



The Poona Jesuit Schools' Society's  
**St. Vincent College**  
(Affiliated to Savitribai Phule Pune University)

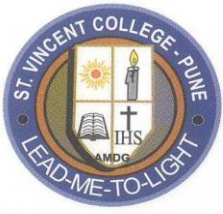


तमसो मा ज्योतिर्गमय  
Lead Me to Light

## Criteria No. 7.1.2

The Institution has facilities and initiatives for

1. Alternate sources of energy and energy conservation measures
2. Management of the various types of degradable and non-degradable waste
3. Water conservation
4. Green campus initiatives
5. Disabled-friendly, barrier free environment



Poona Jesuit Schools' Society's

## **ST. VINCENT COLLEGE OF COMMERCE**

Behind Mira Society, off Shankarseth Road, Pune-411 037.

Tel.: 91-020-29511658 / 26351162

Email : stvincent2004@gmail.com

Website : www.svcpune.edu.in

Affiliated to Savitribai Phule Pune University

ID.No. PU/PN/C/024/1970

Senior College Code: 072

Jr. College Code: J11-15-006

Date -20/07/2018

### **CIRCULAR**

This is to inform that our college is committed towards Energy Conservation in this regard all the students and staffs are expected to contribute your efforts for energy conservation through following **Energy Saving Tips**

Students should be encouraged and motivated to Energy Conservation in the college as well as in selected locations outside the campus.

### **FOR A BETTER TOMORROW, SAVE ENERGY TODAY.**

#### **Energy Saving Tips for College Students and staff**

1. If you are last to leave the classroom please turn off the lights and fans.
2. Unplug your electronic instruments when not in use.
3. Use natural light whenever possible.

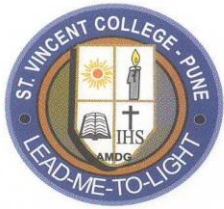
Regarding cleanliness drive on campus

River cleaning drive

*AB Adsule*

Dr. Anil Adsule  
Principal





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Date- 10/08/2018

### Plastic Ban Policy

Plastic pollution is one of the biggest environmental concern. The short term benefits of plastic have led to a boom in the production and consumption of plastic.

Plastic is a menace that impacts not just environment but also our health. We have all contributed to this problem knowingly or unknowingly and we must know work to reduce and eliminate plastic pollution. Government has decided to take plastic ban as a national level campaign to address the environmental hazard.

Keeping this in mind, the college authorities have decided to actively contribute to the effort of banning the use of single use plastic.

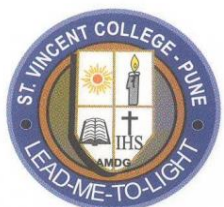
#### **The guidelines to adopt policies and practices towards cleaner and plastic free campus**

- Carry out awareness drives and workshops on the harmful impacts of single use plastic.
- Ensure plastic-free campus. Students and faculty to work towards this.
- Usage of plastics should be stopped in canteens and hostels etc.
- Students may not be permitted to bring non-bio-degradable plastic items to the campus.
- Students to be motivated to carry out similar campaigns at community level.
- Installation of necessary alternative facilities like water units to avoid the purchase and use of plastic water bottles.
- Insure presence of alternative solutions like cloth bags etc. to plastic bags, covers and other goods on campuses
- Conduct events and poster competitions etc. on designing ecological and environment friendly goods to minimise the use of single use plastic

*Dr. Anil Adsule*

Dr. Anil Adsule  
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## **Report on alternative source of energy and energy conservation Measures.**

**2018-19 to 2022-23**

### **Introduction:**

St. Vincent college, Pune is an educational institution that recognizes the importance of alternate sources of energy and energy conservation measures. In recent years, there has been a growing concern about the depletion of fossil fuels and the impact of their use on the environment. To address this issue, the college has implemented various measures to promote the use of alternate sources of energy and conserve energy.

### **Alternate sources of energy:**

St. Vincent college Pune has taken several initiatives to promote the use of alternate sources of energy. The college has installed a solar panel based LED lights in Premises which has significantly reduced its dependence on traditional energy sources.

### **Energy conservation measures:**

St. Vincent college Pune has implemented several energy conservation measures to reduce energy consumption. The college has replaced traditional bulbs with LED lights, which consume less energy and have a longer life span.

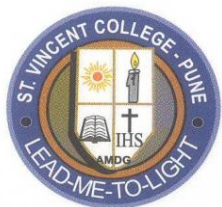
### **Conclusion:**

St. Vincent college Pune is setting an example for other educational institutions by implementing various alternate sources of energy and energy conservation measures. The college has not only reduced its carbon footprint but has also saved a significant amount of money on energy bills, by promoting the use of alternate sources of energy and conserving energy, the college is contributing to a sustainable future.

*Dr. Anil Adsule*

Dr. Anil Adsule  
Principal





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# **Report on Management of the various type of Degradable and non-degradable Waste**

**2018-19 to 2022-23**

### **Solid waste management:**

Every day Pune Municipal Corporation collects solid waste from college premises. The garden waste, garbage, paper, e-waste is segregated as per the Pune Municipal Corporation (PMC) Guidelines. Waste generation from tree droppings is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Non-biodegradable waste. The biodegradable waste from College campus is converted into the compost. Different efforts have been taken to manage solid waste in the campus.

### **E-waste management:**

The E - waste of college is collected and managed by the parent institute. E- waste audit is conducted routinely by parent institution. The outdated equipment is sold to the vendors for recycling.

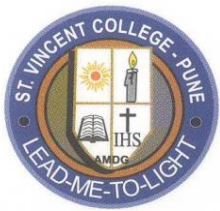
### **Waste recycling system:**

The biodegradable waste generated from college campus recycled by the way of vermi compost unit. Therefore, the major solid waste generated in the campus is garden waste which is then utilized in the campus to go for green environment. The vermi compost generated by Vermiculture unit of the college is provided to Mango, Coconut and all trees of campus. Waste from the campus area are dumped in the Vermi compost Unit to make some Organic fertilizer which are used for Gardening.

*AB Adsule*

Dr. Anil Adsule  
Principal





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## **Report of Water Conservation Initiatives**

### **2018-19 to 2022-23**

#### **Introduction:**

Water is a precious resource that is essential for the survival of all living beings. St. Vincent college Pune is an educational institution that recognizes the importance of water conservation. With the increase in population and industrialization, there has been a significant increase in the demand for water, which has led to environmental problems. The college has implemented following measures to conserve water and promote sustainable water management.

#### **Rain Water Harvesting:**

The College has dug a well (60 ft. Deep x 20 ft. wide) as a part of its rain water harvesting project and is well preserved and nurtured through the natural rains it is a major source of water for the college ensuring availability of water for all 12 months, thus making the college self-reliant for its water needs and reducing the dependence on the local water supply except for the drinking water. The well helps to enrich the ground water levels not only in the college campus but all the water sources in the neighbouring areas.

#### **Construction of tanks:**

In campus underground tanks are constructed.

#### **Waste water recycling:**

Waste water pipelines connected to PMC main drainage line.

#### **Maintenance of water bodies and distribution system in the campus:**

Drinking water is stored in the tank on the terrace of the main Building. Water purifier machine are installed on the Ground and First floor for students and also in staff rooms for the staffs. The regular maintenance of the tank, taps and pipeline is done by local plumber. Thus the any leakage of water is prevented.

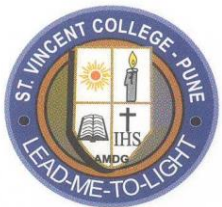
#### **Conclusion:**

The college's efforts to promote rainwater harvesting and water conservation awareness have not only reduced the demand for freshwater but also contributed to a sustainable future. By conserving water, the college is protecting the environment and ensuring the availability of water for future generations.

*A.B. Adsule*

Dr. Anil Adsule  
Principal





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### Report on green campus initiative 2018-19 to 2022-23

#### **Green transportation:**

The college has also undertaken several measures to promote green transportation. The college encourages students and staff to use bicycles and electric vehicles on the campus, which reduces the emission of greenhouse gases and promotes sustainable transportation.

#### **Restricted entry of automobiles: (No Vehicles Day):**

College Development Committee of the college has decided to ban the entry of all kinds of vehicles in the campus for prevention of air pollution and sound pollution. The step is taken for environmental conservation. 'No Vehicle Day' is observed on 18/02/2022 in the college campus.

#### **Use of Bicycles:**

The students are encouraged and persuaded to use bicycle rather than motorcycle. Awareness among the student is created regarding importance of environmental conservation. The students are encouraged to use bicycle and also encouraged to avoid unnecessary use of motorcycle. Mostly students, majority of the teaching and non-teaching staff of the institute use public transport (PMPML).

#### **Pedestrian Friendly pathways:**

St. Vincent college Pune has taken initiatives to make the campus pedestrian-friendly. The college has implemented several measures to create a safe and comfortable walking experience for students and staff members. One of the key steps taken by the college is to make all the pathways within the campus wide enough to accommodate pedestrians. Additionally, the college has set up designated parking areas for two-wheelers and four-wheelers to prevent them from parking on the pathways. Overall, the pedestrian-friendly pathways made the campus safer and more accessible for students and stall members.

#### **Ban on use of Plastic:**

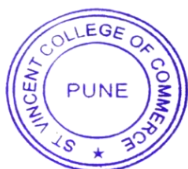
The institution has strictly prohibited the use of plastics in the campus to protect environment. The banner of the same is displayed in the campus.

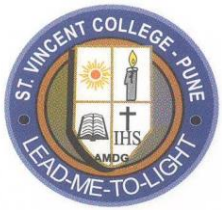
#### **Landscaping with trees and plants:**

There are various types of trees and plants like banyan, mango, coconut, Tamarind, flowering plants etc. in the campus. The college has also undertaken initiatives to promote greenery on the campus. The college has planted trees and created green spaces on the campus, which not only improves the aesthetic appeal but also provides several environmental benefits such as air purification, noise reduction, and temperature regulation.

*AB Adsule*

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### **Disabled friendly initiatives 2018-19 to 2022-23**

#### **Infrastructure:**

St. Vincent college Pune has created several disabled-friendly infrastructure facilities on the campus. The college has installed ramps and handrails in the campus to ensure accessibility for wheelchair users. The college has also created accessible toilet and other necessary amenities for people with disabilities.

#### **Assistive technology:**

The college has also implemented several assistive technology measures to ensure that students with disabilities have access to the same opportunities as other students,

#### **Inclusive education:**

The college also promotes inclusive education by providing support services and accommodations to students with disabilities. The college also provides accommodations such as facilities for enlarged text, accessible seating, adaptive equipment to ensure that students with disabilities have access to the same opportunities as other students and extra time for examinations to students with disabilities,

#### **Conclusion:**

St. Vincent college Pune has put forward an example for other educational institutions by creating a disabled-friendly barrier-free environment on the campus. The college's efforts create disabled-friendly infrastructure, implement assistive technology and promote inclusive education have not only ensured accessibility for students with disabilities but also promoted inclusivity and diversity on the campus. By creating a disabled-friendly barrier-free environment, the college is contributing to a more equitable and just society.

*A.B. Adsule*

Dr. Anil Adsule  
Principal



**List of Disable Friendly Barrier Free Establishments and facilities:**

Sr. No.	Facilities
1	Ramps
2	Wheelchair
3	Sign Boards
4	Audio Books
5	Walker
6	Provision for Enquiry

*AB Adsule*  
Dr. Anil Adsule  
Principal



**ENERGY AUDIT REPORT**  
of  
Poona Jesuit School Society's,  
**ST. VINCENT COLLEGE OF COMMERCE,**  
Shankarsheth Road, Pune 411 037



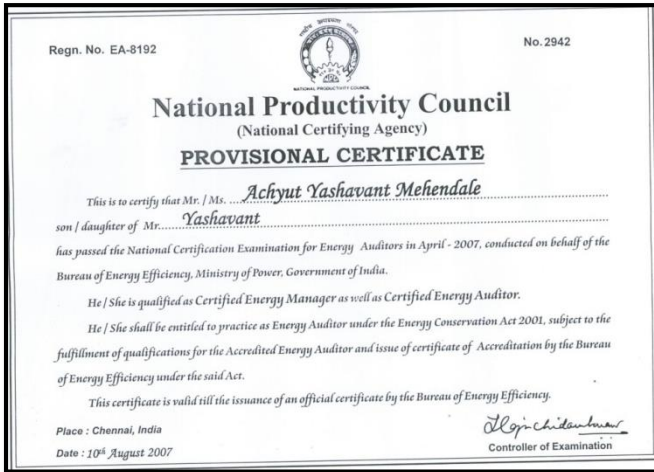
**Year: 2022-23**

Prepared by:

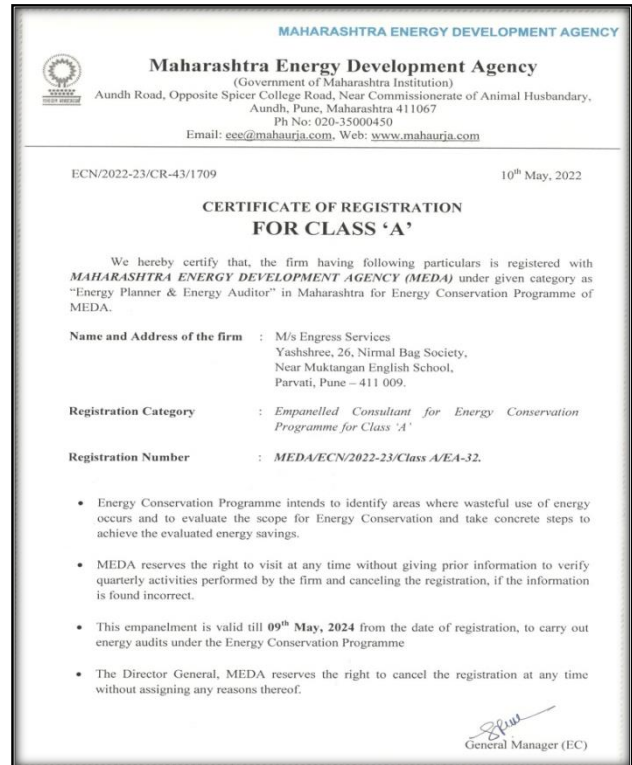
**ENGRESS SERVICES**

Yashashree, 26, Nirmal Bag Society,  
Near Mukhtangan English School, Parvati, Pune 411009  
Phone: 09890444795, Email: engress123@gmail.com

**REGISTRATION CERTIFICATES**



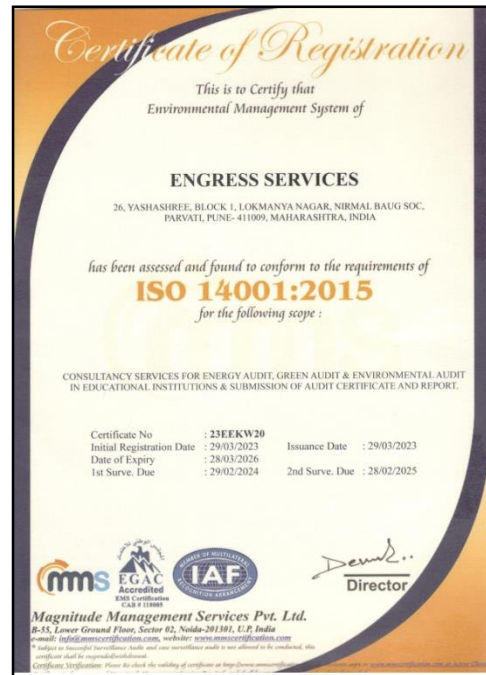
**AUDITOR CERTIFICATE**



**MEDA Registration Certificate**



**ISO: 9001-2015 Certificate**



**ISO: 14001-2015 Certificate**

## INDEX

<b>Sr. No</b>	<b>Particulars</b>	<b>Page No</b>
I	Acknowledgement	4
II	Executive Summary	5
III	Abbreviations	6
1	Introduction	7
2	Study of Connected Load	8
3	Study of Present Energy Consumption	9
4	Study of Energy Performance Index	10
5	Study of Lighting	11
6	Study of Renewable Energy & Energy Efficiency	12

## **ACKNOWLEDGEMENT**

We Engress Services, Pune, express our sincere gratitude to the management of Poona Jesuit School Society's, St. Vincent College of Commerce, Shankarsheth Road, Pune, for awarding us the assignment of Energy Audit of their Campus for the Year: 2022-23.

We are thankful to all the staff members for helping us during the field study.

## EXECUTIVE SUMMARY

1. Poona Jesuit School Society's, St. Vincent College of Commerce, Shankarsheth Road, Pune uses Energy in the form of **Electrical Energy**; used for various Equipment.

### 2. Present Connected Load & Energy Consumption:

No	Particulars	Value	Unit
1	Total Connected Load	<b>45.26</b>	kW
2	Annual Energy Consumed	<b>38011</b>	kWh

### 3. Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	<b>38011</b>	kWh
2	Total Built up area of College	<b>1704.3</b>	m <sup>2</sup>
3	Energy Performance Index $= (1) / (2)$	<b>22.30</b>	kWh/m <sup>2</sup>

### 4. Study of % Usage of LED Lighting:

No	Particulars	Value	Unit
1	% of Usage of LED Lighting to Total Lighting Load	<b>100</b>	%

### 5. Renewable Energy & Energy Efficiency Projects:

- The College has Solar PV Based Outdoor Lighting.
- Usage of Energy Efficient LED fittings

### 6. Assumptions:

1. **1 kWh** of Electrical Energy releases **0.9 Kg of CO<sub>2</sub>** into atmosphere
2. Energy Consumption is computed based on Load Utilization Factor

### 7. References:

- Audit Methodology: [www.mahaurja.com](http://www.mahaurja.com)
- Energy Conservation Building Code: ECBC-2017: [www.beeindia.gov.in](http://www.beeindia.gov.in)
- For CO<sub>2</sub> Emissions: [www.tatapower.com](http://www.tatapower.com)

## **ABBREVIATIONS**

LED	:	Light Emitting Diode
MSEDCL	:	Maharashtra State Electricity Distribution Company Limited
PJSC	:	Poona Jesuit School Society
BEE	:	Bureau of Energy Efficiency
FTL	:	Fluorescent Tube Light
CFL	:	Compact Fluorescent Light
PV	:	Photo Voltaic
Kg	:	Kilo Gram
kWh	:	kilo-Watt Hour
CO <sub>2</sub>	:	Carbon Di Oxide
MT	:	Metric Ton

## CHAPTER-I INTRODUCTION

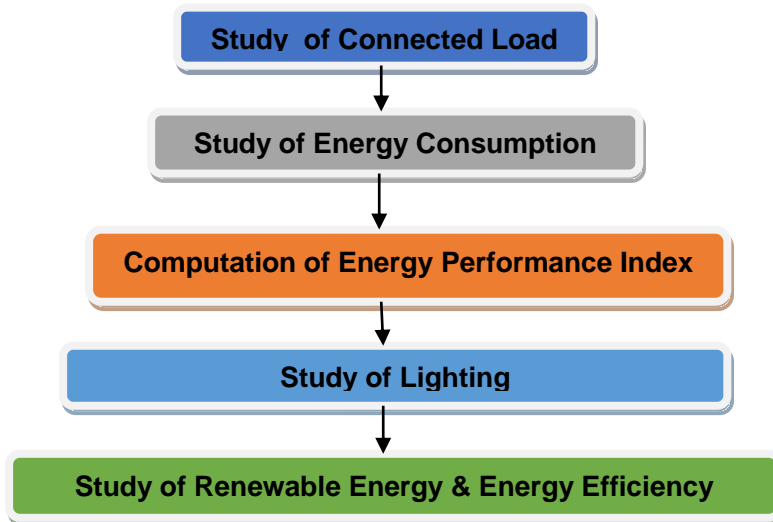
### 1.1 Introduction:

An Energy Audit is conducted at PJSS's Saint Vincent College of Commerce, Pune.

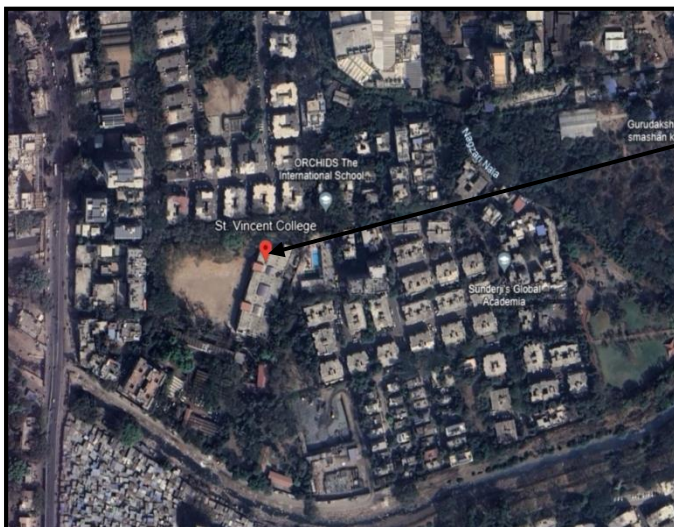
The guidelines followed for conducting the Energy Audit are:

- BEE India's Energy Conservation Building Code: ECBC-2017
- Maharashtra Energy Development Agency ([www.mahaurja.com](http://www.mahaurja.com))
- Tata Power: [www.tatapower.com](http://www.tatapower.com)

### 1.2 Audit Procedural Steps:



### 1.3 College Location Image:



College  
Campus

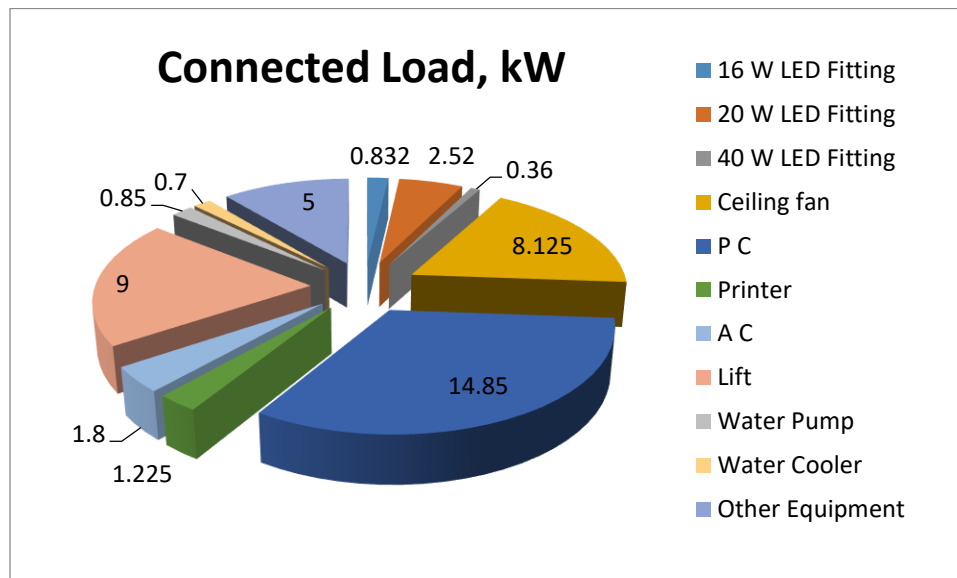
## CHAPTER-II STUDY OF CONNECTED LOAD

In this Chapter we enlist the Electrical Load of the College.

**Table No 2: Study of Equipment wise Connected Load:**

No	Equipment	Qty	Load, W/unit	Load, kW
1	16 W LED Fitting	52	16	0.832
2	20 W LED Fitting	126	20	2.52
3	40 W LED Fitting	9	40	0.36
4	Ceiling fan	125	65	8.125
5	P C	99	150	14.85
6	Printer	7	175	1.225
7	A C	1	1800	1.8
8	Lift	1	9000	9
9	Water Pump	1	850	0.85
10	Water Cooler	2	350	0.7
11	Other Equipment	20	250	5
<b>12</b>	<b>Total</b>			<b>45.262</b>

**Chart No 1: Study of Connected Load:**



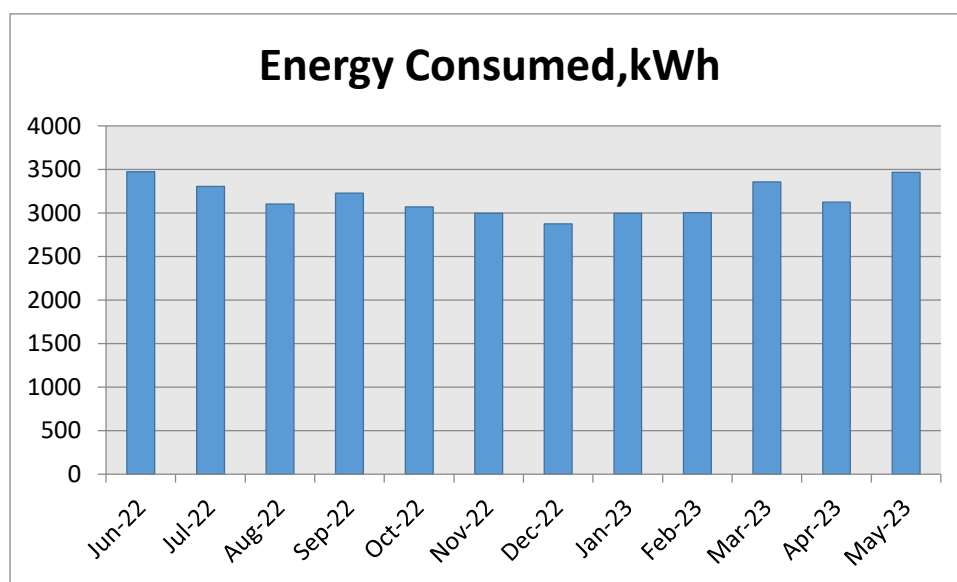
### CHAPTER-III STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Bills

**Table No 3: Electrical Bill Analysis- 2022-23:**

No	Month	Energy Consumed, kWh	CO2 Emission, MT
1	Jun-22	3475	3.13
2	Jul-22	3305	2.97
3	Aug-22	3105	2.79
4	Sep-22	3229	2.91
5	Oct-22	3069	2.76
6	Nov-22	2998	2.70
7	Dec-22	2875	2.59
8	Jan-23	2998	2.70
9	Feb-23	3005	2.70
10	Mar-23	3358	3.02
11	Apr-23	3125	2.81
12	May-23	3469	3.12
13	Total	38011	34
14	Maximum	3475	3
15	Minimum	2875	3
16	Average	3168	3

**Chart No 2: Variation in Monthly Energy Consumption:**



## **CHAPTER-IV**

### **STUDY OF ENERGY PERFORMANCE INDEX**

**Energy Performance Index:** Energy Performance Index of a Building is its Annual Energy Consumption in Kilo Watt Hours per square meter of the Building

It is determined by:

$$\text{EPI} = \frac{\text{(Annual Energy Consumption in kWh)}}{\text{(Total Built-up area in m}^2\text{)}}$$

Now we compute the EPI for the College as under:

**Table No 3: Computation of Energy Performance Index:**

<b>No</b>	<b>Particulars</b>	<b>Value</b>	<b>Unit</b>
1	Total Annual Energy Consumed	<b>38011</b>	kWh
2	Total Built up area of College	<b>1704.3</b>	m <sup>2</sup>
3	Energy Performance Index <b>=(1) / (2)</b>	<b>22.30</b>	kWh/m <sup>2</sup>

## **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/m<sup>2</sup>)

**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/m<sup>2</sup>/100 lux) 100 Installed power density (W/m<sup>2</sup>/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.

Now, we compute the usage of LED Lighting to Total Lighting Load, as under.

- The Total Lighting Load of the College is **3.68 kW**
- All the Fittings are LED Fittings.
- The % of LEDs to Total Lighting Load is **100 %**

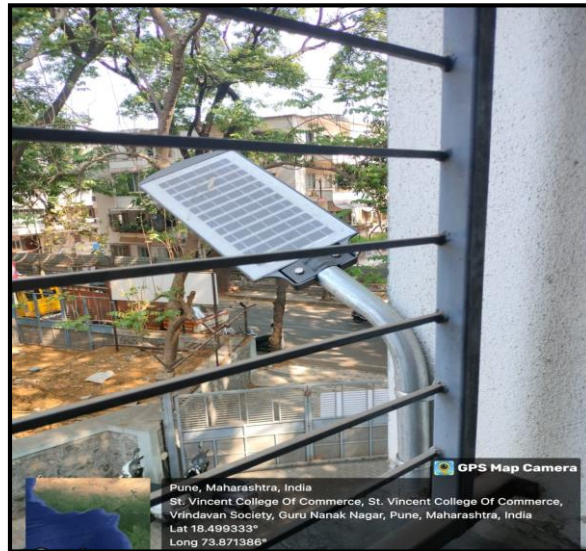
## CHAPTER-VI

### STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

#### 6.1 Usage of Renewable Energy:

The College has Solar PV based Outdoor Lighting.

Photograph of Solar Lamp:



#### 6.2 Energy Efficiency Measures adopted:

- The College has Energy Efficient LED Fittings.
- Usage of BEE STAR Rated Equipment

Photographs of STAR Rated AC & LED Lighting:

