THE AIR FORCE SCHOOL : SUBROTO PARK : DELHI CANTT-110010

Class – XII

Sub: Physics

Weekly Syllabus (Tentative)

Academic Session 2024-25

Month	Week	Dates		Days	No of Periods	Chapter	Contents		Syllabus
Mar 24	Block Teaching			13	13	*Chapter 1: Electric Charges and Fields*	1.1 *Introduction*		
							1.2 *Electric Charges*		
							1.3 Conductors and Insulators		
							1.4 Charging by induction		
							1.5 Basic Properties of Electric Charge		
							1.6 Coulomb's Law		
							1.7 Force between Multiple Charges		
							1.8 Electric Field		
							1.9 Electric Field Lines		
							1.10 Electric Flux		
							1.11 Electric Dipole		
							1.12 Dipole in a Uniform External Field		
							1.13 Continuous charge distribution		

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							1.14 Gauss's Law	
							1.15 Applications of Gauss's law	
Apr-24	I	01-06	**06-Working Saturday (Staff)**	05	06	*Chapter 2: Electrostatic potential and Capacitance*	2.1 Introduction	
							2.2 Electrostatic potential	
							2.3 Potential due to a point charge	
							2.4 Potential due to an Electric Dipole	
							2.5 Potential due to a system of charges	
							2.6 Equipotential surfaces	
							2.7 Potential energy of a system of charges	
							2.8 Potential energy in an External Field	
							2.9 Electrostatics and Conductors	
							2.10 Dielectrics and polarization	
							2.11 Capacitors and Capacitance	
							Exp : To find the unknown resistance using meter bridge.	

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	II	08-12	**11 – Id-ul-Fitr**	04	04	*Chapter 2: Electrostatic potential and Capacitance*	2.12 The parallel plate capacitor 2.13 Effect of dielectric on capacitance 2.14 Combination of Capacitors 2.15 Energy stored in a capacitors **Act : To assemble the components of a given electrical circuit.**	
	III	15-19	**14 - Ambedakar Jayanti** **17 – Ram Navami** **21 - Mahavir Jayanti**	04	05	Chapter 3: Current electricity	3.1 Introduction 3.2 Electric Current 3.3 Electric Currents in conductors 3.4 Ohm's Law 3.5 Drift of electrons and the origin of Resistivity 3.6 Limitations of Ohm's Law 3.7 Resistivity of various materials **Exp: To verify Series Laws using Meter Bridge.**	
	IV	22-27	**27-Working Saturday**	06	06		3.8 Temperature dependence of	

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			(Student)			Chapter 3: Current electricity	Resistivity 3.9 Electrical Energy, Power 3.10 Combination of Resistors— Series and Parallel 3.11 Cells, emf, Internal Resistance 3.12 Cells in series and in parallel 3.13 Kirchhoff's Laws **ACT:To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.**	
	V	29-30		02	2	Chapter 3: Current electricity	3.14 Wheatstone Bridge **Exp : To find the resistance and fig. of merit of galvanometer.**	
May-24	I	01-03	**01-03 : ES-1 (XII)/ CT-1 (X)**	03	4	Chapter 4: Moving Charges	4.1 Introduction 4.2 Magnetic Force **Exp : To convert galvanometer**	<mark>ES-1 (XII)/ CT-1 (X)</mark> **Date: 01-07 May** Ch 1 : *Electric Charges and Fields* *Chapter 2: Electrostatic*

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						and magnetism	**to voltmeter.**	*potential and Capacitance*
	II	06-10	**06-07 : ES-1 (XII)/ CT-1 (X)** **09,10 – The Quest**	05	6	Chapter 4: Moving Charges and Magnetism	4.3 Motion in a Magnetic Field 4.4 Motion in combined Electric and Magnetic Fields 4.5 Magnetic Field due to a Current element, 4.6 Biot Savart law 4.7 Ampere's Circuital Law **ACT: To measure resistance, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.**	
	III	13-18	**18- Working Saturday (Open House X & XII)**	06	6		4.8 The Solenoid and the Toroid 4.9 Force between two parallel currents, the Ampere 4.10 Torque on Current loop, Magnetic dipole 4.11 The Moving Coil galvanometer **ACT :To observe refraction and lateral deviation of a beam of light incident obliquely on a**	

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							glass slab.	
***** SUMMER BREAK 20 MAY -30 JUN 2024 ******
Jul-24	I	01-06	01- School reopens for staff **06-Working Saturday (Student)**	05	6	Chapter 5: Magnetism and Matter	5.1 Introduction 5.2 The Bar Magnet 5.3 Magnetism and Gauss's Law 5.4 DELETED **Exp:To find the focal length of convex lens.**	**PT-I** **Class VI-X Date: 05 Jul – 12Jul** **ES-2 (XII): 05 Jul – 12Jul** Ch 01 to Ch 04
	II	08-12		05	06	Chapter 5: Magnetism and Matter	5.5 Magnetisation and Magnetic Intensity 5.6 Magnetic Properties of Materials 5.7 Permanent magnets and Electromagnets **Exp: To find the focal length of concave mirror**	
	III	15-19	**17-Muharram**	04	05	Chapter 6: Electromagnetic Induction	6.1 Introduction 6.2 The experiments of Faraday and Henry 6.3 Magnetic Flux	

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							6.4 Faraday's law of Induction	
							6.5 Lenz's law and conservation of energy	
							ACT:To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.	
	IV	22-27	**27 – Working Saturday (Students)**	06	06	Chapter 6: Electromagnetic Induction	6.6 Motional electromotive force	
							6.7 Energy consideration: A Quantitative study	
							ACT :To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).	
	V	29-31		03	03	Chapter 6: Electromagnetic Induction	6.9 Inductance	
							6.10 AC generator	
							Exp : To find the angle of minimum deviation using Prism	
Aug-24	I	01-03	**03 – Working Saturday (Open House (VI-X), XII)**	03	03	Chapter 7:Alternating	7.1 Introduction 7.2 AC voltage applied to a resistor	

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						Current	7.3 Representation of AC current and voltage by rotating vectors-phasor	
	II	05-09		05	06	Chapter 7:Alternating Current	7.4 AC voltage applied to an inductor 7.5 AC voltage applied to a capacitor	
	III	12-16	**15 – Independence Day**	04	05	Chapter 7:Alternating Current	7.6 AC voltage applied to a series LCR circuit 7.7 Power in AC circuit: The power factor	
	IV	19-23	**19-Raksha Bandhan**	04	05	Chapter 8:Electromagnetic Waves	**8.1 Introduction** **8.2 Displacement Current** **8.3 Electromagnetic Waves** 8.4 Electromagnetic Spectrum	<mark>ES-1 (XI):</mark>
	V	26-31	**26-Janmashtami** **31-Working Saturday (Students)** **31-Annual Prize Distribution**	05	06		Revision	
Sep-24	I	02-06		05		Mid Term/ HYE Exam		<mark>Mid Term (PT-II)/</mark>
	II	09-14	**14 – Working Saturday**	06				

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			(Students)					
	III	16-21	**16-Milad-un-Nabi**	05	05	Chapter 9:Ray Optics and Optical Instruments	9.1 Introduction 9.2 Reflection of Light by Spherical Mirrors 9.3 Refraction 9.4 Total Internal Reflection 9.5 Refraction at Spherical Surfaces 9.6 Refraction through a Prism **Exp: To plot the VI charac curve of pn junction diode.**	
	IV	23-27		05	06		9.6 Refraction through a Prism 9.7 Dispersion through a prism 9.8 Some Natural Phenomena due to Sunlight 9.9 Optical Instruments	
	V	30		01	01		Optical Instruments (Continued)	
Oct-24	II	01-05	**02-Mahatma Gandhi's Birthday** **05-Annual Prize**	04	05	Chapter 10:Wave	10.1 Introduction	

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			Distribution			Optics	10.2 Huygen's Principle	
							10.3 Refraction and reflection of plane waves using Huygen's Principle	
							10.4 Coherent and Incoherent Addition	
							10.5. Interference of light waves and Young's experiment Of Waves	
	III	07-12	**09-13– Autumn Break 12- Dussehra**	02	02	Chapter 10:Wave Optics	10.6 Diffraction	
	IV	14-19	**17-Maharishi Valmiki's Birthday 19 – Working Saturday (Open House VI-XII)**	05	06	Chapter 11: Dual Nature of Radiation and Matter	11.1 Introduction	
							11.2 Electron Emission	
							11.3 Photoelectric effect	
							11.4 Experimental study of photoelectric effect	
							11.5 Photoelectric effect and wave theory of light	
							11.6 Einstein's photoelectric equation	

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							11.7 Particle nature of light	
							11.8 Wave nature of light	
	V	21-25	**20– Karwa Chouth**	05	06	Chapter 12:Atoms	12.1 Introduction	
							12.2 Alpha—particle scattering and Rutherford's nuclear model of atom	
							12.3 Atomic spectra	
							12.4 Bohr Model of the Hydrogen atom	
							12.5 Line spectra of hydrogen atom	
						Chapter 13: Nuclei	12.6 De Broglie's explanation of Bohr's second Postulate of Quantisation	
							13.1 Introduction	
							13.2 Atomic masses and composition of nucleus	
	VI	28-31	**30-03 Nov – Diwali Break**	02	03	Chapter 13: Nuclei	13.3 Size of the nucleus	
							13.4.1 Mass Energy	
							13.4.2 Nuclear binding energy	
							13.5 Nuclear Force	
						Autumn Break 09-13 Oct 2024		

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Nov-24	I	04-09	**09 – Working Saturday (Students)**	06	06	Chapter 14: Semiconductor Electronics: Materials Devices and Simple Circuits	14.1 Introduction 14.2 Classification of Metals ,Conductors and Semiconductors 14.3 Intrinsic Semiconductor 14.4 Extrinic semiconductor 14.5 p-n junction	
	II	11-15	**12 – Annual Day** **15 – Guru Nank's Birthday**	04				
	III	18-22		05				<mark>**MPB (XII):**</mark> 14 Nov-25 Nov Ch1 to Ch 14
	IV	25-30	**29,30 – Annual Athletic Meet**	06				
Dec-24	I	02-07	**07 – Sports Day**	06				
	II	09-13		05				
	III	16-21	**21-Working Saturday, Open House (X & XII)**	06				
	IV	23	**24,25 – Christmas Holidays**	01				

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*** Winter Break from 26 Dec to 04 Jan 2025 ***								
Jan-25	I	06-10		05				
	II	13-18	**18-Working Saturday, Open House (VI-IX, XI)**	06				
	III	20-25	**25-Citation Ceremony 25-Open House XII 26-Republic Day**	06				
	IV	27-31		05				
Feb-25	I	01	**01 – Farewell XII 01- Open House X**	01				
	II	03-07		05				**Annual Exam Class IX & XI** – 05 Feb-19 Feb 2025
	III	10-14		05				
	IV	17-22	**22-Working Saturday (students)**	06				
	V	24-28	**26-Maha Shivratri**	04				
Mar-25	**Annual Exam Classes VI-VIII – 25 Feb-10 Mar 2025**							

Note: The examination syllabus as mentioned above is to be considered Tentative. The final syllabus for each exam will be uploaded on the website along with the Date Sheet at the time of the examination.