

LABORATORY MAINTENANCE POLICY

Document	Policy and Procedures Compendium
Department	Administrative Office
Document Code	AO/P&P/15
Title	Laboratory Maintenance Policy
Approved by	Maharani Lakshmi Ammanni College Trust (Regd.)

INTRODUCTION

Laboratory forms a major part of infrastructure and skill learning. Adequate measures need to be implemented for Good Laboratory practices (GLP) and Standard operating procedures (SOP) for the proper maintenance and functioning of a Laboratory.

OBJECTIVES

- To implement GLP
- To follow SOP for the utilization of all equipment
- To maintain safety and cleanliness in the LAB

COMPONENTS OF A LABORATORY

Consumables	Non- consumables
Chemicals, Glassware's, Cleaning materials, Stationaries, First aid Kits, any other laboratory supply that are categorized as consumables	Equipment, Accessories, Computers/ Laptops and any other laboratory supply that are categorized as non-consumables

LABORATORY MAINTENANCE COMMITTEE

Principal- Chairman

Science / Arts/ Commerce Coordinator

HOD/ Program Coordinators

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Principal

Maharani Lakshmi Ammanni College
for Women, Autonomous
Science Post, Bangalore - 560 012.

Senior faculty (2)

Lab In-charge/ Attender (one from each department)

Good Lab Practices (GLP)

Basic safety rules for laboratory shall be followed by the students, instructors, attenders or whom so ever is working in the lab

- The safety equipment should be located in the hallway near the laboratory entrance.
- Avoid skin and eye contact with all chemicals.
- No frequent running/ jumping etc. should be allowed in the lab
- Proper labelling of hazardous materials, hazardous equipment, or other special conditions should be done.
- Avoid distracting or startling persons working in the laboratory.
- Use equipment only for its designated purpose.
- Combine reagents in their appropriate order, such as adding acid to water.
- Avoid adding solids to hot liquids.
- All laboratory personnel should place emphasis on safety and chemical hygiene at all times.
- Never leave containers of chemicals open.
- All containers must have appropriate labels. Unlabelled chemicals should never be used and shall be discarded if left unattended.
- Do not taste or intentionally sniff chemicals.
- Never consume and/or store food or beverages or apply cosmetics in areas where hazardous chemicals are used or stored.
- Do not use mouth suction for pipetting or starting a siphon.
- Wash exposed areas of the skin prior to leaving the laboratory.
- Long hair and loose clothing must be pulled back and secured from entanglement or potential capture.
- No contact lenses should be worn around hazardous chemicals – even when wearing safety glasses.
- Do not pour chemicals down drains. Do NOT utilize the sewer for chemical waste disposal.
- Do not utilize fume hoods for evaporations and disposal of volatile solvents.
- Perform work with hazardous chemicals in a properly working fume hood to reduce potential exposures.
- Avoid working alone in a building. Do not work alone in a laboratory if the procedures being conducted are hazardous.
- Department Laboratory Safety Manual, and relevant SOPs should be maintained
- Access to laboratories and support areas such as stockrooms, specialized laboratories, etc. should be limited to approved personnel only.
- All equipment should be regularly inspected for wear or deterioration.

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- Equipment should be maintained according to the manufacturer's requirements and records of certification, maintenance, or repairs should be maintained for the life of the equipment.
- Designated and well-marked waste storage locations are necessary.
- No cell phone or earphone usage in the active portion of the laboratories, or during experimental operations.
- Clothing made of synthetic fibers should not be worn while working with flammable liquids or when a fire hazard is present as these materials tend to melt and stick to exposed skin.
- Laboratory coats should not be stored in offices or break rooms as this spreads contaminants to other areas.
- Computers and instrumentation should be labelled to indicate whether gloves should be worn or not. Inconsistent glove use around keyboards/keypads is a source of potential contamination.
- Avoid wearing jewellery in the lab as this can pose multiple safety hazards.
- Discard hazardous chemicals/ cultures after proper decontamination
- All the bins should be accordingly labelled and strict disposal of waste should be followed
- Biomedical wastes should be properly segregated and discarded

GENERAL LABORATORY CLEANING

- A daily cleaning of floor and furniture by sweeping dusting and use of disinfectants.
- Cleaning of ceiling, window, mesh, walls etc. as required.
- Regular daily washing of used glassware and accessories.
- Weekly/ fortnightly wipe down of all equipment exteriors.
- Deep clean of all equipment at regular intervals.
- Regular sink cleaning to maintain dry surfaces.

PROCUREMENT OF INSTRUMENTS/GLASSWARES/CHEMICALS/PLANT SPECIMENS/BOTTLE SPECIMENS/LAPTOP/DESKTOP

- Beginning of the semester, based on the requirement a list of chemicals and glassware shall be prepared.
- Based on the practical experiments the requirement of instruments shall be listed.
- Plant materials required for regular practical shall be supplied by a Local Supplier on a daily basis.
- Call for quotations (from three different suppliers) with last date shall be made.
- Opening of the Quotations.
- Comparative statement shall be prepared and submitted to Finance Officer.
- After verification, approval by Principal and Finance officer, PO shall be sanctioned

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- Least quoted and reliable supplier shall be given the order.
- Once the item is delivered to the lab, entry of the Bills for consumables and non-consumables in separate Day Books shall be maintained.
- The Day book along with the bills shall be sent to the finance section for Payment to the vendor.

REPAIRS/ SERVICE AND EQUIPMENT MAINTENANCE

- Regular wiping of microscopes before and after use with tissue paper or soft cloth.
- Consistent internal wiping of instruments as and when used.
- Minor repairs (screw tightening, soldering, busher adjustments, minor calibration requirements etc.) shall be taken care of by faculty including lab attenders.
- Microscopes shall be cleaned regularly with 70% alcohol or xylol solution and kept in a locked cupboard to prevent settling of dust.
- Laminar air flow unit shall be checked for service of filters at required intervals.
- Refrigerators shall be cleaned at bi-monthly intervals to remove unwanted microbial cultures/ solutions and a thorough clean-up shall be done.
- Distilled water/ maintenance solution shall be replaced in pH meter electrodes at regular intervals.
- Large equipment repair/ service shall be attended to as per requirement outsourcing with technical agencies or suppliers.
- Part replacement shall be facilitated for small scale repairs as per the advice of technicians.
- Outsourcing type of repair work/service shall be followed through calling of quotations, approval of quotations, payment after completion with due permission from Principal and FO.
- Desktop/laptop/printer shall be vacuum cleaned periodically.
- As and when equipments and systems require repairs, the entry of the issue shall be made in Log book. Log book maintenance - the parameters are Date of Issue, Issue/Problem Description, Date/Time of repair, Description of repair or remedy. A list of each component repaired, replaced and or installed including the make, model and serial number shall be entered.
- The maintenance team shall be informed to attend to the problems and update the status (pending or completed, etc.) If any major issues, components may have to be replaced.
- UPS Maintenance shall be undertaken on a periodic basis by adding distilled water, Cleaning UPS room, checking the status of battery. If electrical issues occur, the in-house electrician along with UPS maintenance personnel shall attend to the problem.
- ALP kits and Digital Electronics Kits shall be serviced yearly once just before final examinations.
- Switches and switch boards shall be maintained by in-house electrician.

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[Signature]
Principal

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Malleswaram, Science Post, Bangalore - 560 012.

Tel. : 080-2334 9311 email : mlacw@mlacw.org, www.miacw.edu.in

- AC maintenance Shall be done annually by the AC vendor based on AMC.
- Servers, PCs, Laptops, Network cable issues shall be resolved by Mindpath Innovation team.
- Civil work, doors, windows, tables, chairs, and cupboards are maintained by In-house Civil Engineer.
- Intercom maintenance and repair shall be done and also Light bulbs shall be replaced when required by inhouse electrician.

HANDLING OF CHEMICALS

- Chemicals shall be neatly arranged in alphabetical order in specified stock cabinets and regular usage cupboards.
- Selective chemicals requiring refrigeration shall be stored at 4⁰C.
- Airtight condition of caps shall be strictly monitored for hygroscopic chemicals.
- Harsh chemicals (acids) shall be held separately with safety measures in appropriately capped glass bottles.
- Students shall be regularly taught and monitored to use chemicals carefully and economically and also to replace them in predefined places.
- Clean and dry spatula shall be used to weigh required chemicals.
- Regular check shall be done for requirement of chemicals and accordingly procured through standard procedures and permissions.
- Exhaust fans in the laboratories shall be regularly operated when volatile chemicals and acids are used.

HANDLING OF GLASSWARE

- Glassware shall be neatly arranged in specified stock cabinets and regular usage cupboards with proper labelling on cabinets.
- Most of the glassware of borosil/borosilicate are non-corrosive and heat resistant.
- Students shall be taught and monitored to use glassware carefully and economically and also to replace them in predefined places.
- Small scale washing shall be performed by all users (students & faculty).
- Cleaning of glassware shall be carried out with hot water/detergent solution/ disinfectants/ glassware. cleaning solution in case of hard stain on glassware or miniature openings of certain glassware.
- Mild detergent/Water wash shall be carried out for all glassware before the commencement of each semester and during practical exam preparations.
- Regular check shall be done for requirement of chemicals and procurement shall be ensured through standard procedures and permissions.

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WASTE DISPOSAL

- The waste generated in labs - wet waste (used chemicals, used agar material, used cotton, wet paper), dry waste (paper, plastic cover etc.) used microbial cultures, broken sharps shall be disposed with proper segregation and treatment procedures.
- Used chemical solutions shall be diluted with water and poured into the sink; sink shall be further cleaned with water; sufficient care shall be taken not to pour harsh leftovers into the sink.
- Broken glassware shall be maintained in separate dustbins and collectively disposed from lab at regular intervals.
- Used microbial cultures shall be sterilised with alcohol/ mild acids/ autoclaving; agar material shall be removed from plates and put into wet waste dustbins.
- Cotton plugs shall be reused if found intact and dry; wet/ stained cotton plugs shall be discarded as wet waste.
- Waste disposal mechanisms shall be meticulously followed by students, faculty and attenders.

E WASTE DISPOSAL

- Outdated tech gadgets shall be donated.
- E-waste shall be given to certified e-waste recycler.
- Systems and laptops shall be replaced on buyback scheme to upgrade to latest technology.

MAINTENANCE OF DAY BOOK, STOCK BOOK, LOGBOOKS, SOPs

- Day books and stock books shall be systematically updated as and when recurring and non-recurring items are procured for the lab.
- Permission letters, Quotation, purchase orders and bill copies shall be maintained in appropriate files.
- Logbook shall be maintained for record of usage of basic-high end instruments by inter-department students & faculty.
- SOP's for use of instruments shall be maintained and made aware for users.
- Awareness posters/ guidelines/ write-ups/ advertisements shall be posted across the lab to follow safety precautions in laboratory.
- Regular stock verification shall be done by dept. faculty and cross verified with inter departmental involvement.

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SAFETY AND SECURITY MEASURES



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- It shall be ensured that fire extinguisher is in active condition and faculty / attenders are trained in using it.
- First aid kit shall be available in the lab and shall be carefully handled by faculty/ students/ attenders as required.
- Electrical connections shall be often checked and repaired if needed by electricians.
- Water connections shall be monitored for regular maintenance and repair.
- Gas line connectivity shall be regularly used; all users (faculty, students and attenders) shall be made aware of precautions to be followed; Burners shall be switched off at dual point regulation system; gas regulators shall be switched off every day and operated only when required.
- Utmost care shall be taken to economically use and save power and water at all times by all users.
- Paper shall not be wasted as far as possible; leftover assignments/ waste paper shall be used for wrapping of glassware; one sided paper shall be used for emergency notepad.
- IT security with firewall, antivirus software, login credentials shall be handled by Mind path Innovation.
- Lab security shall be taken care of by support staff, under lock and key.
- As a safety measure, fire extinguisher shall be installed in the department.
- Fire extinguisher and usage guidelines:
 - a) Common Types
 - i. Class A – these fires are fuelled by solid combustibles like wood, paper and cloth.
 - ii. Class B – these fires are fuelled by flammable liquids such as oil, petroleum, and gasoline.
 - iii. Class C- these fires are started or fuelled by faulty wiring, fust boxes and appliances.
 - iv. Class K – These fires are started or fuelled by cooking oils and greases, animal fats and vegetable fats.
 - b) Using the correct type of extinguisher for the fire, use the four step PASS techniques.
Pull: Pull the pin, this will break the tamper seal.
 - c) Aim – Aim low, pointing the nozzle or hose at the base of the fire. Do not touch the horn on a CO2 extinguisher, it gets very cold and can damage the skin.
 - d) Squeeze: Squeeze the handle to release the extinguishing agent.
 - e) Sweep – Sweep from side to side at the base of the fire, the fuel source, until the fire is out.
 - f) Do not use the wrong type of fire extinguisher.
 - g) Do not neglect fire extinguisher maintenance (Date of manufacture/expiry).

STAFF TRAINING

- For the new equipment procured, training shall be given to the staff.

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- Faculty shall be trained to work with new software as per the revised curriculum needs as and when required.
- Training on various open-source tools shall be given to handle online teaching methodology.
- Faculty shall be trained in the use of smart board.

ANNUAL INSPECTION

- For the annual stock verification, two faculty from other departments shall be invited with the permission of Principal.
- Documents shall be maintained.
- Report shall be submitted by the visiting team.

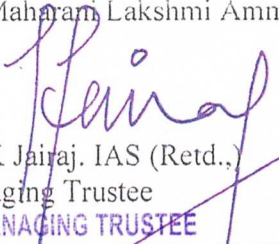
LABORATORY SECURITY

- The Head of the Department, Faculty and the support staff shall take responsibility for the entire lab.
- Support staff shall be vigilant during the practical classes.

REDUNDANT ITEMS

- Equipment shall periodically be checked for assessment of working condition, redundant equipment shall be listed and disposed through proper channels with due permission.
- Redundant paper/ other waste shall be disposed from lab once/ twice in a month with proper care by attenders.

For Maharani Lakshmi Ammanni College Trust (Regd.)


Sri. K. Jairaj. IAS (Retd.)
Managing Trustee

MANAGING TRUSTEE

Maharani Lakshmi Ammanni College Trust (R.)
Malleshwaram, Bangalore - 560 012

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