Applied Science & Humanities Department

Guru Nanak Institute of Technology, Kolkata.

Physics lab I

Physics lab II is used to conduct practical classes for B.Tech.1st year student's accommodating **30 students/ batch** of **3 periods slot with 50minutes/period.** Streams of CSE, IT, ECE, EE and ECSE used to perform practical experiments with basic knowledge of class 12^{th} standard in the field of Units and measurement, Elasticity, Optics Modern Physics etc. as per their $1^{st}/2^{nd}$ semester autonomy syllabus following R21 curriculum. Students gain some knowledge with data collection; data analysis and they become capable in drawing conclusions to the different experimental results.

This **Physics I lab (72 sq m)** has quality equipments for experiments on Young's modulus, Rigidity modulus, LCR circuit, Frank Hertz Experiments etc. **Physics I lab** has a separate **Dark room** (22.5 sq m) for performing optics based experiments like LASER, Newton's ring, Planck constant experiments etc.

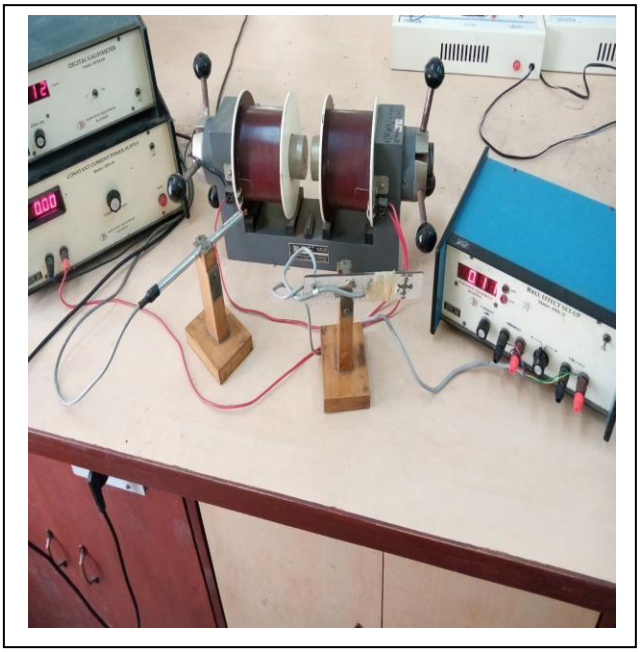
Students' performances are measured through continuous evaluation, where students learn to conduct the experiments following standard procedures, find out the results by graphical analysis, and relate the necessary theories by exploring through relevant question-answer sessions. All Lab manuals are available in laboratory.

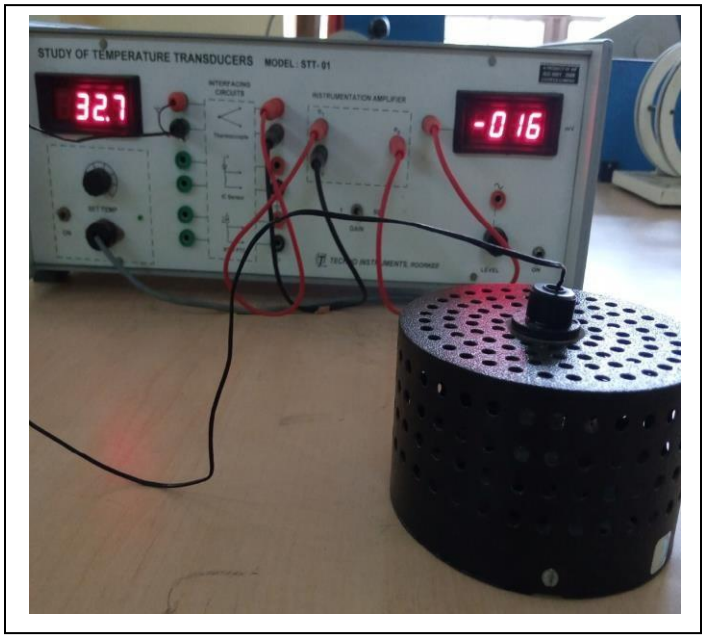
Physics lab II

Physics lab II is used to conduct practical classes for B.Tech.2nd year student's accommodating **30 students/ batch** of **3 periods slot with 50minutes/period.**Streams ofCSE,IT,ECE,EEandECSE used to perform some advanced practical experiments with basic knowledge of 1st year in the field of Electromagnetics, Quantum Physics, Modern Physics, Solid State Physics etc. as per their $3^{rd}/4^{th}$ semester autonomy syllabus following R18, and currently, R21 curriculum.

This Physics lab II**(76.25 sq. m.) has quality equipment** for experiments on study ofStefan's constant, Energy band gap of semiconductor, Hall effect, Thermal Transducer, e/m measurement. Di-electric constant etc.. Laboratory II has a separate **Dark room (22.5 sq. m.)** for performing optical-effect based experiments like I-V characteristics of LED and LDRexperiments, PV Solar Celletc..

Students' performances are measured through continuousevaluation, where students learn to conduct the experiments following standard procedures, find out the results by graphical analysis, and relate the necessary theories by exploring through relevant question-answer sessions. All Lab manuals are available in laboratory.

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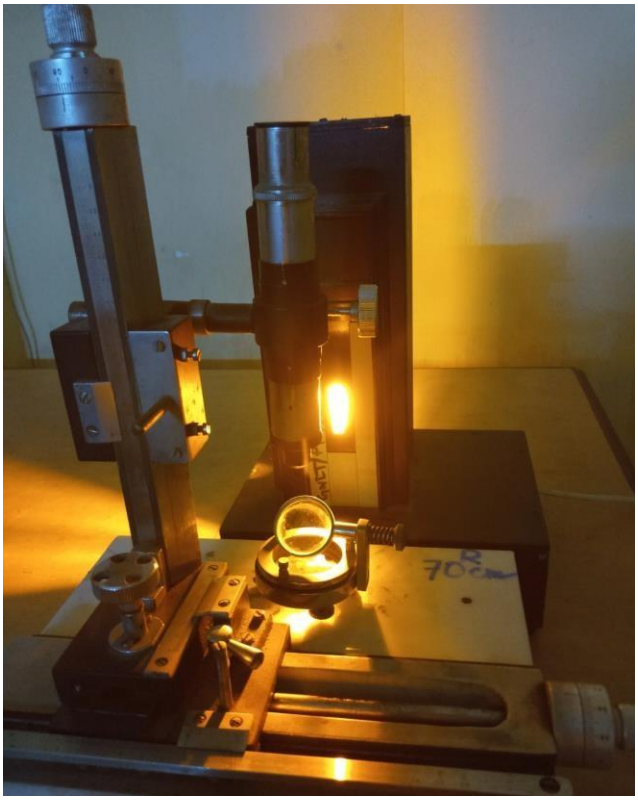
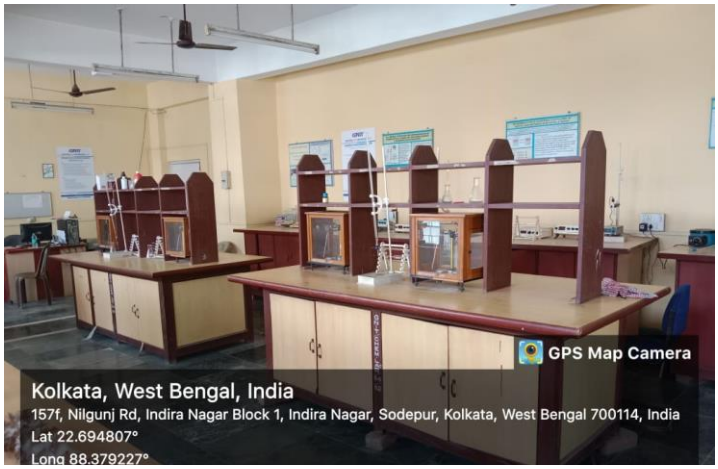


Chemistry lab

Chemistry Lab I is used to conduct practical classes for B.Tech.1st year student's accommodating **30 students/ batch** of **3 periods slot with 50minutes/period.** Streams of CSE, IT, ECE, EE and ECSE used to perform practical experiments with basic knowledge of class 12^{th} standard in the field of preparation of standard solutions, titration based experiments and apparatus based experiments like viscosity measurement, salt analysis etc. as per their $1^{st}/2^{nd}$ semester autonomy syllabus following R21 curriculum. Students gain some knowledge on qualitative and quantitative chemical analysis, data collection, data analysis and they become capable in drawing conclusions to the different experimental results.

This **Chemistry Lab I (90 sq m)** has quality equipments for various qualitative and quantitative chemical analysis like titration based equipments, digital balances, double distillation water unit, pH and conductivity meters etc. **Chemistry II lab** has a separate area of (**40 sq m**) for performing Environmental based experiments connected with Green Chemistry Approaches. It is also used as a Project Lab having UV-Visible Spectrophotometer interfaced with data acquisition software and mostly used for Food Technology 2^{nd} Year students.

Students' performances are measured through continuous evaluation, where students learn to conduct the experiments following standard procedures, find out the results by graphical analysis, and relate the necessary theories by exploring through relevant question-answer sessions. All Lab manuals are available in laboratory.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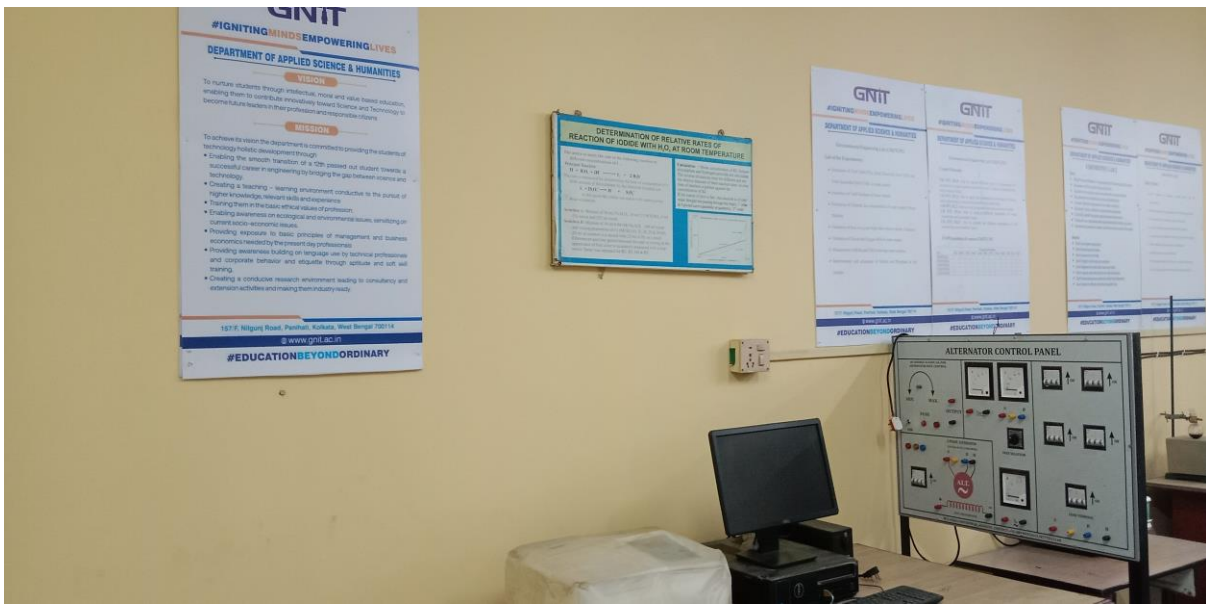
#IGNITINGMINDSEMPOWERINGLIVES
DEPARTMENT OF APPLIED SCIENCE & HUMANITIES
VISION
MISSION
#EDUCATIONBEYONDORDINARY
DETERMINATION OF RELATIVE RATES OF REACTION OF IODIDE WITH H2O2 AT ROOM TEMPERATURE
ALTERNATOR CONTROL PANEL

Language Labs 1 & 2

Language Lab 1

Language Lab 1, on the second floor of GNIT, is a 36-seater audio-video lab, with facilities for sound recording, audio analysis and feedback and audio visual presentations. It uses Orell-Pro language learning software in order to strengthen and improve the listening and speaking skills of students and make them industry ready.

Equipments:
There are 19 computers connected on LAN. There is also a 29" flat screen TV, a video recorder, projector, and voice recorder. There is an overhead audio system with speakers and audio amplifiers.

Experiments conducted:
The following activities/experiments are regularly conducted in the lab.

Listening Activities
Business Telephony
Dictogloss
Listening Transcription
Phonetic and Pronunciation activities
Audio recording activities
Video recording activities
Sound and video editing
Speaking activities
Group Discussion
Personal Interview practice

Language Lab 2:

Language Lab 2, located also on the second floor, is a 50-seater audio-video lab, with facilities for online language learning, pronunciation practice, speaking and listening activities. The iTell software (by Orell) is used.

Equipments:
There are 50 computers connected on LAN, with a teacher console.
There is a projector, sound system with overhead speakers and ampligfiers.
There is also a Digital Voice Recorder and microphones.

Experiments:
Same experiments/activities are conducted as in Lab 1.

Fig. 1.1 Language Lab 1 Student Seating Area

Fig. 1.2 Language Lab 1 Student Cubicles

Fig. 1.3 Language Lab 1 Student Voice Recording

Fig. 1.4 Language Lab 1 Student Presentation Session

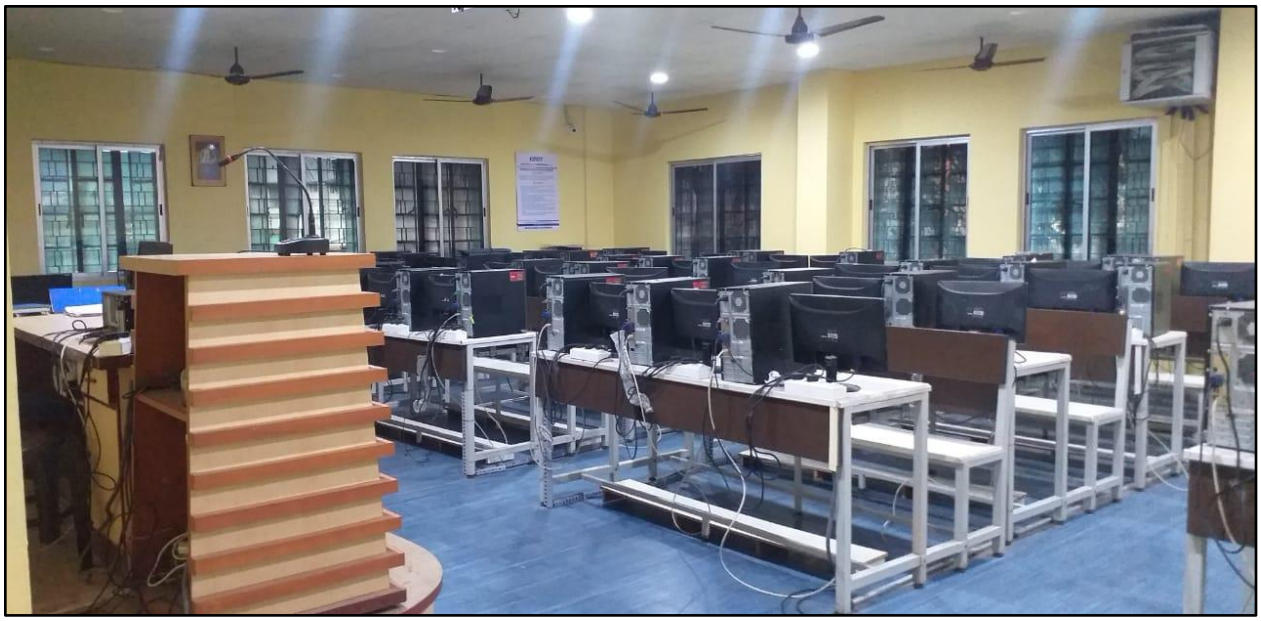

Fig. 1.5 Language Lab 2 Outlay

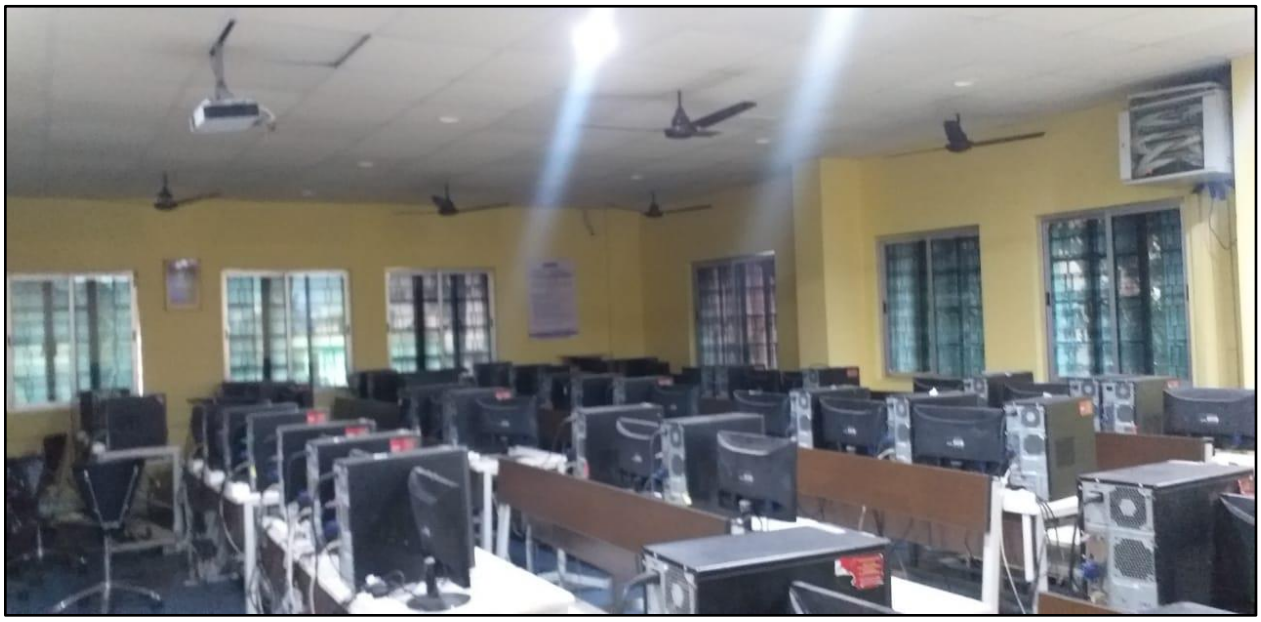

Fig. 1.6 Language Lab 2 Student Systems

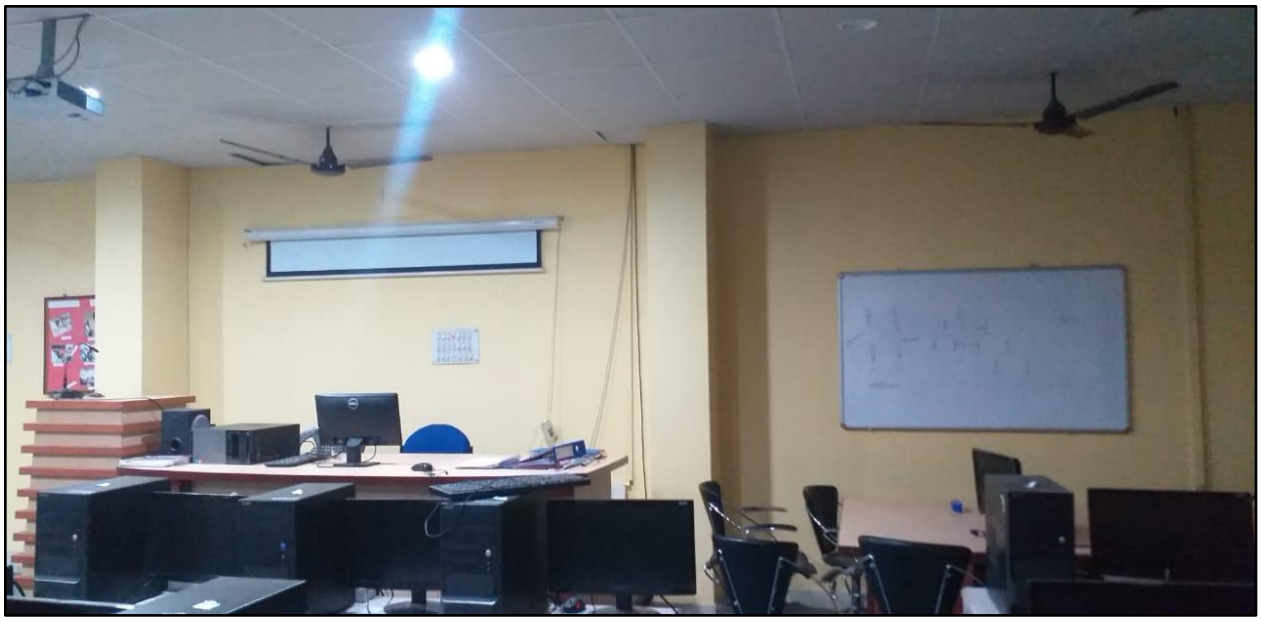

Fig. 1.7 Language Lab 2 Board & Projection

Fig. 1.8 Language Lab 2 Student Systems

Workshop/Manufacturing Practice Lab

The objective of this lab is to get hands on knowledge of several Workshop Practices like carpentry, fitting, welding, machining etc and learn safety regulations to be maintained in a shop floor. This laboratory is scheduled for 1st and 2nd semester for all engineering students. Apart from curriculum, some additional experimental setups are there which helps the students to enhance their knowledge. Students also get opportunity to implement their ideas through various application oriented micro projects.

Major Equipments:

- Centre Lathe (Bed length 4.5'x11"width,height of center 9")
- Universal Milling Machine (Table size 30"x 7")
- Shaping Machine (Stroke length 12")
- Pillar Drill Machine (Capacity 1")
- Grinding Machine (Wheel 8"x 1"x 3/4", 0.75 HP, 3 ph 440V motor)
- Power Saw Machine (350mm x 32mm x 8 tpi, capacity to cut 6"dia round bar)
- Welding Transformer (2 phase, current range 60A-350A, Input voltage 220V-440V, Air cooled)
- Welding Machine (TP-1500, comprising of power source ,TP-1500, Earth cable 16 sq. mm, welding cable 16 sq. mm)
- Spot Welding Machine (10 kVA input)
- Sheet Bending Roller (3ft, 20 SWG sheet)
- Edge Folding Machine (24" x 20 SWG)
- Single Arm Ball Press Machine (Die setting space 9 inch x 5 inch with two no. balls)
- Hand Lever Shear (24")
- Wood Turning Lathe (6ft, 1HP 220 V, 1440 rpm)
- Surface Planner (10" table, 1HP, 1440 rpm)
- Band Saw Machine (2 HP motor & 12" band gap)

List of Experiments:

- Fitting Shop: Making 'v' groove on a ms plate.
- Welding Shop:
  - To prepare a butt joint using m.s. plates by Manual Metal Arc Welding technique
  - To prepare a butt joint using m.s. plates by Gas Welding technique
- Machine Shop:
  - To make a pin from a mild steel rod in a Lathe.
  - To make rectangular and vee slot in a block of cast iron or mild steel in a Shaping and / or Milling Machine.
- Carpentry Shop: To make wooden joints and/or a pattern
- Electrical & Electronics: House Wiring, Soft Soldering
- Smithy Shop: A simple job of making a square rod from a round bar or similar.

Name of the Lab: Engineering Graphics & Design Lab

The objective of this lab is to learn basics of engineering drawing or drafting as a tool for expressing an engineering design. This laboratory is scheduled for 1 st and 2nd semester for all engineering students. Apart from curriculum, some additional experimental setups are there which helps the students to enhance their knowledge. Students also get opportunity to implement their ideas through various application oriented micro projects.

Major Equipments:

- Drawing Boards
- Drawing Tables
- Sitting Stools

List of Experiments:

- Lines, Lettering, Dimensioning, Different types of scale
- Geometrical Construction and Curves
- Projection of Points, Lines, Surfaces & Solids, Isometric Projection
- Sectional Views & Development of Surfaces
- Overview of Computer Graphics
- Cad Drawing, Customization, Annotations, Layering