



|| Tevo Sada Dnyanmaya Pradeep ||

Jijamata Shikshan Prasarak Mandal's

**JIJAMATA MAHAVIDYALAYA, SARATI**

# **Policy Document Green Campus and Plastic Free Campus**



  
**IQAC Co-ordinator**  
Jijamata Mahavidyalaya Sarati  
Tal.Indapur, Dist.Pune - 413103



  
**Principal**  
Jijamata Mahavidyalaya Sarati  
Tal.Indapur, Dist.Pune - 413103



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Jijamata Shikshan Prasarak Mandal's

Phone (02185) 226699

# Jijamata Mahavidyalaya, Sarati

A/p: - Sarati, Tal. Indapur, Dist. Pune (Pin: 413103) Maharashtra, India  
(Affiliated to Savitribai Phule Pune University, Pune)

Estd: 2013

Govt. San. No.N.G.C.2013 (100/13) Mashi-4, Dt.15 July2013 College Code 1504 Uni.Appvl. No. ID.NO PU/PN/SC/458/2013

## Green Campus and Environment Policy

1. Awareness board for saving energy and water to be displayed in all Circulation areas and in the campus
2. Programs/Activities for inculcating strong sensitivity towards the Environment must be arranged regularly for all stakeholders of the institute.
3. Proper segregation, disposal and recycling methods to be adopted for different waste .Generated on campus like paper, plastic, biodegradable waste from canteen, glass, e- waste etc.
4. E-waste bin to be installed for the collection of a-waste generated in college.
5. Annual Green and Environment audits of the campus to be conducted.
6. All the fluorescent lamps in the campus recommended to be replaced with LED Lamp.
7. To improve sanitation and hygiene, sanitary pad inclinators recommended to be installed in all girls' washrooms 1. Good practices to reduce power consumption to be implemented.
8. Reuse of papers for writing and printing recommended in all departments.
9. E-Notice practice to be followed by department through laming management sys and website.
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11. Initiatives to maintain eco-friendly ambience on the campus.

  
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3. Use of public transport and vehicle pooling to be encouraged amongst staff and students.
4. Water consumption should be reduced using suitable techniques/methods wherever possible.
5. Awareness boards for saving energy and water to be displayed in all circulation areas and throughout the campus.
6. Programs/ Activities for inculcating strong sensitivity towards the environment must be arranged regularly for all stakeholders of the Institute.
7. Proper segregation, disposal and recycling methods to be adopted for different wastes generated on campus like paper, plastic.

  
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## POLICY DOCUMENT FOR DISABLED FRIENDLY CAMPUS

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2. Waste segregation to be strictly followed by stakeholders.
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4. Students should recycle the available materials for creative work during college festivals as far as possible & use of thermocol is strictly prohibited.
5. Use of packaged, water bottle is not permitted during college events/ programme,

Maintaining a clean college environment sets a good example to students to encourage them to potentially make a bigger effort to maintain their environment.

Jijamata Mahavidyalaya actively organizes cleanliness activities in the college and beyond the campus in line with Swachh Bharat Abhiyan by organizing regularly scheduled cleanliness drives in the college to create awareness among the staff members about hygiene and sanitation in which students are actively motivated to contribute NSS and all other students of the college. Encouraged to participate in campus cleanliness drive.

  
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**Clean College Campus for Student**

  
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॥ तेवो सदा ज्ञानमय प्रदीप ॥  
जिजामाता शिक्षण प्रसारक मंडळाचे

फोन नं. (०२१८५)२२६६९९

# जिजामाता महाविद्यालय सराटी

मु.पो. सराटी ता. इंदापूर जि. पुणे ४१३१०३ महाराष्ट्र भारत

( सावित्रीबाई फुले पुणे विद्यापीठ पुणे संलग्नित )

*San. No.N.G.C.2013 (100/13) Mashi-4, Dt.15 July2013*

*Uni. Approval. No. ID.NO PU/PN/SC/458/2013*

स्वच्छ आणि हरित कॅम्पस उपक्रम म्हणून केलेल्या कारवाईचा अहवाल आणि उपलब्धी  
अहवाल:

जिजामाता महाविद्यालयातील एनएसएस विभाग तसेच इतर विद्यार्थ्यांच्या साह्याने स्वच्छता मोहिमेचे आयोजन केले होते जागतिक पर्यावरण दिन वसुंधरा दिन अशा प्रसंगी तसेच जिजामाता महाविद्यालयातील विद्यार्थी आठवड्यातून एक वेळा कॉलेज कॅम्पसचे स्वच्छता करतात संस्थेच्या ग्रीन कॅम्पस उपक्रमामध्ये वृक्ष लागवड कचरा व्यवस्थापन आणि पर्यायी ऊर्जा यांचा समावेश होतो हे लक्षात घेऊन जिजामाता महाविद्यालयाने ग्रीन ऑडिट तयार केले आहे.

  
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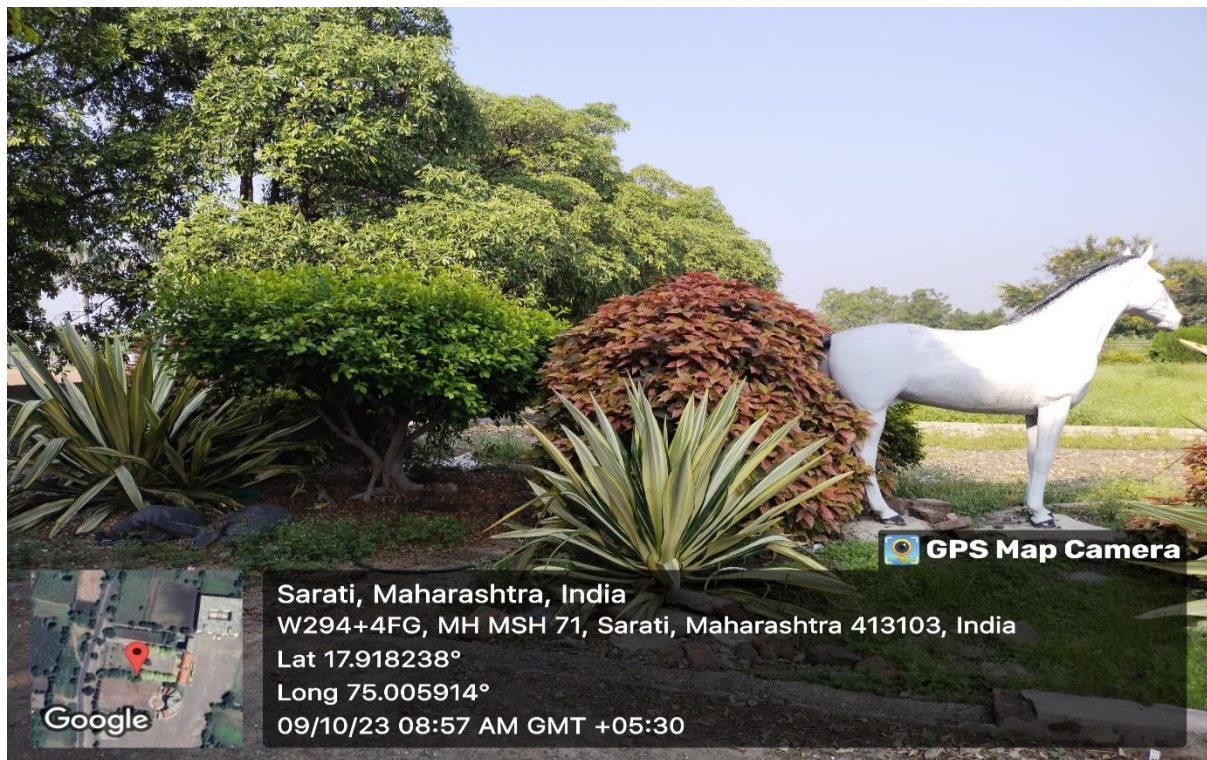


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# ENERGY AUDIT REPORT

of  
Jijamata Shikshan Prasarak Mandal's,  
**JIJAMATA MAHAVIDYALAYA, SARATI**  
A/P: Sarati, Taluka: Indapur. District: Pune 413 103



Year: 2022-23

Prepared by

**ENGRESS SERVICES**

Yashashree, 26, Nirmal Bag Society  
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Phone: 09890444795 Email: [engress123@gmail.com](mailto:engress123@gmail.com)



# ENGRESS SERVICES

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Tel: 09890444795 Email: [engress123@gmail.com](mailto:engress123@gmail.com)

MEDA Registration No: ECN/2022-23/CR-43/1709

ISO: 9001-2015 Certified (Cert No: 23EQKC13),

ISO: 14001-2015 Certified (Cert No: 23EEKW20)

## ENERGY AUDIT CERTIFICATE

**Certificate No: ES/JMS/22-23/01**

**Date: 10/7/2023**

This is to certify that we have conducted Energy Audit at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune in the year 2022-23.

The College has adopted Energy Efficient Practices:

- Usage of Energy Efficient LED Fittings
- Maximum usage of Day Lighting
- Usage of Solar PV street Lights

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

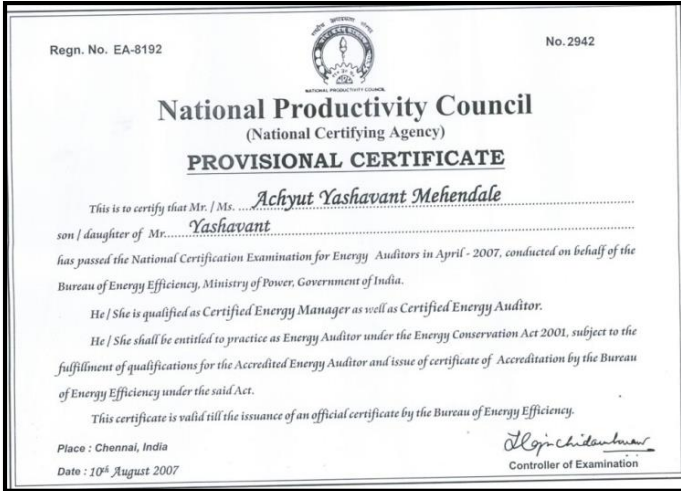
**For Engress Services,**

**A Y Mehendale,**

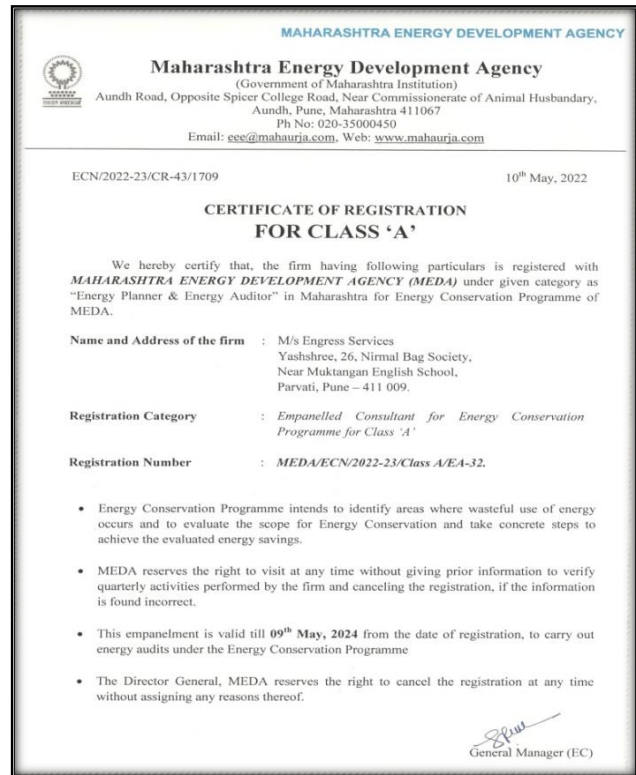
BE- Mechanical, M Tech- Energy,

Certified Energy Auditor: EA-8192

## REGISTRATION CERTIFICATES



## AUDITOR CERTIFICATE MEDA Registration Certificat



## ISO: 9001-2015 Certificate



## ISO: 14001-2015 Certificate



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## ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune, for awarding us the assignment of Energy Audit of their College Campus for the Year: 22-23.

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

## EXECUTIVE SUMMARY

**1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune** consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

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

No	Particulars	Value	Unit
1	Total Connected Load	9.52	kW
2	Annual Energy Purchased	6957	kWh

### 3. Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Purchased	6957	kWh
2	Total Built up area of College	2308	m <sup>2</sup>
3	Energy Performance Index $= (1) / (2)$	3.01	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	95.45	%

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

- Usage of Energy Efficient LED fittings
- Installation of Solar PV Street Lights

### 6. Assumption:

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

### 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

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

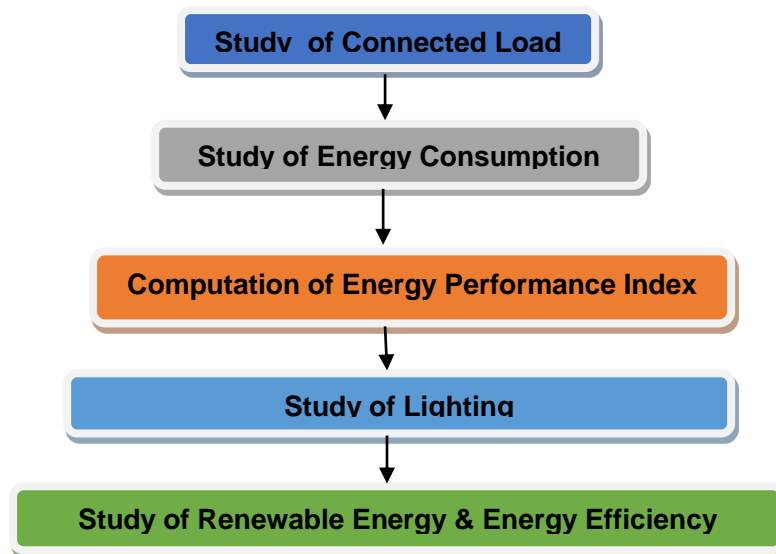
## 1.1 Introduction:

An Energy Audit is conducted at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune.

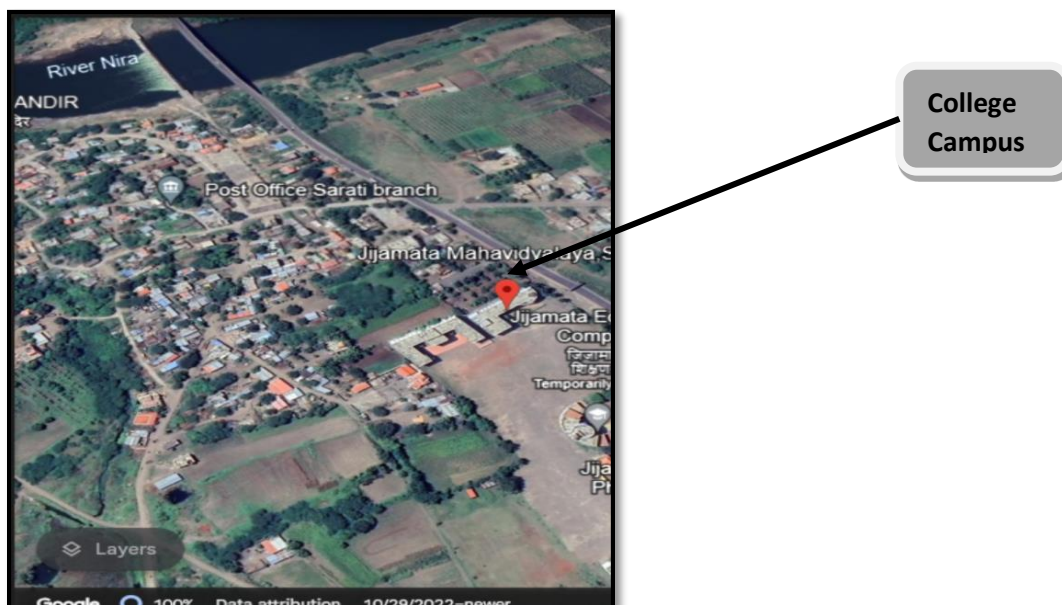
The guidelines followed for conducting the Energy Audit are:

- 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 Google Earth Image:



## CHAPTER-II

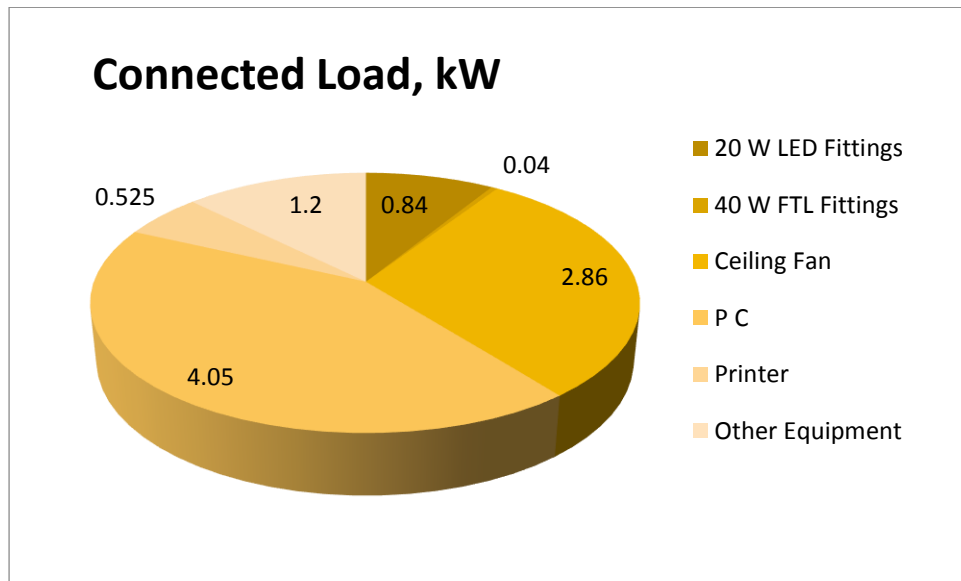
### STUDY OF CONNECTED LOAD

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

**Table No 1: Study of Equipment wise Connected Load:**

No	Equipment	Qty	Load, W/unit	Load, kW
1	20 W LED Fittings	42	20	0.84
2	40 W FTL Fittings	1	40	0.04
3	Ceiling Fan	44	65	2.86
4	P C	27	150	4.05
5	Printer	3	175	0.525
6	Other Equipment	8	150	1.2
7	<b>Total</b>			<b>9.52</b>

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





### **CHAPTER-III**

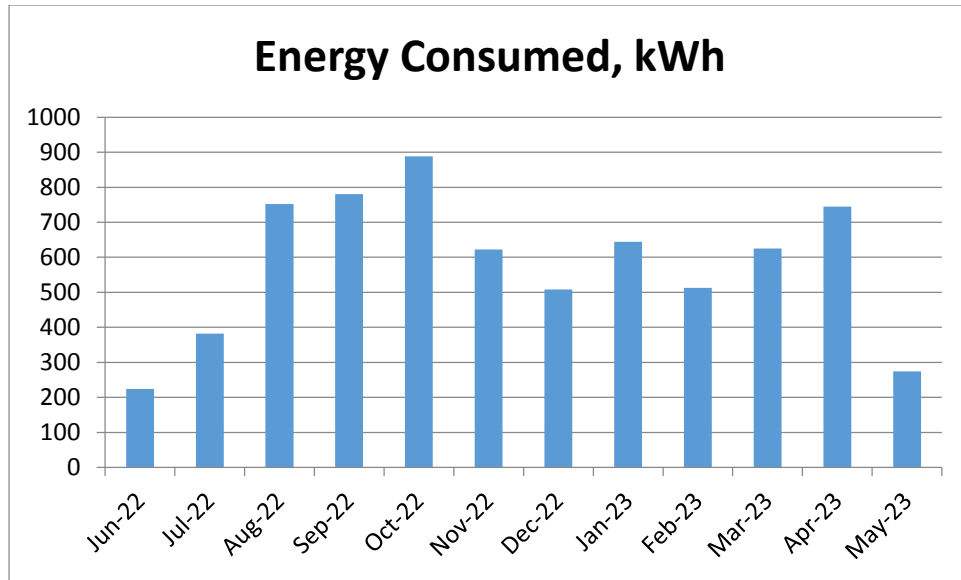
## **STUDY OF PRESENT ENERGY CONSUMPTION**

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

**Table No 2: Electrical Energy Consumed: 22-23:**

<b>No</b>	<b>Month</b>	<b>Energy Consumed, kWh</b>	<b>CO<sub>2</sub> Emissions, MT</b>
1	Jun-22	224	0.20
2	Jul-22	382	0.34
3	Aug-22	752	0.68
4	Sep-22	780	0.70
5	Oct-22	888	0.80
6	Nov-22	622	0.56
7	Dec-22	508	0.46
8	Jan-23	644	0.58
9	Feb-23	513	0.46
10	Mar-23	625	0.56
11	Apr-23	745	0.67
12	May-23	274	0.25
13	Total	6957	6.26
14	Maximum	888	0.80
15	Minimum	224	0.20
16	Average	579.75	0.52

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



## 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:**

No	Particulars	Value	Unit
1	Total Annual Energy Purchased	6957	kWh
2	Total Built up area of College	2308	m <sup>2</sup>
3	Energy Performance Index =(1) / (2)	3.01	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.

In this Chapter we compute the usage of LED Lighting to Total Lighting Load, as under.

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

No	Particulars	Value	Unit
1	Qty of 40 W FTL Fittings	1	Nos
2	Load of 40 W FTL Fitting	40	W/unit
3	Total Load of 40 W FTL Fittings	<b>0.04</b>	kW
4	Qty of 20 W LED Fittings	42	Nos
5	Load of 20 W LED Fitting	20	W/unit
6	Total Load of 20 W LED Fittings	<b>0.84</b>	kW
7	Total LED Lighting Load=6	<b>0.84</b>	kW
8	Total Lighting Load=3+6	<b>0.88</b>	kW
9	% usage of LEDs to Total Lighting Load= $7 \times 100 / 8$	<b>95.45</b>	%

## **CHAPTER-VI**

### **STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY**

#### **6.1 Usage of Renewable Energy:**

The College has installed Solar PV Street Lights

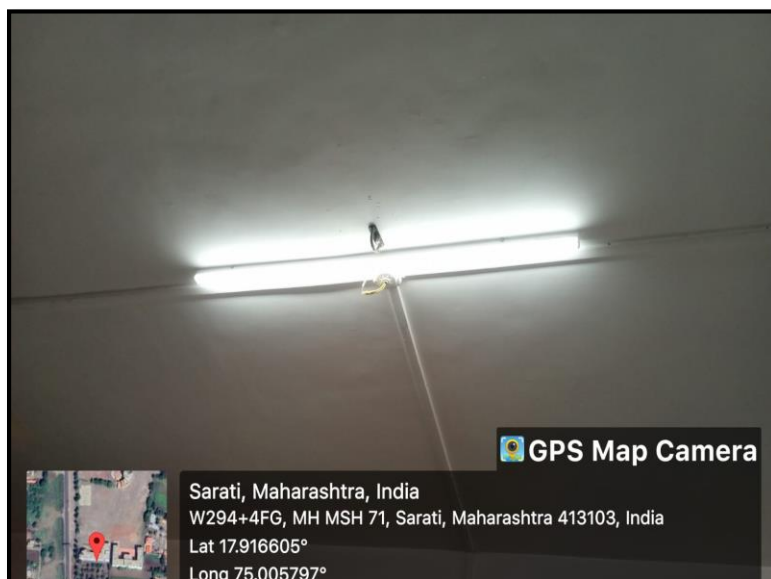
**Photograph of Solar Street Lights:**



#### **6.2 Energy Efficiency Measures adopted:**

- The College has Energy Efficient LED Fittings.

**Photograph of LED Lighting:**





# ENVIRONMETAL AUDIT REPORT

of

## Jijamata Shikshan Prasarak Mandal's, **JIJAMATA MAHAVIDYALAYA, SARATI**

A/P: Sarati, Taluka: Indapur. District: Pune 413 103



**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](mailto:engress123@gmail.com)

### **ENGRESS SERVICES**

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Parvati, Pune 411 009 Tel: 09890444795 Email: [engress123@gmail.com](mailto:engress123@gmail.com)  
MEDA Registration No: ECN/2022-23/CR-43/1709  
ISO: 9001-2015 Certified (Cert No: 23EQKC13),  
ISO: 14001-2015 Certified (Cert No: 23EEKW20)

# ENVIRONMENTAL AUDIT CERTIFICATE

**Certificate No: ES/JMS/22-23/03**

**Date: 10/7/2023**

This is to certify that we have conducted Environmental Audit at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune in the year 2022-23.

The College has adopted following Environment Friendly Practices:

- Usage of Energy Efficient LED Fittings
- Usage of Solar Street Light
- Segregation of Waste at source
- Provision of Bio Composting Bed, for disposal of Organic Waste
- Implementation of Rain Water Harvesting Project
- Internal Tree Plantation
- 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 Eco Friendly.

**For Engress Services,**

**A Y Mehendale,**

B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192

ASSOCHAM GEM Certified Professional: GEM: 22/788



## REGISTRATION CERTIFICATES

**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  
Ph No: 020-35000450  
Email: [eee@mahaurja.com](mailto:eee@mahaurja.com), Web: [www.mahaurja.com](http://www.mahaurja.com)

ECN/2022-23/CR-43/1709 10<sup>th</sup> 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  
Yashshree, 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 09<sup>th</sup> 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)

**GEM Certificate**

**ASSOCHAM**  
Ideate. Innovate. Impact.

ASSOCHAM hereby certifies that  
**Mr. A Y Mehendale**  
has successfully passed the  
**Green and Eco-friendly Movement Certified Professional Test (GEM CP)**  
with  
**"Excellent Performance"**  
on  
**06 June, 2022**  
He/she is now eligible to execute the GEM Sustainability Certification Projects.  
ASSOCHAM feels proud to award the GEM Certified Professional title to him/her.

*[Signature]* **Pankaj R. Dharkar**  
Chairman, GEM

*[Signature]* **Deepak Sood**  
Secretary General, ASSOCHAM

GEM CP 22/788

## MEDA REGISTRATION CERTIFICATE

### ASSOCHAM GEM CP CERTIFICATE

*Certificate of Registration*

This is to Certify that  
Quality Management System of

**ENGRESS SERVICES**  
26, YASHASHREE, BLOCK 1, LOKMANYA NAGAR, NIRMAL BAUG SOC, PARVATI,  
PUNE- 411009, MAHARASHTRA, INDIA

has been assessed and found to conform to the requirements of  
**ISO 9001:2015**  
for the following scope :

CONSULTANCY SERVICES FOR ENERGY AUDIT, GREEN AUDIT & ENVIRONMENTAL AUDIT  
IN EDUCATIONAL INSTITUTIONS & SUBMISSION OF AUDIT CERTIFICATE AND REPORT.

Certificate No : 23EOKC13  
Initial Registration Date : 27/03/2023 Issuance Date : 27/03/2023  
Date of Expiry : 26/03/2026  
1st Surve. Due : 27/02/2024 2nd Surve. Due : 27/02/2025

*[Signature]*  
Director

**Magnitude Management Services Pvt. Ltd.**  
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P, India  
e-mail: [info@mmsscertainment.com](mailto:info@mmsscertainment.com), website: [www.mmsscertainment.com](http://www.mmsscertainment.com)  
\* Subject to successful surveillance audits and one surveillance audit is not allowed to be conducted, this  
certificate shall be suspended/withdrawn.  
Certificate Validity: Please do check the validity of certificate at <http://www.mmsscertainment.com> or [info@mmsscertainment.com](mailto:info@mmsscertainment.com) or [www.mmsscertainment.com](http://www.mmsscertainment.com)

*Certificate of Registration*

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PARVATI, PUNE- 411009, MAHARASHTRA, INDIA

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**ISO 14001:2015**  
for the following scope :

CONSULTANCY SERVICES FOR ENERGY AUDIT, GREEN AUDIT & ENVIRONMENTAL AUDIT  
IN EDUCATIONAL INSTITUTIONS & SUBMISSION OF AUDIT CERTIFICATE AND REPORT.

Certificate No : 23EEKW20  
Initial Registration Date : 29/03/2023 Issuance Date : 29/03/2023  
Date of Expiry : 28/03/2026  
1st Surve. Due : 29/02/2024 2nd Surve. Due : 28/02/2025

*[Signature]*  
Director

**Magnitude Management Services Pvt. Ltd.**  
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Certificate Validity: Please do check the validity of certificate at <http://www.mmsscertainment.com> or [info@mmsscertainment.com](mailto:info@mmsscertainment.com) or [www.mmsscertainment.com](http://www.mmsscertainment.com)

### ISO: 9001-2015 CERTIFICATE ISO: 14001-2015 CERTIFICATE

## INDEX

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3	Study of Usage of Renewable Energy	13
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## ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune, for awarding us the assignment of Environmental Audit of their College Campus for the Year: 22-23.

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

## EXECUTIVE SUMMARY

**1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune** consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

### 2. Pollution due to College Activities:

- **Air pollution:** Mainly CO<sub>2</sub> on account of Electricity Consumption
- **Solid Waste:** Bio degradable Garden Waste
- **Liquid Waste:** Human liquid waste

### 3. Present Energy Consumption & CO<sub>2</sub> Emission:

No	Particulars	Value	Unit
----	-------------	-------	------



1	Annual Energy Purchased	6957	kWh
2	Annual CO <sub>2</sub> Emissions	6.26	MT

#### 4. Renewable Energy Usage:

- The College has installed Solar PV Street Lights

#### 5. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	56	36	42
2	Minimum	50	28	31

#### 6. Indoor Comfort Conditions:

No	Parameter/Value	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Maximum	29.1	71	160	44
2	Minimum	27.9	69	109	39

#### 7. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Organic Waste	Provision of Bio Composting Bed

#### 8. Rain Water Harvesting:

The Rain water is used to increase the Underground Water Table.

#### 9. Environment Friendly Initiatives:

- Tree Plantation in the campus.
- Creation of awareness on Water Conservation Display of Posters

#### 10. Assumption:

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

#### 11. References:

- For CO<sub>2</sub> Emissions: [www.tatapower.com](http://www.tatapower.com)
- For Various Indoor Air Parameters: [www.ishrae.com](http://www.ishrae.com)
- For AQI & Water Quality Standards: [www.cpcb.com](http://www.cpcb.com)

## ABBREVIATIONS

AQI	: Air Quality Index
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
MT	: Metric Ton
CO <sub>2</sub>	: Carbon Di Oxide
ISHRAE	: The Indian Society of Heating, Refrigerating & Air conditioning Engineers
CPCB	: Central Pollution Control Board
NSS	: National Service Scheme
PM	: Particulate Matter

## CHAPTER-I INTRODUCTION

### 1. Important Definitions:

#### 1.1. Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

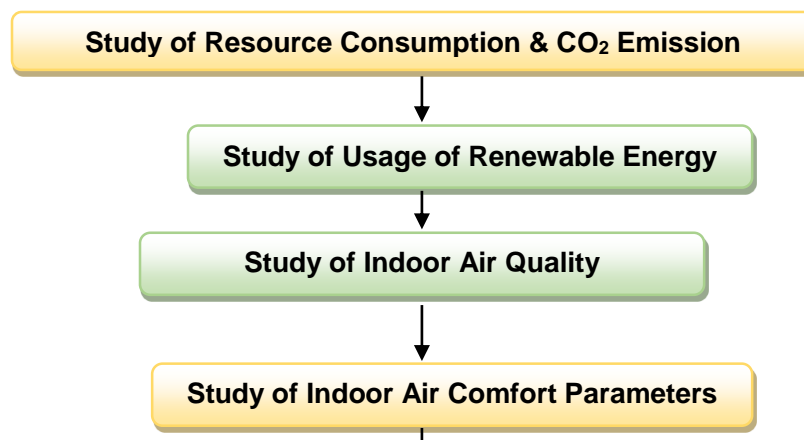
#### 1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

*According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

**1.3. Environmental Pollutant:** means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

#### 1.4 Audit Procedural Steps:





1.5 Google Earth Image:



College  
Campus

## CHAPTER-II

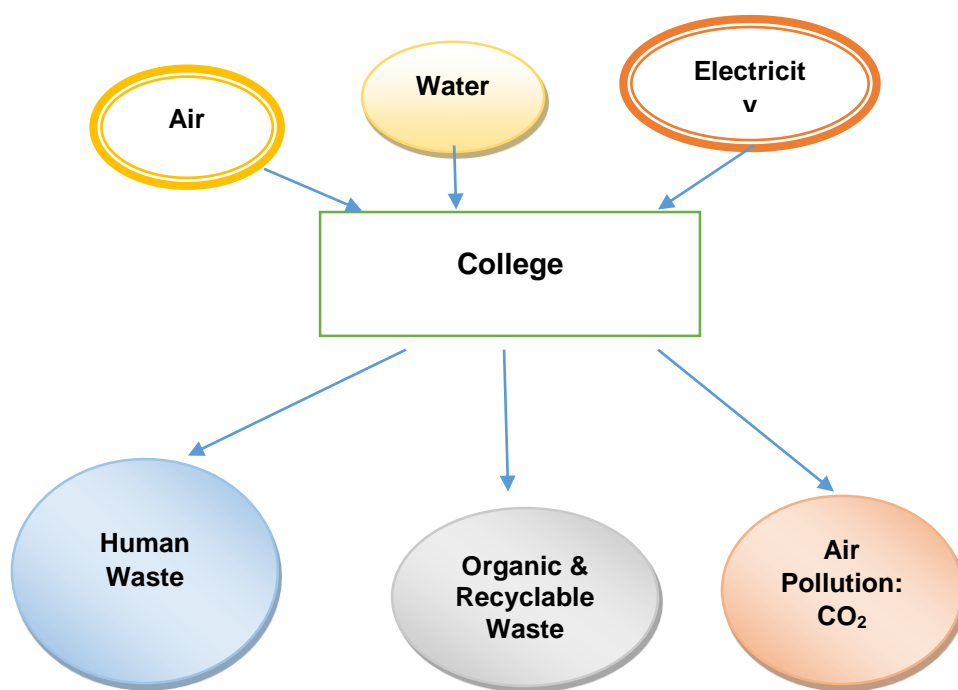
### STUDY OF RESOURCE CONSUMPTION & CO<sub>2</sub> EMISSION

The College consumes following Natural/derived Resources:

1. Air
2. Water
3. Electrical Energy

We try to draw a schematic diagram for the College System & Environment as under.

**Chart No: 1: Representation of College as System:**



We compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy as under. The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy are: 1 Unit (kWh) of Electrical Energy releases **0.9 Kg of CO<sub>2</sub>** into atmosphere.

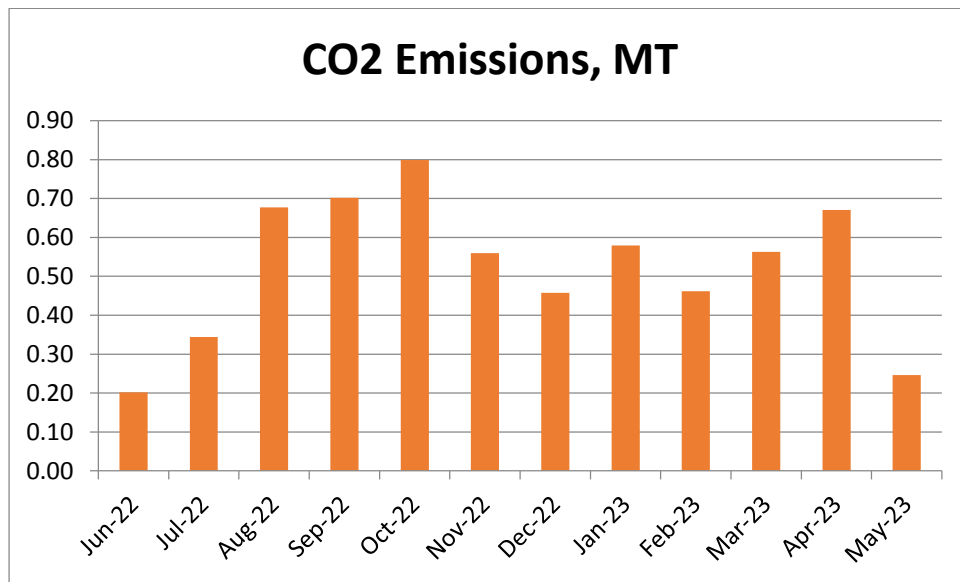
**Table No 1: Electrical Energy Usage & CO<sub>2</sub> Emission: 22-23:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	224	0.20
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12	May-23	274	0.25
13	Total	6957	6.26
14	Maximum	888	0.80
15	Minimum	224	0.20
16	Average	579.75	0.52

**Chart No 2: To study CO<sub>2</sub> Emission:**



## **CHAPTER-III**

### **STUDY OF USAGE OF RENEWABLE ENERGY**

The College has installed Solar PV Street Lights.

**Photograph of Solar Street Light:**



## CHAPTER-IV

### STUDY OF INDOOR AIR QUALITY

#### 4.1 Importance of Air Quality:

**Air:** The common name given to the atmospheric gases used in breathing and photosynthesis.

By volume, Dry Air contains 78.09% Nitrogen, 20.95% Oxygen, 0.93% Argon, 0.039% carbon dioxide, and small amounts of other gases.

On average, a person inhales about **14,000 liters** of air every day. Therefore, poor air quality may affect the quality of life now and for future generations by affecting the health, the environment, the economy and the city's livability.

**Air quality is a measure of the suitability of air for breathing by people, plants and animals.**

According to Section 2(b) of Air (Prevention and control of pollution) Act, 1981 '**air pollution**' has been defined as '**the presence in the atmosphere of any air pollutant.**'

As per Section 2(a) of Air (Prevention and control of pollution) Act, 1981 '**air pollutant**' has been defined as '**any solid, liquid or gaseous substance [(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment**

#### 4.2 Air Quality Index:

An **Air Quality Index (AQI)** is a number used by government agencies to measure the **air pollution** levels and communicate it to the population.

We present herewith following important Parameters.

1. AQI- Air Quality Index
2. PM 2.5- Particulate Matter of Size 2.5 micron
3. PM 2.5- Particulate Matter of Size 10 micron

**Table No 2: Indoor Air Quality Parameters:**

No	Location	AQI	PM2.5	PM10
1	Chemistry Lab	56	33	38
2	Office	50	36	42
3	Physics Lab	51	30	31
4	Staff Room	53	28	33
5	Class Room	53	32	34
	Maximum	<b>56</b>	<b>36</b>	<b>42</b>



	Minimum	50	28	31
--	---------	----	----	----

## CHAPTER-V

### STUDY OF INDOOR AIR CONDITION PARAMETERS

In this Chapter, we present the various Indoor Comfort Parameters measured during the Audit.  
The Parameters include:

1. Temperature
2. Humidity
3. Lux Level
4. Noise Level.

**Table No 3: Study of Indoor Comfort Parameters:**

No	Location	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Chemistry Lab	27.9	71	109	39
2	Office	28	70	125	41
3	Physics Lab	28.2	69	129	40
4	Staff Room	28.6	69	140	43
5	Class Room	29.1	70	160	44
	Maximum	<b>29.1</b>	<b>71</b>	<b>160</b>	<b>44</b>
	Minimum	<b>27.9</b>	<b>69</b>	<b>109</b>	<b>39</b>

## **CHAPTER-VI**

### **STUDY OF WASTE MANAGEMENT**

#### **6.1 Segregation of Waste at Source:**

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

**Photograph of Separate Waste Collection Bin:**



#### **6.2 Organic Waste Management:**

The College has a Bio composting Pit, for conversion of Organic Waste.

**Photograph of Bio Composting Arrangement:**



## **CHAPTER-VII**

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

The Rain water falling on the terrace is used to increase the Underground Water Table.

**Photograph of Rain Water Carrying Pipe:**



Rain water  
Carrying Pipe



## **CHAPTER VIII**

### **STUDY OF ENVIRONMENT FRIENDLY INITIATIVES**

#### **8.1 Internal Tree Plantation:**

The College has well maintained Tree plantation.

**Photograph of Tree Plantation:**



#### **8.2 Creation of Awareness on Energy Conservation by Display of Posters:**

The College has displayed posters on Energy Conservation.

**Photograph of Poster Display Board on Energy Conservation:**



## **ANNEXURE-I: AIR QUALITY, NOISE & INDOOR COMFORT STANDARDS:**

### **1. Category Wise Air Quality Index Values & Concentration of PM 2.5 & PM10:**

<b>No</b>	<b>Category</b>	<b>AQI Value</b>	<b>Concentration Range, PM 2.5</b>	<b>Concentration Range, PM 10</b>
1	Good	0 to 50	0 to 30	0 to 50
2	Satisfactory	51 to 100	31 to 60	51 to 100
3	Moderately Polluted	101 to 200	61 to 90	101 to 250
4	Poor	201 to 300	91 to 120	251 to 350
5	Very Poor	301 to 400	121 to 250	351 to 430
6	Severe	401 to 500	250 +	430 +

## 2. Recommended Noise Level Standards:

No	Location	Noise Level dB
1	Auditoriums	20-25
2	Outdoor Playground	55
3	Occupied Class Room	40-45
4	Un occupied Class Room	35
5	Apartment, Homes	35-40
6	Offices	45-50
7	Libraries	35-40
8	Restaurants	50-55

## 3. Thermal Comfort Conditions: For Non-conditioned Buildings:

No	Parameter	Value
1	Temperature	Less Than 33 <sup>0</sup> C
2	Humidity	Less Than 70%



**GREEN AUDIT REPORT**  
of  
Jijamata Shikshan Prasarak Mandal's,  
**JIJAMATA MAHAVIDYALAYA, SARATI**  
A/P: Sarati, Taluka: Indapur. District: Pune 413 103



Year: 2022-23

Prepared by

**ENGRESS SERVICES**

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The College has adopted following Green & Sustainable Practices:

- Usage of Energy Efficient LED Fittings
- Usage of Solar Street Light
- Segregation of Waste at source
- Provision of Bio Composting Bed, for disposal of Organic Waste
- Implementation of Rain Water Harvesting 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,**

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Ph No: 020-35000450  
Email: [eee@mahaurja.com](mailto:eee@mahaurja.com), Web: [www.mahaurja.com](http://www.mahaurja.com)

ECN/2022-23/CR-43/1709 10<sup>th</sup> 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  
Yashshree, 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 09<sup>th</sup> 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.

  
General Manager (EC)



### MEDA REGISTRATION CERTIFICATE

### ASOCHAM GEM CP CERTIFICATE

*Certificate of Registration*

This is to Certify that  
Quality Management System of

**ENGRESS SERVICES**

26, YASHASHREE, BLOCK 1, LOKMANYA NAGAR, NIRMAL BAUG SOC, PARVATI,  
PUNE- 411009, MAHARASHTRA, INDIA

has been assessed and found to conform to the requirements of  
**ISO 9001:2015**  
for the following scope :

CONSULTANCY SERVICES FOR ENERGY AUDIT, GREEN AUDIT & ENVIRONMENTAL AUDIT  
IN EDUCATIONAL INSTITUTIONS & SUBMISSION OF AUDIT CERTIFICATE AND REPORT.

Certificate No	: 23EOKC13	
Initial Registration Date	: 27/03/2023	Issuance Date : 27/03/2023
Date of Expiry	: 26/03/2026	
1st Surve. Due	: 27/02/2024	2nd Surve. Due : 27/02/2025

   
Director

**Magnitude Management Services Pvt. Ltd.**  
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P, India  
e-mail: [info@mmscertification.com](mailto:info@mmscertification.com), website: [www.mmscertification.com](http://www.mmscertification.com)  
\* Subject to successful surveillance audits and one surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawn.  
Certificate Verification: Please do check the validity of certificate at <http://www.mmscertification.com> or [verification@mmscertification.com](mailto:verification@mmscertification.com) or at [www.iso.org](http://www.iso.org)

*Certificate of Registration*

This is to Certify that  
Environmental Management System of

**ENGRESS SERVICES**

26, YASHASHREE, BLOCK 1, LOKMANYA NAGAR, NIRMAL BAUG SOC,  
PARVATI, PUNE- 411009, MAHARASHTRA, INDIA

has been assessed and found to conform to the requirements of  
**ISO 14001:2015**  
for the following scope :

CONSULTANCY SERVICES FOR ENERGY AUDIT, GREEN AUDIT & ENVIRONMENTAL AUDIT  
IN EDUCATIONAL INSTITUTIONS & SUBMISSION OF AUDIT CERTIFICATE AND REPORT.

Certificate No	: 23EEKW20	
Initial Registration Date	: 29/03/2023	Issuance Date : 29/03/2023
Date of Expiry	: 28/03/2026	
1st Surve. Due	: 29/02/2024	2nd Surve. Due : 28/02/2025

   
Director

**Magnitude Management Services Pvt. Ltd.**  
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P, India  
e-mail: [info@mmscertification.com](mailto:info@mmscertification.com), website: [www.mmscertification.com](http://www.mmscertification.com)  
\* Subject to successful surveillance audits and one surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawn.  
Certificate Verification: Please do check the validity of certificate at <http://www.mmscertification.com> or [verification@mmscertification.com](mailto:verification@mmscertification.com) or at [www.iso.org](http://www.iso.org)

ISO:

9001-2015 Certificate

ISO: 14001-2015 Certificate



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## ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune, for awarding us the assignment of Green Audit of their College Campus for the Year: 22-23.

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

## EXECUTIVE SUMMARY

1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

## 2. Present Energy Consumption & CO<sub>2</sub> Emission:

No	Particulars	Value	Unit
1	Annual Energy Purchased	6957	kWh
2	Annual CO <sub>2</sub> Emissions	6.26	MT

## 3. Renewable Energy Usage:

- The College has installed Solar PV Street Lights

## 4. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Organic Waste	Provision of Bio Composting Bed

## 5. Rain Water Harvesting:

The Rain water is used to increase the Underground Water Table.

## 6. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Tree Plantation in the campus.
- Provision of Ramp & Wheel Chair for Divyangajan
- Creation of awareness on Energy Conservation Display of Posters

## 7. Assumption:

4. 1 kWh of Electrical Energy releases 0.9 Kg of CO<sub>2</sub> into atmosphere

## 8. Reference:

- For CO<sub>2</sub> Emissions: [www.tatapower.com](http://www.tatapower.com)

## ABBREVIATIONS

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

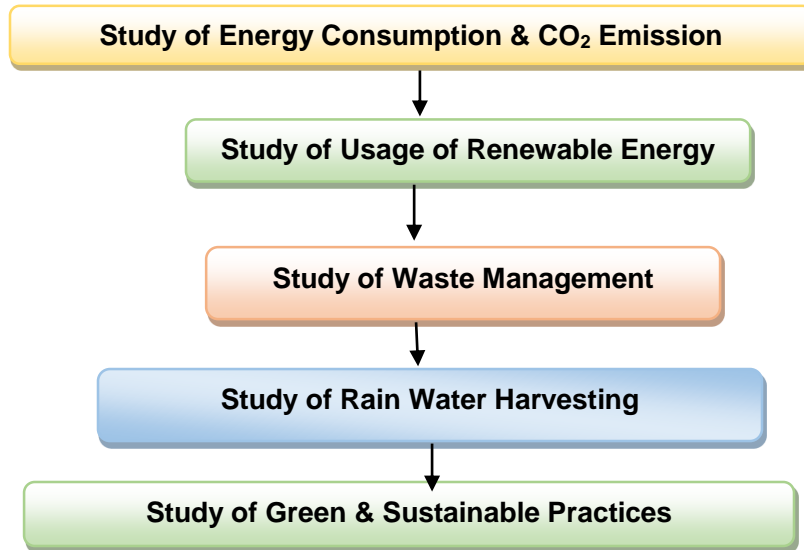
# CHAPTER-I

## INTRODUCTION

### 1.1 Introduction:

A Green Audit is conducted at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune.

### 1.2 Audit Procedural Steps:



### 1.3 Google Earth Image:



College  
Campus



## CHAPTER-II

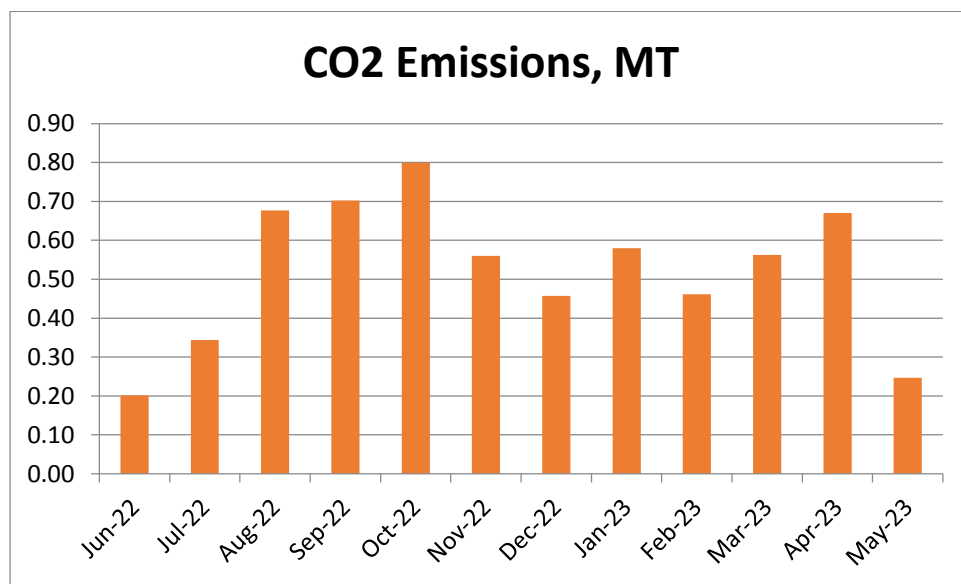
### STUDY OF ENERGY CONSUMPTION & CO<sub>2</sub> EMISSION

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 1: Month wise CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	224	0.20
2	Jul-22	382	0.34
3	Aug-22	752	0.68
4	Sep-22	780	0.70
5	Oct-22	888	0.80
6	Nov-22	622	0.56
7	Dec-22	508	0.46
8	Jan-23	644	0.58
9	Feb-23	513	0.46
10	Mar-23	625	0.56
11	Apr-23	745	0.67
12	May-23	274	0.25
13	Total	6957	6.26
14	Maximum	888	0.80
15	Minimum	224	0.20
16	Average	579.75	0.52

**Chart No 1: To study the variation of Month wise CO<sub>2</sub> Emissions:**



## **CHAPTER III**

### **STUDY OF USAGE OF RENEWABLE ENERGY**

The College has installed Solar PV Street Lights.

**Photograph of Solar Street Light:**



## **CHAPTER-IV**

### **STUDY OF WASTE MANAGEMENT**

#### **4.1 Segregation of Waste at Source:**

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

**Photograph of Separate Waste Collection Bin:**



#### **4.2 Organic Waste Management:**

The College has a Bio composting Pit, for conversion of Organic Waste.

**Photograph of Bio Composting Arrangement:**





## **CHAPTER-V**

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

The Rain water falling on the terrace is used to increase the Underground Water Table.

**Photograph of Rain Water Carrying Pipe:**



**Rain water  
Carrying Pipe**

## **CHAPTER-VI**

### **STUDY OF GREEN & SUSTAINABLE PRACTICES**

#### **6.1 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:**



#### **6.2 Internal Tree Plantation:**

The College has well maintained Tree Plantation.

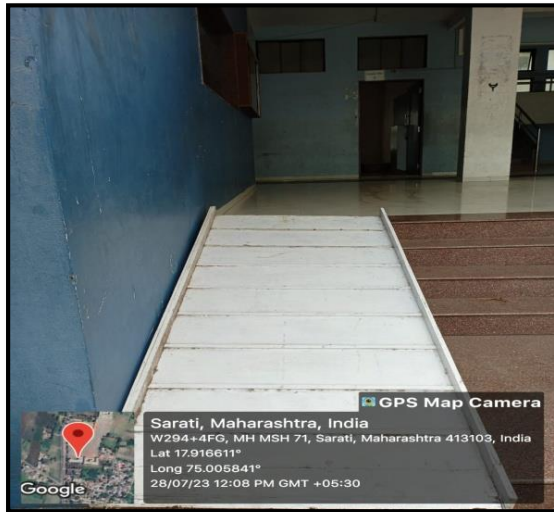
**Photograph of Tree Plantation:**



### 6.3 Provision of Ramp for Divyangajan:

The College has made provision of Ramp for the Divyangajan.

**Photograph of Ramp for Divyangajan:**



### 6.4 Creation of Awareness on Energy Conservation by Display of Posters:

The College has displayed posters on Energy Conservation.

**Photograph of Poster Display Board on Energy Conservation:**





**ANNEXURE:**  
**LIST OF TREES & PLANTS IN THE CAMPUS**

No	Common name	Qty
1	Ashoka	22
2	Pam Tree	20
3	Jamun	1
4	Cycas	20
6	Plumeria obtuse	4
7	Kadunimb	2
8	Bakul	2
9	Chinch	2
10	Gulmohar	1
11	Peru	2
12	Suru	2
13	Areca Palm	7
14	Jackfruit	1
15	Kanchan	3
16	Weeping fig	2
17	Chiku	2
19	Tulsi	4
20	Aloe vera	2
21	Umbrella Plant	41
22	Neem	10

# ENERGY AUDIT REPORT

of

Jijamata Shikshan Prasarak Mandal's,  
**JIJAMATA MAHAVIDYALAYA, SARATI**

A/P: Sarati, Taluka: Indapur. District: Pune 413 103



**Year: 2021-22**


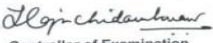
Prepared by

**ENGRESS SERVICES**

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

**REGISTRATION CERTIFICATES**



BEE

Regn. No. EA-8192		No. 2942
<b>National Productivity Council</b> (National Certifying Agency)		
<b>PROVISIONAL CERTIFICATE</b>		
This is to certify that Mr. / Ms. <u>Achyut Yashavant Mehendale</u> son / daughter of Mr. <u>Yashavant</u> 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 fulfilment 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 : 10 <sup>th</sup> August 2007		Controller of Examination

Certificate

Auditor

MEDA

<b>MAHARASHTRA ENERGY DEVELOPMENT AGENCY</b>	
	<b>Maharashtra Energy Development Agency</b> (Government of Maharashtra Institution) Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary, Aundh, Pune, Maharashtra 411067 Ph No: 020-35000450 Email: <a href="mailto:eee@mahaurja.com">eee@mahaurja.com</a> , Web: <a href="http://www.mahaurja.com">www.mahaurja.com</a>
ECN/2022-23/CR-43/1709	10 <sup>th</sup> May, 2022
<b>CERTIFICATE OF REGISTRATION FOR CLASS 'A'</b>	
We hereby certify that, the firm having following particulars is registered with <b>MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)</b> under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.	
<b>Name and Address of the firm</b>	: M/s Engress Services Yashshree, 26, Nirmal Bag Society, Near Muktangan English School, Parvati, Pune – 411 009.
<b>Registration Category</b>	: Empanelled Consultant for Energy Conservation Programme for Class 'A'
<b>Registration Number</b>	: MEDA/ECN/2022-23/Class A/EA-32.
<ul style="list-style-type: none"><li>• 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.</li><li>• 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.</li><li>• This empanelment is valid till 09<sup>th</sup> May, 2024 from the date of registration, to carry out energy audits under the Energy Conservation Programme</li><li>• The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.</li></ul>	
 General Manager (EC)	

Certificate

Empanelment



# ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,  
Near Mukhtangan English School, Parvati, Pune 411 009  
Tel: 020-24220747 Email: [engress123@gmail.com](mailto:engress123@gmail.com)

Ref: ES/ACCS/21-22/01

Date: 21/6/2022

## CERTIFICATE

This is to certify that we have conducted Energy Audit at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune in the year 2021-22.

The College has adopted Energy Efficient Practices:

- Usage of Energy Efficient LED Fittings
- Maximum usage of Day Lighting
- Usage of Solar PV based Street Lights.

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,**  
BE- Mechanical, M Tech- Energy,  
Certified Energy Auditor: EA-8192

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## ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune, for awarding us the assignment of Energy Audit of their College Campus for the Year: 21-22.

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

## EXECUTIVE SUMMARY

**1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune** consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

### 2. Energy Consumed & CO<sub>2</sub> Emission:

No	Parameter	Energy Consumed, kWh	CO <sub>2</sub> emissions, MT
1	Total	3105	2.79
2	Maximum	746	0.67
3	Minimum	0	0.00
4	Average	258.75	0.23

### 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 PV based Street Lights.

### 5. Usage of LED Lighting to Total Lighting Load:

- The LED Lighting Load is **0.84 kW**.
- The Total Lighting Load is **0.92 kW**.
- The percentage of LED Lighting Total Lighting load works out to be **91.30 %**

### 6. Assumption:

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

### 7. Reference:

- For CO<sub>2</sub> Emission Calculations: [www.tatapower.com](http://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 CO<sub>2</sub> 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	Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya
2	Address	A/P Sarati, Taluka: Indapur, District: Pune 413 103
3	Affiliation	Savitribai Phule Pune University

### 1.3 Google Earth Image:



College  
Campus

## CHAPTER-II

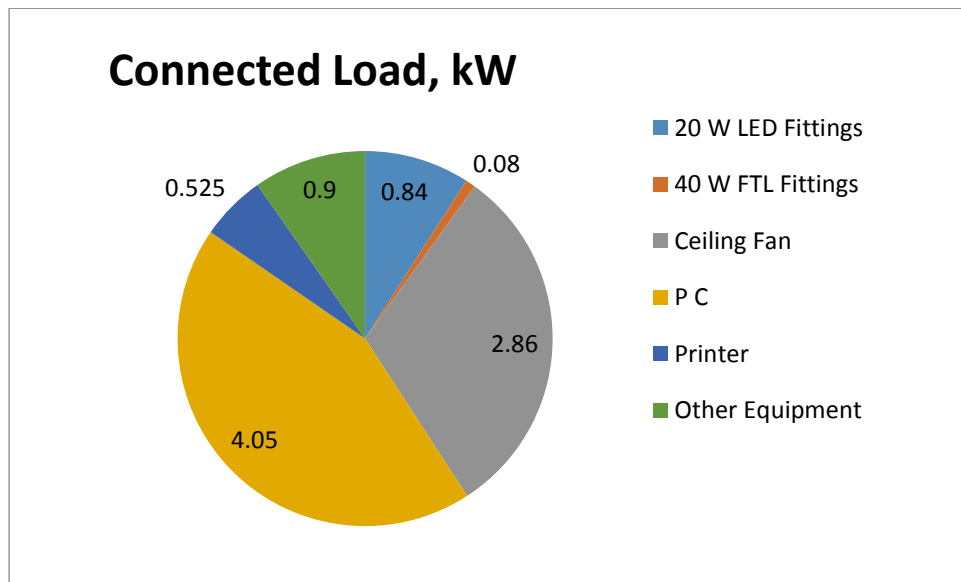
### STUDY OF CONNECTED LOAD

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	20 W LED Fittings	42	20	0.84
2	40 W FTL Fittings	2	40	0.08
3	Ceiling Fan	44	65	2.86
4	P C	27	150	4.05
5	Printer	3	175	0.525
6	Other Equipment	6	150	0.9
7	<b>Total</b>			<b>9.26</b>

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



### CHAPTER-III

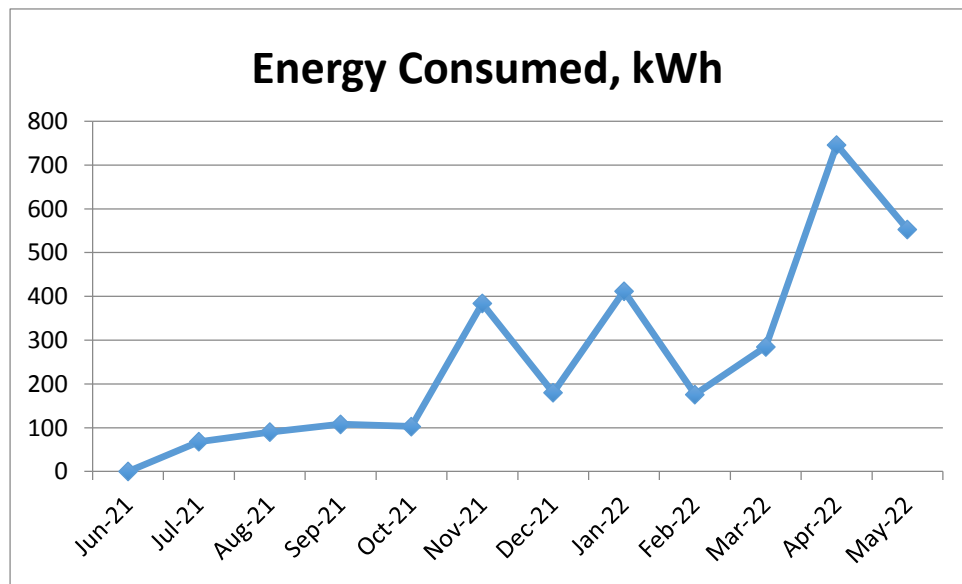
## STUDY OF PRESENT ENERGY CONSUMPTION

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

**Table No 3: Electrical Energy Consumed: 21-22:**

No	Month	Energy Consumed, kWh
1	Jun-21	0
2	Jul-21	68
3	Aug-21	90
4	Sep-21	108
5	Oct-21	103
6	Nov-21	384
7	Dec-21	180
8	Jan-22	412
9	Feb-22	176
10	Mar-22	285
11	Apr-22	746
12	May-22	553
13	Total	3105
14	Maximum	746
15	Minimum	0
16	Average	258.75

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





## CHAPTER-IV

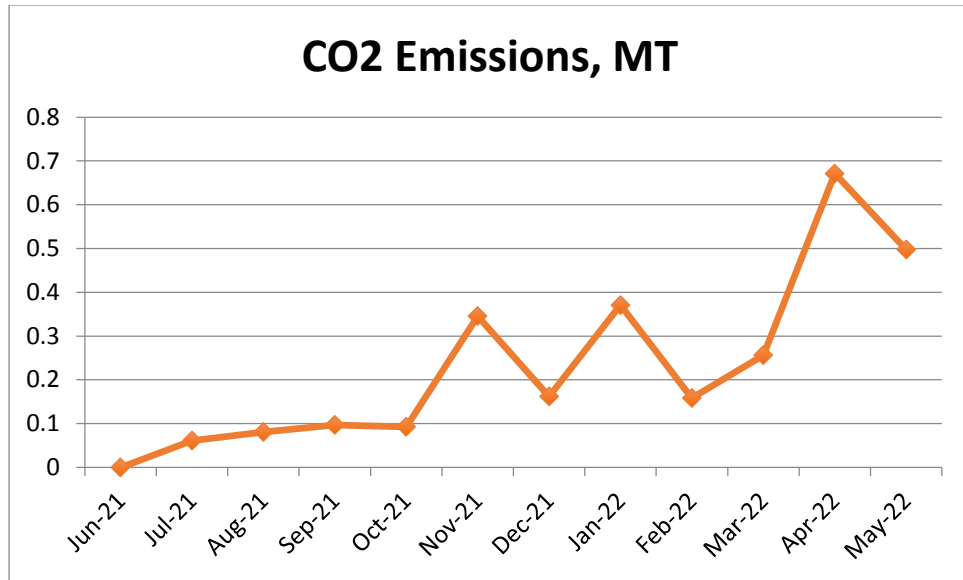
### CARBON FOOT PRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO<sub>2</sub> Emissions:** 1 Unit (kWh) of Electrical Energy releases **0.9 Kg of CO<sub>2</sub>** into atmosphere.

**Table No 4: Month wise CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-21	0	0
2	Jul-21	68	0.06
3	Aug-21	90	0.08
4	Sep-21	108	0.10
5	Oct-21	103	0.09
6	Nov-21	384	0.35
7	Dec-21	180	0.16
8	Jan-22	412	0.37
9	Feb-22	176	0.16
10	Mar-22	285	0.26
11	Apr-22	746	0.67
12	May-22	553	0.50
13	Total	3105	2.79
14	Maximum	746	0.67
15	Minimum	0	0.00
16	Average	258.75	0.23

**Chart No 3: Representation of Month wise CO<sub>2</sub> Emissions:**



## **CHAPTER-V**

### **STUDY OF USAGE OF ALTERNATE ENERGY**

The College has installed Solar PV based Street Lights.

**Photograph of Solar Street Light:**

## CHAPTER-VI

### STUDY OF USAGE OF LED LIGHTS

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

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

No	Particulars	Value	Unit
1	Qty of 40 W FTL Fittings	2	Nos
2	Load of 40 W FTL Fitting	40	W/unit
3	Total Load of 40 W FTL Fittings	<b>0.08</b>	kW
4	Qty of 20 W LED Fittings	42	Nos
5	Load of 20 W LED Fitting	20	W/unit
6	Total Load of 20 W LED Fittings	<b>0.84</b>	kW
7	Total LED Lighting Load=6	<b>0.84</b>	kW
8	Total Lighting Load=3+6	<b>0.92</b>	kW
9	% usage of LEDs to Total Lighting Load= $7 \times 100 / 8$	<b>91.30</b>	%



# ENVIRONMETAL AUDIT REPORT

of

## Jijamata Shikshan Prasarak Mandal's, **JIJAMATA MAHAVIDYALAYA, SARATI**

A/P: Sarati, Taluka: Indapur. District: Pune 413 103



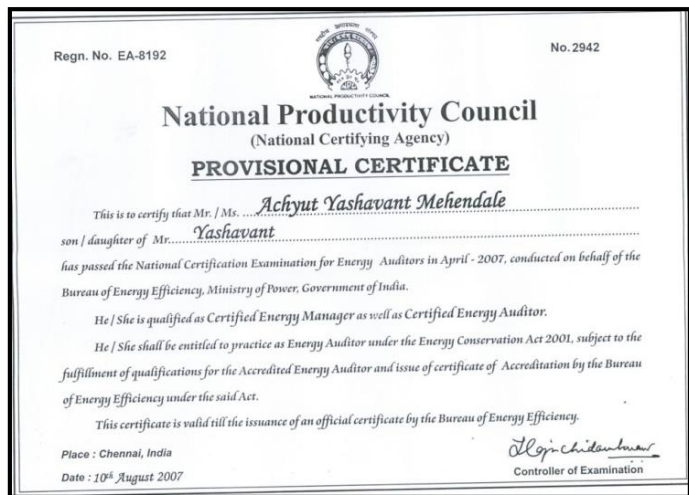
Year: 2021-22

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)

**REGISTRATION CERTIFICATES**



**BEE AUDITOR CERTIFICATE**



**MEDA EMPANELMENT CERTIFICATE**



**ASSOCHAM GEM CP CERTIFICATE**

# ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,  
Near Mukhtangan English School, Parvati, Pune 411 009  
Tel: 09890444795 Email: [engress123@gmail.com](mailto:engress123@gmail.com)

Ref: ES/ACCS /21-22/03

Date: 21/6/2022

## CERTIFICATE

This is to certify that we have conducted Environmental Audit at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune in the year 2021-22.

The College has adopted following Environment Friendly Practices:

- Usage of Energy Efficient LED Fittings
- Usage of Solar PV Street Lights
- Segregation of Waste at source
- Provision of Bio Composting Bed, for conversion of Organic Waste
- Implementation of Rain Water Management Project
- Tree Plantation in the campus
- Creation of awareness on Plastic Free Campus 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

## INDEX

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## ACKNOWLEDGEMENT

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## EXECUTIVE SUMMARY

1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

### 2. Pollution due to Day to Day Activities:

- **Air pollution:** Mainly CO<sub>2</sub> on account of Electricity Consumption
- **Solid Waste:** Bio degradable Garden Waste, Recyclable Waste and Human Waste
- **Liquid Waste:** Human Liquid waste

### 3. Energy Consumed & CO<sub>2</sub> Emission:

No	Parameter	Energy Consumed, kWh	CO <sub>2</sub> emissions, MT
1	Total	3105	2.79
2	Maximum	746	0.67
3	Minimum	0	0.00
4	Average	258.75	0.23

### 4. Various Measures Adopted for Environmental Conservation:

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

### 5. Usage of Renewable Energy:

- The College has installed Solar PV based Street Lights.

### 6. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	90	57	72
2	Minimum	80	48	56

### 7. Indoor Comfort Condition Parameters:

No	Parameter/Value	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Maximum	29.1	59	129	45
2	Minimum	28.9	58.8	107	41

## 8. Waste Management:

### 8.1 Segregation of Waste at Source:

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

### 8.2 Organic Waste Management:

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

## 9. Rain Water Management:

The rain water is used to increase the underground Water Table.

## 10. Eco Friendly Practices:

- Internal Tree Plantation
- Creation of Awareness on Plastic Free Campus by Display of Posters

## 11. Assumption:

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

## 12. References:

1. For CO<sub>2</sub> calculations: [www.tatapower.com](http://www.tatapower.com)
2. For Various Indoor Air Parameters: [www.ishrae.com](http://www.ishrae.com)
3. For AQI Standards: [www.cpcb.com](http://www.cpcb.com)

## ABBREVIATIONS

AQI	: Air Quality Index
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
MT	: Metric Ton
CO <sub>2</sub>	: Carbon Di Oxide
ISHRAE	: The Indian Society of Heating, Refrigerating & Air conditioning Engineers
CPCB	: Central Pollution Control Board
NSS	: National Service Scheme
PM	: Particulate Matter

# CHAPTER-I

## INTRODUCTION

### 1.1 Important Definitions:

#### 1.1.1 Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

#### 1.1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

*According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

**1.1.3. Environmental Pollutant:** means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

#### 1.1.4. Relevant Environmental Laws in India: Table No-1:

1927	The Indian Forest Act
1972	The Wildlife Protection Act
1974	The Water (Prevention and Control of Pollution) Act
1977	The Water (Prevention & Control of Pollution) Cess Act
1980	The Forest (Conservation) Act
1981	The Air (Prevention and Control of Pollution) Act
1986	The Environment Protection Act
1991	The Public Liability Insurance Act
2002	The Biological Diversity Act
2010	The National Green Tribunal Act

#### 1.1.5. Some Important Environmental Rules in India: Table No-2:

1989	Hazardous Waste (Management and Handling) Rules
1989	Manufacture, Storage and Import of Hazardous Chemical Rules
2000	Municipal Solid Waste (Management and Handling) Rules
1998	The Biomedical Waste (Management and Handling) Rules
1999	The Environment (Siting for Industrial Projects) Rules
2000	Noise Pollution (Regulation and Control) Rules
2000	Ozone Depleting Substances (Regulation and Control) Rules
2011	E-waste (Management and Handling) Rules

2011	National Green Tribunal (Practices and Procedure) Rules
2011	Plastic Waste (Management and Handling) Rules

#### 1.1.6 National Environmental Plans & Policy Documents: Table No-3:

1.	National Forest Policy, 1988
2.	National Water Policy, 2002
3.	National Environment Policy or NEP (2006)
4.	National Conservation Strategy and Policy Statement on Environment and Development, 1992
5.	Policy Statement for Abatement of Pollution (1992)
6.	National Action Plan on Climate Change
7.	Vision Statement on Environment and Human Health
8.	Technology Vision 2030 (The Energy Research College)
9.	Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency)
10	The Road to Copenhagen; India's Position on Climate Change Issues (MoEF)

#### 1.2 Objectives:

6. To study Recourse Consumption and CO<sub>2</sub> Emission
7. To Study CO<sub>2</sub> Emission Reduction
8. To Study Indoor Air Quality
9. To study Indoor Comfort Parameters
10. To Study Waste Management Practices
11. To Study Rain Water Management
12. To study Environment Friendly Practices

#### 1.3 Google Earth Image:





**1.4 Table No 4: General Details of College:**

No	Head	Particulars
1	Name	Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya
2	Address	A/P Sarati, Taluka: Indapur, District: Pune 413 103
3	Affiliation	Savitribai Phule Pune University

## CHAPTER-II

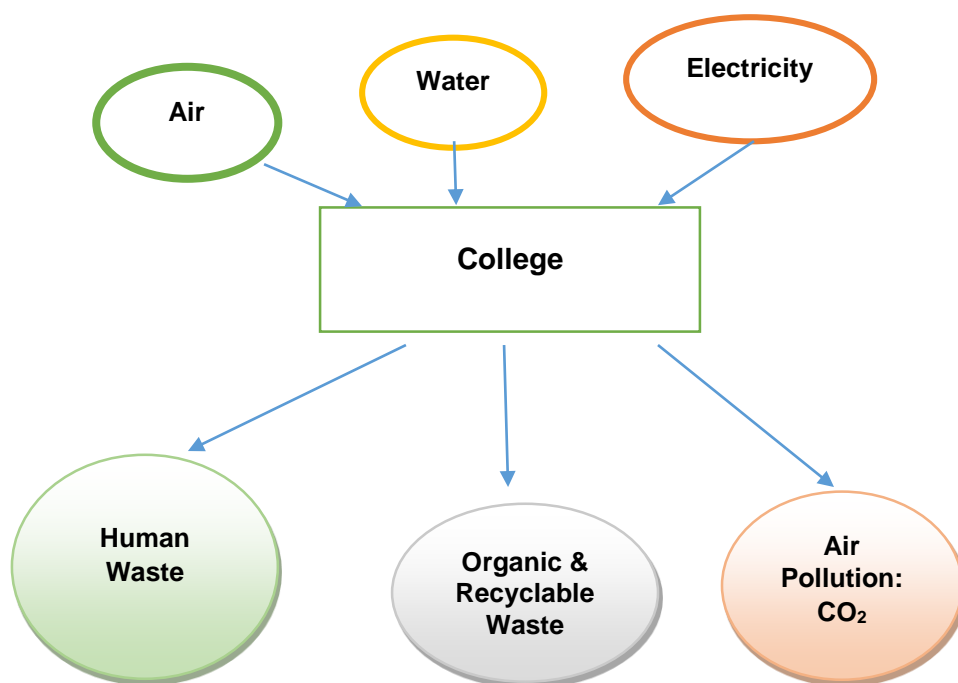
### STUDY OF RESOURCE CONSUMPTION & CO<sub>2</sub> EMISSION

The College consumes following Natural/derived Resources:

4. Air
5. Water
6. Electrical Energy

We try to draw a schematic diagram for the College System & Environment as under.

**Chart No: 1: Representation of College as System:**



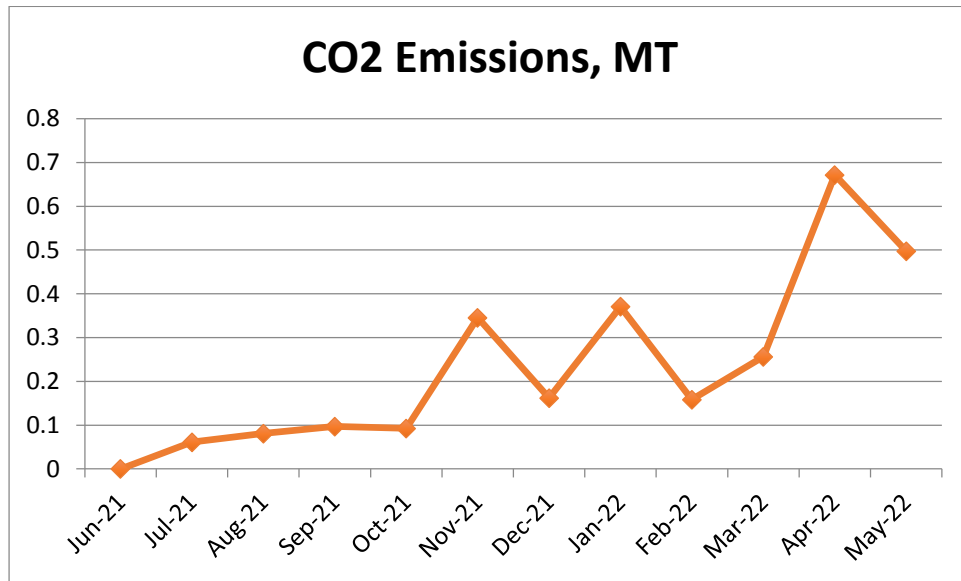
We compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy as under. The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy are: 1 Unit (kWh) of Electrical Energy releases **0.9 Kg of CO<sub>2</sub>** into atmosphere.

**Table No 5: Electrical Energy Usage & CO<sub>2</sub> Emission: 21-22:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-21	0	0
2	Jul-21	68	0.06

3	Aug-21	90	0.08
4	Sep-21	108	0.10
5	Oct-21	103	0.09
6	Nov-21	384	0.35
7	Dec-21	180	0.16
8	Jan-22	412	0.37
9	Feb-22	176	0.16
10	Mar-22	285	0.26
11	Apr-22	746	0.67
12	May-22	553	0.50
13	Total	3105	2.79
14	Maximum	746	0.67
15	Minimum	0	0.00
16	Average	258.75	0.23

**Chart No 2: To study CO<sub>2</sub> Emission:**



### **CHAPTER-III**

## **STUDY OF USAGE OF RENEWABLE ENERGY**

The College has installed Solar PV based Street Lights.

**Photograph of Solar Street Light:**





## **CHAPTER-IV**

### **STUDY OF INDOOR AIR QUALITY**

#### **4.1 Importance of Air Quality:**

**Air:** The common name given to the atmospheric gases used in breathing and photosynthesis.

By volume, Dry Air contains 78.09% Nitrogen, 20.95% Oxygen, 0.93% Argon, 0.039% carbon dioxide, and small amounts of other gases.

On average, a person inhales about **14,000 liters** of air every day. Therefore, poor air quality may affect the quality of life now and for future generations by affecting the health, the environment, the economy and the city's livability.

**Air quality is a measure of the suitability of air for breathing by people, plants and animals.**

According to Section 2(b) of Air (Prevention and control of pollution) Act, 1981 '**air pollution**' has been defined as '**the presence in the atmosphere of any air pollutant.**'

As per Section 2(a) of Air (Prevention and control of pollution) Act, 1981 '**air pollutant**' has been defined as '**any solid, liquid or gaseous substance [(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment**

#### **4.2 Air Quality Index:**

An **Air Quality Index (AQI)** is a number used by government agencies to measure the **air pollution** levels and communicate it to the population.

We present herewith following important Parameters.

4. AQI- Air Quality Index
5. PM 2.5- Particulate Matter of Size 2.5
6. PM 2.5- Particulate Matter of Size 2.5

**Table No 6: Indoor Air Quality Parameters:**

No	Location	AQI	PM2.5	PM10
1	Principal Sir Cabin	80	48	57
2	Office	81	48	58
3	Classroom	85	51	62
4	Physics Lab	83	49	56
5	Chemistry Lab	84	51	62
6	Class Room	90	57	72
	Maximum	<b>90</b>	<b>57</b>	<b>72</b>
	Minimum	<b>80</b>	<b>48</b>	<b>56</b>

## **CHAPTER-V**

### **STUDY OF INDOOR AIR CONDITION PARAMETERS**

In this Chapter, we present the various Indoor Comfort Parameters measured during the Audit. The Parameters include:

5. Temperature
6. Humidity
7. Lux Level
8. Noise Level.

**Table No 7: Study of Indoor Comfort Parameters:**

No	Location	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Principal Sir Cabin	28.9	59	129	42.3
2	Office	28.9	58.8	107	41
3	Classroom	28.9	58.8	116	42
4	Physics Lab	29.1	59.1	124	44.6
5	Chemistry Lab	29	59	117	45
6	Class Room	29	59	109	44.8
	Maximum	<b>29.1</b>	<b>59</b>	<b>129</b>	<b>45</b>
	Minimum	<b>28.9</b>	<b>58.8</b>	<b>107</b>	<b>41</b>

## CHAPTER-VI

### STUDY OF WASTE MANAGEMENT

#### 6.1 Segregation of Waste at Source:

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

**Photograph of Waste Collection Bin:**



#### 6.2 Organic Waste Management:

The College has a Bio composting Pit, for conversion of Organic Waste.

**Photograph of Bio Composting Arrangement:**



## **CHAPTER-VII**

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

The Rain water falling on the terrace is used to increase the underground water table.

**Photograph of Rain Water Carrying Pipe:**



## **CHAPTER VIII**

### **STUDY OF ENVIRONMENT FRIENDLY INITIATIVES**

#### **8.1 Internal Tree Plantation:**

The College has well maintained Tree plantation.

**Photograph of Tree Plantation:**

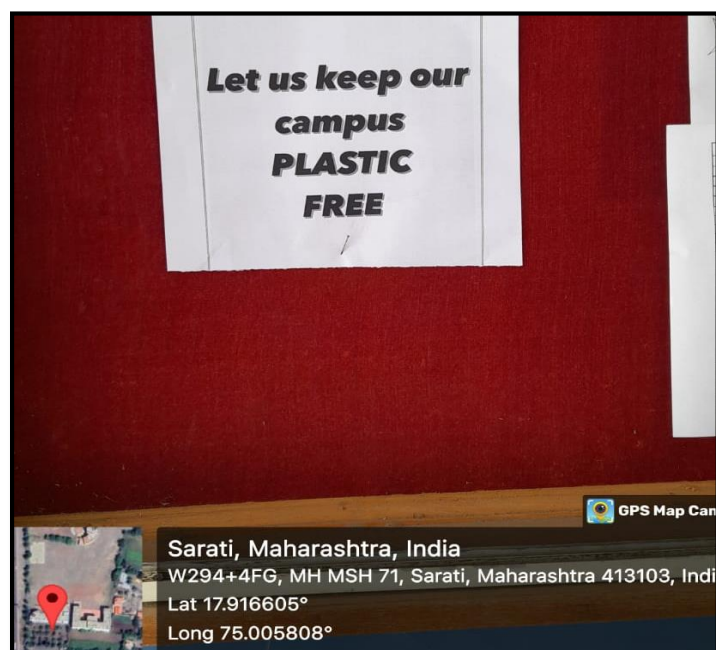




## 8.2 Creation of Awareness by Display of Posters:

The College has displayed posters on Plastic Free Campus.

**Photograph of Poster Display Board on Plastic Free Campus:**



## ANNEXURE-I:

### AIR QUALITY, NOISE & INDOOR COMFORT STANDARDS:

**1. Category Wise Air Quality Index Values & Concentration of PM 2.5 & PM10:**

No	Category	AQI Value	Concentration Range, PM 2.5	Concentration Range, PM 10
1	Good	0 to 50	0 to 30	0 to 50
2	Satisfactory	51 to 100	31 to 60	51 to 100
3	Moderately Polluted	101 to 200	61 to 90	101 to 250
4	Poor	201 to 300	91 to 120	251 to 350
5	Very Poor	301 to 400	121 to 250	351 to 430
6	Severe	401 to 500	250 +	430 +

**2. Recommended Noise Level Standards:**

No	Location	Noise Level dB
1	Auditoriums	20-25
2	Outdoor Playground	55
3	Occupied Class Room	40-45
4	Un occupied Class Room	35
5	Apartment, Homes	35-40
6	Offices	45-50
7	Libraries	35-40
8	Restaurants	50-55

**3. Thermal Comfort Conditions: For Non-conditioned Buildings:**

No	Parameter	Value
1	Temperature	Less Than 33 <sup>o</sup> C
2	Humidity	Less Than 70%

**GREEN AUDIT REPORT**  
of  
Jijamata Shikshan Prasarak Mandal's,  
**JIJAMATA MAHAVIDYALAYA, SARATI**  
A/P: Sarati, Taluka: Indapur. District: Pune 413 103



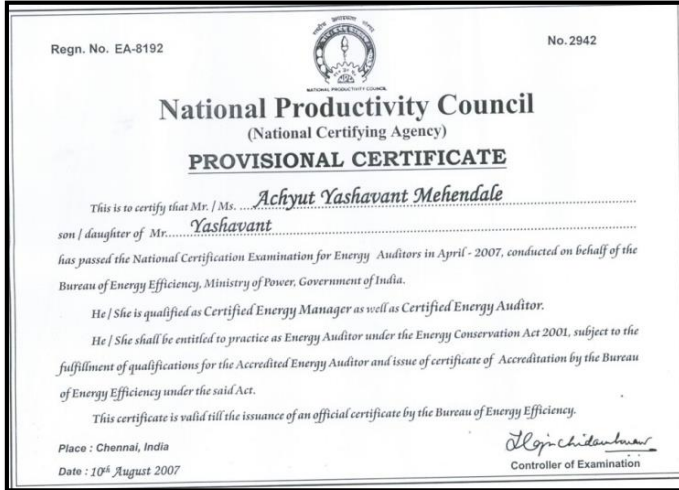
Year: 2021-22

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)

## REGISTRATION CERTIFICATES



## BEE AUDITOR CERTIFICATE

## MEDA EMPANELMENT CERTIFICATE



## ASSOCHAM GEM CP CERTIFICATE



# ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,  
Near Mukhtangan English School, Parvati, Pune 411 009  
Tel: 020-24220747 Email: [engress123@gmail.com](mailto:engress123@gmail.com)

Ref: ES/ ACCS/21-22/02

Date: 21/6/2022

## CERTIFICATE

This is to certify that we have conducted Green Audit at Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune in the year 2021-22.

The College has adopted following Green & Sustainable Practices:

- Usage of Energy Efficient LED Fittings
- Usage of Solar PV Street Lights
- Segregation of Waste at source
- Provision of Bio Composting Bed, for conversion of Organic Waste
- Implementation of Rain Water Management Project
- Maintenance of Good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness on Plastic Free Campus 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

## INDEX

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## ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Tal: Indapur, District: Pune, for awarding us the assignment of Green Audit of their College Campus for the Year: 21-22.

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

## EXECUTIVE SUMMARY

1. Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya, Sarati, Taluka: Indapur, District: Pune consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

## 2. Energy Consumed and CO<sub>2</sub> Emission:

No	Parameter	Energy Consumed, kWh	CO <sub>2</sub> emissions, MT
1	Total	3105	2.79
2	Maximum	746	0.67
3	Minimum	0	0.00
4	Average	258.75	0.23

## 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 installed Solar PV based Street Lights.

## 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 Organic Waste Management:

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

## 6. Rain Water Management:

The rain water is used to increase the underground Water Table.

## 7. Green & Sustainable Practices:

- Good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of Awareness on Plastic Free Campus by Display of Posters

## 8. Assumption:

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

## 9. Reference:

- For CO<sub>2</sub> calculations: [www.tatapower.com](http://www.tatapower.com)

## ABBREVIATIONS

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

## CHAPTER-I INTRODUCTION

### 1.1 Objectives:

- 13. To study present Energy Consumption
- 14. To Study the present CO<sub>2</sub> emissions
- 15. To study Usage of Renewable Energy
- 16. To study Waste Management practices
- 17. To study Green & Sustainable Practices

### 1.2 Table No-1: General Details of College:

No	Head	Particulars
1	Name	Jijamata Shikshan Prasarak Mandal's, Jijamata Mahavidyalaya
2	Address	A/P Sarati, Taluka: Indapur, District: Pune 413 103
3	Affiliation	Savitribai Phule Pune University

### 1.3 Google Earth Image:



College  
Campus



## CHAPTER-II

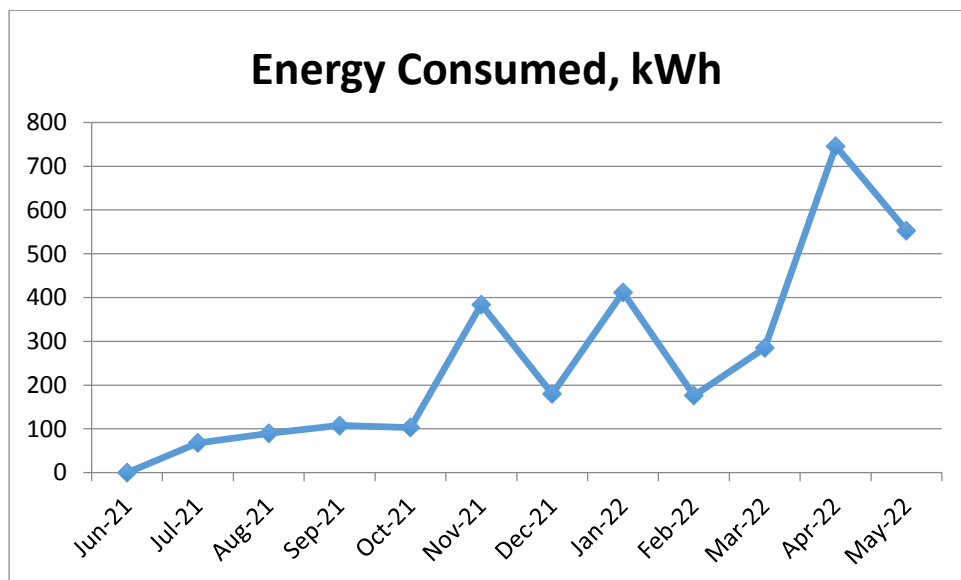
### STUDY OF PRESENT ENERGY CONSUMPTION

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

**Table No 2: Electrical Energy Purchase Analysis- 21-22:**

No	Month	Energy Consumed, kWh
1	Jun-21	0
2	Jul-21	68
3	Aug-21	90
4	Sep-21	108
5	Oct-21	103
6	Nov-21	384
7	Dec-21	180
8	Jan-22	412
9	Feb-22	176
10	Mar-22	285
11	Apr-22	746
12	May-22	553
13	Total	3105
14	Maximum	746
15	Minimum	0
16	Average	258.75

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



## CHAPTER-III

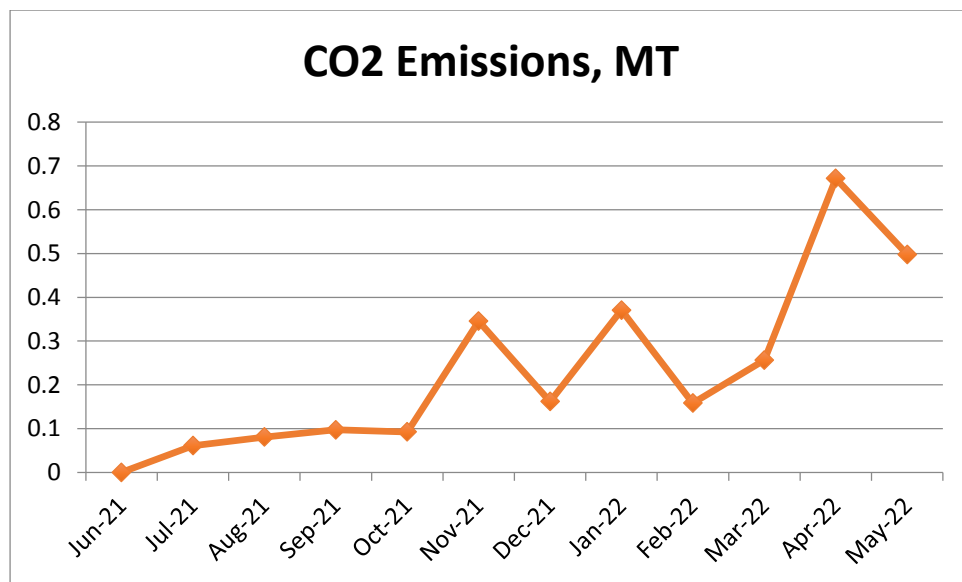
### CARBON FOOT PRINTING

A **Carbon Foot print** is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO<sub>2</sub> Emissions:** 1 Unit (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 Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-21	0	0
2	Jul-21	68	0.06
3	Aug-21	90	0.08
4	Sep-21	108	0.10
5	Oct-21	103	0.09
6	Nov-21	384	0.35
7	Dec-21	180	0.16
8	Jan-22	412	0.37
9	Feb-22	176	0.16
10	Mar-22	285	0.26
11	Apr-22	746	0.67
12	May-22	553	0.50
13	Total	3105	2.79
14	Maximum	746	0.67
15	Minimum	0	0.00
16	Average	258.75	0.23

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



## **CHAPTER-IV**

### **STUDY OF USAGE OF RENEWABLE ENERGY**

The College has installed Solar PV based Street Lights.

**Photograph of Solar Street Light:**



## **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 Waste Collection Bin:**



### **5.2 Organic Waste Management:**

The College has a Bio composting Pit, for conversion of Organic Waste.

**Photograph of Bio Composting Arrangement:**



## **CHAPTER-VI STUDY OF RAIN WATER MANAGEMENT**

The Rain water falling on the terrace is used to increase the underground water table.

**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 in the 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 by Display of Posters:

The College has displayed posters on Plastic Free Campus.

**Photograph of Poster Display Board on Plastic Free Campus:**

