



Indian Institute of Technology Kanpur
Department of Physics

Physics Lab – PHY111

25-26 Semester – II

Course objective:

- To provide an opportunity for learning through doing, observing and testing
- To become familiar with the instruments and gain experience in handling them
- To acquire the skill of making the optimum use of a given apparatus
- To establish for yourself the working of physical principles
- To become aware of limitations of the accuracy with which measurements can be made
- Generally, to relate textbook information to the behavior of the physical world around you

Course structure:

- Regular lab sessions will start from Monday, January 12th.
- The lab will run five days a week – for five batches; each student will attend the lab once a week
- The batches are made as per sections
- There will be two students in each group performing an experiment
- Timing: 10:00 to 13:00 hrs.
- Venue: Physics UG lab (1st floor) at New Core Lab building
- Each of you will perform 9 experiments (among 10 available experiments) in this semester

General guidelines:

- Lab manual softcopy will be sent to you.
- One experiment (including data recording, analyses, graph plotting) needs to be completed in one day, *i.e.*, in 3 hours, and the lab report needs to be submitted at the end of the lab session
- Come to the lab on time – no extra time will be given to complete your experiment
- No entry to the lab after 10:15 am
- You need to bring the lab report book, graph papers, calculator and pencil box
- No printed materials are allowed on the experiment table
- Keep your bag away; bring only lab report book, graph papers, calculator, and pencil box to the experiment table
- Come prepared for the experiment assigned to you; read the lab manual thoroughly to prepare
- Write the working principle for the experiment and make the tables for recording your observation in your lab report book before coming to the lab
- Do not use pencil to write your observation (data) on the lab report book, write only by pen
- Get the first set of your data signed by the TA
- If the report remains incomplete, submit the incomplete report
- If you have any questions, ask the assigned TA for the experiment
- You may come in at a specified time to see your mistakes in the lab reports after they are graded
- Don't miss a lab session – there will be no makeup lab later, unless a lab session is missed due to medical emergency (authorized by HC and approved by DoAA)
- Strictly no mobile phone in the lab – if you are seen with your mobile phone, 10 marks will be deducted

Grading policy:

- Continuous evaluation: 60%
Marks obtained from a total of 9 experiments
Each experiment carries 30 marks (Punctuality, preparedness and performance: 10; Lab report: 20)
- Final exam: 40%
Marks will be given for successfully performing the experiment, report preparation, and viva

Lab safety guidelines:

- Avoid accidents to be safe and keep safe
- Come with covered, *i.e.*, closed toe shoes, No entry with slippers
- Do not climb on anything that can slide, *i.e.*, lab stools with wheels; climb on stools without wheels, if required
- If you feel an electrical shock, switch off the power supply and inform the TA or a lab technician immediately
- If feeling unwell or dizzy, inform the TA or the instructor, or the lab in-charge immediately

List of experiments:

1. Prism spectrometer
2. Velocity of light
3. Helmholtz coil
4. Coupled pendulum
5. Linear air-track
6. Pohl's pendulum
7. Moment of inertia of a bicycle wheel
8. Electromagnetic induction
9. Current balance
10. Gyroscope