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

Class – XI

Sub: PHYSICS

Weekly Syllabus (Tentative)

Academic Session 2024-25

Month	Week	Dates		Days	No of Periods	Chapter	Contents	Syllabus
Mar 24	Block Teaching							
Apr-24	I	01-06	**06-Working Saturday (Staff)**	05				
	II	08-12	**11 – Id-ul-Fitr**	04				
	III	15-19	**14 - Ambedakar Jayanti** **17 – Ram Navami** **21 - Mahavir Jayanti**	04	5	Chapter–1: Units and Measurements	Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. significant figures. Dimensions of physical quantities, dimensional analysis and its applications.	
	IV	22-27	**27-Working Saturday (Student)**	06	7	Chapter–1: Units and Measurements	Dimensions of physical quantities, dimensional analysis and its applications.	

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	V	29-30		02	2	Chapter–1: Units and Measurements	Dimensions of physical quantities, dimensional analysis and its applications.	
May-24	I	01-03	**01-03 : ES-1 (XII)/ CT-1 (X)**	03	4	Chapter:2: Motion in a Straight Line	Elementary concepts of differentiation & integration for describing motion, uniform and non- uniform motion, average speed and instantaneous velocity	**ES-1 (XII)/ CT-1 (X) Date: 01-07 May**
	II	06-10	**06-07 : ES-1 (XII)/ CT-1 (X) 09,10 – The Quest**	05	6	Chapter:2: Motion in a Straight Line	uniformly accelerated motion, velocity - time and position-time graphs	
	III	13-18	**18- Working Saturday (Open House X & XII)**	06	6	Chapter:2 Motion in a Straight Line	Relations for uniformly accelerated motion (graphical treatment).	
******* SUMMER BREAK 20 MAY -30 JUN 2024 ********								
Jul-24	I	01-06	01-School reopens for staff **06-Working Saturday (Student)**	05	6	Chapter3: Motion in a plane.	Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real umber; addition and subtraction of vectors, Unit vector;	**PT-I Class VI-X Date: 05 Jul – 12Jul** **ES-2 (XII): 05 Jul – 12Jul**

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							resolution of vector in a plane, rectangular components. Scalar Product, Vector product of vectors. **Experiment** To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.	
	II	08-12		05	6	Chapter3: Motion in a plane.	Vector product of vectors. Motion in a plane, cases of uniform velocity, uniform acceleration projectile motion, **Experiment** To measure diameter of a given wire and thickness of a given sheet using screw gauge	
	III	15-19	**17-Muharram**	04	5	Chapter3: Motion in a plane. Chapter–5: Laws of Motion	uniform circular motion Intuitive concept of force, Inertia, Newton's first law of motion; momentum **Experiment** To measure diameter of a	

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							given wire and thickness of a given sheet using screw gauge	
	IV	22-27	**27 – Working Saturday (Students)**	06	6	Chapter 4: Laws of Motion	Newton's second law of motion; impulse; Newton's third law of motion. Law of	
	V	29-31		03	3	Chapter 4: Laws of Motion	conservation of linear momentum and its applications . Dynamics of uniform circular motion: Centripetal force, **Experiment** Using a simple pendulum, plot its L-T^2 graph and use it to find the effective length of second's pendulum.	
Aug-24	I	01-03	**03 – Working Saturday (Open House (VI-X), XII)**	03	2	Chapter:4 Laws of Motion	Equilibrium of concurrent forces	

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	II	05-09		05	6	Chapter:4 Laws of Motion	Static and kinetic friction,laws of friction, rolling friction, lubrication. **Experiment** To find the weight of a given body using parallelogram law of vectors.	
	III	12-16	**15 – Independence Day**	04	5	Chapter:4 Laws of Motion	Centripetal force, examples of circular motion	
	IV	19-23	**19-Raksha Bandhan**	04	3	Ch Chapter:4 Laws of Motion	vehicle on a level circular road, vehicle on a banked road). elastic and inelastic collisions in one and two dimensions. ..	**ES-1 (XI): Chapter 2,3, and 4**
	V	26-31	**26-Janmashtami** **31-Working Saturday**	05	6	Revision	Revision	

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			(Students) **31-Annual Prize Distribution**					
Sep-24	I	02-06				Mid Term/ HYE Exam		
	II	09-14	**14 – Working Saturday (Students)**					**Mid Term (PT-II)/ HYE** **Date 02--14 Sep** **Chapter 1,2 3 and 4**
	III	16-21	**16-Milad-un-Nabi** **21 – Working Saturday (Students)**	05	06	Chapter: 5 Work, Energy and Power	Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power, Notion of potential energy, potential energy of a spring. conservative forces: non- conservative forces	
	IV	23-27		05	5	Chapter: 5 Work, Energy and Power	motion in a vertical circle, elastic and inelastic collisions in one and two dimensions, elastic and inelastic collisions in one and two dimensions.	
	V	30		01	1	Chapter–6: System of Particles and Rotational Motion	Centre of mass of a two-particle system, momentum conservation and centre of mass motion	
Oct-24	II	01-05	**02-Mahatma Gandhi's**	04	3		Centre of mass of a rigid	

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			Birthday **05-Annual Prize Distribution**			Chapter–6: System of Particles and Rotational Motion	body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum. **Experiment** To find the force constant of a helical spring by plotting a graph between load and extension.	
	III	07-12	**09-13– Autumn Break** **12- Dussehra**	02	2	Chapter–6: System of Particles and Rotational Motion	equations of rotational motion, comparison of linear and rotational motions. **Experiment** To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body.	
	IV	14-19	**17-Maharishi Valmiki's Birthday** **19 – Working Saturday**	05	5	Chapter–6: System of Particles and	Law of conservation of angular momentum and its applications, Equilibrium of rigid bodies, rigid body rotation	

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			(Open House VI-XII)			Rotational Motion Chapter–7: Gravitation	Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). Kepler's laws of planetary motion universal law of gravitation, Acceleration due to gravity and its variation with altitude and depth. **Experiment** To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body.	
	V	21-25	**20– Karwa Chouth**	05	6	Chapter–7: Gravitation	Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential.	

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	VI	28-31	**30-03 Nov – Diwali Break**	02	2	Chapter–7: Gravitation	Escape velocity, orbital velocity of a satellite.	
***** Autumn Break 09-13 Oct 2024 *****								
Nov-24	I	04-09	**09 – Working Saturday (Students)**	06	6	Chapter 8: Mechanical Properties of Solids	Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus. shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy	
	II	11-15	**12 – Annual Day** **15 – Guru Nank's Birthday**	04	5	Chapter–9: Mechanical Properties of Fluids	Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure.	
	III	18-22		05	6	Chapter–9: Mechanical Properties of Fluids	Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity Bernoulli's theorem and its applications. **Experiment** To study the relationship between the temperature of a hot body and time by plotting a cooling curve.	**ES-2 (XI):** Chapter5,6 and 7

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	IV	25-30	**29,30 – Annual Athletic Meet**	06	4	Chapter–9: Mechanical Properties of Fluids	Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.	
Dec-24	**I**	02-07	**07 – Sports Day**	06	6	Chapter–10: Thermal Properties of Matter	Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water, specific heat capacity; C_p, C_v - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity. **Experiment** To find the speed of sound in air at room temperature using a resonance tube by two resonance positions	

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	II	09-13		05	6	Chapter–10: Thermal Properties of Matter Chapter–11: Thermodynamics	qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law . Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work & internal energy. First law of thermodynamics, Second law of thermodynamics: gaseous state of matter. **Experiment** To find the speed of sound in air at room temperature using a resonance tube by two resonance positions	
	III	16-21	**21-Working Saturday, Open House (X & XII)**	06	6	Chapter–11: Thermodynamics Chapter–12: Kinetic	change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes Equation of state of a perfect gas, work done in compressing a gas.	

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						Theory	Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; r m s speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases.	
	IV	23	**24,25 – Christmas Holidays**	01	1	Chapter–12: Kinetic Theory	concept of mean free path, Avogadro's number	
***** Winter Break from 26 Dec to 04 Jan 2025 *****								
Jan-25	I	06-10		05	6	Chapter–13: Oscillations	Periodic motion - time period, frequency, displacement as a function of time, periodic functions. Simple harmonic motion (S.H.M) and its equation. phase; oscillations of a loaded spring –restoring force and force constant; energy in S.H.M. Kinetic and potential energies.	
	II	13-18	**18-Working Saturday,**	06	6	Chapter–13:	simple pendulum derivation of expression for its time period,	

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			Open House (VI-IX, XI)			Oscillations Chapter–14: Waves	Wave motion: Transverse and longitudinal waves, speed of travelling wave	
	III	20-25	**25-Citation Ceremony** **25-Open House XII** **26-Republic Day**	06	4	Chapter–14: Waves	displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes.	
	IV	27-31		05	6	Chapter–14: Waves	standing waves in strings and organ pipes, fundamental mode and harmonics, Beats.	
Feb-25	I	01	**01 – Farewell XII** **01- Open House X**	01				
	II	03-07		05		REVISION	REVISION	**Annual Exam Class IX & XI – 05 Feb-19 Feb 2025** **Chapter 1 to 14**
	III	10-14		05				
	IV	17-22	**22-Working Saturday (students)**	06				

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	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.