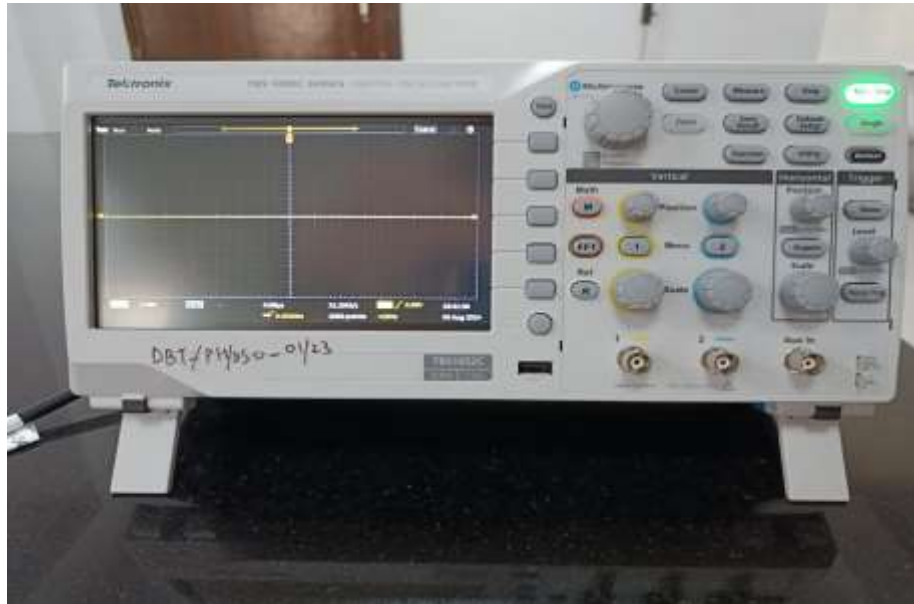




Sonicator

The purpose of the sonicator is to provide extra energy so that particles in the solution can be well dispersed. Also it is important condition for many chemical reactions and hence synthesis of materials.



Digital Storage Oscilloscope

Digital storage oscilloscope having two channel input and is capable of digital memory that is going to store the digital copy of the waveform. The storage can last years as well as can be transferred to pen drive or other storage mediums. This will enable the students to integrate the results of an experiment from one semester to enable further processing and analysis in subsequent semesters.



Function Generator

The function generator is a dual channel device which has two input modules. The two modules may be used independently one at a time as well as simultaneously. The students will be benefiting from the independent yet simultaneous use of the two input channels as the two channels provide a coherent as well as phase lag defined sources. This will be immensely helpful in performing experiments like study of Lissajous figures.



Electromagnet with measuring unit

By incorporating electromagnets into undergraduate courses, students gain hands-on experience and a deeper understanding of fundamental principles and their practical applications. Electromagnet can be used to:

- Controlled magnetic field: Allows for precise control over the magnetic field strength and direction.
- Variable field strength: Enables students to study the effect of changing magnetic field strengths on the Hall voltage.
- Easy setup and adjustment: Electromagnets are relatively simple to set up and adjust, making it easier for students to focus on the experiment.

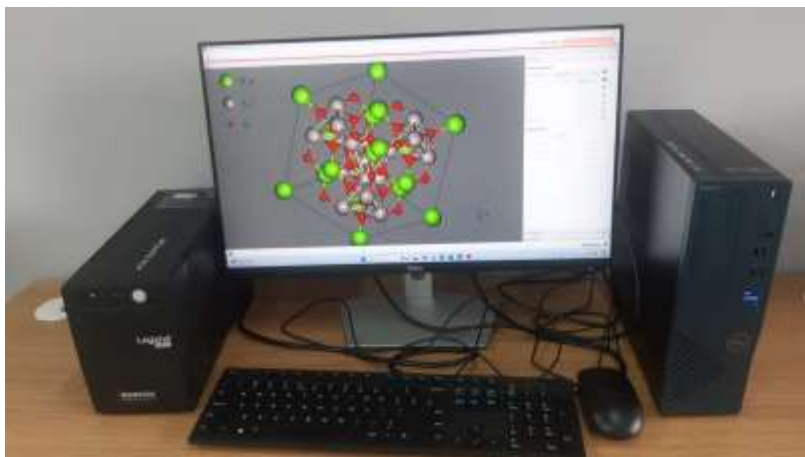
This electromagnet is also exploited to measure the susceptibility of paramagnetic material salt solution.

- This setup also enables to design Magneto-resistance setup in future.



Surface Plasmon Resonance Set Up

Surface Plasmon Resonance (SPR) setup is used to determine the plasma frequency and hence the refractive index of different materials. It also helps to measure the real and complex part of dielectric constant of materials. SPR is a powerful technique for analyzing the interaction of light with metal surfaces, providing critical insights into the optical properties of metals and other materials. By analyzing the resonance conditions, one can obtain precise values for the dielectric constants, which are essential for various applications in nanotechnology, sensor development, and material science. This setup is fundamental for understanding and utilizing the unique properties of surface plasmons in advanced technological applications.



Workstation with monitor and UPS

Workstation with 13th - generation i-7 processor with clock frequency 2.1 GHz, memory of 32 GB RAM and 1TB hard disk is used for implementing advanced computational algorithms, including simulations based on the techniques of Density Functional Theory, Molecular Dynamics and Machine Learning.



Arduino Kit with accessories

Arduino kits with different sensors compatible with ATMEGA-328 microcontroller can be used for acquisition of real-time data. Different sensors can be interfaced with Arduino Uno board to measure a physical parameter like temperature, humidity, pressure etc.



Welding Machine

Metal waste of college will be welded for making useful products. The welding machine will also be used by students for repairing damaged metal items of the college.



Switch Board Cutting Machine

This machine will be used to cut out desired patterns from wooden and plastic sheets and boxes. E-waste parts will be fitted into these cutout patterns to make usable products thereby upcycling the E Waste.



Transformer Trainer

Students will perform the following extension experiments on this trainer.

- a. Star and Delta configuration of three phase transformer and voltage / current relations for balanced and unbalanced loads connected in Star and Delta configuration.
- b. To study the variation of power factor for mixed and variable loads.



Electrical Machine Trainer

This set of machines will be used by students to perform following extension experiments.

- a. Three phase AC generator
- b. Three phase AC motor
- c. Series DC Motor and Generator
- d. Shunt DC Motor and Generator
- e. Compound DC Motor and Generator
- f. Configure three phase Connection study Motor as 2 poles, 4 pole, 6 pole configurations and check the rpm.
- g. Configure connection study motor as single-phase motor.



Working zig with magnifier and LED light

These zigs will be utilized by students for soldering control and fine desoldering.



Multipurpose cutting Machine

It will be used for cutting plastic and wooden sheets out of furniture waste of college and making usable products out of it.