

Standard Operating Procedure (SOP) for Material Testing Lab

1. Lab Entry Protocol

All personnel must wear a lab coat, safety shoes, and safety goggles. Only authorized individuals are allowed inside the laboratory.

2. Pre-Check of Equipment

Inspect all testing machines (like UTM, Hardness Tester, Impact Tester) for any visual damage. Ensure the machines are calibrated and functioning properly before use.

3. Material Sample Preparation

Samples must meet the required standards in size, shape, and finish as per testing codes (e.g., ASTM, IS). Sharp edges and burrs should be removed.

4. Machine Setup

Set up machines correctly according to the test to be performed. Load cells, grips, dies, and other attachments should be fitted securely. Always reset tare/zero before starting.

5. Use of Personal Protective Equipment (PPE)

Proper PPE such as gloves, goggles, and ear protection must be worn during all experiments, especially during noisy or high-impact tests.

6. Test Procedure and Standards

Each test must follow a standardized procedure (ASTM, IS, BS, etc.). Ensure proper load rates, environmental conditions, and machine settings are maintained and recorded.

7. Machine Operation

Only trained and authorized personnel may operate testing machines. Be aware of and prepared to use the emergency stop button.

8. Data Recording

Test results must be recorded accurately in both manual logs and digital systems, if available. Include relevant graphs, charts, and readings.

9. Post-Test Handling

Turn off machines after use. Return movable parts to neutral positions. Remove tested specimens and store or dispose of them properly.

10. Lab Cleanliness and Housekeeping

Maintain a clean work area. Clear any debris, oil spills, or waste materials immediately after test completion.

11. Machine Maintenance Logs

Keep detailed maintenance and calibration records. Follow the machine servicing schedule strictly.

12. Report Preparation

Include test objectives, sample details, equipment used, procedure followed, results, and conclusions. All reports must be reviewed by a lab in-charge.

13. Emergency Protocols

Ensure all users know the location of fire extinguishers, first aid kits, and emergency exits. Report any injuries or incidents without delay.

14. Food and Electronic Devices

Food and drinks are not permitted in the lab. Use of mobile phones is limited to safe and non-critical areas.

15. Conduct and Discipline

Maintain professional behavior. Avoid unnecessary movement, noise, or behavior that could cause distraction or accidents

