SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

Puducherry - 605 107

LABORATORY MAINTENANCE POLICY

Version – 2.0

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

Puducherry - 605 107

NOTIFICATION

Ref: **SMVEC / IQAC / ACAD / JAN 2023** Date: **10-01-2023**

In the pursuance of the resolution passed by the Governing Body Meeting at its meeting held on December 31, 2022 in its resolution no. GB 2022.05.09 and the decision was taken by the Management of SMVEC

It is hereby notified for information of all concerned that the Sri Manakula Vinayagar Engineering College, Puducherry has published the Maintenance policy. This will come into force with immediate effect.

Dr. AA. Arivalagar	Dr. J. Abbas Mohaideen	Dr.V.S.K. Venkatachalapathy
IQAC coordinator	Registrar	Director cum Principal
Dr. A.A. ARIVALAGAR, M.Tech., Ph.D., IQAC Co-ordinator Sri Manakula Vinayagar Engineering College (An Autonomous Institution) Madagadipet, Puducherry-605 107.	Dr. J. ABBAS MOHAIDEEN, M.Tech., Ph.D., REGISTRAR Sri Manakula Vinayagar Engineering College (An Autonomous Institution) Madagadipet, Puducherry-605 107.	DIRECTOR CUM PRINCIPAL SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE (An Autonomous Institution) Madagadipet, Puducherry-605 107.

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE Madagadipet Puducherry

LABORATORY MAINTENANCE POLICYOF SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE, PUDUCHERRY

INTRODUCTION

Sri Manakula Vinayagar Engineering College established various laboratories for various programs. The purpose of this policy is to establish a systematic mechanism for the preventive maintenance, corrective maintenance, calibration, repair, servicing, upgrading, safety, and upkeep of laboratory equipment and facilities. The policy ensures that all laboratories remain functional, safe, reliable, and conducive to effective teaching, learning, experimentation, project development, and research activities.

PREAMBLE

This policy shall be applicable to all departmental laboratories, project laboratories, research facilities, computer laboratories, Centres of Excellence, and other specialized laboratory facilities of the institution.

Objectives

The Laboratory Maintenance Policy aims to:

- Ensure that all laboratory equipment, instruments, computers, software, furniture, and supporting facilities are maintained in proper working condition.
- Minimize equipment breakdown and interruption of laboratory classes.
- Implement scheduled preventive maintenance of laboratory equipment.
- Ensure timely corrective maintenance and repair of faulty equipment.
- Carry out calibration of measuring instruments wherever applicable.
- Maintain appropriate records of maintenance, servicing, calibration, and repair.
- Ensure adequate safety measures in all laboratories.
- Facilitate periodic modernization and upgrading of laboratory facilities.
- Maintain a clean, safe, well-lit, ventilated, and student-friendly laboratory environment.
- Ensure optimum utilization of laboratory resources for curriculum delivery, projects, research, and skill development.

RESPONSIBILITY FOR LABORATORY MAINTENANCE

Each laboratory shall be assigned to a Faculty Laboratory In-charge and supported by appropriate Technical Staff/Laboratory Assistant.

The responsibilities shall include:

- Periodic inspection of laboratory equipment and facilities.
- Verification of equipment functionality before commencement of each semester.
- Maintaining stock register.
- Maintaining equipment utilization and maintenance records.
- Reporting malfunctioning equipment immediately.
- Initiating repair/service requests.
- Ensuring timely calibration of applicable instruments.
- Monitoring laboratory safety measures.
- Maintaining cleanliness and overall ambience.
- Ensuring proper shutdown of equipment after use.
- Periodically identifying obsolete equipment requiring replacement or upgrading.

The Head of the Department shall periodically review the maintenance status of all departmental laboratories.

TYPES OF MAINTENANCE

(a) *Routine Maintenance*

Routine maintenance shall be carried out regularly by the laboratory technical staff and shall include:

- Cleaning of equipment, instruments, computers, workbenches, and laboratory premises.
- Checking cables, connectors, probes, switches, sockets, and power supplies.
- Verification of working of laboratory equipments.
- Checking computer hardware and peripherals.
- Updating required software and drivers.
- Checking UPS and power backup facilities.
- Ensuring proper storage of components, accessories, and instruments.

(b) *Preventive Maintenance*

Preventive maintenance shall be carried out periodically to minimize unexpected equipment failure. It shall include:

- Periodic functional checking of equipment.
- Inspection of electrical connections and accessories.
- Servicing according to manufacturer recommendations wherever applicable.
- Checking batteries and UPS systems.
- Verification of computer systems and software.
- Calibration of measuring instruments as applicable.
- Replacement of worn-out components before failure.
- Periodic inspection of safety equipment.

A Preventive Maintenance Schedule/Calendar shall be prepared and maintained for major equipment.

(c) *Corrective/Breakdown Maintenance*

Whenever equipment becomes defective:

- The defect shall be entered in the Breakdown/Maintenance Register.
- The Laboratory In-charge/Technical Staff shall assess the problem.
- Minor faults that can be safely rectified internally shall be attended to by competent technical staff.
- Major repairs shall be referred to the manufacturer, authorized service provider, or approved external service agency.
- After repair, the equipment shall be tested for satisfactory operation.
- Details of the fault, corrective action, service agency, expenditure, and date of restoration shall be recorded.
- Supporting documents such as service reports, invoices, and replacement details shall be preserved.

CALIBRATION OF EQUIPMENT

Equipment requiring measurement accuracy shall be identified and calibrated at appropriate intervals. The following procedure shall be adopted:

- Prepare a list of equipment requiring calibration.
- Establish a calibration schedule based on equipment type, usage, manufacturer recommendation, and institutional requirements.
- Carry out calibration internally using appropriate standards or through competent/authorized external agencies, as applicable.
- Display or record the calibration status of the equipment.

- Preserve calibration certificates and reports.
- Initiate corrective action when an instrument fails to meet the required accuracy.

MAINTENANCE BEFORE COMMENCEMENT OF SEMESTER

Before the commencement of every semester:

- All laboratory equipment shall be checked for functionality.
- Required software shall be installed and updated.
- Computers and networking facilities shall be verified.
- Consumables and components required for experiments shall be ensured.
- Laboratory manuals shall be updated.
- Electrical and safety systems shall be checked.
- Defective equipment shall be repaired wherever possible before commencement of laboratory classes.
- Laboratory cleanliness, lighting, ventilation, seating, and working space shall be verified.

The Laboratory In-charge shall certify the Laboratory Readiness Status before commencement of laboratory sessions.

SAFETY MAINTENANCE

Laboratory safety shall form an integral part of laboratory maintenance. Each laboratory shall ensure, wherever applicable:

- Display of laboratory Do’s and Don’ts.
- Display of safety instructions.
- Availability of appropriate fire extinguishers.
- Proper earthing of electrical equipment.
- Safe electrical wiring and power outlets.
- Emergency power isolation provisions.
- Proper storage of tools, components, and materials.
- Unobstructed pathways and exits.
- Periodic inspection of safety equipment.
- First-aid facilities at appropriate locations.
- Proper disposal of electronic/electrical waste as applicable.

Any unsafe equipment shall be immediately withdrawn from student use until corrective action is completed.

MAINTENANCE OF LABORATORY AMBIENCE

All laboratories shall maintain an environment conducive to effective learning through:

- Adequate working space.
- Appropriate student seating.
- Proper illumination.
- Adequate ventilation.
- Clean floors and workbenches.
- Proper arrangement of equipment.
- Clearly identified equipment/workstations.
- Proper cable management.
- Appropriate instructional and safety displays.
- Availability of laboratory manuals and learning resources.
- Proper storage facilities.
- Regular housekeeping.

EQUIPMENT UPGRADATION AND REPLACEMENT

Laboratory facilities shall be reviewed periodically considering:

- Changes in curriculum.
- Technological developments.
- Industry requirements.
- Student projects and research requirements.
- Equipment utilization.
- Equipment obsolescence.
- Frequency and cost of maintenance.

Based on the review, proposals shall be initiated for upgrading, augmenting, or replacing equipment/software through the departmental and institutional budgetary process.

MAINTENANCE BUDGET

Adequate financial provision shall be made, as required, for:

- Preventive maintenance.
- Breakdown maintenance.
- Annual Maintenance Contracts (AMC), wherever appropriate.
- Calibration.
- Replacement of damaged parts.
- Consumables.

- Software renewal/upgradation.
- Safety equipment.
- Replacement and modernization of obsolete equipment.

MONITORING AND REVIEW

The Head of the Department shall periodically review:

- Functionality of laboratory equipment.
- Preventive maintenance records.
- Breakdown and corrective maintenance.
- Calibration status.
- Safety measures.
- Overall laboratory ambience.
- Equipment utilization.
- Requirements for additional equipment or upgradation.

Corrective measures shall be initiated wherever deficiencies are identified.