



भारतीय प्रौद्योगिकी संस्थान भिलाई

जी. ई. सी. कैम्पस, सेजबहार, रायपुर – ४९२०१५

छत्तीसगढ़, भारत

Indian Institute of Technology Bhilai

GEC Campus, Sejbahar, Raipur – 492015

Chhattisgarh, India

Phone # 0771-2973600/602

Physics Lab (209)
Department of Physics

Laboratory Safety Manual

❖ **General safety instructions:**

The students in the physics lab are expected to exercise common sense when working with laboratory equipment. When personal experience does not help to identify and avoid safety hazards, the student should exercise extra caution and consult with instructor for assistance. Safety is more important than pride; questions about safety will be answered promptly by the instructor.

Students are expected to listen and follow ALL instructions, precautions and guidelines given by the laboratory instructor.

1. Wear shoes that will protect your feet from electric shock.
2. Food, beverages, and chewing gum are NOT permitted in the laboratory.
3. Read the entire theory and experiment before entering the lab.
4. Keep work areas and apparatus clean, rearrange apparatus in an orderly manner, and report any damaged or missing items during/after finishing the experiment.
5. DO NOT look directly at LASER source. This may cause permanent eye damage. Avoid looking at bright light sources.
6. LASER, power supply or other electrical equipment should NOT be left unattended when turned on. Always turn these items off when not in use.
7. Observe the warning signs and labels on the walls and instruments.
8. DO NOT modify or damage the laboratory equipment in any way unless advised by the instructor. This does not include the changing of a lab setup as prescribed by the procedures in carrying out of measurements.
9. NEVER leave your experimental set up unattended while it is in operation. DO NOT fiddle around with apparatus. Handle the instruments with care.
10. Never work in the lab unless an instructor is present and aware of the experiment that you are doing.
11. Report any accident or injury to the instructor immediately, no matter how trivial it may appear.
12. Return all materials and apparatus to the corresponding places designated by your instructor. Follow your instructor directions for disposal of any waste materials. Keep the work area clean.



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13. Know the locations of the exits (of the room and the building). Know the location of the fire extinguishers. If fire occurs your job is to leave the lab with your partner immediately. Try informing the instructor.

❖ **Safety instructions while handling glassware**

1. If a thermometer breaks, inform your instructor immediately. Do not touch either the mercury or the glass with your bare hands.
2. Do not heat glassware that is broken, chipped, or cracked. Use tongs or a hot mitt to handle heated glassware. Allow all equipment to cool before storing it away.
3. If a bulb fuses, notify your instructor. Do not remove bulbs from socket.

❖ **Electrical safety instructions**

1. DO NOT switch ON your circuit until it has been inspected by your instructor. NEVER open, rewire or adjust any elements inside of the electrical casing.
2. NEVER work with electricity with wet hands or near water. Be sure the floor and all work surfaces are dry.
3. DO NOT work with any batteries, electrical devices, or magnets other than those provided by your instructor.
4. When you have finished your work, check that the electric circuits are DISCONNECTED.

❖ **Cautious clothing**

1. Tie back long hair, secure loose clothing, and remove loose jewelry to prevent their getting caught in moving or rotating parts in the equipment.
2. Remove ALL reflective surfaces from hands which include jewellery, wrist watches etc while working with LASER.



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❖ **Safety instruction while handling chemicals:**

1. Don't Taste or Sniff Chemicals
2. Don't Casually Dispose of Chemicals Down the Drain
3. Use appropriate personal protective equipment (i.e., chemical splash goggles, laboratory aprons or coats, and gloves).
- 4 Read the Chemical Safety Information.



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DO's

- Obtain a copy of the manual and laboratory notebook from the faculty-in-charge/lab technician.
- Always be regular in practical classes and complete your work within the given schedule.
- Write down the experiments in your notebook in the same manner as given instruction.
- The experiments must be performed independently all by yourself. The data you use must be the ones that you have recorded yourself.
- Before leaving the lab makes sure that your work area is clean and tidy.
- Bring calculator, pencil, eraser, and ruler regularly in your lab periods. At the end of the period, submission of notebook is a must for getting attendance.
- Please read and understand about the theory of your experiment. There will be questions on the theory in viva voce.
- Please read the precautions mentioned in the manual for each experiment.
- Be aware of the location of the exits, fire extinguishers, first aid box and emergency phone numbers.
- Handle all the instruments carefully. Please do not hesitate to give your feedback at any time.

DON'Ts

- Don't touch any equipment or electrical supplies without specific authorization.
- Do not modify or damage the laboratory equipment in any way unless the modification is directed by the faculty-in-charge / lab technician.
- Please exercise caution when dealing with electrical devices. Do not use any machine or device that smokes, sparks, or appears defective in any way. Contact the faculty-in-charge/lab technician immediately.
- Keep away your eyes from laser light.
- Do not try to manipulate your readings for getting errorless results. Instead of that learn how to perform the experiments and discuss your results with the faculty-in-charge/lab technician.
- Do not talk aloud in lab and wander around the room, distract other students, startle other students or interfere with the laboratory experiments of others.
- Do not eat food, drink beverages or chew gum in the laboratory.