

## CLASS XI- PHYSICS SPLIT UP SYLLABUS-LUCKNOW REGION

No of working days is counted with the instructions to complete the syllabus  
by 31st January

S NO	UNIT	TITLE	NO OF PERIODS - REQUIRED	MONTH	NO OF WORKING DAYS AVAILABLE	MARKS( THEORY) - 70 MM
1	I	Physical World and Measurement	10	JUNE, JULY	07	20
2	II	Kinematics	20	JULY	25	
3	III	Laws of Motion	14	AUGUST	23	
4	IV	Work, Energy and Power	12			
5	V	Motion of System of Particles and Rigid Body	18	SEPTEMBER	22	
6	VI	Gravitation	04			
<b>HALF YEARLY EXAM –Syllabus upto 30 SEPTEMBER</b>						
6	VI	Gravitation	08	OCTOBER	17	17
7	VII	Properties of Bulk Matter	20	NOVEMBER	21	16
8	VIII	Thermodynamics	12	DECEMBER	18	
9	IX	Behaviour of Perfect Gases and Kinetic Theory of Gases	8			
10	X	Oscillations and Waves, Ray Optics	34	JANUARY	15	17
		Revision, class test		FEBRUARY		
			160		151	70

UNIT	UNIT	TOPICS	PERIODS ALLOTTED FOR TEACHING	MONTH FOR COMPLETION	No of period for Practical's
I	Physical World and Measurement	Physical World:Physics-scope and excitement; nature of physical laws; Physics, technology and society.	2	JUNE=07 PDS, , - JULY-03 PDS	12
		Units and Measurements:Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures. Dimensions of physical quantities, dimensional analysis and its applications	8		
2	Kinematics	Motion in a Straight Line:Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures. Dimensions of physical quantities, dimensional analysis and its applications	10	JULY = 20 PDS,	12
		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 number; addition and subtraction of vectors, relative velocity, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration-projectile motion, uniform circular motion.	10		
3	Laws of Motion	Intuitive concept of force, Inertia, Newton's first		JULY -03 PDS, AUG-	12

		<p>law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road)</p>	14	11 PDS	
4	Work, Energy and Power	<p>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: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.</p>	12	AUG- 12 PDS	
5	Motion of System of Particles and Rigid Body	<p>Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications</p>	18	Sep-18 PDS	12
6.	Gravitation	<p>Universal law of gravitation, Acceleration due to gravity and its variation with altitude and depth.</p>	04	SEP-04 PDS	
		<b>HALF YEARLY EXAM- IST OF OCT</b>			
6	Gravitation	<p>Keplers law of planetary motion, Gravitational potential energy, escape velocity, orbital velocity, geo</p>	08	Oct-08 PDS	12

7	Properties of Bulk Matter	<p><b>stationery satellite</b></p> <p><b>Mechanical Properties of Solids:</b>Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.</p> <hr/> <p><b>Mechanical Properties of Fluids:</b>Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity,Bernoulli's theorem and its applications. 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.</p>	20	OCT- 9 PDS, NOV-11 PDS	
		<p><b>Thermal Properties of Matter:</b>Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, Green house effect.</p>			
8	Thermodynamics	<p><b>Thermodynamics:</b> Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes. Second law of thermodynamics: reversible and irreversible processes, Heat engine and refrigerator.</p>	12	NOV- 10 PDS,DEC-02 PDS	12

9	Behaviour of Perfect Gases and Kinetic Theory of Gases	<p><b>Kinetic Theory: Equation of state of a perfect gas, work done in compressing a gas.</b></p> <p><b>Kinetic theory of gases - assumptions, concept of pressure.</b></p> <p><b>Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.</b></p>	08	DEC-08 PDS	12
10	MECHANICAL WAVES AND RAY OPTICS	<p><b>PERIODIC MOTION, PERIODIC FUNCTION, EQUATION OF SHM, PHASE, OSCILLATION OF LOADED SPRING, RESTORING FORCE, ENERGY IN S.H.M, SIMPLE PENDULUM, EXPRESSION OF TIME PERIOD, FREQUENCIES, DAMPED, FORCED OSCILLATION, RESONANCE, Wave motion: Transverse and longitudinal waves, speed of wave motion, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.</b></p>	16	DEC- 08 PDS, JAN - 26	
10	RAY OPTICS	<p><b>REFLECTION OF LIGHT, SPHERICAL MIRROR, MIRROR FORMULAS, REFRACTION, TIR, APPLICATIONS OF TIR, OPTICAL FIBRE, REFRACTION AT SPHERICAL SURFACE, LENS, THIN LENS FORMULA, LENS MAKERS FORMULA, POWER OF LENS, COMBINATION, REFRACTION AND DISPERSION THROUGH PRISM, SCATTERING OF LIGHT, BLUE COLOUR OF SKY, REDDISH APPARENT OF SUN, SUNRISE SUNSET, OPTICAL INSTRUMENTS , MICROSCOPES, TELESCOPES.MAGNIFYING POWER</b></p>	18		12
		Syllabus must be completed as per split up, extra classes may be taken to complete syllabus in time			

**Note: A total of 15 experiments to be done selecting atleast 7 experiment from each section. A total of 5 Activities to be demonstrated. Project work as per syllabus.**