



Shree Rahul Education Society's (Regd.)

SHREE L. R. TIWARI DEGREE COLLEGE

(Arts | Commerce | Science) Approved By Government of Maharashtra & Affiliated To University Of Mumbai | Recognized Under Section 2(f) of the UGC Act 1956 | ISO Certified 9001: 2015 | Hindi Linguistic Minority Institution | COLLEGE CODE : 1064

7.1.3 Quality audits on environment and energy are regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following

- 1. Green audit / Environment audit**
- 2. Energy audit**
- 3. Clean and green campus initiatives**
- 4. Beyond the campus environmental promotion activities**

Sr. No	Particulars
1.	Policy document on environment
2.	Energy usage certificate from the auditing agency



GREEN CAMPUS POLICY

Context

Mumbai is a city uniquely situated on an island, surrounded by bodies of water, primarily the sea. Despite its distinct identity as the nation's financial hub, it grapples with an overwhelming population and significant space constraints. The location of Shree LR Tiwari's college enjoys a fortunate blend of both land and water elements. This juxtaposition between the tranquil sea and the refreshing land greenery bestows a sense of sanctity upon the college amidst the bustling cityscape. Since its establishment in 2018, this college has adeptly found equilibrium between its limited land resources and the encompassing sea. Despite spatial limitations, it has maintained a charming miniature garden showcasing an array of plants and trees, including various botanical treasures, along with flowers and fruit-bearing specimens. Remarkably, the entire college building rises vertically up to the 6th floor within its confined space. Furthermore, it has dedicated a ground to Shree LR Tiwari in its frontal area, a space collaboratively maintained by our college in partnership with the Mumbai Municipal Corporation.

Scope of the Policy

The Green Campus, Energy and Environment Policies will not only develop and sensitize our students on green issues but will also encourage them to take part for green cause through various curricular and co-curricular activities.

Following are the key areas of focus under this policy:

- Clean Green Campus Initiatives
- Landscaping Initiatives
- Plastic free Campus
- Solar Power Plant
- Installation of LED bulbs
- Water Conservation through Rainwater Harvesting System
- Waste Management processes which includes the following:
 - 1.Solid Waste Management
 - 2.Wet Waste Management
 - 3.E-Waste Management
 - 4.Tree Plantation initiatives
 - 5.Environment centric activities
 - 6.Green Audit



7. Energy Audit

The broad vision is as follows:

1. Generating mass awareness on cleanliness and hygiene amongst students and staff members by holding regular cleanliness drives and activities to motivate them.
2. Our students participate in the cleanliness drive from time to time both within and outside the college from time to time.
3. Events such as poster and slogan competitions, essay writing, speeches, skits on 'Swachh Bharat' will be organized to sensitize them.
4. Rallies on themes connected with 'Swachh Bharat Abhiyan' in and around the college campus will be conducted to create mass awareness.
5. Remove all kinds of waste material like broken furniture, unusable equipment etc.
6. Conduct workshops from time to time to sensitize students on: Reduce, Reusing and Recycle of waste.
7. Commitment to maintain clean and litter free campus.

Objectives of the Policy

1. To protect and conserve ecological systems and resources within the campus.
2. To be sensitive towards environment and to ensure judicious use of environmental resources to meet the needs for sustainable development.
3. To integrate environmental concerns into policies, plans and programmes for social development and outreach activities.
4. To work with all stakeholders and the local community to raise awareness and seek the adoption of environmental good practice and the reduction of any adverse effects on the environment.
5. To continuously improve the efficient use of all resources, including energy and water, and to reduce consumption and the amount of waste produced, recovering and recycling waste where possible.
6. To make the campus plastic free.
7. To conduct environmental and energy audits from time to time.
8. To minimize the use of paper in administration by adopting the policy of E. circulars and notices.
9. Above all to emphasis on Reduce, Recycle and Reuse policy. Clean Campus Initiatives
Shree LR Tiwari College has pledged to actively coordinate cleanliness activities in the

college and beyond the campus in accordance with the vision of Swachh Bharat Abhiyan.

It commits to continue with this Programme.

Clean Air Initiatives

We encourage our students and staff to use public transportation. We encourage carpooling to college, an activity that will control air pollution and strengthen social interaction. The entry of automobiles inside the campus is restricted to discourage the use of private vehicles.

Infrastructural Initiatives

- (a) **Renewable Sources of Energy:** Shree LR Tiwari College is committed to minimize and sustainably manage its use of electricity. The college believes in reducing the consumption of electricity produced by non-renewable resources by switching to clean energy sources like solar energy for purposes like lighting the campus.
- (b) **Energy Saving and Energy Efficient Equipment:** We commit to install environment-friendly electrical appliances that save energy and reduce wasteful inefficiencies. The college believes in using cleaner energy such as LED lighting.
- (c) **Water Conservation through Rainwater Harvesting System:** As an institution located in the South Mumbai in Greater Mumbai District, our college location is surrounded by Sea yet we depend on monsoon rain and water reservoir. Hence, we have committed to replenish the groundwater table by practicing rainwater harvesting in our college premises.
- (d) **Waste Management Processes:** SLRTDC strives to have a minimal impact on the environment and is dedicated to reduce and manage the waste generated by the college campus. The following specific procedures will be undertaken to ensure SLRTDC's contribution in protecting the environment.
- (e) **Solid Waste Management:** With its aim to provide holistic education that also has a positive impact on the environment, the college will adopt practices that will mitigate

The generation, and manage solid waste through the following methods:

- Encouraging students and staff for Reduce, Reuse and Recycle policy
- Collect paper waste produced on campus and collaborate with scrap dealers for recycling.
- Reduce use of paper by supporting digitization of attendance and internal, circulation of e-notices and assessment records.
- Reduce requirement of printed books by updating e. books and e. journals in the library.
- Encourage the students and teachers to use emails for assignment submissions. Take

28



initiatives to spread awareness amongst students about

- Food wastage and ways of minimizing it. Minimizing the use of packaged food and The habit of reusing and recycling non-biodegradable products
 - Organizing workshops for students on solid waste management

Liquid Waste Management

- Maintain leak proof water fixtures.
- Continued employment of a caretaker to take immediate steps to stop any water leakage through taps, pipes, tanks, toilet flush etc.
- This way the Biochemical Oxygen Demand is reduced in the effluent waste water produced by the JMC canteen.
- Reuse of wastewater generated by the Reverse Osmosis (RO) system in washrooms.

E-Waste Management

SLRTDC ensures that its usage of technology and generation of e-waste does not impact the environment. For this purpose, the college plans to strive towards:

- More provisions for the disposal of the institutional e-waste.
- Collaboration with e-waste recycling companies including NGOs to get electronic
- Awareness amongst students about reduction of e-waste and
- Environment friendly disposal practices for e-waste.
- Encouraging students for college level and outreach activities pertaining to e- waste management.

Awareness Initiatives

Outreach and education are of utmost importance so that all members of the campus community may value the objectives of the policy and aid in its implementation. Therefore, SLRTDC is committed to encourage awareness campaigns, seminars, workshops, conferences, and other interactive sessions to facilitate effective implementation of the Green Campus, Energy and Environment policies.

Conduct Green Audit

The college aims to regularly conduct a Green Audit of our college campus to assess our strengths and weaknesses to further our goals of long-term sustainability. A green audit is a useful tool to determine how and where most energy or water or resources are being used. The college can then

consider how to implement changes and make savings. It can determine the type and volume of waste. Recycling projects or waste minimization plans can be adopted. It will create health consciousness and promote environmental values and ethics. It provides a better understanding of the impact of eco- friendly practices on campus. Green auditing will promote financial savings through reduction of resource use. It is imperative that the college evaluate its own contributions toward a sustainable future.

Conduct Energy Audit

An Energy Audit to be conducted as and when required to further reduce its carbon footprint. The importance of reducing energy consumption cannot be overstated. The energy audit, with its specialized tools will identify wastage of energy. Such an inspection often reveals several different flaws which cause a loss of significant amounts of energy which the college will not be able to detect. These flaws often have easy and affordable solutions and provide significant savings.

Plastic-Free Campus

SLRTDC has been observing most of its duties in terms of solid waste management since its inception. In view of the Government of India's resolution to ban all single use plastics due to the hazardous impact of plastic use and pollution, the college administration strictly bans the use of single use plastics in its premise to make it a 'Plastic Free Campus'.

CHAPTER-V STUDY OF LIGHTING

Terminology:

- 1. Lumen** is a unit of light flow or luminous flux. The lumen rating of a lamp is a measure of the total light output of the lamp. The most common measurement of light output (or luminous flux) is the lumen. Light sources are labeled with an output rating in lumens.
- 2. Lux** is the metric unit of measure for illuminance of a surface. One lux is equal to one lumen per square meter.
- 3. Circuit Watts** is the total power drawn by lamps and ballasts in a lighting circuit under assessment.
- 4. Installed Load Efficacy** is the average maintained illuminance provided on a horizontal working plane per circuit watt with general lighting of an interior. Unit: lux per watt per square metre (lux/W/m²)
- 5. Lamp Circuit Efficacy** is the amount of light (lumens) emitted by a lamp for each watt of power consumed by the lamp circuit, i.e. including control gear losses. This is a more meaningful measure for those lamps that require control gear. Unit: lumens per circuit watt (lm/W)
- 6. Installed Power Density.** The installed power density per 100 lux is the power needed per square metre of floor area to achieve 100 lux of average maintained illuminance on a horizontal working plane with general lighting of an interior. Unit: watts per square metre per 100 lux (W/m²/100 lux) 100 Installed power density (W/m²/100 lux)
- 7. Lighting Power Density:** It is defined as Total Lighting Load in a room divided by the Area of that Room in square meters.

In this Chapter we compute the percentage usage of LED Lighting to total Lighting Load of the College.

Table No 4: Percentage Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	630	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	10.08	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit

6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	10.28	kW
8	Total Lighting Load= 3+6	10.28	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%



CHAPTER-V

STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

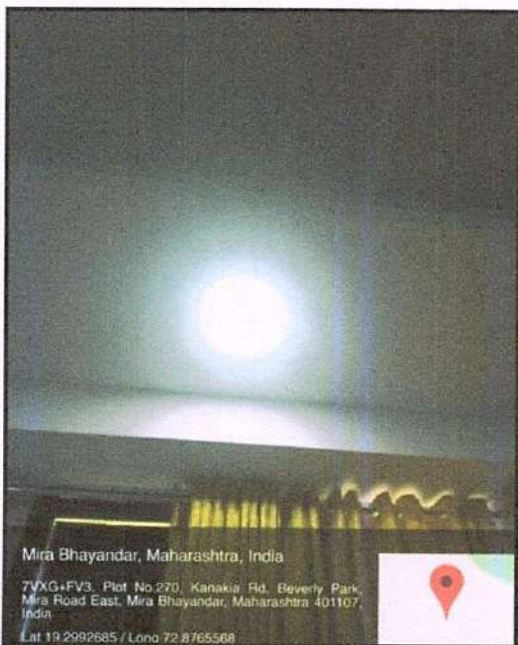
5.1 Usage of Renewable Energy:

- The College has yet to install Roof Top Solar PV Plant

5.2 Energy Efficiency Projects:

- Usage of Energy Efficient LED Lighting
- Usage of Energy Efficient BEE STAR Rated Equipment

Photographs of LED Lighting & STAR Rated AC:



CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	149	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.384	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.584	kW
8	Total Lighting Load= 3+6	2.584	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%



CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	147	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.352	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.552	kW
8	Total Lighting Load= 3+6	2.552	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%

CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

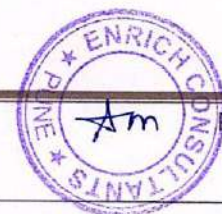
No	Particulars	Value	Unit
1	No of 16 W LED Fittings	147	Nos
2	Load of 16 W LED Fittings	16	W/unit
3	Total Load of 16 W LED Fittings	2.352	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fittings	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.552	kW
8	Total Lighting Load= 3+6	2.552	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%

CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	140	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.24	kW
4	No of 40 W LED Fittings	3	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.12	kW
7	Total LED Lighting Load= 3+6	2.36	kW
8	Total Lighting Load= 3+6	2.36	kW
9	% of LEDs to Total Lighting Load = $7*100/8$	100	%



CHAPTER-V STUDY OF LIGHTING

Terminology:

- 1. Lumen** is a unit of light flow or luminous flux. The lumen rating of a lamp is a measure of the total light output of the lamp. The most common measurement of light output (or luminous flux) is the lumen. Light sources are labeled with an output rating in lumens.
- 2. Lux** is the metric unit of measure for illuminance of a surface. One lux is equal to one lumen per square meter.
- 3. Circuit Watts** is the total power drawn by lamps and ballasts in a lighting circuit under assessment.
- 4. Installed Load Efficacy** is the average maintained illuminance provided on a horizontal working plane per circuit watt with general lighting of an interior. Unit: lux per watt per square metre (lux/W/m²)
- 5. Lamp Circuit Efficacy** is the amount of light (lumens) emitted by a lamp for each watt of power consumed by the lamp circuit, i.e. including control gear losses. This is a more meaningful measure for those lamps that require control gear. Unit: lumens per circuit watt (lm/W)
- 6. Installed Power Density.** The installed power density per 100 lux is the power needed per square metre of floor area to achieve 100 lux of average maintained illuminance on a horizontal working plane with general lighting of an interior. Unit: watts per square metre per 100 lux (W/m²/100 lux) 100 Installed power density (W/m²/100 lux)
- 7. Lighting Power Density:** It is defined as Total Lighting Load in a room divided by the Area of that Room in square meters.

In this Chapter we compute the percentage usage of LED Lighting to total Lighting Load of the College.

Table No 4: Percentage Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	630	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	10.08	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit

6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	10.28	kW
8	Total Lighting Load= 3+6	10.28	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%



CHAPTER-V

STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

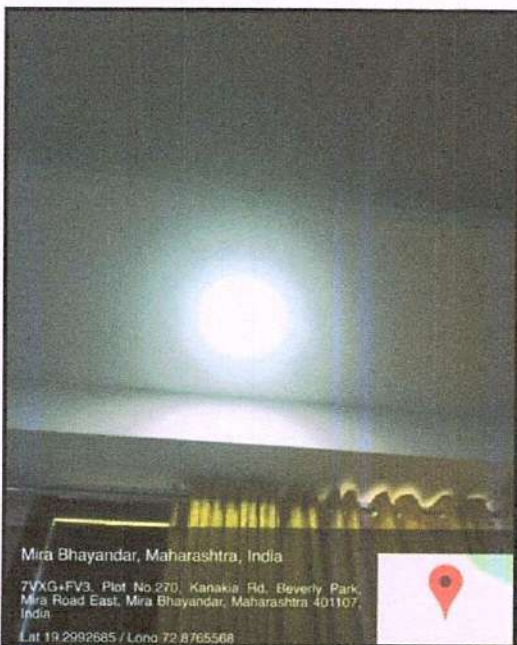
5.1 Usage of Renewable Energy:

- The College has yet to install Roof Top Solar PV Plant

5.2 Energy Efficiency Projects:

- Usage of Energy Efficient LED Lighting
- Usage of Energy Efficient BEE STAR Rated Equipment

Photographs of LED Lighting & STAR Rated AC:



CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	149	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.384	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.584	kW
8	Total Lighting Load= 3+6	2.584	kW
9	% of LEDs to Total Lighting Load = $7*100/8$	100	%



CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	147	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.352	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.552	kW
8	Total Lighting Load= 3+6	2.552	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%

CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	147	Nos
2	Load of 16 W LED Fittings	16	W/unit
3	Total Load of 16 W LED Fittings	2.352	kW
4	No of 40 W LED Fittings	5	Nos
5	Load of 40 W LED Fittings	40	W/unit
6	Total Load of 40 W LED Fittings	0.2	kW
7	Total LED Lighting Load= 3+6	2.552	kW
8	Total Lighting Load= 3+6	2.552	kW
9	% of LEDs to Total Lighting Load = $7 \times 100 / 8$	100	%

CHAPTER VI STUDY OF USAGE OF LED LIGHTING

In this chapter, we compute the percentage of usage of LEDs to Total Lighting Load.

Table No 5: Percentage of Usage of LED Lighting to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	140	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED Fittings	2.24	kW
4	No of 40 W LED Fittings	3	Nos
5	Load of 40 W LED Fitting	40	W/unit
6	Total Load of 40 W LED Fittings	0.12	kW
7	Total LED Lighting Load= 3+6	2.36	kW
8	Total Lighting Load= 3+6	2.36	kW
9	% of LEDs to Total Lighting Load = $7*100/8$	100	%

