The ELECTRICAL/ELECTRONICS and Magnetism KIT

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| Sr. no. | Topics | Sub Topics | Project kit content |
|  | Metals and non-metals |  | 1. Check electrical conductivity by glowing led |
|  | Electricity and circuits | * A simple electric circuit | 1. Diy torch 2. Diy switch |
|  | Fun with magnets | * Magnetic and not magnetic materials | 1. Finding the north and south pole of a magnet, diy compass 2. Diy temporary magnet |
|  | Electric current and its effect | * Symbols of electric components * Fuses * Electromagnet | 1. Effect of electricity on compass needle 2. Diy simple circuit, Turn on led, motor 3. Wire wound iron nail act as magnet when pass electricity 4. Diy electric bell / working model of railway signal |
|  | Chemical effect of electric current | * Conductors and insulators * Electrolysis * Electro plating | 1. Check electrical conductivity by glowing led |
|  | Electricity | * Ohm’s law | 1. Diy Christmas/ fairy lights |
|  | Magnetic effect of electric current | * Magnetic field of magnet * Magnetic field of a current carrying conductor * Right hand thumb rule | 1. Field created by iron fillings for a strong magnet 2. Current caring Wire 3. Current carrying coil 4. Magnet in a solenoid (led flickering), electromagnetic induction on different windings of coil 5. Diy motor |
|  | Electric charge and field | * Charge on a body | 1. Electroscope |
|  | Electrostatic potential and capacitance | * Capacitor and capacitance | 1. Charging and discharging of capacitor 2. Capacitors in series and parallel |
|  | Current electricity | * Ohms law * Kirchoff’s - KVL and KCL | 1. Open circuit 2. Short circuit 3. Serial/ parallel/ serial-parallel circuits 4. KVL and KCL circiut |
|  | Moving charges and magnetism | * Right hand thumb rule * Solenoid and toroid * Torque on a rectangular coil | 1. Oersted’s experiment 2. Solenoid motor 3. Diy DC motor |
|  | Magnetism and matter | * Magnetic felid of a magnet | 1. Field created by iron fillings for a strong magnet 2. Current carring Wire 3. Current carrying coil   # repeated experiments |
|  | Electromagnetic induction | * Faraday’s experiment * Hennery’s experiment * Lez’s law and eddy current | 1. Electromagnetic induction on a different winding coils. 2. Neodymium magnet drop from a thick copper pipe 3. Diy speaker |
|  | Alternating current | * LC circiut | 1. Transformer less power supply 230V to 5V (using zener diode) 2. Diy 1.5 to 220V inverter |
|  | Electromagnetic waves | * Radio rays, gamma rays, x-rays | 1. DIY FM radio receiver |
|  | Semiconductor electronic materials devices and simple circuits | * N-type and P-type semiconductors x * Rectifier circuit * Special purpose pn-junction diode, Zener diode * Photodiode and LEDs * Solar cell | 1. P-N junction, NPN and PNP transistors 2. half, full and bridge rectifier 3. zener as dc voltage regulator 4. Photodiodes and LED circuit 5. Solar cell car |
|  | Computer and communication technology | * Computer controlled devices | 1. Sensors: pressure, temperature, motion distacnce, |