

**ENERGY AUDIT REPORT**  
of  
Shikshan Prasarak Mandali's,  
**TILAK COLLEGE OF EDUCATION,**  
S. P. College Campus, Pune 411 030



Year: 2021-22

Prepared by

**ENGRESS SERVICES**

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



## ENGRESS SERVICES

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Ref: ES/TCOE/21-22/01

Date: 15/7/2022

### CERTIFICATE

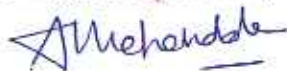
This is to certify that we have conducted Energy Audit at Shikshan Prasarak Mandali's Tilak College of Education, S. P. College Campus, Pune 411 030, in the Academic year 2021-22.

The College has adopted following Energy Efficient Practices:

- Usage of Energy Efficient LED Fittings
- Maximum usage of Day Lighting
- Installation of 10 kWp Roof Top Solar PV Plant.

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation.

For Engress Services,



A Y Mehendale,  
Certified Energy Auditor  
EA-8192



## CHAPTER-I INTRODUCTION

### 1.1 Objectives:

1. To study Connected Load
2. present level of Energy Consumption
3. To Study the present CO<sub>2</sub> emissions
4. To study Usage of Renewable Energy
5. To study usage of LED Lights

### 1.2 Table No1: General Details of College:

No	Head	Particulars
1	Name	Tilak College of Education
2	Address	S. P. College Campus, Tilak Road, Pune 411 030
3	Affiliation	Savitribai Phule Pune University

### 1.3 Google Earth Image:



College  
Campus

## CHAPTER-V STUDY OF USAGE OF ALTERNATE ENERGY

The College has installed 10 kWp Roof Top Solar PV Plant.

In this Chapter, we compute the percentage of usage of Alternate / Renewable Energy to Annual Energy Demand of the College.

Table No 5: Computation of % usage of Alternate Energy to Annual Energy Demand:

No	Particulars	Value	Unit
1	Energy Purchased from MSEDCL	7150	kWh
2	Installed Roof Top Solar PV Plant Capacity	10	kWp
3	Average Daily Energy Generated	4	kWh/kWp
4	Annual Generation Days	300	Nos
5	Annual Solar Energy Generated	12000	kWh
6	Total Energy Demand = (1) + (5)	19150	kWh
7	% of Usage of Alternate Energy to Total Energy Demand= (5)*100/ (6)	62.66	%

Photograph of Roof Top Solar PV Plant:



**GREEN AUDIT REPORT**  
of  
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S. P. College Campus, Pune 411 030



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Date: 15/7/2022

### CERTIFICATE

This is to certify that we have conducted Green Audit at Shikshan Prasarak Mandali's Tilak College of Education, S. P. College Campus, Pune 411 030, in the Academic year 2021-22.

The College has adopted following Energy Efficient & Green Practices:

- Usage of Energy Efficient LED Fittings
- Installation of 10 kWp Roof Top Solar PV Plant.
- Segregation of Waste at source
- Provision of Bio Composting Bed, for conversion of Organic Waste
- Implementation of Rain Water Management Project
- Good Internal Road
- Internal Tree Plantation
- Provision of Ramp for Divyangajan
- Creation of awareness about Energy Conservation by Display of Posters

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green.

For Engress Services,



A Y Mehendale,  
Certified Energy Auditor, EA-8192  
ASSOCHAM GEM Certified Professional: GEM: 22/788



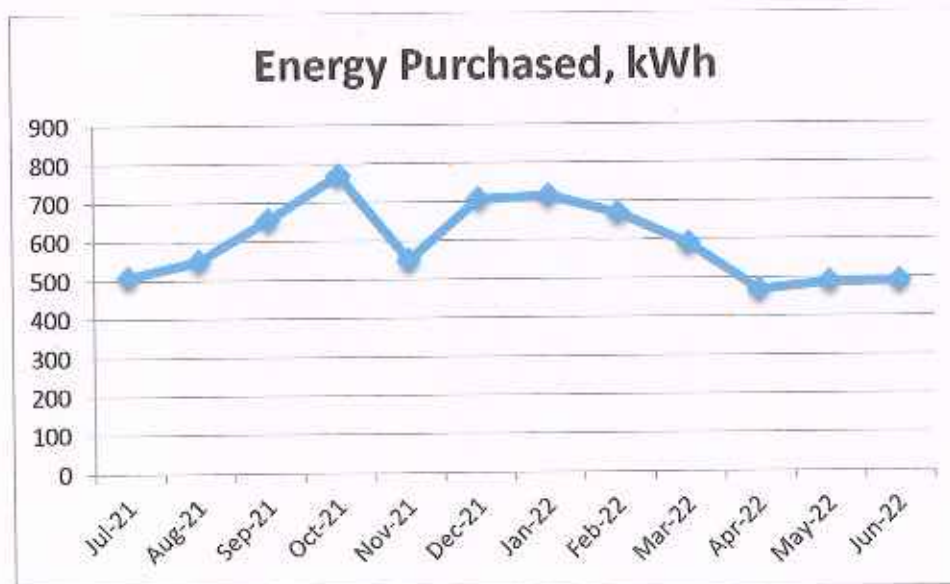
## CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of Electricity Energy Consumption

Table No 2: Electrical Energy Consumption Analysis- 2021-22:

No	Month	Energy Purchased, kWh
1	Jul-21	508
2	Aug-21	549
3	Sep-21	654
4	Oct-21	769
5	Nov-21	549
6	Dec-21	706
7	Jan-22	715
8	Feb-22	668
9	Mar-22	588
10	Apr-22	468
11	May-22	487
12	Jun-22	489
13	Total	7150
14	Maximum	769
15	Minimum	468
16	Average	595.83

Chart No 1: To study the variation of Month wise Energy Consumption, kWh:



## CHAPTER-III STUDY OF CARBON FOOTPRINTING

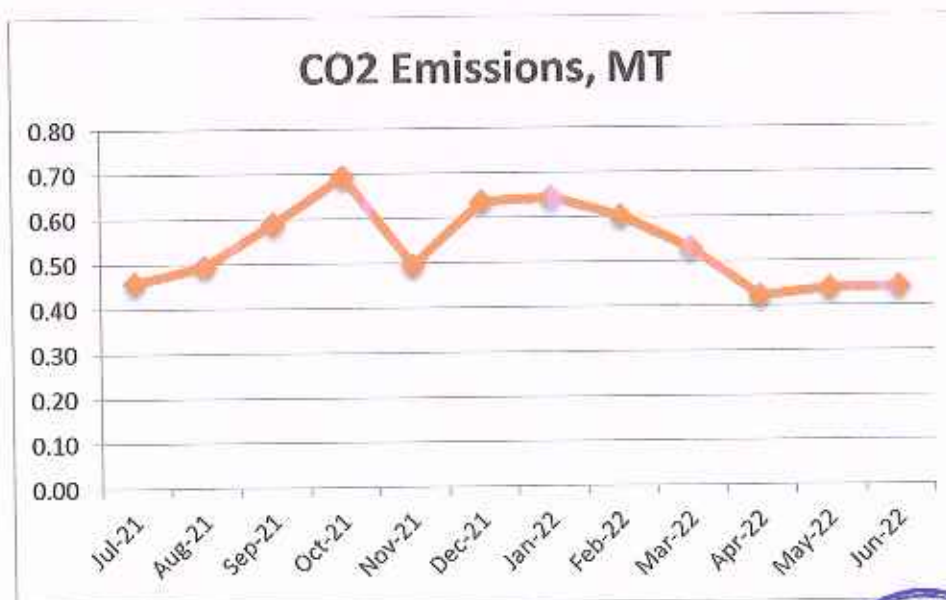
A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO<sub>2</sub> Emissions:**

- 1 kWh of Electrical Energy releases 0.9 Kg of CO<sub>2</sub> into atmosphere

Table No 3: Month wise CO<sub>2</sub> Emissions:

No	Month	Energy Purchased, kWh	CO <sub>2</sub> Emissions, MT
1	Jul-21	508	0.46
2	Aug-21	549	0.49
3	Sep-21	654	0.59
4	Oct-21	769	0.69
5	Nov-21	549	0.49
6	Dec-21	706	0.64
7	Jan-22	715	0.64
8	Feb-22	668	0.60
9	Mar-22	588	0.53
10	Apr-22	468	0.42
11	May-22	487	0.44
12	Jun-22	489	0.44
13	Total	7150	6.44
14	Maximum	769	0.69
15	Minimum	468	0.42
16	Average	595.83	0.54

Chart No 2: Representation of Month wise CO<sub>2</sub> emissions:





## CHAPTER-IV STUDY OF USAGE OF RENEWABLE ENERGY

The College has installed a Roof Top Solar PV Plant of capacity 10 kWp. In the following Table we present the Annual Reduction in CO<sub>2</sub> Emissions due to Solar PV Plant.

Table No 3: Computation of Annual Reduction in CO<sub>2</sub> Emissions:

No	Particulars	Value	Unit
1	Installed Roof Top Solar PV Plant Capacity	10	kWp
2	Average Daily Energy Generated	4	kWh/kWp
3	Annual Generation Days	300	Nos
4	Annual Solar Energy Generated	12000	kWh
5	1 kWh of Electrical Energy emits	0.9	Kg of CO <sub>2</sub>
6	Annual Reduction in CO <sub>2</sub> Emissions = (4) * (5) /1000	10.8	MT

Photograph of Roof Top Solar PV Plant:

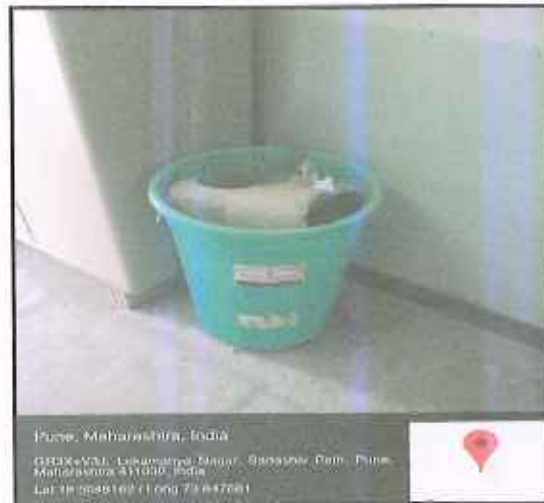


## CHAPTER V STUDY OF WASTE MANAGEMENT

### 5.1 Segregation of Waste at Source:

The College has good housekeeping practices. The Waste is segregated at source. Waste collection Bins are placed at strategic locations.

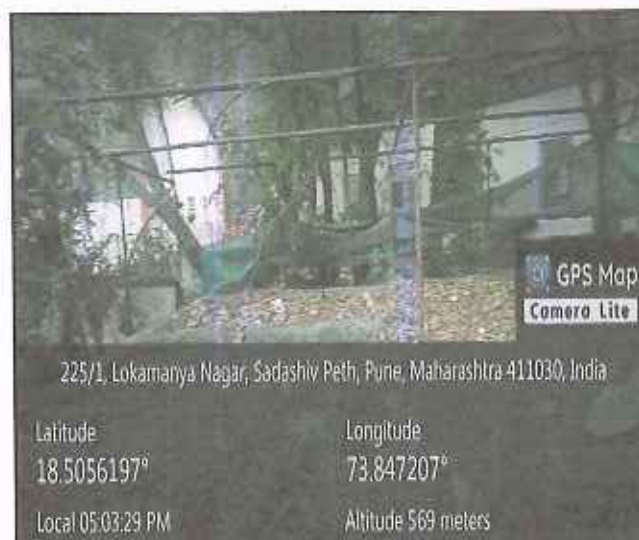
#### Photograph of Waste Collection Bin:



### 5.2 Organic Waste Management:

The College has a Bio Composting Bed for conversion of Organic Waste.

#### Photograph of Bio Composting Arrangement:

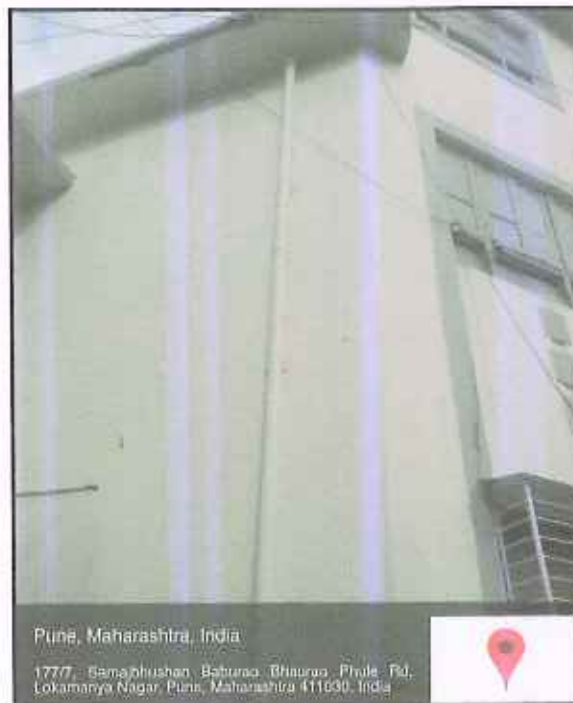


## **CHAPTER-VI**

### **STUDY OF RAIN WATER MANAGEMENT**

The College has installed Rain Water Management Project; the Rain Water from the terrace is collected through Pipes and is used to increase the Underground Water Table.

**Photograph of Rain Water Collecting Pipe Section:**



## CHAPTER-VII STUDY OF GREEN & SUSTAINABLE PRACTICES

### 7.1 Pedestrian Friendly Internal Road:

The College has well maintained internal road to facilitate the easy movement of the students within the campus.

Photograph of Internal Road:



### 7.2 Tree Plantation:

The College has well maintained Tree Plantation in the campus.

Photograph of Internal Tree Plantation:



**7.3 Provision of Ramp for Divyangajan:**

The College has made provision of Ramp for easy movement of Divyangajan.

**Photograph of Ramp:**



**7.4 Creation of Awareness about Energy Conservation:**

The College has displayed Posters on Importance of Energy Conservation.

**Photograph of Posters on importance of Energy Conservation:**



*Rukhanda*  
**PRINCIPAL**

**Tilak College of Education  
Pune-411030.**

