**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE, 2016-17**

**DETAILED WEEKLY PLAN-CLASS X11[PHYSICS]**

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| MONTH OF MARCH 2016 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 / WEEK 5 |
| PHYSICS |  |  | Electric Charges; Conservation of charge, Coulomb’s law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge.Electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field.  | Electric flux, statement of Gauss’s theorem and its applications to find field due to infinitely long straight wire,uniformly charged infinite plane sheetand uniformly charged thin spherical shell(field inside and outside). |
| MONTH OF APRIL 2016 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Electric potential, potential difference, electric potential due to a point charge, a dipole andsystem of charges; equipotential surfaces, electrical potential energy of a system of two pointcharges and of electric dipole in an electrostatic field. | Conductors and insulators, free charges and bound charges inside a conductorDielectrics and electric polarisation, capacitors and capacitance, combination of capacitors in series and inparallel,capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor. | Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and theirrelation with electric current; Ohm’s law, electrical resistance, V-I characteristics (linear andnon-linear), electrical energy and power, electrical resistivity and conductivity .Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperaturedependence of resistance.  | Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel. Kirchhoff’s laws and simple applications.Wheatstone bridge, metre bridge ,Potentiometer - principle and its applications to measure potential difference and for comparing emf of two cells; measurement of internal resistance of a cell. |
| MONTH OF MAY 2016 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Concept of magnetic field, Oersted’s experiment. Biot -Savart law and its application to current carrying circular loop. Ampere’s law and its applications to infinitely long straight wire.Straight and toroidal solenoids.Force on a moving charge in uniform magnetic and electric fields. Cyclotron. Force on a current-carrying conductor in a uniform magnetic field. Force between two parallelcurrent-carrying conductors-definition of ampere. Torque experienced by a current loop in uniform magnetic field | moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter. Current loop as a magnetic dipole and its magnetic dipole moment Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. | Torque on a magnetic dipole (bar magnet) in a uniform magnetic field;bar magnet as an equivalent solenoid, magnetic field lines.Earth’s magnetic field and magnetic elements.Para- dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths. Permanent magnets**UNIT TEST 1** | **UNIT TEST 1**Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.  |
| MONTH OF JUNE 2016 |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK4 |
| PHYSICS | Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance;  | LC oscillations (qualitative treatment only),**PROJECT****SUMMER VACATION** | . |  |