



## Shri Guru Gobind Singhji Institute of Engineering and Technology

Vishnupuri, Nanded (Maharashtra State) INDIA PIN 431606

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Vision Statement: Education of Human Power for Technological Excellence



(An Autonomous Institute of Government of Maharashtra)

# Electrical Maintenance Cell (EMC) Policy

## Institute Vision and Mission

### VISION

"Education Of Human Power for Technological Excellence"

### MISSION

- Dissemination of knowledge by offering world-class education
- Right to information for all stakeholders
- Promotion of sustainable industrialization to development of appropriate technologies
- Continuing education programs for reengineering of regional socio-economic system in the light of dynamic, global technological changes
- Contribution to national wealth through innovation

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# 1. Vision and Mission

## **Vision:**

To create a sustainable and energy-efficient campus with reliable and safe electrical systems, supporting the academic and extracurricular activities of SGGSIET Nanded.

## **Mission:**

To maintain and enhance the electrical infrastructure of SGGSIET Nanded through continuous monitoring, proactive maintenance, and innovative energy conservation strategies. The EMC strives to provide exceptional service to all campus stakeholders, ensuring safety, reliability, and efficiency in all its operations.

## **Commitment to Stakeholders:**

The EMC is dedicated to serving the diverse needs of the SGGSIET community, including students, faculty, staff, and visitors. This policy ensures that all electrical systems are maintained to the highest standards, providing a safe and conducive learning, research, and personal growth environment. The EMC supports the institution's goals and contributes to its reputation as a leading engineering and technology institute through ongoing improvements and adherence to best practices.

# 2. Compliance Statement

The policy is aligned with the Government of India's establishment of the Bureau of Energy Efficiency (BEE) on 1st March 2002, under the Energy Conservation Act, 2001, and the Maharashtra Energy Development Agency (MEDA). The policy aims to promote efficient energy management and conservation practices within the institute, adhering to the guidelines and objectives set forth by BEE. By implementing these measures, the institute commits to contributing to national energy efficiency and conservation efforts.

The EMC complies with all relevant national and local electrical codes and standards. The policy will be reviewed and updated periodically to reflect changes in regulatory requirements, technological advancements, and evolving campus needs. Continuous improvement is a core principle, and the EMC is committed to adopting innovative solutions and best practices to enhance the efficiency, safety, and sustainability of the campus's electrical infrastructure.

This comprehensive policy document guides all EMC operations, fostering a secure and well-maintained campus environment for all occupants.

# 3. Objectives

The Electrical Maintenance Cell (EMC) at Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIET), Nanded, is a dedicated unit responsible for overseeing, maintaining, and managing the campus's electrical infrastructure. This policy document is designed to provide a comprehensive framework that ensures the continuous, efficient, and safe operation of all electrical systems within the campus. The policy sets forth the responsibilities, procedures, and guidelines necessary to achieve the following primary objectives:

## **a. Uninterrupted Power Supply:**

The EMC is committed to ensuring a 24-hour uninterrupted power supply across the SGGSIET campus. This involves diligent monitoring of power distribution systems, immediate response to power outages, and the maintenance of emergency power solutions such as diesel generator

sets. The goal is to minimize downtime and ensure that all academic and administrative activities can proceed without electrical interruptions.

**b. Safety Compliance and Audits:**

Electrical safety is of paramount importance. The EMC conducts biannual earthing audits, preferably in June and December, to assess and maintain the integrity of earthing systems across the campus. These audits identify potential risks and implement corrective measures to uphold the highest safety standards. Ensuring compliance with safety protocols protects students, faculty, staff, and visitors from electrical hazards.

**c. Energy Efficiency and Conservation:**

The EMC conducts annual energy audits, preferably in January, to evaluate energy use efficiency within the campus. These audits identify opportunities for energy conservation, contributing to the development and implementation of strategies that reduce overall energy consumption and the campus's carbon footprint. This aligns with the institution's commitment to sustainability and environmental stewardship.

**d. Maintenance and Operational Support:**

The EMC is responsible for regularly maintaining electrical installations and equipment across the campus, including academic buildings, residential accommodations, and street lighting. This includes taking monthly meter readings, generating and submitting electric bills, and maintaining an inventory of electrical supplies. The EMC ensures that all electrical systems are functional and well-maintained, supporting the institution's daily operations.

**e. Complaint Resolution and Service Requests:**

The EMC provides a structured process for campus occupants to report electrical issues. All maintenance requests and complaints are documented, tracked, and resolved promptly. This system ensures transparency, accountability, and efficiency in addressing electrical problems, enhancing the overall campus experience for students, faculty, and staff.

**f. Support for Major Institute Events:**

The EMC collaborates with event organizers to manage electrical setups and maintenance for significant institute events. Detailed electrical requirements are submitted in advance, allowing the EMC to plan and ensure the safety and efficiency of all temporary electrical installations. Post-event inspections are conducted to prevent damage to the campus's existing electrical infrastructure.

## 4. EMC Committees

To ensure the efficient functioning and maintenance of electrical equipment within the institute, the following policy outlines the formation of three committees: the Institute EMC Committee, the Departmental EMC Committee, and the Hostel EMC Committee. These committees will be responsible for assessing, budgeting, and monitoring the purchase and maintenance of essential electrical equipment.

**I. Institute EMC Committee**

<b>Name/Designation</b>	<b>Role</b>
Director	Chairman
Dean Procurement	Member
Dean Finance	Member
All Heads	Member
Hostel Rector	Member
EMC In Charge	Secretary

### Role of Institute EMC Committee

- The committee monitors the institute's overall energy management and conservation efforts.
- The Departmental EMC Committees and Hostel EMC Committee must submit their annual electrical equipment requirements and budget needs by February.
- The Institute EMC Committee reviews the submissions, scrutinizes the requirements, and finalizes the budget.
- The finalized budget by the committee is then forwarded to the Dean of Finance for approval and financial allocation.
- Once approved, the procurement process for electrical equipment commences, which the procurement office manages, ensuring compliance with energy efficiency standards set by BEE and MEDA.

### II. Departmental EMC Committee

<b>Name/Designation</b>	<b>Role</b>
Head of Department	Chairman
One Regular Faculty	Member
Name/Designation	Departmental EMC Coordinator

### III. Hostel EMC Committee

<b>Name/Designation</b>	<b>Role</b>
Hostel Rector	Chairman
One Boys Warden (Nominated by Hostel Rector)	Member
One Girls Warden (Nominated by Hostel Rector)	Member
Assistant Warden (Nominated by Hostel Rector)	Hostel EMC Coordinator

### Role of Departmental and Hostel EMC Committees

- Both departmental and hotel EMC committees are responsible for identifying and addressing the specific energy needs and conservation measures within their respective areas.
- Before the start of each academic year, the Departmental EMC Committees and the Hostel EMC Committee are required to assess and compile the requirements and budget needed to purchase or maintain all electrical equipment.
- Annually assess and compile the requirements and budget for purchasing or maintaining electrical equipment, including fans, lights, MCBs, MCCBs, and other emergency items.
- Submit the compiled requirements and budget to the Institute EMC Committee by February each year.

This policy aims to streamline purchasing and maintaining essential electrical equipment, ensuring all departments and hostels have the necessary resources for their operations.

## 5. Scope and Core Functions of EMC

The scope of this policy encompasses all electrical systems, equipment, and infrastructure within the SGGSIET Nanded campus. This detailed scope ensures that every aspect of the campus's electrical needs is addressed comprehensively, promoting operational efficiency, safety, and sustainability.

### a. Academic Buildings:

- Classrooms and Lecture Halls: Ensure adequate lighting, power outlets, and other electrical equipment.
- Laboratories: Maintain specialized electrical installations required for laboratory equipment and experiments.
- Libraries: Ensure reliable power supply for lighting, computer systems, and other electronic resources.
- Workshops: Manage electrical systems for machinery and tools, ensuring safety and functionality.

### b. Administrative Buildings:

- Offices and Workspaces: Provide a stable power supply for office equipment such as computers, printers, and telecommunication devices.
- Board Room: Maintain electrical systems that support audio-visual equipment and lighting.
- Common Areas: Ensure proper lighting and power supply in lobbies, corridors, and restrooms.

### c. Residential Accommodations:

- Hostels: Ensure reliable power supply for lighting, fans, air conditioning, and geysers.
- Faculty Quarters: Maintain electrical systems in residential areas housing faculty and staff, ensuring comfort and safety.

### d. Campus Grounds and Street Lighting:

- Street Lighting: Ensure adequate and energy-efficient lighting across all campus roads, pathways, and open spaces for safety and security.
- Outdoor Areas: On request, maintain electrical installations for outdoor facilities such as sports grounds, parking spaces, and lawns.

### e. Canteens and Textile Lawn:

- Canteens and Cafeterias: Ensure the reliability of electrical systems for kitchen equipment, refrigeration, and lighting.
- Textile lawn and Event Spaces: Provide a steady electric supply for lighting, sound systems, and other electrical needs during events and functions.

### f. Emergency Power Solutions:

- Diesel Generator (DG) Sets: Maintain and manage backup power systems to ensure an uninterrupted power supply during outages.
- UPS Systems: Ensure uninterruptible power supply systems are in place for critical operations, including data centers and emergency services.

g. **Energy Management and Conservation:**

- Energy Audits: Conduct regular energy audits to evaluate energy consumption patterns and identify opportunities for conservation.
- Renewable Energy Sources: Integrate and maintain renewable energy installations, such as 500KVA solar panels, to promote sustainable energy use. (details of the solar panel is given in Annexure A)

h. **Maintenance and Operational Procedures:**

- Routine Maintenance: Establish and follow schedules for the regular maintenance of electrical installations and equipment, especially all three transformers and DG sets. (The details of the transformer and DG sets are given in Annexure B)
- Inspection and Testing: Perform periodic inspections and testing of electrical systems to ensure compliance with safety and operational standards.
- Inventory Management: Maintain an inventory of essential electrical supplies and spare parts to support timely maintenance and repairs.

i. **Complaint Management and Service Requests:**

- Reporting Mechanisms: Implement efficient systems for registering and tracking electrical complaints and service requests from campus occupants (the Protocol for Reporting and Tracking Electrical Complaints and Service Requests is given in Annexure C).
- Response and Resolution: Ensure timely response and resolution of electrical issues to minimize disruption and maintain operational efficiency.

**Boundaries and Exclusions**

The EMC policy delineates the boundaries and exclusions of its scope to avoid misunderstandings and ensure focused and efficient service delivery. **The EMC does not handle repairing equipment**, such as refrigerators, televisions, washing machines, personal fans, and air conditioners. Such repairing can be outsourced.

**Laboratory Equipment:** Specialized lab machines and instruments that fall under the purview of respective departments.

While EMC personnel may assist in identifying problems with these items, repairs are the responsibility of the respective departments.

## **6. Energy Saving Protocols following the Bureau of Energy Efficiency (BEE) and Maharashtra Energy Development Agency (MEDA)**

In alignment with the Government of India's Bureau of Energy Efficiency (BEE) and the Maharashtra Energy Development Agency (MEDA), the following energy-saving protocols are established to promote efficient energy use within the institute. These protocols aim to reduce energy consumption, enhance energy efficiency, and support sustainable practices.

### **Energy Saving Protocols:**

a. **lighting**

- Replace incandescent and fluorescent lights with energy-efficient LED lights approved by BEE and MEDA.
- Utilize natural lighting where possible to reduce the need for artificial lighting.

- Install motion sensors and automatic timers to ensure lights are turned off when not in use.
- b. **Electrical Equipment**
  - Purchase only energy-efficient appliances and equipment, following BEE star ratings and MEDA recommendations.
  - Regularly maintain and service electrical equipment to ensure peak efficiency.
  - Use power strips to turn off multiple devices at once quickly.
- c. **Heating, Ventilation, and Air Conditioning (HVAC)**
  - Set temperature controls to energy-efficient levels, ensuring comfortable but efficient use.
  - Use programmable thermostats to adjust temperature settings based on occupancy schedules automatically.
  - Regularly clean and maintain HVAC systems to ensure optimal performance.
- d. **Water Heating**
  - Use solar water heaters where feasible, as recommended by MEDA.
  - Insulate water heaters and pipes to minimize heat loss.
- a. **Computers and Office Equipment**
  - Enable energy-saving settings on all computers and office equipment.
  - Encourage turning off computers, monitors, and other equipment when not in use.

## 7. Safety Protocols

Ensuring the safety of all individuals on the SGGSIET campus is a paramount concern for the Electrical Maintenance Cell (EMC). The safety protocols outlined in this section are designed to protect students, faculty, staff, visitors, and EMC personnel from electrical hazards. These protocols include preventive measures, emergency response procedures, and ongoing education and training to maintain a safe environment.

### Preventive Measures

- a) Regular Inspections (Safety audit in June and December and Energy audit in January)
- b) Perform scheduled maintenance tasks to ensure all electrical systems function correctly and safely.
- c) Earthing and Grounding Systems (Energy Audits)
- d) Ground Fault Protection
- e) Labeling: Ensure all electrical panels, circuit breakers, and switches are accurately labeled to indicate their purpose and the areas they control.
- f) Only qualified and trained electricians are allowed to perform electrical installations and repairs.
- g) Display emergency contact information prominently in all buildings, including the contact details of EMC personnel and local emergency services.
- h) Ensure that all campus occupants have quick access to emergency contact numbers.
- i) Conduct regular internal safety audits to assess compliance with safety protocols and identify areas for improvement.
- j) Engage external auditors periodically to assess the campus's electrical safety standards objectively.
- k) Incident Reporting and Investigation



- 1) Implement an easy-to-use reporting system for campus occupants to report electrical safety concerns.

## **8. Organizational Structure of EMC**

1. EMC Incharge (Head of Electrical Engineering Department)
2. Electricians
3. Supporting staff for electricians

### **Appendix A: Solar Panels: 500KVA Distribution**

1. Girls Hostel: 50KVA
2. Administrative Building: 100 KVA
3. Electronics and Telecommunication Engineering Building (CoE): 60 KVA
4. Instrumentation/Electrical Engineering Building: 80 KVA
5. Textile Engineering Building: 30 KVA
6. Information Technology (IT) Building: 80 KVA
7. Production Engineering Building: 100 KVA

**Total: 500KVA**

### **Appendix B: Transformer (11KV/400V Distribution Transformers and Diesel Generator: 250KVA DG Sets**

Transformer Information (11KV/400V Distribution Transformers)

1. 250KVA (550019007380)
2. 315KVA (550019007380)
3. 400KVA (550019007380)
4. 630KVA (550019000583)

Diesel Generator: 250KVA DG-Sets

1. KOEL DG set behind EMC Meter Room
2. KOEL DG set near Sahyadri Hostel
3. Cummins DG set near the Information Technology (IT) Building

### **Appendix C: Protocol for Reporting and Tracking Electrical Complaints and Service Requests**

1. Complaint Registration: Campus occupants must report electrical complaints and service requests through a designated online portal or by registering directly in the EMC complaint register at the Electrical Maintenance Cell (EMC). The complaint should include details such as the nature of the issue, location, and reporter's contact information.
2. Complaint Acknowledgment: Upon receipt of a complaint, the EMC assigns a unique reference number to track the progress of the request. An acknowledgment is sent to the reporter, confirming the receipt of the complaint and providing the reference number for future inquiries.
3. Assessment and Prioritization: The EMC assesses the reported issue to determine its severity and priority level. Problems are categorized based on urgency, with critical issues addressed immediately and non-urgent issues scheduled for later resolution.

4. Service Request Fulfillment: The EMC dispatches a qualified technician to inspect and address the reported electrical issue. Technicians have the tools and materials to resolve complaints efficiently and effectively.
5. Resolution Confirmation: Once the issue is resolved, the technician confirms the resolution in the system and updates the complaint status online or in the complaint register.
6. Tracking and Reporting: The EMC maintains a record of all complaints and service requests, including details of the issue, resolution, and time taken for resolution. Regular reports are generated to track the performance of the EMC in addressing complaints and identifying areas for improvement.

**Dr. Sidhant Gudhe**  
Head, EE and EMC

SGGSIE&T, Nanded.

**Dr. A. V. Nandedkar**  
Institute Polity  
Coordinator

SGGSIE&T, Nanded.

**Dr. M. B. Kokare**  
Director

SGGSIE&T, Nanded.