

**Indian Institute of Technology Kanpur**  
**Department of Physics**



**Physics Lab – PHY111**  
**25-26 Semester – I**

**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, August 4<sup>th</sup>.
- 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 (Room no. 204, 1<sup>st</sup> floor) at New Core Lab building
- Each of you will perform 10 experiments in this semester.

**General guidelines:**

- Lab manual softcopy (the updated version) will be available on UG Lab (PHY 111) website. If you need hardcopy, then please get it printed from any suitable shops.
- 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:

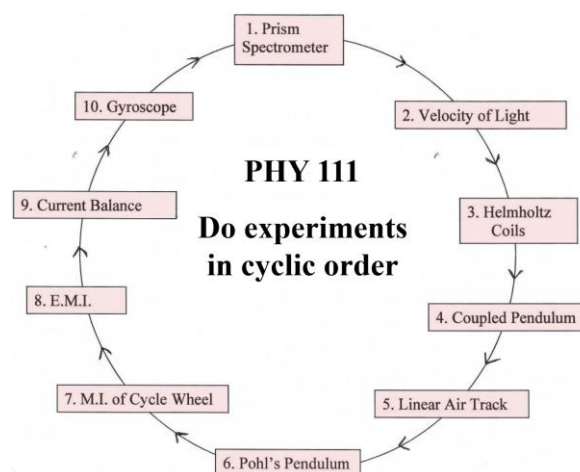
- Continuous evaluation: 60%  
Marks obtained from a total of 10 experiments.  
Each experiment carries 30 marks (Punctuality, preparedness, and performance: 10; Lab report: 20)
- Final exam: 40%  
Marks will be given for successfully performing the experiment, report preparation, and viva
- One needs to do at least 7 out of 10 experiments to appear for the end-sem exam. If you are absent in the end-sem exam, an F grade will be given.

### 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 feeling 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



### Course Instructors:

Chanchal Sow (Email: [chanchal@iitk.ac.in](mailto:chanchal@iitk.ac.in) , Phone: +91 512 259 4768)  
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### Lab in-charge:

Mr. A.S. Rathaur (Email: [arathaur@iitk.ac.in](mailto:arathaur@iitk.ac.in) , Phone: +91 512259 7953, Mob: 8299174368)



Department of Physics  
UG Lab (PHY 111)  
New Core Lab-204, Tel: 7953  
IIT Kanpur

Lab instructions



Lab starts from 10:00 am sharp (Mon-Fri)  
No entry to Lab after 10:15 am



No open footwear allowed in Lab  
Use proper fully covered shoes



No cell phones in the Lab  
10 marks will be deducted if found



Come fully prepared before entering Lab  
(Make tables, write formulae, read theory etc.)



Don't use pencil to write data/Lab report  
Get the first set of your data signed by TA



No extra time will be given  
Finish data recording in 2 hrs. (10:00-12:00)



Write & submit Lab report before 1:00 pm