**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE, 2017-18**

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

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| MONTH OF MARCH 2017 | | | | | |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK 4 | WEEK 5 |
| PHYSICS |  |  | **CHAPTER 1 : ELECTRIC CHARGES AND FIELD**  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 inuniform 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 sheet  and uniformly charged thin spherical shell(field inside and outside).  **CHAPTER 2:ELECTRIC POTENTIAL AND CAPACIITANCE**  Electric potential, potential difference, electric potential due to a point charge, a dipole andsystem of charges; |

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| MONTH OF APRIL 2017 | | | | | |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK 4 |  |
| PHYSICS | equipotential surfaces, electrical potential energy of a system of two point  charges and of electric dipole in an electrostatic field.  Conductors and insulators, free charges and bound charges inside a conductor  Dielectrics 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. | **CHAPTER 3- CURRENT ELECTRICITY**  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 and  non-linear), electrical energy and power, electrical resistivity and conductivity .  Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature  dependence 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. |  |
| **PRACTICALS:**  [1]OHM/S LAW [2] CONVEX LENS [3]METRE BRIDGE-1 | | | | | |

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| MONTH OF MAY 2017 | | | | | |
| CLASS 12 | WEEK1 | WEEK2 | WEEK3 | WEEK 4 |  |
| PHYSICS | **CHAPTER 4 MAGNETIC EFFECTS OF CURRENT**  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 toroidalsolenoids.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  **CHAPTER 5 – MAGNETISM**  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** | **CHAPTER 6 – ELECTROMAGNETIC INDUCTION**  Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction. |  |
| PRACTICALS : [4] POTENTIOMETER-1 [5] GLASS PRISM [6] GALVANOMETER | | | | | |