**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE 2017-18**

**WEEKLY PLAN-CLASS 11 -PHYSICS**

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| MONTH OF JULY 2017 |
| CLASS 11 | WEEK 1 and 2 | WEEK3 | WEEK4 and 5 |
| PHYSICS | SUMMER BREAK |  | accuracy and precision of measuring instruments; errors in measurement; significant figures. Dimensions of physical quantities, dimensional analysis and its applications. Frame of reference,Laws of Motion Intuitive concept of force. Inertia, Newton’s first law of motion; momentum and Newton’s second law of motion; impulse; |

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| MONTH OF AUGUST 2017 |
| CLASS 11 | WEEK 1  | WEEK2 | WEEK3 | WEEK4 | WEEK5 |
| PHYSICS | 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 banked road). | Work, Energy and PowerWork 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 mechanicalenergy (kinetic and potential energies); non-conservative forces motion in a vertical circle; elastic andinelastic collisions in one and two dimensions | non-conservative forces motion in a vertical circle; elastic andinelastic collisions in one and two dimensionsMotion of System of Particles and Rigid BodyCentre 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 itsapplicationsEquilibrium of rigid bodies, |

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| MONTH OF SEPTEMBER 2017 |
| CLASS 11 | WEEK 1  | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Body body rotation and equations of rotational motion, comparison of linearand rotational motionsMoment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (noderivation | Statement of parallel and perpendicular axes theorems and their applications.Statement of parallel and perpendicular axes theorems and their applications.**Revision** | **FIRST ASSESSMENT** | **FIRST ASSESSMENT** |

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| MONTH OF OCTOBER 2017 |
| CLASS 11 | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 |
| PHYSICS | GravitationKepler'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 MatterElastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulusof 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 2017 |
| CLASS 11 | WEEK 1 and 2 | WEEK 3 | WEEK 4 | WEEK 5 |
| PHYSICS | Properties of Bulk MatterBernoulli'stheorem 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.Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalousexpansion 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 Blackbodyradiation, Wein's displacement Law, Stefan's law, Green house effect. | ThermodynamicsThermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work andinternal energy. |

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| MONTH OF DECEMBER 2017 |
| CLASS 11 | WEEK 1 and 2 | WEEK 3 | WEEK 4 | WEEK 5 |
| PHYSICS | ThermodynamicsFirst law of thermodynamics, isothermal and adiabatic processes.Second law of thermodynamics: reversible and irreversible processes, Heat engine and refrigerator.**SECOND ASSESSMENT** | Behaviour of Perfect Gases and Kinetic Theory of GasesEquation 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 speedof gas molecules; degrees of freedomlaw of equi-partition of energy (statement only) **SECOND ASSESSMENT** | and application tospecific heat capacities of gases; concept of mean free path, Avogadro's number.**Winter Break** | **Winter Break** |

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| MONTH OF JANUARY 2018 |
| CLASS 11 | WEEK1 | WEEK 2 and 3 | WEEK 4 | WEEK 5 |
| PHYSICS |  **Winter Break** | Oscillations and WavesPeriodic 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 aprogressive wave, principle of superposition of waves | reflection of waves, standing waves in strings andorgan pipes, fundamental mode and harmonics, Beats, Doppler effect. |

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| MONTH OF FEBRUARY 2018 |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | **Revision** | **Revision** | **Final Assessment** | **Final Assessment** |

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| MONTH OF MARCH 2018 |
| CLASS 11 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS |  |  |  |  |