BHAVAN'S BHAGWANDAS PUROHIT VIDYA MANDIR, NAGPUR

CURRICULUM PLAN

(2023-24)

STD: X SUBJECT: PHYSICS

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MONTH	WEEKLY DATES	TOTAL NO OF PERIODS	NAME OF TOPIC	SUB-TOPICS	NO OF PERIODS REQUIRED	ACTIVITIES/ SMART CLASS CONTANTS	ASSIGNMENTS/ EVALUATION	LEARNING OUTCOMES/SUSTAINABLE DEVELOPMENT GOAL (SDG)/SKILL ASSESSED
APRIL	2nd & 3rd week 5th to 15th	4	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.1 Reflection of light 9.2 Spherical mirror 9.2.1 Image formation by spherical mirrors. 9.2.2 Representation of images formed by spherical mirrors using ray diagrams	1 2 1	**SMART CLASS MODULES** • Spherical mirror **HANDS ON ACTIVITY:** • Students will perform an activity to understand the concept of real and virtual image by using spherical mirror. • **Activity** to show that Sunlight concentrates at focus using concave mirror and paper • Image formation by concave mirror	Textual questions will be discussed and given as H.W.	Students will be able to- • Demonstrate and comprehend the phenomenon of reflection of light by using different mirror **Learning skill** **Analytical thinking skill** **SDG** Recognize that the sun gives us heat and light, without which people and animals could not survive

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APRIL	4rd week 17thto 21st	2	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.2.2 Representation of images formed by spherical mirrors using ray diagrams **(continued)** 9.2.3 Sign conventions for spherical mirrors	1 1	**SMART CLASS MODULES** • Spherical mirror • Image formation by convex mirror	Assignment based on ray diagrams will be given.	Compare and Comprehend the image formation by plane, convex and concave mirrors • Write characteristics of the Images formed. **Collaboration skill, Creativity skill**
APRIL	5th week 24thto 29th	3	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.2.4 Mirror formula and magnification	1 2	**SMART CLASS MODULES** • Sign convention • Mirror formula and magnification	Numerical based on sign convention and mirror formula will be discussed and given as assignment.	• Analyze and interpret the knowledge of sign conventions to solve numerical. **Problem Solving Skill**
MAY	1st week 2ndto 4th	1	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.2.4 Mirror formula and magnification **(continued)**	1		Textual questions will be discussed and given as H.W. .	The students will be able to: • demonstrate the phenomenon of refraction of light. **Analytical thinking skill** The students will be able to: Draw and interpret refraction through glass slab. **Creativity skill**

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JUNE	4th &5thweek 20thto 30th	4	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.3 Refraction 9.3.1 Refraction through glass slab 9.3.2 Refractive index and related exercise	1 1 2	**SMART CLASS MODULES** • Refraction through a glass slab • Refractive Index **HANDS ON ACTIVITY:** **(lab activity** To trace the path of light passing through a glass slab for different angles and make inferences.	Textual questions will be discussed and given as H.W.	• Define the term refractive index and relate it with speed of light.
JULY	1st & 2nd week 1stto 8th	3	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.3.3 Refraction by spherical lenses 9.3.4 Image formation by lenses	1 2	**SMART CLASS MODULES** • Image formation by convex lenses	Extra questions and numerical will be given as assignment	The students will be able to: Draw and interpret refraction through lenses **Information literacy , Critical thinking skill**

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JULY	3rd week 10thto 15th	3	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION	9.3.5 Ray diagrams 9.3.6 Sign convention for lense 9.3.7 Lens formula and magnification. 9.3.8 Power of lens	1 1 1	**HANDS ON ACTIVITY:** **(lab activity)** To determine the focal length of the given concave mirror and convex lens. **SMART CLASS MODULES** Uses of lenses.	The students will be asked to practice the ray diagrams for different position of objects placed in front of a concave mirror and convex lens. Numerical worksheet will be given as worksheet.	The students will be able to: Draw and interpret refraction through lenses **Creativity skill, Critical thinking skill** • Understand the meaning of magnification • Understand and Calculate Power of lens **Problem solving skill**
JULY	4th week 17thto 22nd	3	CHAPTER 9. LIGHT – REFLECTION AND REFRACTION CHAPTER-10 HUMAN EYE AND THE COLOURFUL WORLD	CHAPTER 9. Exercise 10.1 The human eye 10.1.1 Power of accommodation	1 2	**HANDS ON ACTIVITY:** • Model of Human Eye showing different parts	Students will be asked to practice the diagrams on defects of vision and its correction.	The students will be able to: • Explain in brief the structure of a human eye and role of different parts of it. **SDG** • Appreciate the precious gift of sight by understanding the role of eye lens in the power of accommodation **Analytical skill**

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JULY	5th & 6th week 24th to 31st	3	CHAPTER10HUMAN EYE AND THE COLOURFUL WORLD	10.2 Defects of vision and their correction 10.3 Refraction of light through prism	2 1	**SMART CLASS MODULES** • Defects in human eye	Students will be asked to practice the diagrams on defects of vision and its correction.	• Differentiate between myopia, hypermetropia and presbyopia. **Analytical skill** • Develop the skill of drawing neat and labeled diagrams of defects of eye and explain the role of lenses for correcting the defects. **Creativity skill**
PERIODIC TEST -I **PORTION-CHAPTER 9.LIGHT -REFLECTION AND REFRACTION (TILL 9.2.4) DATE 24/7/2023**								
AUG	1st & 2nd week 1stto 12th	5	CHAPTER-10 HUMAN EYE AND THE COLOURFUL WORLD	10.4 Dispersion of white light by a glass prism 10.5 Atmospheric refraction 10.6 Scattering of light 10.6.1 Tyndall effect 10.6.2 Why is colour of the sky blue?	1 1 1 1 1	**SMART CLASS MODULES** Refraction of light through a prism Tyndall effect **HANDS ON ACTIVITY:** **(lab activity)** To trace the path of light passing through the glass prism.	Textual questions will be discussed and given as H.W. Students will be asked to practice the diagrams for refraction of light and dispersion through a prism.	The students will be able to:Comprehend the basic aspects of refraction of light in a glass prism. **Communicative skill** Prism activity- **observational skill, critical thinking, creative skill** • Understand the phenomenon of dispersion of light and rainbow as an example-**Analytical skill** Apply scientific concept in daily life situation
AUG	3rd week	2	CHAPTER-10			**SMART**		• Explain the

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	14th to 19th		HUMAN EYE AND THE COLOURFUL WORLD	Exercise	2	**CLASS MODULES** • How we see colour • The significance of colour • Refraction of light through a prism • Dispersion of light • Twinkling of stars • Scattering of light	Textual questions will be discussed and given as H.W. Extra questions will be given as assignment.	phenomenon of scattering of light and on its basis understand the blue colour of the sky, redness of sun during sunrise and sunset and use of red colour for signals. **Analytical skills** • Relate the phenomenon of twinkling of stars with cause and effect- **Observation and Communicative skill**
AUG	4th& 5th week 21st to 31st	4	CH 11- ELECTRICITY	11.1 Electric current and circuit 11.2 Electric potential and potential difference 11.3 Circuit diagram	1 2 1	**SMART CLASS MODULES** Activity to demonstrate an electric circuit.	Students will be asked to draw the basic circuit diagram.	The students will be able to – • Handle apparatus and measure electric current, charge, potential, resistance and resistivity- **Collaborative skill, Observational skill, Critical thinking skill**
SEP	1st & 2nd week	3	CH 11- ELECTRICITY	11.4 Ohm's law 11.5 Factors on	1 2	**HANDS ON ACTIVITY:**	Students will be asked to draw the	• State and explain Ohm's law and also

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	1st to 9th			which resistance of a conductor depends and related numerical		**(lab activity)** 1.Verification of ohm's law in the lab 2.Verification of series combination of resistors **SMART CLASS MODULES** • Factors on which the resistance of a conductor depend,	basic circuit diagram Textual questions will be discussed and given as H.W.	prove it experimentally. **Collaborative skill, Observational skill, Critical thinking skill**
SEP	3rd week 11th to 16th	3	CH 11- ELECTRICITY	11.6 Resistance of a system of resistors 11.6.1 Resistors in series 11.6.2 Resistors in parallel	1 1 1	**SMART CLASS MODULES** Series and parallel combination **Model making- student will make working model on series and parallel combination**	Extra questions and numerical will be given as assignment	Student will be able to • Apply the learnt formulae to solve numerical problems- **Problem solving skill** Differentiate between series and parallel circuit and relate to its use in daily life-**Analytical skill, critical thinking skill, collaborative skill, Innovation, creativity skill**
SEP	4th week 18th to	2	CH 11- ELECTRICITY	11.7 Heating effect of electric current	2	**SMART CLASS MODULES**	Students will be asked to solve numerical based on	Student will be able to • Understand and elaborate heating effect

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	23rd				1	• Heating Effect of electric current	the circuit diagram of a system of resistors given to them.	of electric current and based on that they will be able to explain the working of various appliances like toaster, electric **Critical thinking skill**
SEP	5th week 25th to 30th	3	CH-11 ELECTRICITY	11.7.1Practical application of heating effect of electric current 11.8 Electric power and numerical	2 1	• Practical application of heating effect of electric current	Students will be asked to solve numerical based on Power	Apply scientific concept in daily life. **Rational Thinking skill** Student will be able to Calculate electric bills. **SDG** The child will be able to understand the Importance of Conservation of energy.

PERIODIC TEST-II

PORTION- CHAPTER 9 (9.3 ONWARDS TILL COMPLETE CHAPTER) DATE-28/9/2023

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HALF YEARLY **3RD OCT TO 11TH OCT 2023 (SCIENCE - 6/10/2023)** **PORTION –** CHAPTER **9** - LIGHT – REFLECTION AND REFRACTION AND **10** - HUMAN EYE AND THE COLORFUL WORLD								
OCT	2nd week & 3rd week 12th and 21st	3	CH-11 ELECTRICITY	1 Exercise of the chapter	3		Textual questions will be discussed and given as H.W	
OCT	4th & 5th week 23rd to 31st	3	CHAPTER 12 MAGNETIC EFFECTS OF CURRENT	12.1 Magnetic field and field lines 12.2 Magnetic field due to current carrying conductor	2 1	**HANDS ON ACTIVITY:** Demonstration of Magnetic Field Lines using iron filings and bar magnet **SMART CLASS MODULES** • To demonstrate current carrying conductor produces magnetic field/effect	. Extra questions will be given as assignment. Worksheet based on numerical will be given as assignment. Students will be asked to draw magnetic field lines around a bar magnet and a straight conductor	The students will be able to- Nurture natural curiosity for the pattern formed using iron filings. • Define magnetic field and field lines. • State, explain Right hand Thumb rule Compare and analyze the magnetic field lines formed due to straight conductor, solenoid and bar magnet. **Critical Thinking skill**

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NOV	1st & 2nd week 1st to 9th	3	CHAPTER 12 MAGNETIC EFFECTS OF CURRENT	12.2.1 Magnetic field due to current through a straight conductor 12.2.2 Right hand thumb rule	2 1	**SMART CLASS MODULES** • Right Hand Thumb Rule demonstration • Plotting of field lines for a circular loop. • **HANDS ON ACTIVITY** • Fleming's left hand rule demonstration and application	Students will be asked to draw magnetic field lines around a circular loop and solenoid	The students will be able to: Exhibits creativity in drawing magnetic field lines pattern. • State and illustrate Fleming' s right hand rule and Fleming' s right hand rule **Creativity skill** **Communication skill**
DIWALI VACATION **10th NOV.2023 – 23rd NOV.2023**								
NOV	4th &5th week	3	CHAPTER 12 MAGNETIC EFFECTS OF CURRENT	12.2.3 Magnetic field due to current through a circular loop 12.2.4 Magnetic field due to a current in solenoid	1 2	**SMART CLASS MODULES** Demonstration of a solenoid and its working • Demonstration of force on a current carrying coil placed in magnetic field	Students will be given HOTS questions based on right hand thumb rule. Textual questions will be discussed. Extra questions will be given as assignment.	• Describe and demonstrate the phenomenon of electromagnetic induction. • Understand the working of electric fuse and its importance in electrical circuit • Comprehend the meaning of A.C.

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						Magnetic field due to solenoid Right hand thumb rule.		**Analytical skill**
NOV	4th and 5th week 21st to 30th	4	CHAPTER 12 MAGNETIC EFFECTS OF CURRENT	12.3 Force on a current carrying conductor in a magnetic field . Fleming's left hand rule	2 2	**• SMART CLASS MODULES** Demonstration of force on a current carrying coil placed in magnetic field. • Model to demonstrate electro –magnetic induction will be shown	Students will be asked to practice the figure to show the experimental setup of Motor and generator.	Communicates the findings and conclusion effectively. **Communication skill and Analytical skill**
DEC	1stand 2nd week 1st to 9th	3		Direct current and Alternating current frequency of ac advantages of ac over dc 12.4 Domestic electric circuit	1	Domestic electric circuit		Differentiate between AC and DC. • Analyze the working of domestic circuits- **Analytical skill** **SDG** Make efforts to conserve electricity by using energy efficient electric devices
PERIODIC TEST-III **PORTION - CHAPTER11. (ELECTRICITY DATE - 4/12/2023)**								

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				PORTION COMPLETION – 16TH DEC. 2023				
DEC	3rd week 11th to 16th	3		EXERCISE	3			
DEC	4th & 5th week 18th to 30th	4		REVISION		-		-
JAN	1st week 1st JAN to 5th JAN 2024	1		REVISION				

PRELIMINARY EXAMINATION(JAN 2024)

PORTION - CHAPTER-9,10,11,12