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1 Introduction

Anveshika is an open laboratry equipped with facilities that enable students/teachers to do physics activities/experiments and try their own ideas/experiments/projects. The facilities/experiments at ViBha-IAPT Anveshika are contually upgraded. The information given below may be useful to the partcipants. Also, it may be useful to teachers who wish to establish Anveshika in future. We spent a lot of time and resources in collecting/making these items and wish to share this information for the benefit of all.

2 Physics Lab Equipments

The physics lab need equipment related to mechanics, waves, thermodynamics, optics and electromagnetism. The scientific equipment storeslocated at Tilak Road, Koti, Hyd imay be approached to getmost of these items. The equipments available in ViBha-IAPT-Anveshika are listed below:

2.1 Mechanics

Vernier Caliper

Screw Gauge

Metre Scale

Pendulum Bob

Pulley

Tuning Fork

Spring Balance of 1kg range.

Slotted Weight Set

Springs of various shapes and spring constants.

Clamp Stand

A counter intutive demonstration to explain concepts like center of mass, energy conservation etc.

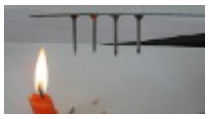
Test the Archimedes principle.

Balancing 15 nails on a single point. It clearly shows the stability criteria. Arvind Gupta Video `https://www.youtube.com/watch?v=C4w9e3-etC0`

2.2 Heat and Thermodynamics

Laboratory thermometer to measure temperature

Demonstrate why hot air goes up (density), convection, and $PV = nRT$.



Visualize conduction through an iron bar. Arvind Gupta Video `https://www.youtube.com/watch?v=8kP5S5XIsS8`

Demonstrate concepts like hot, cold, temperature, heat, transfer, radiation, conduction, convection etc.

2.3 Optics

Covex and concave lens.

Plane,Covex and concave Mirror.

Prism, glass slab etc.

Laser torch,dettol bottle etc.

Innovative optical bench.

2.4 Electromagnetism

Power Supply, AC 2V to 12V, DC 2V to 12V

The mother coil can be used to demonstrate concepts like electromagnet, electro-magneic induction, transformer, eddy current, heating effect of eddy current, ac-motor etc. See also Arvind Gupta video `https://www.youtube.com/watch?v=C2MdEypP2L8`

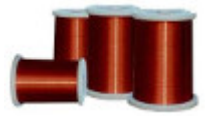
Galvanometer, 20 micro V/div

Voltmeter, Range 10V

Ammeter, Range 1 A

Galvanoscope showing deflection when current flows through a wire. Useful for demonstrating Faraday law and conductivity of salt solution.

Electric bulb (light sources) of various capacities.



Winding Copper Wire of gauge 13, 18, 24, 30 and 36

Insulators for making your own transformer, motor, generator etc.

Nichrome, Manganin and Constanton Wire

Magnetic Compass, Magnetic needle to draw magnetic line of forces.

Magnets: Bar Magnet, Ring Magnet, Cylindrical Magnet, High Strength Neodymium Magnet (N48, 1 cm x 1cm)

Standard resistance: 2 Ohm,5 Ohm, etc

Demonstrating Faraday's law with coil, magnets and galvanometer. Same coil can be used as electromagnet.

Demosntrates force on a current carrying wire in magnetic field. See the effect of changing magnetic field direction, current direction. Can be used to demonstrate Fleming's right hand rule.

A strong magnet moving on conducting surface slows down due to eddy current.

Experiment demonstrating use of eddy current in magnetic brakes. A spinning aluminium disc slows down when a strong magnet brought near to it.

Electromagnet using nail and winding wire.

DC motor using a coil, magnet and battery. Arvind Gupta Video `http://www.youtube.com/watch?v=vSPFwibREUg`.

Simplest Electric Circuit. Can be used as a testerfor electric conductivity. However, it can not be used conductivity of salt solution. Use galvanoscope for that.

2.5 Electronics

The tools/equipments related to electronics available in ViBha-IAPT-Anveshika are listed below:

Digital Multimeter

Soldering Iron Set

Breadboard

Connecting Wires, Resitances, Capacitors, Diode, Transistors, LED, LDR, etc

3 Hand Tools

The hand tools required for making new experiments/projects. In Hyderabad, Ranigunj is the best place to go for purchase. Taparaia Tools are of good quality and are reasonably priced. In Ranigunj, 20% discount is generally given on MRP. Our experience at Precision Tools Centre `www.ranigunj.com` was not good. The hand tools available in ViBha-IAPT-Anveshika are listed below:

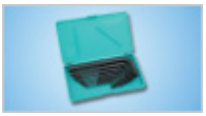
6-32 Flat Spanner Set, Make Taparia (Rs 649). We don't find much of its use in Anveshika.

Adjustable Spanner, Taparia (1172N-10", Rs 280)

6" Long Nose Plier, Taparia (No 1420, Rs 194)

6" Side Cutting Plier, Taparia (No 1122, Rs 196)

6" Wire Stripping Plier, Taparia (No WS06, Rs 54)



Allen Key Set, Taparia (No KM9V, Rs 213). We don't find much of its use in Anveshika.

Chisel, Taparia (No 104 Rs 141, No 101 Rs 77)

Spirit Level, Taparia (SLM1012, Rs 315)

Centre Punch, Taparia (No 1788 Rs 48, No 1985 Rs 51)

Tin Cutter, Taparia (No TCS10" Rs 352)

Hacksaw Frame 12” Rs 120, Hacksaw Blade Rs 7

Flat File 12” Rs 110, 6” Rs 70, Round File 6” Rs 90

Knife, Make Stanley (No 99E, Rs 260)

Drill Machine, Make Bosch (Rs 1750), Drill Bit Set Rs 90

Hammer,200gm, Rs 173

Trisquare, 6” Rs 60

Vice (Mini) Rs 350

Scale 12”, 6” Rs 20

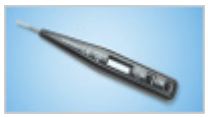
Junior Saw Frame Rs 30

Caliper 6” Make Samrat Rs 50

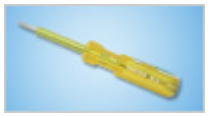
Block Plane Rs 300. We don't find much of its use in Anveshika.

Carborundum Stone Rs 130

Screw Driver Set, Taparia



Multipurpose Digital Line Tester, Taparia Rs 84



Line Tester, Taparia

Combination Plier, Taparia. Very useful.

Pipe Wrench, Taparia. We don't find much of its use in Anveshika.