**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE, 2014-15**

**DETAILED MONTHLY PLAN-CLASS XI [PHYSICS]**

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| MONTH OF AUGUST 2014 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | 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 | 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. |

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| MONTH OF SEPTEMBER 2014 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Motion of System of Particles and Rigid Body 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,laws of conservation of angular momentum and itsapplications.  Equilibrium of rigid bodies, | Body 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. |

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| MONTH OF OCTOBER 2014 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Gravitation Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depthGravitational potential energy and gravitational potential, | escape velocity,orbital velocity of a satellite.  Geo-stationary satellites. | Properties of Bulk Matter Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus  of rigidity, Poisson's ratio; elastic energy. | 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, |

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| MONTH OF NOVEMBER 2014 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Properties of Bulk Matter Bernoulli'stheorem and its applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, | Applicationof surface tension ideas to drops, bubbles and capillary rise.  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. | Thermodynamics Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. |

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| MONTH OF DECEMBER 2014 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Thermodynamics First law of thermodynamics, isothermal and adiabatic processes.Second law of thermodynamics: reversible and irreversible processes, Heat engine and refrigerator. | Behaviour of Perfect Gases and Kinetic Theory of Gases Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed  of gas molecules; degrees of freedomlaw of equi-partition of energy (statement only) | and application to  specific heat capacities of gases; concept of mean free path, Avogadro's number. |  |

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| MONTH OF JANUARY 2015 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Oscillations and Waves 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 spring-restoring force and forceconstant; | energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for  its time period.  Free, forced and damped oscillations (qualitative ideas only), 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. |

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| MONTH OF FEBRUARY 2015 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | **Revision** | **Revision** | **Revision** | **Revision** |

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| MONTH OF MARCH 2015 | | | | |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | **Final Assessment** | **Final Assessment** |  |  |