

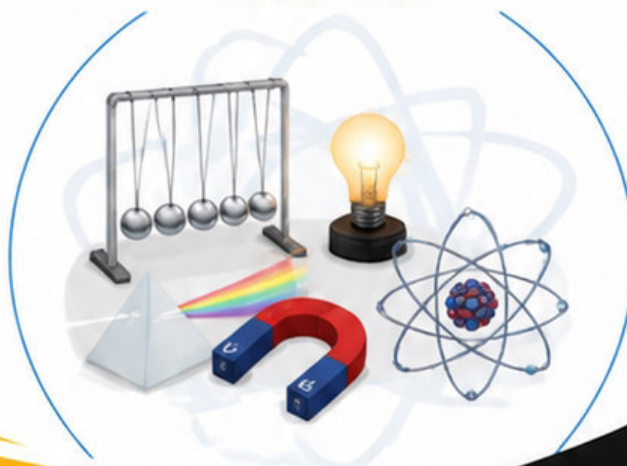


DEEPSHIKHA GROUP OF COLLEGES

Nurturing Talent, Empowering Futures

• STANDARD OPERATING • PROCEDURE FOR DEPARTMENT OF PHYSICS

DEEPSHIKHA COLLEGE OF
TECHNICAL EDUCATION
JAIPUR



QUALITY
EDUCATION



SCIENTIFIC
EXCELLENCE



INNOVATION &
RESEARCH



COLLABORATION &
TEAMWORK



SAFETY &
RESPONSIBILITY

STANDARD OPERATING PROCEDURE (SOP)

Physics Laboratory

1. Purpose

To establish standardized procedures for the safe, effective, and systematic operation of the Physics Laboratory for teaching, demonstrations, practical work, and teacher training in accordance with institutional policies.

2. Scope

This SOP applies to:

- Principal
- Physics Faculty
- Laboratory In-charge
- Laboratory Assistant
- Student Teachers
- Authorized Visitors

3. Objectives

- Ensure safe laboratory practices.
- Facilitate effective teaching-learning through experiments.
- Maintain laboratory equipment in working condition.
- Ensure proper documentation and inventory management.
- Promote scientific skills and experimental accuracy.

4. Responsibilities

Principal

- Provide adequate laboratory facilities and budget.
- Monitor laboratory functioning.

Laboratory In-charge

- Prepare practical schedules.
- Maintain stock registers.
- Ensure safety compliance.
- Verify laboratory records.

Laboratory Assistant

- Arrange apparatus before practical sessions.
- Maintain equipment.
- Assist during practical classes.
- Ensure cleanliness of the laboratory.

Faculty

- Demonstrate experiments.



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- Supervise students.
- Verify practical records.
- Ensure discipline and safety.

Students

- Follow laboratory rules.
- Handle instruments carefully.
- Maintain practical records.
- Report any damaged equipment immediately.

5. Entry Procedure

Students shall:

- Enter only with faculty permission.
- Wear a laboratory coat where required.
- Carry practical record books.
- Keep personal belongings in designated areas.
- Maintain silence and discipline.

6. Laboratory Safety Rules

- Read the experiment before beginning.
- Do not touch electrical equipment with wet hands.
- Switch OFF power before connecting or disconnecting circuits.
- Handle glass apparatus carefully.
- Avoid overloading electrical circuits.
- Keep the laboratory clean.
- Report accidents immediately.
- Never operate instruments without instructions.
- Keep water away from electrical equipment.

7. Personal Protective Equipment (PPE)

Where applicable:

- Laboratory coat
- Closed-toe shoes
- Safety goggles (during optical or mechanical experiments)
- Insulated gloves while handling electrical equipment

8. Equipment Handling

Common laboratory equipment includes:

- Vernier Calipers
- Screw Gauge
- Meter Scale
- Pendulum Apparatus


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- Optical Bench
- Spectrometer
- Travelling Microscope
- Galvanometer
- Ammeter
- Voltmeter
- Millimeter
- Rheostat
- Resistance Box
- Battery Eliminator
- Transformer
- CRO/Oscilloscope (if available)
- Digital Balance

Procedure:

- Check equipment before use.
- Use equipment according to instructions.
- Do not force moving parts.
- Return equipment after use.
- Report faulty instruments immediately.

9. Electrical Safety

- Inspect wires before use.
- Use properly insulated cables.
- Switch OFF the main supply after experiments.
- Do not touch exposed conductors.
- Avoid loose electrical connections.
- Use low-voltage power supplies whenever possible.

10. Conduct of Practical Work

Before Practical

- Prepare apparatus.
- Check electrical connections.
- Verify working condition of instruments.
- Demonstrate experiment.

During Practical

- Explain objectives.
- Observe student performance.
- Ensure correct use of instruments.
- Encourage accurate observations.


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After Practical

- Switch OFF electrical supply.
- Return apparatus.
- Clean work tables.
- Record damaged equipment.

11. Maintenance of Laboratory

- Clean laboratory daily.
- Cover sensitive instruments after use.
- Store optical instruments in dust-free cabinets.
- Lubricate moving parts periodically.
- Calibrate precision instruments annually.
- Replace damaged electrical cords immediately.

12. Waste Disposal

- Dispose of broken glass separately.
- Segregate electronic waste.
- Recycle batteries through authorized agencies.
- Dispose of packaging materials properly.

13. Emergency Procedure

Electric Shock

- Switch OFF power immediately.
- Do not touch the victim until power is disconnected.
- Provide first aid.
- Seek medical assistance.

Fire

- Switch OFF electrical supply.
- Use CO₂ or dry powder fire extinguisher.
- Evacuate if necessary.

Injury

- Administer first aid.
- Inform laboratory in-charge.
- Record the incident.

14. Housekeeping

- Keep laboratory benches clean.
- Arrange instruments properly.
- Store wires neatly.
- Maintain dust-free shelves.
- Ensure adequate ventilation and lighting.



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15. Good Laboratory Practices (GLP)

- Record observations immediately.
- Take multiple readings where applicable.
- Use SI units.
- Avoid parallax error while taking measurements.
- Keep instruments clean and calibrated.
- Return apparatus after use.
- Do not remove laboratory equipment without permission.

16. Laboratory Closing Procedure

At the end of each practical session:

- Switch OFF all electrical equipment.
- Disconnect power supply.
- Arrange apparatus properly.
- Lock storage cabinets.
- Clean laboratory benches.
- Verify inventory.
- Lock laboratory.



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