



Shri Wagheshwar Gramvikas Pratishthan's
**LOKNETE SHRI DADAPATIL PHARATE COLLEGE OF
PHARMACY**



Hon. Mr. R. V. Pharate
Founder President

Hon. Mrs. M. R. Pharate
Founder Secretary

Dr. H. V. Kamble
Principal

ENERGY AUDIT REPORT
of
Shri Wagheshwar Gramvikas Pratishthan's,
LOKNETE SHRI DADA PATIL PHARATE
COLLEGE OF PHARMACY,
Mandavgan Pharata, Taluka: Shirur, District: Pune



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



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REGISTRATION CERTIFICATES

Regn. No. EA-8192 No. 2942

National Productivity Council
(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Ms. Achyut Yashavant Mehendale
son / daughter of Mr. Yashavant
has passed the National Certification Examination for Energy Auditors in April - 2007, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India
Date : 10th August 2007

[Signature]
Controller of Examination

BEE AUDITOR CERTIFICATE

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency
(Government of Maharashtra Institution)
Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary,
Aundh, Pune, Maharashtra 411067
Email: eee@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709 10th May, 2022

**CERTIFICATE OF REGISTRATION
FOR CLASS 'A'**

We hereby certify that, the firm having following particulars is registered with MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA) under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

Name and Address of the firm : M/s Engress Services
Yashabree, 26, Nirmal Bag Society,
Near Mukangan English School,
Parvati, Pune - 411 009.

Registration Category : Empanelled Consultant for Energy Conservation Programme for Class 'A'

Registration Number : MEDA/ECN/2022-23/Class A/EA-32.

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till 09th May, 2024 from the date of registration, to carry out energy audits under the Energy Conservation Programme
- The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.

[Signature]
General Manager (EC)

MEDA EMPANELMENT CERTIFICATE



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ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Shri Wagheshwar Gramvikas Pratishthan's Loknete Shri Dada Patil Pharate College Of Pharmacy, Mandavgan Pharate, Taluka: Shirur, District: Pune, for awarding us the assignment of Energy Audit of their Mandavgan campus for the Year: 2021-22.

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



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EXECUTIVE SUMMARY

1. Shri Wagheshwar Gramvikas Pratishthan's Loknete Shri Dada Patil Pharate College Of Pharmacy, Mandavgan Pharate, Taluka: Shirur, District: Pune consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

2. Energy Consumed & CO₂ Emission:

No	Parameter	Energy Consumed, kWh	CO ₂ emissions, MT
1	Total	19071	17.16
2	Maximum	1785	1.61
3	Minimum	1235	1.11
4	Average	1589.25	1.43

3. Various Measures Adopted for Energy Conservation:

- Usage of Energy Efficient LED fittings
- Maximum Usage of Day Lighting

4. Usage of Alternate Energy Source:

- The College has installed Solar Thermal Water Heating System at the Hostel Block

5. Usage of LED Lighting to Total Lighting Load:

- The LED Lighting Load is **2.204 kW**.
- The Total Lighting Load is **2.204 kW**.
- The percentage of LED Lighting Total Lighting load works out to be **100 %**



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6. Assumption:

- 1 kWh (Unit) of Electrical Energy releases **0.9 Kg of CO₂** into atmosphere

7. Reference:

- For CO₂ Emission Calculations: www.tatapower.com



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ABBREVIATIONS

AC	: Air conditioner
SWGP	: Shri Wagheshwar Gramvikas Pratishthan
BEE	: Bureau of Energy Efficiency
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
Qty	: Quantity
W	: Watt
kW	: Kilo Watt
PC	: Personal Computer
MT	: Metric Ton
	Maharashtra State Electricity Distribution
MSEDCL	: Company Limited



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CHAPTER-I

INTRODUCTION

1.1 Objectives:

1. To study Connected Load
2. To study Present Energy Consumption
3. To Study CO₂ emissions
4. To study Scope for usage of Alternate / Renewable Energy
5. To study usage of LED Lighting

1.2 Table No-1: General Details of College:

No	Head	Particulars
1	Name	Shri Wagheshwar Gramvikas Pratishthan's Loknete Shri Dada Patil Pharate College Of Pharmacy,
2	Address	Mandavgan Pharate, Taluka: Shirur, District: Pune 412 211
3	Affiliation	Savitribai Phule Pune University

1.3 Google Earth Image:



Shri Wagheshwar Gramvikas Pratishthan's
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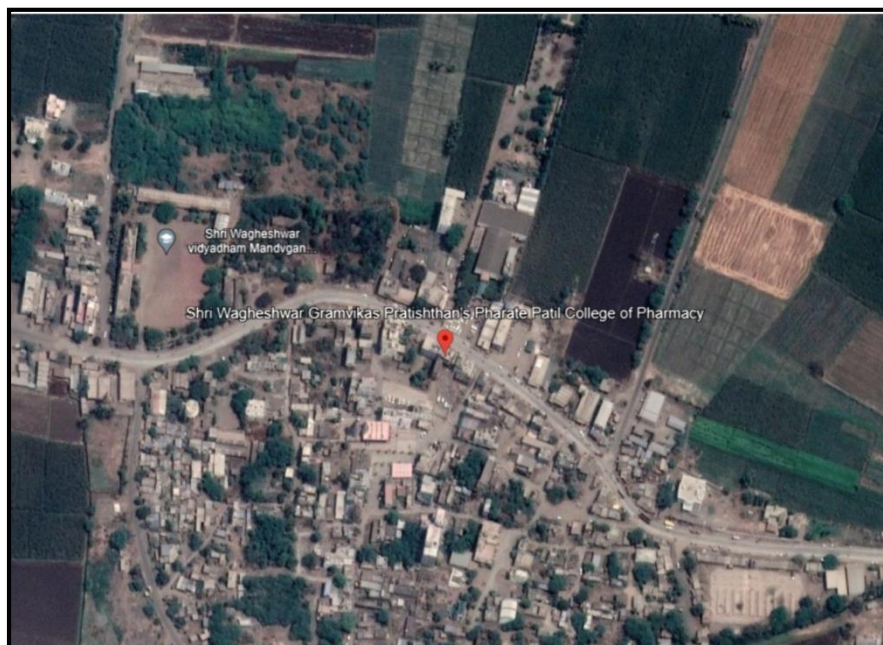


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College
Campus



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CHAPTER-II

STUDY OF CONNECTED LOAD

In this chapter, we present the details of various Electrical loads as under

Table No 2: Study of Equipment wise Connected Load:

No	Equipment	Qty	Load, W/unit	Load, kW
1	16 W LED Fitting	19	16	0.304
2	20 W LED Fitting	95	20	1.9
3	Ceiling Fan	26	65	1.69
4	Exhaust Fan	8	52	0.416
5	P C	70	150	10.5
6	Printer	4	175	0.7
7	Other Equipment	14	200	2.8
8	Total			18.3



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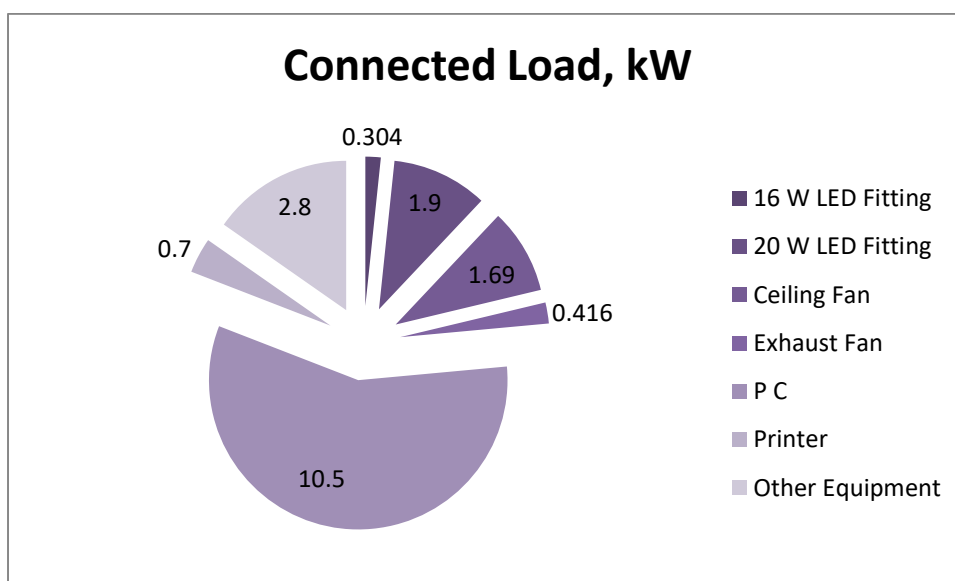
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Chart No 1: Details of Connected Load:





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CHAPTER-III

STUDY OF PRESENT ENERGY CONSUMPTION

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

Table No 3: Electrical Energy Consumed: 2022-23:

No	Month	Energy Consumed, kWh
1	Jul-22	1580
2	Aug-22	1660
3	Sep-22	1705
4	Oct-22	1668
5	Nov-22	1335
6	Dec-22	1235
7	Jan-23	1668
8	Feb-23	1785
9	Mar-23	1556
10	Apr-23	1436
11	May-23	1690
12	Jun-23	1753
13	Total	19071
14	Maximum	1785
15	Minimum	1235
16	Average	1589.25



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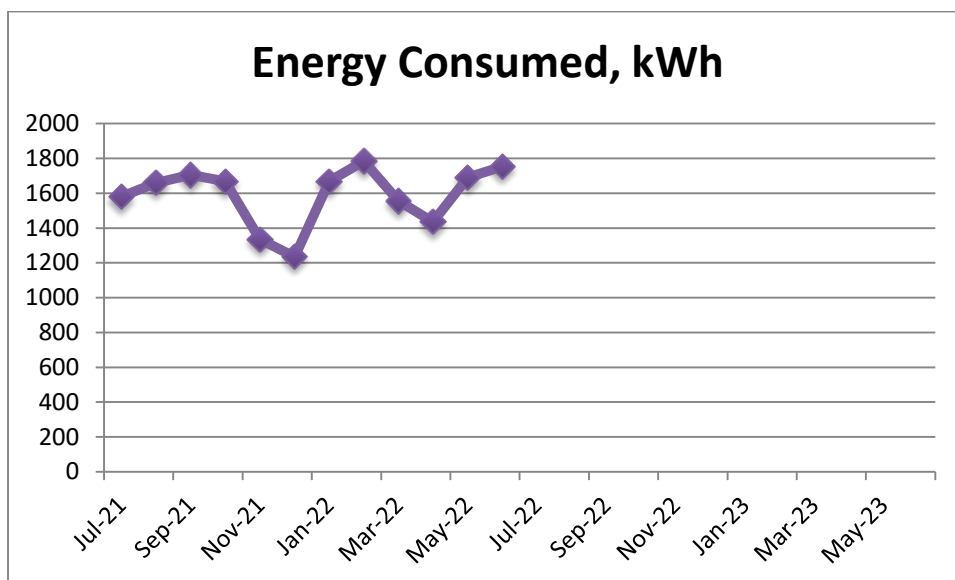
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Chart No 2: To study the variation of Month wise Energy Consumed, kWh:





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CHAPTER-IV

CARBON FOOT PRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO₂ Emissions:**

- **1 kWh** of Electrical Energy releases **0.9 Kg of CO₂** into atmosphere

Table No 4: Month wise CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO2 Emissions, MT
1	Jul-22	1580	1.42
2	Aug-22	1660	1.49
3	Sep-22	1705	1.53
4	Oct-22	1668	1.50
5	Nov-22	1335	1.20
6	Dec-22	1235	1.11
7	Jan-23	1668	1.50
8	Feb-23	1785	1.61
9	Mar-23	1556	1.40
10	Apr-23	1436	1.29
11	May-23	1690	1.52
12	Jun-23	1753	1.58
13	Total	19071	17.16
14	Maximum	1785	1.61
15	Minimum	1235	1.11
16	Average	1589.25	1.43



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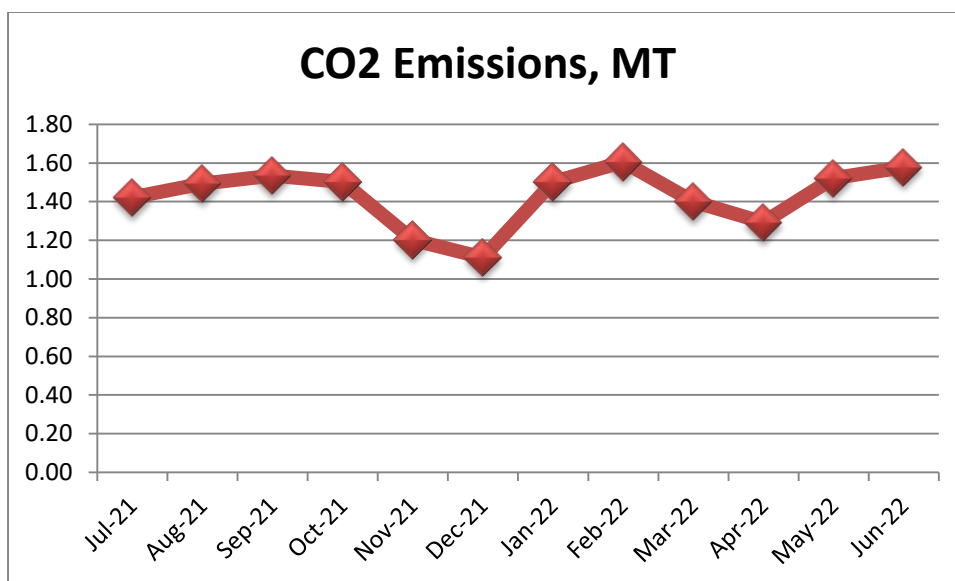
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Chart No 3: Representation of Month wise CO₂ Emissions:





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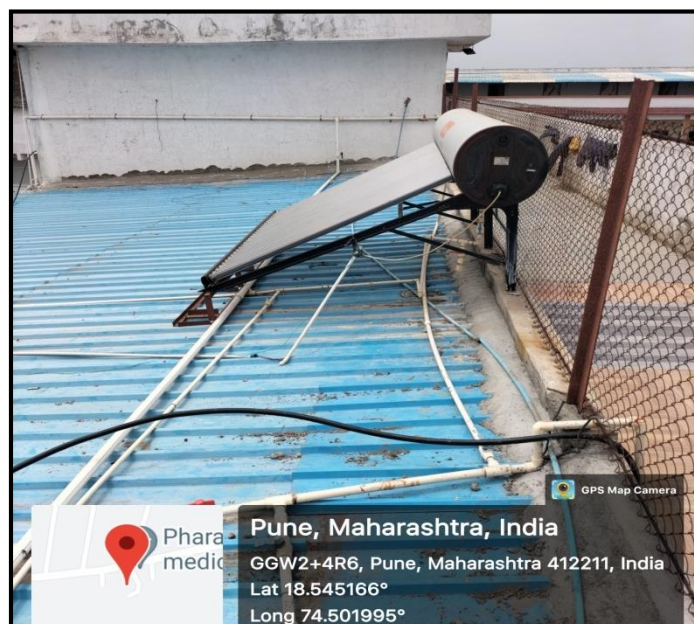
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CHAPTER-V

STUDY OF USAGE OF ALTERNATE ENERGY

The College has installed Solar Thermal Water Heating System at the Hostel Block

Photograph of Roof Top Solar Thermal Water Heating System:





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CHAPTER-VI

STUDY OF USAGE OF LED LIGHTS

In the following Table, we present the percentage of usage of LED lights to Total Lighting Load.

Table No 5: Study of % LED Lighting Load to Total Lighting Load:

No	Particulars	Value	Unit
1	No of 16 W LED Fittings	19	Nos
2	Load of 16 W LED Fitting	16	W/unit
3	Total Load of 16 W LED fitting	0.304	kW
4	No of 20 W LED Fittings	95	Nos
5	Load of 20 W LED Fitting	20	W/unit
6	Total Load of 20 W LED fitting	1.9	kW
7	Total LED Lighting Load=3+6	2.204	kW
8	Total Lighting Load=3+6	2.204	kW
9	% of LEDs to Total Lighting Load= $7 \times 100 / 8$	100	%