIES OF FLUIDS	Mechanical Properties of Fluids: Pressure due to a fluid column; Pascal's law and its	Constructivist reflective, inquiry based	Brain storming classroom discussion	Concept Presentation Application	Lives	Modules on hydrostatics and stream lined and turbulent flow







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WAVE MOTION	Transverse and	Constructivist	Brain	Concept	Module on wave
	longitudinal waves,	reflective, inquiry	storming	Presentation	motion
	speed of travelling	based	classroom	Application	
	wave, displacement		discussion		
	relation for a		problem		
	progressive wave,		solving		
	principle of			Sh	
	superposition of			E.	
	waves, reflection of			121	
	waves, standing waves			the second second	
	in strings and organ			and the second s	
	pipes, fundamental				
	mode and harmonics,				
	Beats.				



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	THERMAL	Heat, temperature,		Brain	content	Draw diagrams	
	PROPERTIES OF	thermal expansion;		storming	Neatness		
	MATTER	thermal expansion of	reflective, inquiry	classroom	completion		
		solids, liquids and	based	discussion			
		gases, anomalous		problem			
		expansion of water;		solving			
		specific heat capacity;					
~		Cp, Cv - calorimetry;		assignment	EA		
3 E		change of state - latent			181		
IW		heat capacity.			A Bard		
DECEMBER		Heat transfer-			- Aller		
E		conduction,					
Д		convection and					
		radiation, thermal					
		conductivity,	~ ~ ~ ~			1.00	
		qualitative ideas of					
		Blackbody radiation,					
		Wein's displacement					
		Law, Stefan's law.					

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			POST MID TER	RM EXAMINAT	ΓΙΟΝ	
	THERMODYNAMICS	Thermal equilibrium	Constructivist,	Brain	content	Video Carnot's
		and definition of	reflective	storming	Neatness	cycle
		temperature zeroth law	,inquiry based	classroom	completion	
		of thermodynamics,		discussion		
S		heat, work and internal		problem	3844	
X 2		energy. First law of		solving	E.	
AR		thermodynamics,				
R		Second law of		assignment		
JANURARY 25		thermodynamics: gaseous state of			and the second s	
JA		matter, change of				
		condition of gaseous				
		state -isothermal,	1 And			
		adiabatic, reversible,		15		
		irreversible, and cyclic				
		processes				
		C				
		201				
	C	मुक्त				
		3				





KI	NETIC THEORY	Equation of state of a	Constructivist,	Brain	content						
		perfect gas, work done	reflective	storming	Neatness						
			,inquiry based	-							
		in compressing a gas.	,inquiry based	classroom	completion						
		Kinetic theory of gases		discussion							
		- assumptions, concept		problem							
		of pressure. Kinetic		solving							
		interpretation of		assignment	SAL .						
		temperature; r.m.s			E						
		speed of gas			112 12						
		molecules; degrees of			1-2-1						
		freedom, law of			and the second s						
		equipartition of energy									
		(statement only) and									
		application to specific	0 0	•							
		heat capacities of									
		gases; concept of									
		mean free path,									
		Avogadro's number.			Summer Street of Street						
		n oguaro s numoen									
52											
FEB.25	FINAL THEORY AND PRACTICAL EXAM										
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HAPPY DAYS SCHOOL, SHIVPURI (M.P.) DEPARTMENT OF SCIENCE CLASS- XII - PHYSICS (042)



MONTH	CHAPTER	EXPECTED	PEDAGOGICAL	ASSESSME	RUBRICS	ART	ICT			
		LEARNING	APPROACH	NT TOOLS		INTEGRATI	INTEGRATIO			
		OUTCOMES	(TEACHING			ON	Ν			
			METHODS/							
			STRATEGIES)							
	Electric Charges	Electric Charges and Fields	Constructive and	Asking	Content,	Diagrams	Module on			
	and Fields	Electric charges,	collaborative approach	questions	accuracy		electrostatic			
		Conservation of charge,		based on	Dim					
		Coulomb's law-force		application of	1					
		between two- point charges,		topic	1.00					
		forces between multiple			and the second second					
		charges; superposition								
		principle and continuous	Explanation through							
		charge distribution. Electric	examples and using							
		field, electric field due to a	various TLMS.	~						
. 1		point charge, electric field	Classroom discussion		and the second se					
APRIL		lines, electric dipole, electric								
Idv		field due to a dipole, torque								
		on a dipole in uniform								
		electric field. Electric flux,			ANY CON					
		statement of Gauss's theorem								
	2	and its applications to find								
		field due to infinitely long	-							
		straight wire, uniformly				~				
		charged infinite plane sheet								
	0	and uniformly charged thin	> 0							
		spherical shell (field inside	21 7							
		and outside).		1 ~ 6						

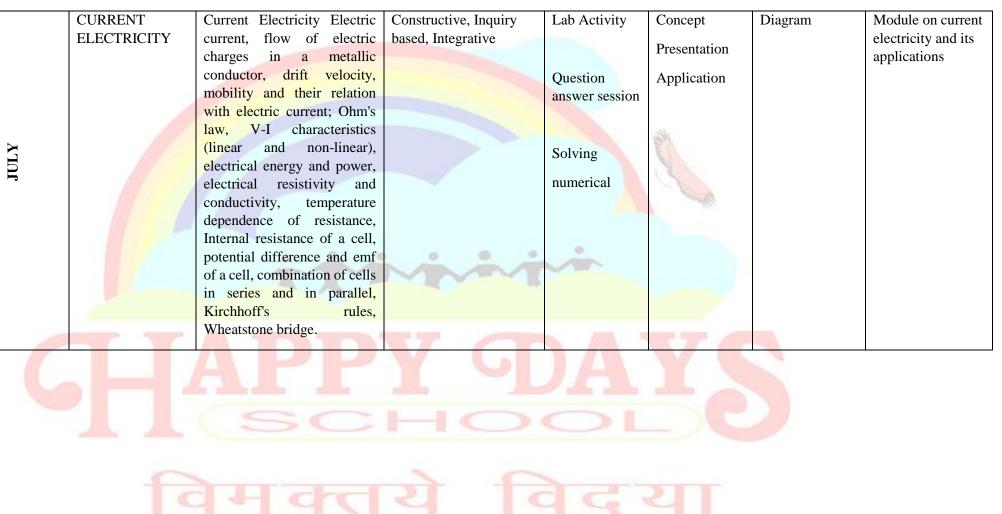




 Electrostatic	Electrostatic Potential and	Constructive and	Asking	Approach	Draw	Module on electric
Potential and	Capacitance Electric	collaborative approach	questions and	Formula	equipotential	potential and
Capacitance	potential, potential		numerical	Formula	surfaces	capacitance
	difference, electric potential		Problems	Steps		
	due to a point charge, a dipole			Unit		
	and system of charges; equipotential surfaces,	Explanation through		Olin		
	equipotential surfaces, electrical potential energy of	examples and using		é		
	a system of two-point charges	various TLMS		9		
	and of electric dipole in an			19		
	electrostatic field.	Classroom discussion		and a start of the		
	Conductors and insulators,					
	free charges and bound					
	charges inside a conductor.	0 0 0				
	Dielectrics and electric	\sim	~			
	polarization, capacitors and					
	capacitance, combination of					
	capacitors in series and in	37 000				
	parallel, capacitance of a					
	parallel plate capacitor with and without dielectric					
	medium between the plates,					
	energy stored in a capacitor	HO				
	(no derivation, formulae					
	only).					
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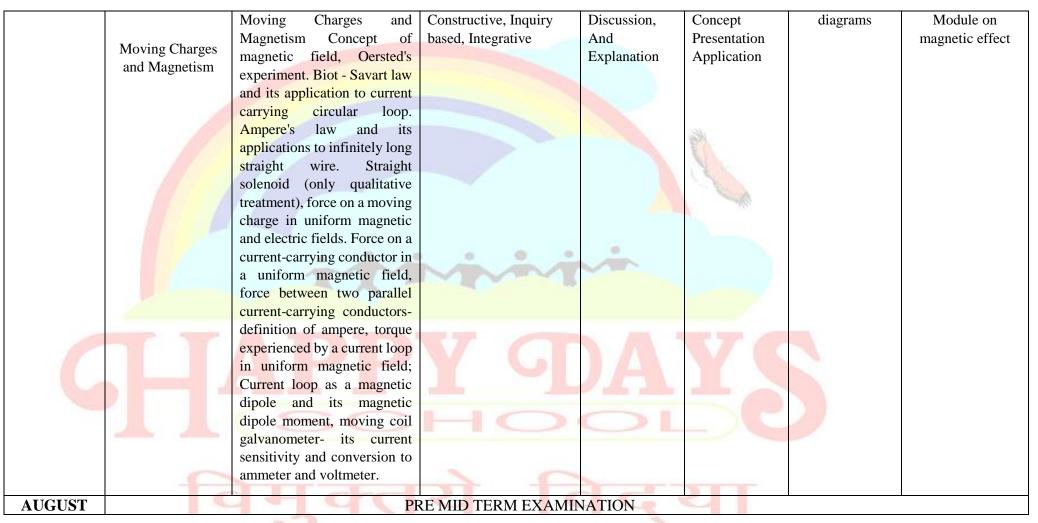






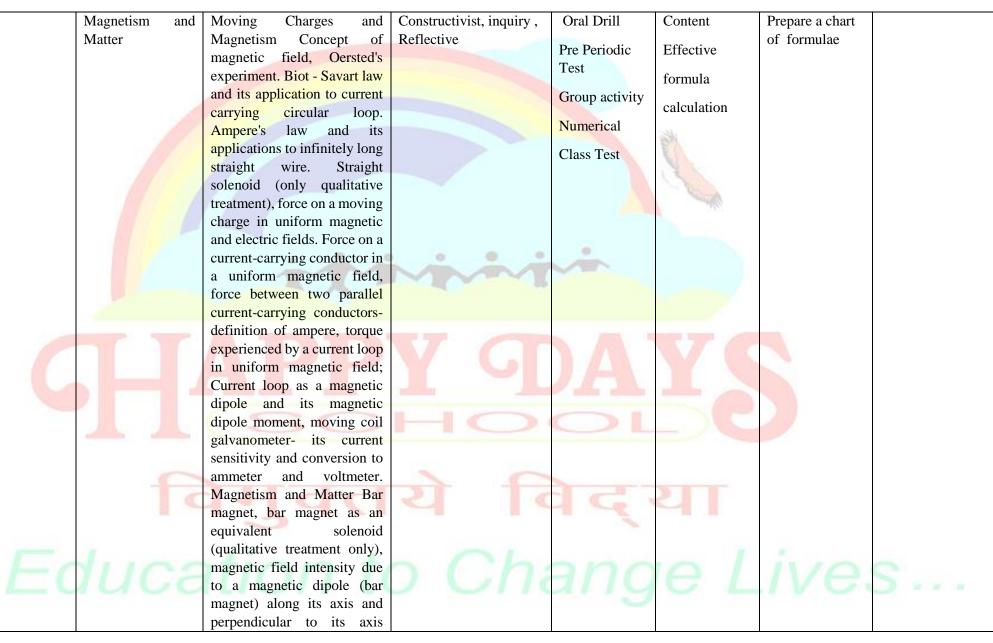
















		(qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para- , dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.			The second		
	Electromagnetic Induction	Electromagnetic Induction Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction.	Inductive – Deductive	Lab activity	Concept Presentation Application	Drawing diagrams	PPT on various Topics (let's speak)
SEPTEMBER	Alternating Current	Alternating Current Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current. AC generator, Transformer.	Inquiry based Constructivist)A	Approach Steps Accuracy	Role play (let's speak)	Module on AC





	Electromagnetic	Electromagnetic Waves	Deductive	Lab Activity	Concept		PPT			
	Waves	Basic idea of displacement			Presentation					
		current, Electromagnetic			Application					
		waves, their characteristics,		Assignment						
		their transverse nature	Reflective							
		(qualitative idea only).								
		Electromagnetic spectrum			334					
		(radio waves, microwaves,			De la					
		infrared, visible, ultraviolet,			1					
		X-rays, gamma rays)								
		including elementary facts			and the second second					
		about their uses.								
	Ray Optics	Reflection of light, spherical	Discussion and	Worksheet	Concept	Ray diagrams	PPT			
		mirrors, mirror formula,	Explanation	Numerical	Formula		Module on ray			
		refraction of light, total			calculation		optics			
		internal reflection and								
		optical fibers, refraction at		Lab Activity	setting of					
		spherical surfaces, lenses,		Eastheavily	instruments,					
		thin lens formula, lens			accuracy in					
		maker's formula,			results					
		magnification, power of a								
		lens, combination of thin								
		lenses in contact, refraction								
		of light through a prism.								
	MID TERM EXAMINATION									
				-						
R	Optical	Optical instruments:	Constructivist,	Oral questions	Concept		Module theory			
BE	instruments	Microscopes and	Reflective							
IO		astronomical telescopes	01	numerical	Application					
OCTOBER	VIICO	(reflecting and refracting)	n (h	MID TERM EXAM		NIO	C			
	1460	and their magnifying		LAAM	CL	IVC				
		powers.		0						





	Wave optics	Wave Optics Wave optics:		Oral questions	Concept		
		Wave front and Huygen's	Reflective				Module on
		principle, reflection and		numerical	Application		Huygens wave
		refraction of plane wave at a					theory
		plane surface using wave					
		fronts. Proof of laws of					
		reflection and refraction			3847		
		using Huygen's principle.			50		
		Interference, Young's double slit experiment and					
		slit experiment and expression for fringe width			6		
		(No derivation final			and the second		
		expression only), coherent			1000		
		sources and sustained					
		interference of light,		0			
		diffraction due to a single slit,	VAAN				
		width of central maxima	a la companya da serie da s				
		(qualitative treatment only).					
	Semiconductor	Semiconductor Electronics:	Lecture, Classroom	Worksheet	Concept	Draw logic	Module on
	Electronics	Materials, Devices and	Discussion		877 6	gates	Boolean algebra
	Materials,Devices	Simple Circuits Energy					
	and Simple	bands in conductors,	Constructivist approach	Lab Activity			
R	Circuits	semiconductors and			Presentation		
NOVEMBER		insulators (qualitative ideas	Discussion and				
		only) Intrinsic and extrinsic	explanation taking				
VE		semiconductors- p and n	examples of daily life	Oral questions	Application		
ON		type, p-n junction					
		Semiconductor diode - I-V					
		characteristics in forward and		G			
		reverse bias, application of					
		junction diode -diode as a					
		rectifier.					





	Dual Nature of Radiation and Matter	Dual Nature of Radiation and Matter Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation- particle nature of light. Experimental study of photoelectric effect Matter waves-wave nature of particles, de-Broglie relation.	Constructivist, and reflexive approach	Post mid term(Pre Board) Paper and Pen Test	and the second the	Draw diagrams	Module on Nature Radiation Matter	Dual of and
C	Atoms	Atoms Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in nth orbit, hydrogen line spectra (qualitative treatment only).	Constructivist, and reflexive approch	Worksheet Numerical and oral questions	Concept Presentation Application	Energy level diagram		
	Nuclei	Nuclei Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.	Constructivist, and reflexive approach	Worksheet Numerical and oral questions	Approach steps			
DEC.	luca	ation to	1 ST PRE BOARD EX	XAMINATION	e L	ive.	S	





