

GREEN AUDIT REPORT

of

Sahyadri Bahujan Vidya Prasarak Samaj,

Loknete Balasaheb Thorat Arts, Commerce & Science College,

Talegaon Dighe, Taluka: Sangamner, District: Ahmednagar



Year: 2019-20

Prepared by

ENRICH CONSULTANTS

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



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 
Controller of Examination
Date : 19th August 2007

BEE ENERGY AUDITOR CERTIFICATE

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency
(A Government of Maharashtra undertaking)
2nd Floor, MHADA Commercial Complex, Opp. Trilal Nagar, Yerwade, Pune 411 006,
Ph No: 020-26614393/266144403
Email: ee@maharashtra.com, Web: www.maharashtra.com

ECN/2018-19/CR-05-4174 19th September, 2018

**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	Eurich Consultants Yashashree, Plot No. 26, Nizmal Bag Society, Near Muktiangan English School, Purvati, Pune - 411009.
Registration Category	Empanelled Consultant for Energy Conservation Programme
Registration Number	MEDA/ECNCR-05/2018-19EA-03

- 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 the firm at any time without giving any prior information and canceling the registration, if the information is found incorrect.
- This empanelment is valid till 31st March 2021 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.


(Smita Kudarikar)
General Manager (EC)

MEDA EMPANELMENT CERTIFICATE



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ACKNOWLEDGEMENT

We Enrich Consultants, Pune, express our sincere gratitude to the management of Sahyadri Bahujan Vidya Prasarak Samaj, Loknete Balasaheb Thorat Arts, Commerce & Science College, Talegaon Dighe, Taluka: Sangamner, District: Ahmednagar, for awarding us the assignment of Green Audit of their College Campus for the Year: 2019-20.

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



EXECUTIVE SUMMARY

1. Sahyadri Bahujan Vidya Prasarak Samaj, Loknete Balasaheb Thorat Arts, Commerce & Science College, Talegaon Dighe, consumes Energy in the form of Electrical Energy; used for various gadgets, Office & other facilities.

2. Energy Consumed and CO₂ Emission:

No	Parameter	Energy Consumed, kWh	CO ₂ emissions, MT
1	Total	463	0.42
2	Maximum	70	0.06
3	Minimum	3	0.00
4	Average	38.58	0.03

3. Various Measures Adopted for Energy Conservation:

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

4. Usage of Renewable Energy Source:

- The College has yet to install Solar PV Plant.

5. Waste Management:

5.1 Segregation of Waste at Source:

The Waste is segregated at source. Waste bins are kept at various points.

5.2 Liquid Waste Management:

The College has installed a Septic Tank and is cleaned periodically.

6. Rain Water Management:

The rain water falling on the terrace is collected in a Storage Tank and used for domestic purpose, after filtration.

7. Green & Sustainable Practices:

- Good Internal Road & Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of Awareness about Water Conservation by Display of Posters

8. Assumption:

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

9. Reference:

- For CO₂ calculations: www.tatapower.com



ABBREVIATIONS

LED	:	Light Emitting Diode
kWh	:	kilo-Watt Hour
MT	:	Metric Ton
CO ₂	:	Carbon Di Oxide



CHAPTER-I INTRODUCTION

1.1 Objectives:

1. To study present Energy Consumption
2. To Study the present CO₂ emissions
3. To study Usage of Renewable Energy
4. To study Waste Management practices
5. To study Green & Sustainable Practices

1.2 Table No-1: General Details of College:

No	Head	Particulars
1	Name	Loknete Balasaheb Thorat Arts, Commerce & Science College,
2	Address	Talegaon Dighe, Taluka: Sangamner, District: Ahmednagar
3	Affiliation	Savitribai Phule Pune University

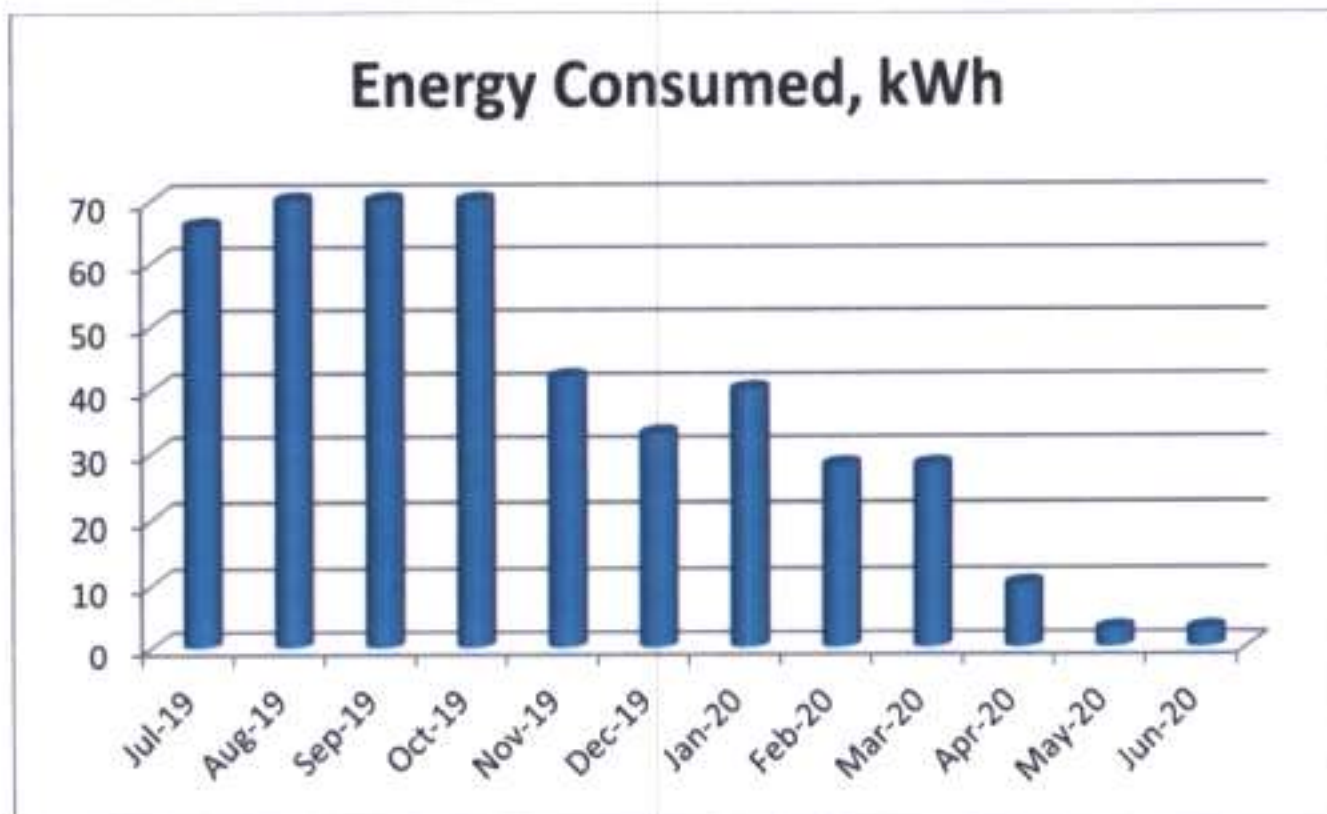


CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Energy Consumption
Table No 2: Electrical Energy Purchase Analysis- 2019-20:

No	Month	Energy Consumed, kWh
1	Jul-19	66
2	Aug-19	70
3	Sep-19	70
4	Oct-19	70
5	Nov-19	42
6	Dec-19	33
7	Jan-20	40
8	Feb-20	28
9	Mar-20	28
10	Apr-20	10
11	May-20	3
12	Jun-20	3
13	Total	463
14	Maximum	70
15	Minimum	3
16	Average	38.58

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



CHAPTER-III

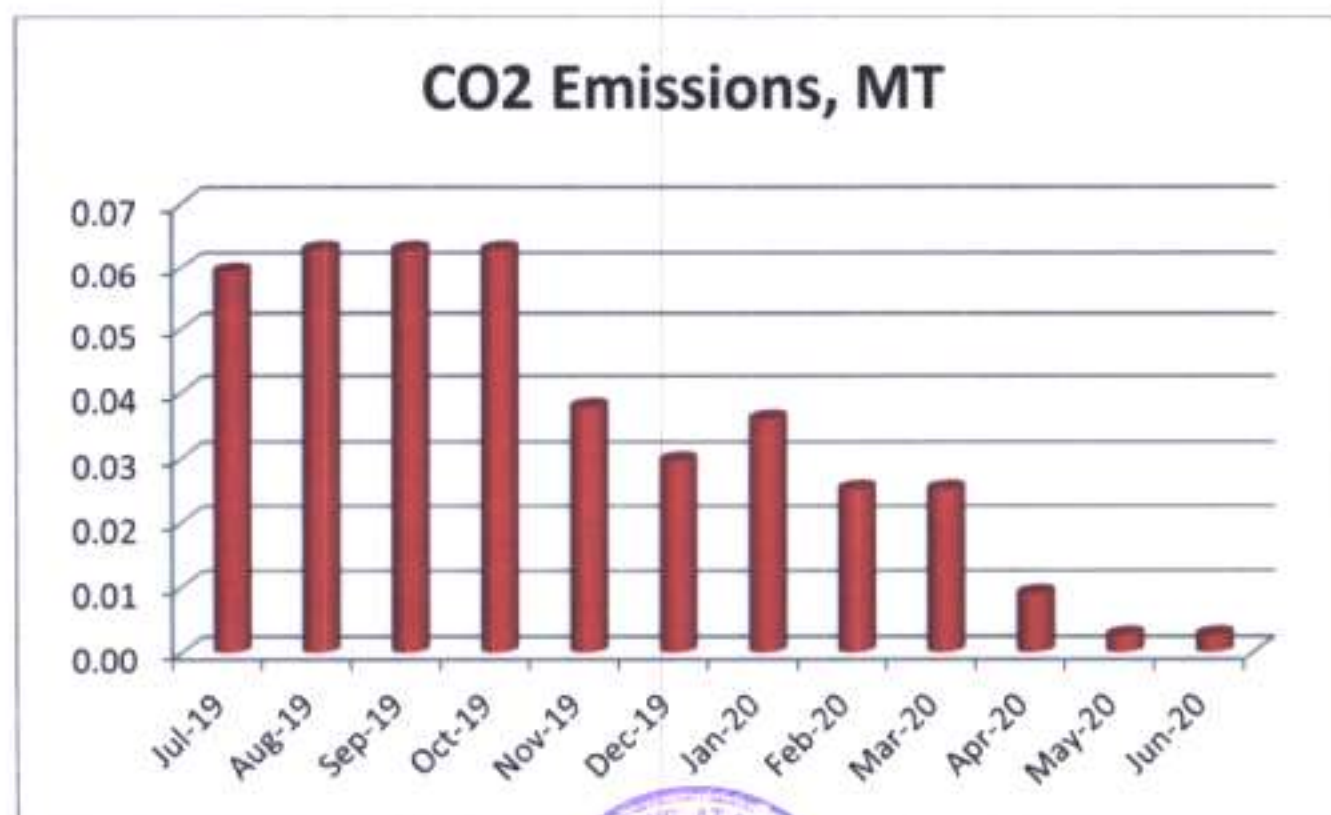
CARBON FOOT PRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO₂ Emissions:** 1 Unit (kWh) of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere.

Table No 3: Month wise CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jul-19	66	0.06
2	Aug-19	70	0.06
3	Sep-19	70	0.06
4	Oct-19	70	0.06
5	Nov-19	42	0.04
6	Dec-19	33	0.03
7	Jan-20	40	0.04
8	Feb-20	28	0.03
9	Mar-20	28	0.03
10	Apr-20	10	0.01
11	May-20	3	0.00
12	Jun-20	3	0.00
13	Total	463	0.42
14	Maximum	70	0.06
15	Minimum	3	0.00
16	Average	38.58	0.03

Chart No 2: Representation of Month wise CO₂ emissions:



CHAPTER-IV

STUDY OF USAGE OF RENEWABLE ENERGY

- The College has yet to install Solar PV Plant.



CHAPTER-V STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The Waste is segregated at source. Waste bins are located at various locations

Photograph of Separate Waste Collection Bin:



5.2 Liquid Waste Management:

The College has a Septic Tank, and is cleaned periodically.



CHAPTER-VI

STUDY OF RAIN WATER MANAGEMENT

The Rain water falling on the terrace is collected through Pipes and is collected in the Main Water Storage Tank. This Water is further used for domestic purpose after filtration

Photograph of Rain Water Carrying Pipe:



CHAPTER-VII

STUDY OF GREEN & SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Road:

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

Photograph of Road within campus:



7.2 Internal Tree Plantation:

The College has well maintained Tree Plantation.

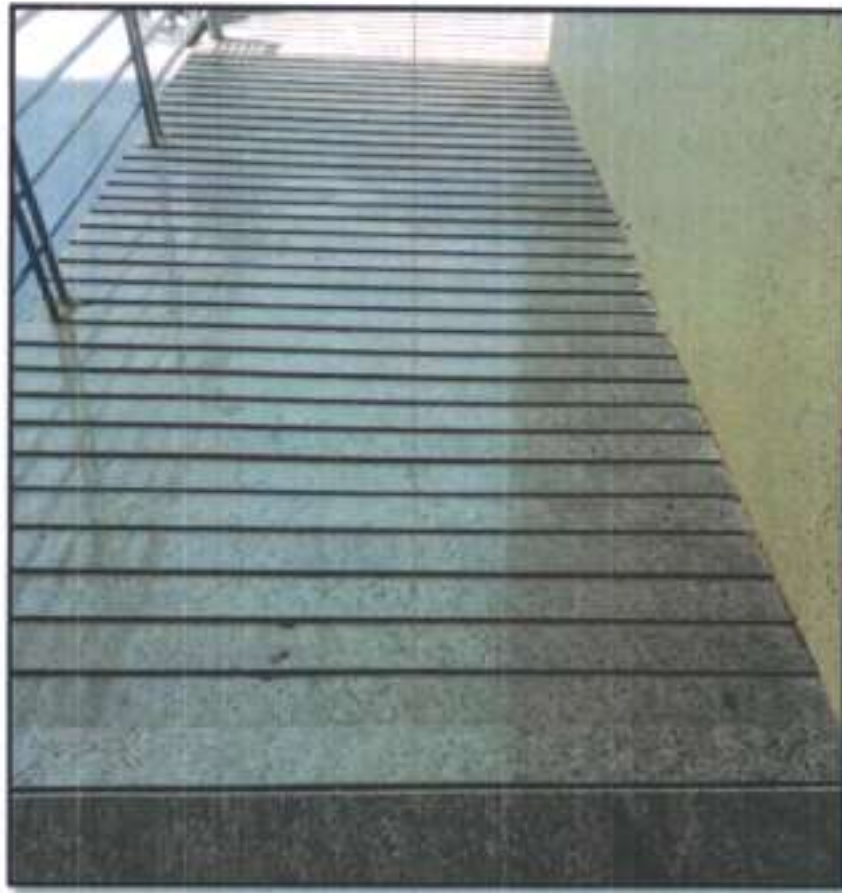
Photograph of Tree Plantation:



7.3 Provision of Ramp for Divyangajan:

The College has made provision of Ramp for the Divyangajan.

Photograph of Ramp for Divyangajan:



7.4 Creation of Awareness about Water Conservation:

The College has displayed posters emphasizing on importance of Water Conservation

Photograph of Poster on Water Conservation:



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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 yet to install Roof Top Solar PV Plant.

5. Usage of LED Lighting to Total Lighting Load:

- The LED Lighting Load is **0.11 kW**.
- The Total Lighting Load is **0.71 kW**.
- The percentage of LED Lighting Total Lighting load works out to be **15.49 %**

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



ABBREVIATIONS

AC	:	Air conditioner
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
MSEDCL	:	Maharashtra State Electricity Distribution Company Limited



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:

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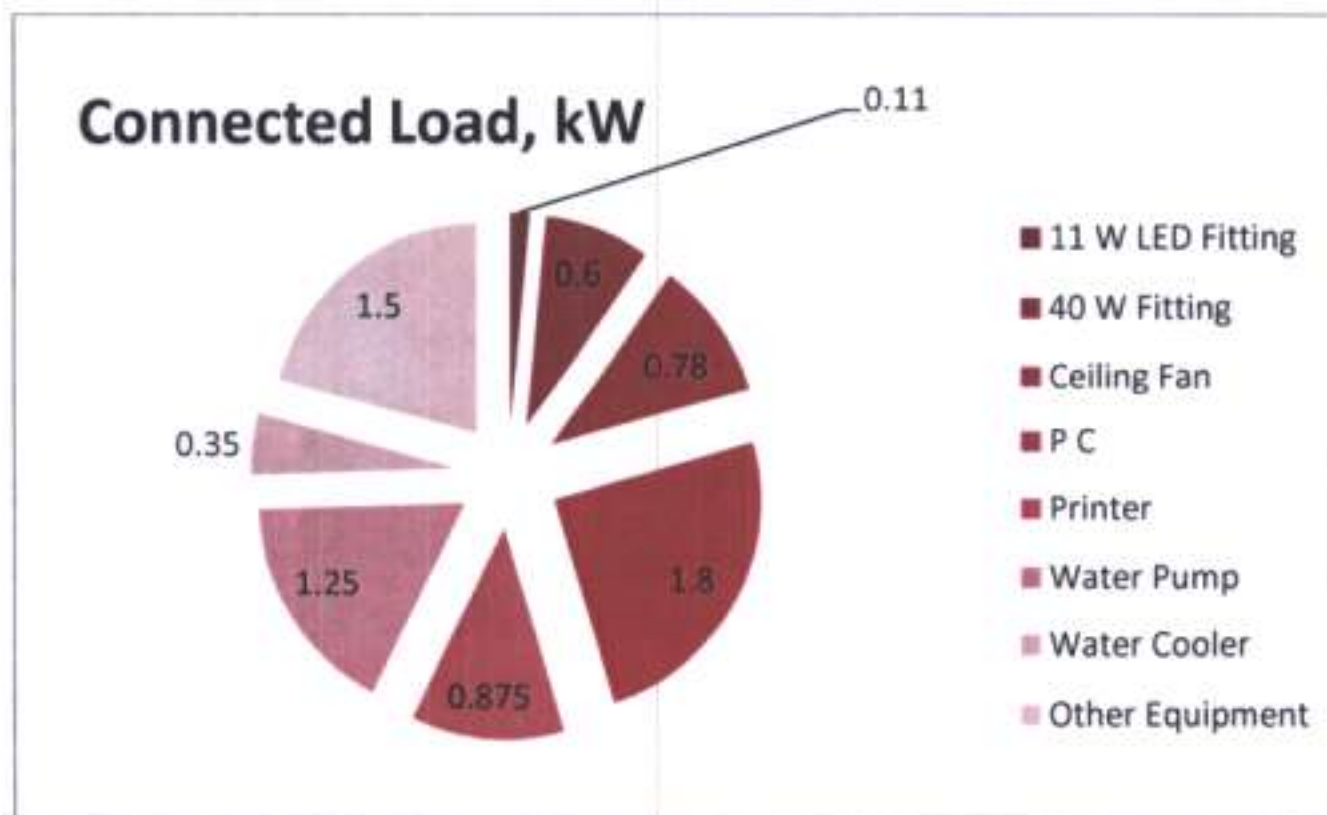
CHAPTER-II STUDY OF CONNECTED LOAD

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	11 W LED Fitting	10	11	0.11
2	40 W Fitting	15	40	0.6
3	Ceiling Fan	12	65	0.78
4	P C	12	150	1.8
5	Printer	5	175	0.875
6	Water Pump	1	1250	1.25
7	Water Cooler	1	350	0.35
8	Other Equipment	10	150	1.5
9	Total			7.265

Chart No 1: Details of Connected Load:

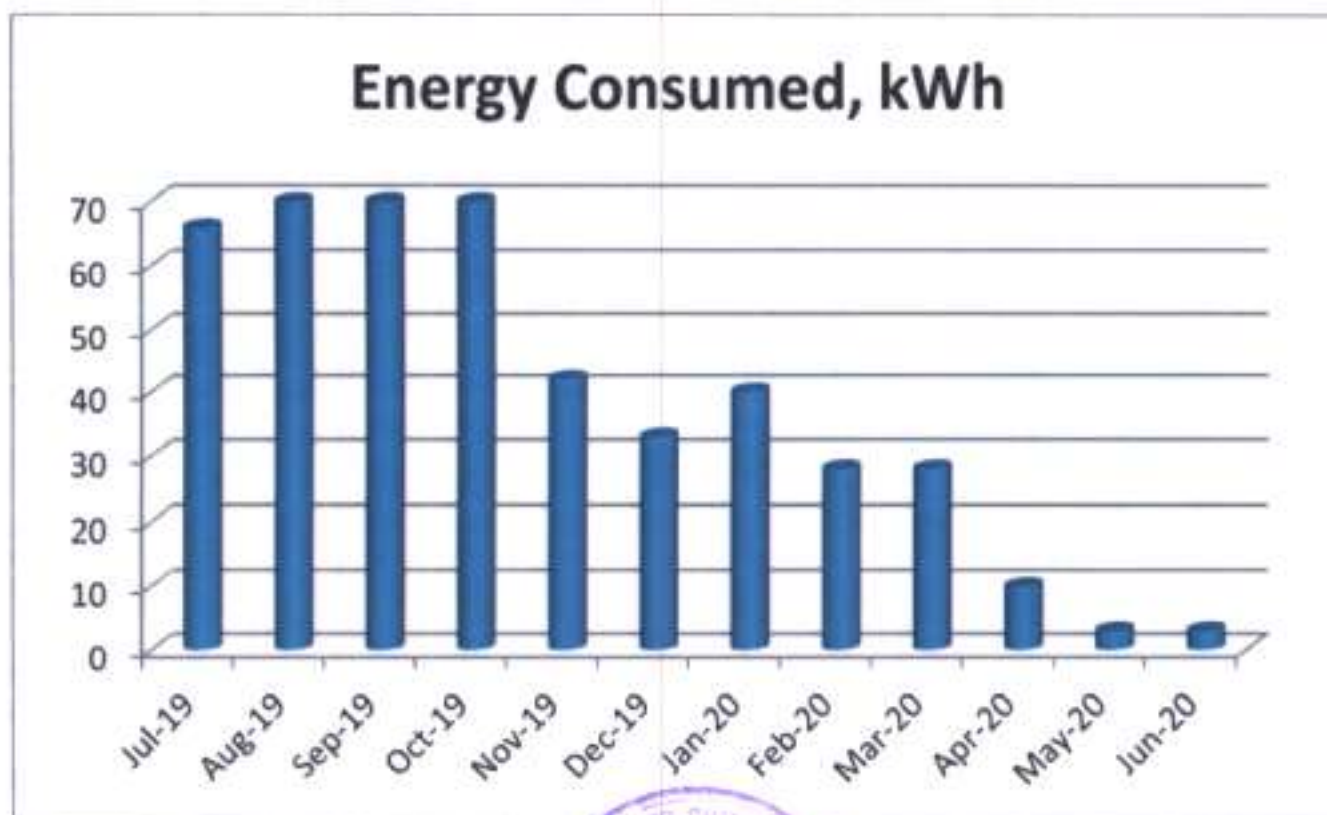


CHAPTER-III STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Energy Consumed
Table No 3: Electrical Energy Consumed: 2019-20:

No	Month	Energy Consumed, kWh
1	Jul-19	66
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10	Apr-20	10
11	May-20	3
12	Jun-20	3
13	Total	463
14	Maximum	70
15	Minimum	3
16	Average	38.58

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



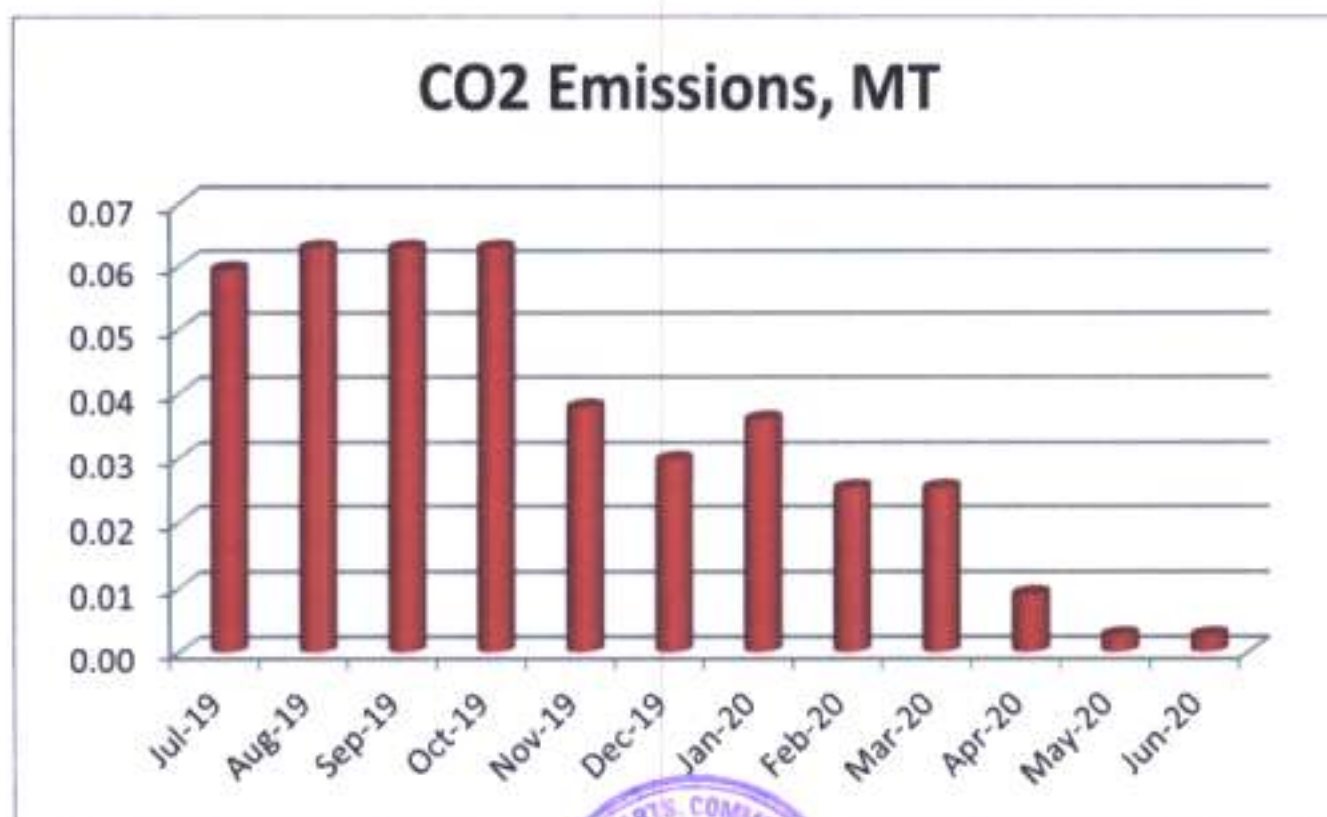
CHAPTER-IV CARBON FOOT PRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO₂ Emissions:** 1 Unit (kWh) of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere.

Table No 4: Month wise CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jul-19	66	0.06
2	Aug-19	70	0.06
3	Sep-19	70	0.06
4	Oct-19	70	0.06
5	Nov-19	42	0.04
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13	Total	463	0.42
14	Maximum	70	0.06
15	Minimum	3	0.00
16	Average	38.58	0.03

Chart No 3: Representation of Month wise CO₂ Emissions:



CHAPTER-V

STUDY OF USAGE OF ALTERNATE ENERGY

The College has yet to install Roof top Solar PV Plant.



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 11 W LED Fitting	10	Nos
2	Load per unit of 11 W LED Fitting	11	W/unit
3	Total Load of 11 W LED Fittings	0.11	kW
4	No of 40 W Fitting	15	Nos
5	Load per unit of 40 W Fitting	40	W/unit
6	Total Load of 40 W Fittings	0.6	kW
7	Total LED Lighting Load= 3	0.11	kW
8	Total Lighting Load= 3+6	0.71	kW
9	% of LED to Total Lighting Load= $7*100/8$	15.49	%

