



DEEPSHIKHA GROUP OF COLLEGES

Nurturing Talent, Empowering Futures

• STANDARD OPERATING • PROCEDURE FOR DEPARTMENT OF CHEMISTRY

DEEPSHIKHA COLLEGE OF
TECHNICAL EDUCATION
JAIPUR



QUALITY
EDUCATION



SCIENTIFIC
EXCELLENCE



INNOVATION &
RESEARCH



COLLABORATION &
TEAMWORK



SAFETY &
RESPONSIBILITY

STANDARD OPERATING PROCEDURE (SOP)

Chemistry Laboratory

1. Purpose

To establish standardized procedures for the safe, efficient, and effective operation of the Chemistry Laboratory for teaching, demonstration, practical work, and research in accordance with institutional policies.

2. Scope

This SOP applies to:

- Principal
- Chemistry Faculty
- Laboratory In-charge
- Laboratory Assistant
- Student Teachers
- Visitors authorized to enter the laboratory

3. Objectives

- Ensure safe laboratory practices.
- Provide practical learning experiences.
- Maintain laboratory equipment and chemicals.
- Prevent laboratory accidents.
- Maintain proper documentation and inventory.

4. Responsibility

Principal

- Overall supervision of laboratory facilities.
- Ensure adequate budget and maintenance.

Laboratory In-charge

- Prepare laboratory schedule.
- Verify stock and inventory.
- Ensure safety compliance.
- Maintain laboratory records.

Laboratory Assistant

- Arrange apparatus and chemicals.
- Prepare reagents.
- Maintain cleanliness.
- Assist faculty during practical classes.

Faculty

- Conduct practical classes.



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- Supervise students.
- Verify practical records.
- Ensure laboratory discipline.

Students

- Follow laboratory rules.
- Wear laboratory coat.
- Handle apparatus carefully.
- Record observations honestly.
- Report breakage immediately.

5. Entry Procedure

Students shall:

- Enter only with faculty permission.
- Wear laboratory coat.
- Carry practical record book.
- Keep bags outside working area.
- Wash hands before and after practical work.

6. Personal Protective Equipment (PPE)

Mandatory PPE includes:

- Laboratory coat
- Safety goggles
- Hand gloves (where required)
- Closed shoes
- Face mask during handling of volatile chemicals

7. Laboratory Safety Rules

- No eating or drinking.
- No running inside laboratory.
- Never taste chemicals.
- Do not smell chemicals directly.
- Read reagent labels carefully.
- Use minimum quantity of chemicals.
- Never pipette chemicals by mouth.
- Use fume hood if available.
- Handle acids and alkalis carefully.
- Add acid to water—not water to acid.
- Switch off electrical instruments after use.

These are consistent with widely adopted academic chemistry laboratory safety practices.

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8. Chemical Storage

- Store acids separately.
- Store alkalis separately.
- Label every reagent bottle.
- Keep flammable chemicals away from heat.
- Maintain Chemical Stock Register.
- Expired chemicals shall be disposed of safely.

9. Equipment Handling

Equipment shall include:

- Electronic balance
- pH meter
- Hot plate
- Water bath
- Burettes
- Pipettes
- Volumetric flasks
- Test tubes
- Beakers
- Conical flasks
- Measuring cylinders

Procedure:

- Inspect equipment before use.
- Report damaged apparatus immediately.
- Clean and dry after use.
- Store properly.

10. Conduct of Practical

Before Practical

- Verify practical schedule.
- Prepare reagents.
- Arrange apparatus.
- Demonstrate experiment.

During Practical

- Explain objectives.
- Demonstrate procedure.
- Observe students.
- Ensure safety.

After Practical



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- Clean apparatus.
- Return chemicals.
- Record breakage.
- Update stock if required.

11. Waste Disposal

Segregate waste into:

- Chemical waste
- Glass waste
- Solid waste
- Liquid waste

Guidelines

- Neutralize dilute acids/alkalis before disposal where appropriate.
- Broken glass shall be disposed of separately.
- Heavy metal waste shall not be discharged into sinks.
- Follow institutional environmental guidelines.

12. Emergency Procedure

Chemical Spill

- Inform laboratory in-charge.
- Wear gloves.
- Neutralize if appropriate.
- Clean using spill kit.

Fire

- Switch off electricity.
- Use appropriate fire extinguisher.
- Evacuate if required.

Chemical Contact

- Wash affected area with running water.
- Use eye wash station for eye exposure.
- Inform faculty immediately.

Injury

- Provide first aid.
- Record incident.
- Refer to hospital if necessary.

13. Housekeeping

- Laboratory benches cleaned daily.
- Apparatus arranged after use.
- Chemical shelves dust-free.



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- Floors dry and clean.
- Waste bins emptied daily.

14. Preventive Maintenance

- Annual calibration of electronic balance.
- Quarterly inspection of glassware.
- Monthly verification of chemicals.
- Replace damaged apparatus immediately.
- Fire extinguisher checked periodically.

15. Good Laboratory Practices (GLP)

- Use only required quantity of chemicals.
- Label all solutions.
- Record observations immediately.
- Avoid contamination.
- Keep work area organized.
- Follow ethical laboratory practices.

16. Laboratory Closing Procedure

At the end of practical work:

- Clean work benches.
- Wash glassware.
- Return apparatus.
- Close chemical bottles.
- Switch off electricity and water.
- Lock chemical cupboards.
- Secure laboratory.



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