



INSTITUTE OF TECHNOLOGY & MANAGEMENT
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श्रेष्ठ इंडस्ट्री इंटरफेस के लिए
CMAI, AICTE & RGPV
द्वारा पुरस्कृत

INSTITUTE OF TECHNOLOGY & MANAGEMENT, GWALIOR

STANDARD OPERATING PROCEDURES

Electrical Maintenance Cell



1. PURPOSE

To ensure the efficient and safe operation of electrical systems within the sub-station and institute building blocks, hostels.

2. SCOPE

This SOP applies to all personnel involved in the maintenance, inspection, and repair of electrical systems in the sub-station and institute blocks.

3. RESPONSIBILITIES

- **Electrical Maintenance Head:** Oversee all maintenance activities, ensure compliance with safety standards.
- **Electricians:** Perform routine inspections, maintenance, and repairs.
- **Electrical Supervisor:** Conduction of all maintenance activities and ensure all safety protocols are followed during maintenance activities.

4. SAFETY PRECAUTIONS

- Always wear appropriate Personal Protective Equipment (PPE).
- Make sure to use all helmets, safety belts and hand gloves while working on the electrical sites.
- Ensure power is disconnected before starting any maintenance work.
- Use insulated tools and equipment.
- Follow lockout/ tag out procedures.

If the electrician is working on the site, then before starting the line, make sure to start the line only after consulting your partner at that place.

5. MAINTENANCE PROCEDURES

5.1 Routine Inspections

- **Daily:** Check for any visible damage or wear on electrical equipment.
- **Weekly:** Test emergency lighting and backup power systems.
- **Monthly:** Inspect and clean electrical panels and switchboards.



5.2 Preventive Maintenance

- **Quarterly:** Test and calibrate protective relays and circuit breakers.
- **Bi-Annually:** Inspect and test all grounding and bonding systems.
- **Annually:**
 - Perform a comprehensive inspection of all electrical systems and components.
 - Servicing of the air conditioners and fans before summer season.
 - Measure the values of the earthing pits.

5.3 Corrective Maintenance

- Identify and diagnose electrical faults.
- Repair or replace faulty components.
- Test the system to ensure proper operation after repairs.
- Filling water in the earthing pits time to time specially before summer season.

6. SUB-STATION SPECIFIC PROCEDURES

6.1 Transformer Maintenance

- **Monthly:** Check oil levels and temperatures.
- **Annually:** Conduct inspection as done by the Chief Engineer, Electrical Safety.

6.2 Switchgear Maintenance

- **Monthly:**
 - The work of trees trimming (above the electric line) is to be completed during permit as per the requirements.
 - Check the HT Pole Jumper in the sub-station; tighten them when they are needed.
- **Quarterly:** Inspect and clean switchgear components.
- **Annually:** Test and calibrate switchgear protection devices.

7. INSTITUTE BLOCKS SPECIFIC PROCEDURES

7.1 Lighting Systems

- **Monthly:** Check and replace faulty bulbs and fixtures.
- **Bi-Annually:** Inspect and clean lighting control panels.

7.2 Power Distribution

- **Quarterly:** Inspect distribution boards and circuit breakers.
- **Annually:** Test and calibrate power distribution systems.

8. DOCUMENTATION AND REPORTING

- Maintain a DG operational log book.
- Report any incidents or near-misses to the Electrical Maintenance Head.
- Keep records of all AMC, inspections, tests, and repairs.

9. TRAINING AND COMPETENCY

- Regular training sessions for all maintenance personnel.
- Safety drills and emergency response training.

10. EMERGENCY PROCEDURES

Do's and Don'ts during an Electrical Accident

Do's

- **Disconnect Power:** Immediately turn off the power source if safe to do so.
- **Call for Help:** Contact emergency services and inform the relevant authorities.
- **Use Non-Conductive Materials:** Use a wooden stick or rubber gloves to move the victim away from the electrical source.
- **Administer First Aid:** If trained, provide CPR or first aid until professional help arrives.
- **Stay Calm:** Keep calm and reassure the victim.

Don'ts

- **Do Not Touch the Victim Directly:** Avoid direct contact with the victim if they are still in contact with the electrical source.
- **Do Not Use Water:** Never use water to extinguish an electrical fire or to cool down the victim.
- **Do Not Move the Victim:** Unless there is an immediate danger, do not move the victim unnecessarily.
- **Do Not Ignore Burns:** Treat electrical burns seriously and seek medical attention immediately.

11. ELECTRICAL SAFETY MEASURES

11.1 General Safety Measures

- **Regular Training:** Conduct regular safety training sessions for all personnel.
- **Safety Signage:** Ensure clear and visible safety signs are placed around electrical equipment and hazardous areas.
- **PPE Usage:** Enforce the use of appropriate Personal Protective Equipment (PPE) like rubber boots at all times.
- **Emergency Preparedness:** Regularly conduct emergency drills and ensure all personnel are familiar with emergency procedures.

11.2 Equipment Safety

- **Inspection:** Regularly inspect all electrical equipment for signs of wear and tear.
- **Maintenance:** Perform routine maintenance on all electrical systems to prevent malfunctions.
- **Upgrades:** Upgrade outdated equipment to meet current safety standards.

11.3 Workplace Safety

- **Clear Workspaces:** Keep work areas clean and free of clutter to prevent accidents.
- **Proper Storage:** Store tools and equipment properly when not in use.
- **Access Control:** Restrict access to high-voltage areas to authorized personnel only.
- **Fire extinguisher:** Ensure that the Fire extinguisher of all the departments should be refilled on time.

11.4 Incident Response

- **First Aid Kits:** Ensure first aid kits are readily available and stocked.
- **Emergency Contacts:** Display emergency contact numbers prominently.
- **Incident Reporting:** Implement a system for reporting and investigating electrical incidents.

12. REVIEW AND UPDATE

- SOP to be reviewed annually.
- Update procedures based on new regulations, technologies, and feedback.



CONCLUSION:

This comprehensive SOP for Electrical Maintenance outlines crucial procedures for ensuring safe and efficient operation of electrical systems in sub-stations and institute buildings. It emphasizes safety precautions, maintenance schedules, and emergency protocols. Unique aspects include specific procedures for sub-station and institute block maintenance, a focus on regular training, and clear do's and don'ts for electrical accidents. The document stresses the importance of documentation, competency, and continuous improvement through annual reviews. By adhering to these guidelines, the electrical maintenance team can minimize risks, optimize system performance, and maintain a safe working environment for all personnel.

