

Introductory Session for Btech Physics Lab(IC-107)

Lab Incharge- Dr. Dhriti Sundar Ghosh

Lab TAs:

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| 1) Utkarsh Patel | 2) Kiran Sharma |
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March 29, 2022

- ① A facility that provides **controlled conditions** for performing scientific or technological research, experiments and measurements.
- ② Scientific Laboratories can be found as research rooms and learning spaces in schools, colleges, industries, government and military facilities.
- ③ The idea of such facilities in an educational institution is to provide the students with a **hands-on practical experience** of classroom knowledge, as a part of their holistic development.

What to expect

- 1 Instruments in proper working conditions with all the safety instructions clearly mentioned.
- 2 Experiment Manuals defining the aim, required apparatus and procedure to perform the experiments.
- 3 Presence of atleast 1 experienced person(whether it be the Lab Incharge, TAs or Lab Assitants) inside the facility for your assistant.
- 4 A safety protocol set-up, medical emergency kits and proper electrical wiring.

IMPORTANT INFORMATION/CONTACTS FOR EMERGENCY SITUATIONS

- In case of an emergency, call the **Institute Security (Mobile number: +91 9424283731)** and **Lab Technician (Mobile number: +91 9754598392)**.
- In case of **fire**, call the **Institute Security (Mobile number: +91 9424283731)** first and then call the **Fire Helpline (101)**.
- **Nearest fire extinguisher** is placed outside **Room No. 209** in the same floor. If you don't know how to use it, ask for the help from the security.
- **If you are not able to open the lab door from inside** by pressing the red button near the door, call the **Institute Security (Mobile number: +91 9424283731)**. Inform them about the situation and ask them to deactivate the mechanism to open the door.

What we expect from the Student

- 1 **Punctuality:** The Working hours allotted for each session is strictly 3 hours, thus students are required to adhere to time bounds. The session end time would be common to all, irrespective of the student's entry time.
- 2 **Discipline and Lab Decorum:** Try to minimize the use of cell phones or tablets inside the Laboratory. Talking loudly, making un-necessary noises, instrument mis-handling is highly discouraged.
- 3 **Avoid Electricity and Paper Wastage:** Switch off the Instruments when not in use. Also, ensure the same for other appliances like fans, lights, ACs.
- 4 **Come Pre-prepared:** This is the crucial-most point. A Student is expected to read about the experiment and its methodology before coming to the lab. Manuals would be shared with everyone for the same.

General Instructions

Students are expected to exercise common sense when working with laboratory experiments. Listed are some DO's and Don'ts:

Do's

- Keep work area and apparatus clean.
- Observe the warning signs and labels on the walls and instruments.
- Report any injury or accident to the nearby incharge immediately.
- Follow all the verbal and written instructions. Those are designed for smooth functioning of the lab.

Don'ts

- No Food, beverages, and chewing gums inside the facility.
- Never work in the lab unsupervised or perform unauthorized experiments.
- Don't fool around in the Lab. No pranks, horseplay or practical jokes.
- Students are not permitted to take the equipments outside the laboratory.

Following personal safety points must be taken care of:

- Wear closed-toe shoes, tie back long hair, avoid loose or baggy clothing while at lab.
- Report any spills, injury, breakage or damage immediately to the nearest instructor.
- Know the locations of all exits and always keep in mind the location of nearest one.
- Wash hands thoroughly with soap and water after handling any laboratory material.
- Avoid looking at LASERS directly at all costs. Also, don't wear shiny reflective jewellery as it may reflect off the light to someone else's eyes.

Laboratory Safety

- Do not touch or handle any equipment unless instructed.
- Do not remove stickers, labels or markings from the instruments or the lab walls.
- Do not handle broken equipments and report the same to the instructor.
- Dispose of all the waste material only where as directed by the lab technicians.
- Place equipments that can roll in a container to avoid mishandling.
- Any apparatus taken from the lab staff needs to be returned back to them before exiting.

Instructions related to Laboratory Reports

- Each lab session will require the student to finalize a report of the performed experiment within the stipulated 3 hours. The lab manuals contain the instructions of what all is to be written in your reports.
- Writing what is relevant is the key to finish your experiment within the given time-limit, but **additional details and efforts are always welcomed**.
- Students need to properly label their graphs and perform error-analysis on their results, wherever required. Keep a track of instrument least counts, scales and other sources of error. Mention them in your reports.
- If there is a mis-match between the expected and observed results, try to justify the same in your reports, but **do not involve in forgery of data and results**. **Such cases are highly discouraged**.

Assessment areas and other relevant details

- Students would mainly be assessed over their Data Table, calculations and reporting of error sources. Other formal details(as described in the manual) are also required, but would be weighted less. Ensure the submission of your practical reports before leaving the Laboratory.
- Graphs and plots are to be properly labelled with clear axis, units and scale factor defined. For scattered data points, construction of a best fit line is encouraged.
- Try to attend all the lab sessions, which require your presence. In case of a leave or absence due to some non-medical reason, a prior intimation is required from the student's end, else for a medical reason, a medical certificate would be required.

The true laboratory is the mind,
where behind illusions we uncover
the laws of truth.

— *Jagadish Chandra Bose* —

Thanks to all for listening!