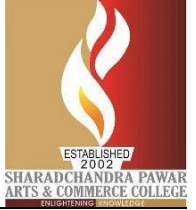




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## CRITERION 7 – INSTITUTIONAL VALUES AND BEST PRACTICES

### 7.1 Institutional Values and Social Responsibilities

**7.1.6 Quality audits on environment and energy are regularly undertaken by the institution during the Year 2022-23**

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Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105.



## GREEN AUDIT REPORT

**Year: 2022-23**

Prepared by

### ENGRESS SERVICES

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



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MEDA Registration No: ECN/2022-23/CR-43/1709  
ISO: 9001-2015 Certified (Cert No: 23EQKC13),  
ISO: 14001-2015 Certified (Cert No: 23EEKW20)

## GREEN AUDIT CERTIFICATE

Certificate No: ES/ SGMSPMSPACC/22-23/02

Date: 15/6/2023

This is to certify that we have conducted Green Audit at Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105 in the year 2022-23.

The College has adopted following Green & Sustainable Practices:

- Usage of Energy Efficient LED Fittings
- Maximum Usage of Day Lighting
- Segregation of Waste at source
- Provision of Bio Composting Pit, for conversion of Organic Waste
- Provision of Sanitary Waste Incinerator, for Disposal of Sanitary Waste
- Installation of Rain Water Management Project
- Maintenance of Good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness on Resource Conservation by Display of Posters

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

For Engress Services,

**A Y Mehendale,**  
B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192  
ASSOCHAM GEM Certified Professional: GEM: 22/788



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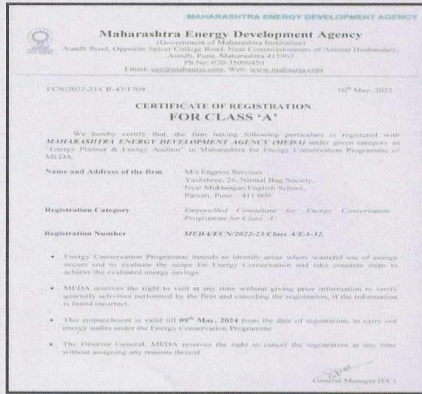


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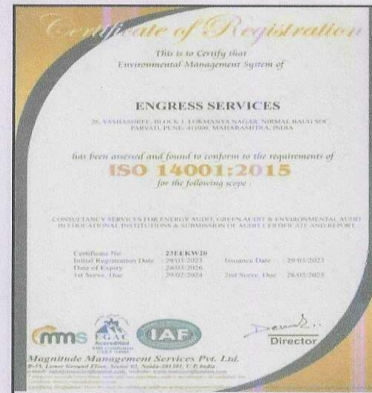
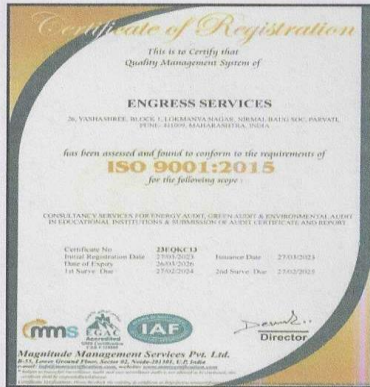
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**REGISTRATION CERTIFICATES**



**MEDA REGISTRATION CERTIFICATE**

**ASSOCHAM GEM CP CERTIFICATE**



**ISO: 9001-2015 CERTIFICATE**

**ISO: 14001-2015 CERTIFICATE**

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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

**ACKNOWLEDGEMENT**

We Engress Services, Pune, express our sincere gratitude to the management of Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105, for awarding us the assignment of Green Audit of their Dudulgaon campus for the Year: 2022-23.

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

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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

### EXECUTIVE SUMMARY

1. Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105 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 Consumed	14582	kWh
2	Annual CO <sub>2</sub> Emissions	13.12	MT

#### 3. Usage of Renewable Energy:

- The College has yet to install Roof Top Solar PV Plant.

#### 4. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Organic Waste	Provision of Vermi Composting Pit
3	Sanitary Waste	Installed Sanitary Waste Incinerator
4	E Waste	Recommended to dispose of through Authorized Agency

#### 5. Rain Water Management:

The College has installed Rainwater Management Project. The rain water falling on the terrace is collected through pipes and 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 for Divyangajan
- Creation of awareness on Energy Conservation Display of Posters

#### 7. Assumptions:

- 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)

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**ABBREVIATIONS**

SGMSPM	:	Shri Gajanan Maharaj Shikshan Prasarak Mandal
LED	:	Light Emitting Diode
kWh	:	kilo-Watt Hour
Qty	:	Quantity
W	:	Watt
kW	:	Kilo Watt
MT	:	Metric Ton

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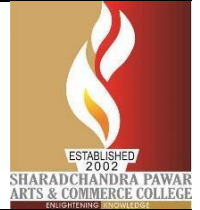


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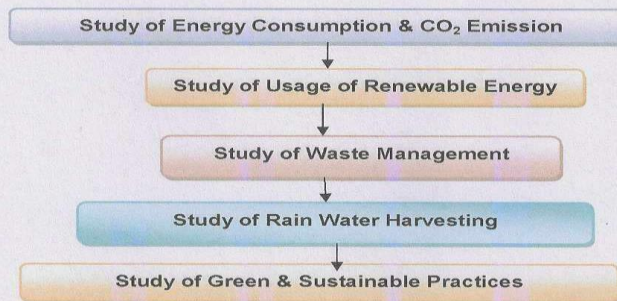
Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

## CHAPTER-I INTRODUCTION

### 1.1 Introduction:

A Green Audit is conducted at Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon),

### 1.2 Audit Procedural Steps:



### 1.3 College Location Image:



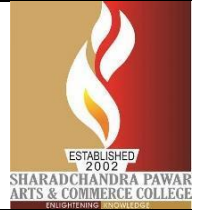
College  
Campus



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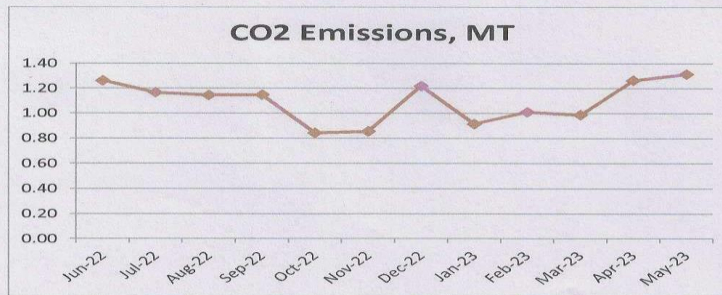
**CHAPTER-II  
STUDY OF ENERGY CONSUMPTION & CO<sub>2</sub> EMISSION**

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.**

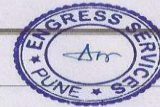
**Table No 1: Month wise Energy Consumption & CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	1402	1.26
2	Jul-22	1295	1.17
3	Aug-22	1273	1.15
4	Sep-22	1275	1.15
5	Oct-22	936	0.84
6	Nov-22	949	0.85
7	Dec-22	1354	1.22
8	Jan-23	1015	0.91
9	Feb-23	1122	1.01
10	Mar-23	1097	0.99
11	Apr-23	1404	1.26
12	May-23	1460	1.31
13	Total	14582	13.12
14	Maximum	1460	1.31
15	Minimum	936	0.84
16	Average	1215	1.09

**Chart No 1: Month wise CO<sub>2</sub> Emissions:**



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**CHAPTER-III**  
**STUDY OF USAGE OF RENEWABLE ENERGY**

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

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#### **CHAPTER-IV** **STUDY OF WASTE MANAGEMENT**

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

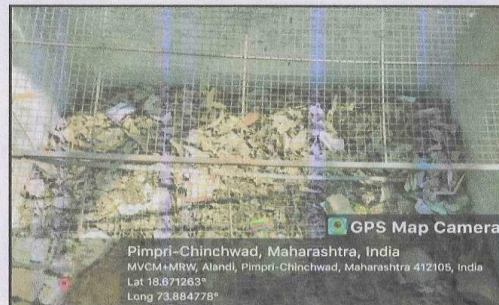
The Waste is segregated at source. Waste bins are located at various locations  
**Photograph of Waste Collection Bin:**



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

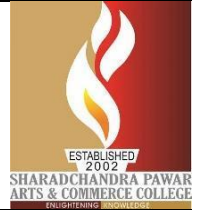
The College has constructed facility for composting the Organic Waste into Bio Compost.

**Photograph of Vermi Composting Pit:**





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**4.3 Sanitary Waste Management:**

The College has installed a Sanitary Waste Incinerator to dispose of the Sanitary Waste.  
**Photograph of Sanitary Waste Incinerator:**



**4.4 E Waste Management:**

It is recommended to dispose of E Waste through Authorized Agency.

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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

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

The College has implemented the Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used to increase the underground water table.

Photograph of Rain Water Carrying Pipe:



Rain Water Pipe



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

**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.

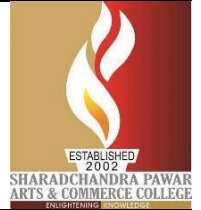
**Photograph of Tree Plantation:**



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

**6.3 Provision of Ramp & Wheelchair for Divyangajan:**

The College has made provision of Ramp & Wheelchair for the Divyangajan.

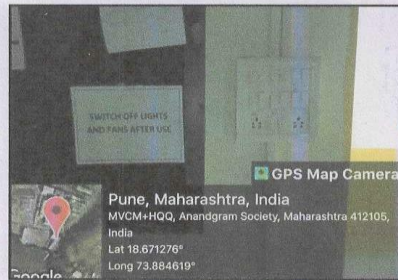
**Photograph of Ramp & Wheelchair for Divyangajan:**



**7.4 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:**



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

1. List of Trees & Plants:

No	Name of Tree
1	Mango
2	Kaduneem
3	Palm
4	Sonchampa
5	Champa
6	Indian almond
7	Gulmohor
8	Subabhul
9	Ficus
10	Black Walnut
11	Vad
12	Peepal
13	Tamrind
14	Silver Oak
15	Eranda
16	Chikoo
17	Seetafal
18	Shevga
19	Jamun
20	Bor
21	Sweetlime
22	Bamboo
23	Saptaparni

No	Name of Plant
1	Aster
2	Jasmine
3	Rose
4	Adulsa
5	Cactus
6	Jatropha
7	Tomato
8	Croton
9	Duranta
10	Hibiscus
11	Curry leaves

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## ENERGY AUDIT REPORT

**Year: 2022-23**

Prepared by

### ENGRESS SERVICES

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MEDA Registration No: ECN/2022-23/CR-43/1709  
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## ENERGY AUDIT CERTIFICATE

Certificate No: ES/ SGMSPMSPACC/22-23/01

Date: 15/6/2023

This is to certify that we have conducted Energy Audit at Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105 in the year 2022-23.

The College has adopted following Energy Efficient Practices:

- Usage of Energy Efficient LED Fittings
- Maximum usage of Day Lighting

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,  
B E-Mechanical, M Tech- Energy  
BEE Certified Energy Auditor, EA-8192



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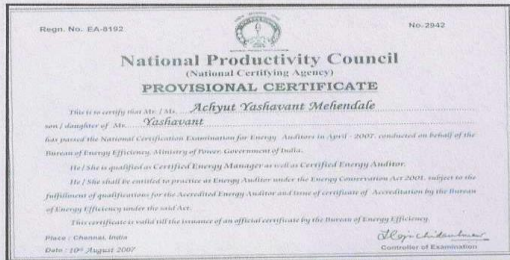


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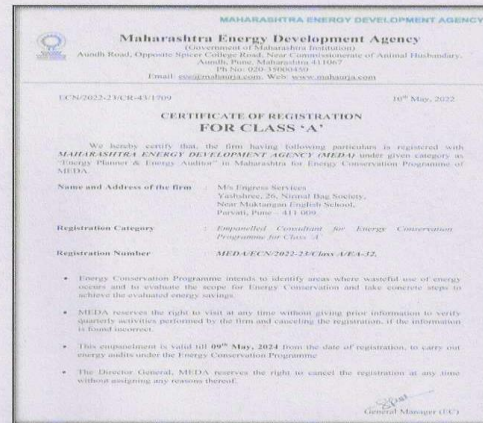


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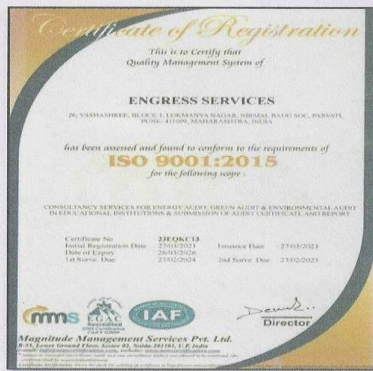
**REGISTRATION CERTIFICATES**



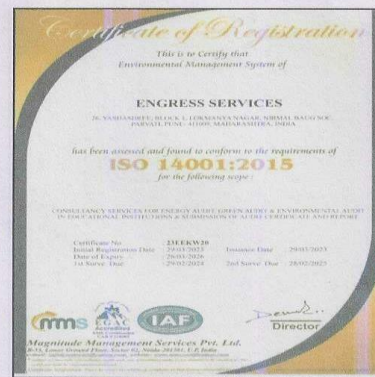
**AUDITOR CERTIFICATE**



**MEDA Registration Certificate**



**ISO: 9001-2015 Certificate**



**ISO: 14001-2015 Certificate**

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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

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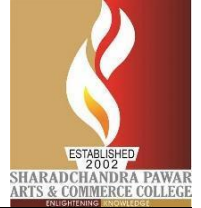
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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

**ACKNOWLEDGEMENT**

We Engress Services, Pune, express our sincere gratitude to the management of .Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105, for awarding us the assignment of Energy Audit of their Dudulgaon campus for the Year: 2022-23.

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

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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

### EXECUTIVE SUMMARY

1. Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105 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	30	kW
2	Annual Energy Consumed	14582	kWh

#### 3. Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	14582	kWh
4	Total Built up area of College	1988	m <sup>2</sup>
5	Energy Performance Index = (1) / (2)	7.33	kWh/m <sup>2</sup>

#### 4. Study of Lighting Power Density & % Usage of LED Lighting:

No	Particulars	Value	Unit
1	Lighting Power Density	1.08	W/m <sup>2</sup>
2	% of Usage of LED Lighting to Total Lighting Load	100	%

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

- Usage of Energy Efficient LED fittings
- Maximum Usage of Day Lighting
- The College has yet to install Roof Top Solar PV Plant.

#### 6. Assumptions:

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)

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**ABBREVIATIONS**

AC	: Air conditioner
SGMSPM	: Shri Gajanan Maharaj Shikshan Prasarak Mandal
BEE	: Bureau of Energy Efficiency
CFL	: Compact Fluorescent Lamp
FTL	: Fluorescent Tube Light
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

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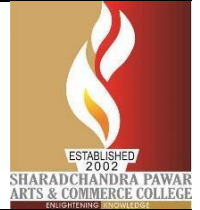


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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

**CHAPTER-I  
INTRODUCTION**

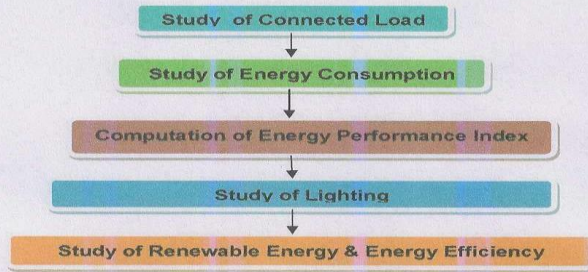
**1.1 Introduction:**

An Energy Audit is conducted at Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon),

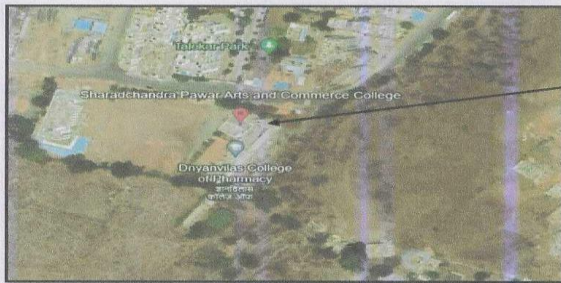
The guidelines followed for conducting the Energy Audit are:

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

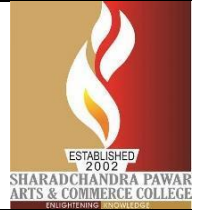
**1.2 Audit Procedural Steps:**



**1.3 College Location Image:**



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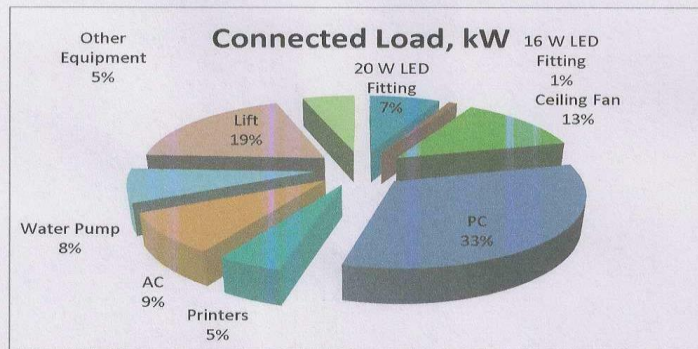
**CHAPTER-II  
STUDY OF CONNECTED LOAD**

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	20 W LED Fitting	108	20	2.160
2	16 W LED Fitting	16	16	0.256
3	Ceiling Fan	59	65	3.835
4	PC	65	150	9.75
5	Printers	8	175	1.40
6	AC	2	1350	2.70
6	Water Pump	1	2238	2.24
7	Lift	1	5595	5.60
8	Other Equipment	8	200	1.6
9	<b>Total</b>			<b>30</b>

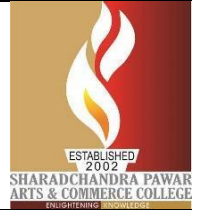
**Chart No 1: Details of Connected Load:**



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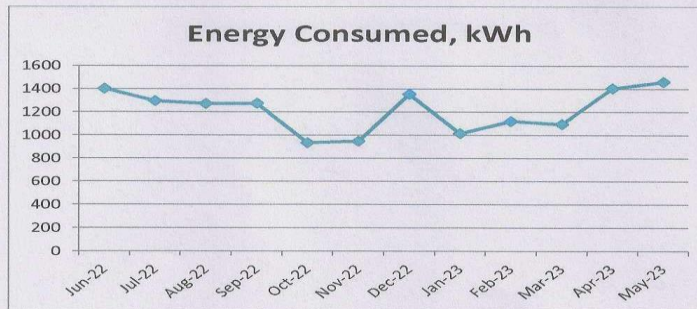
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**CHAPTER-III  
STUDY OF PRESENT ENERGY CONSUMPTION**

In this chapter, we present the analysis of Electrical Energy Consumption.  
Table No 2: Electrical Energy Consumed: 22-23:

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	1402	1.26
2	Jul-22	1295	1.17
3	Aug-22	1273	1.15
4	Sep-22	1275	1.15
5	Oct-22	936	0.84
6	Nov-22	949	0.85
7	Dec-22	1354	1.22
8	Jan-23	1015	0.91
9	Feb-23	1122	1.01
10	Mar-23	1097	0.99
11	Apr-23	1404	1.26
12	May-23	1460	1.31
13	Total	14582	13.12
14	Maximum	1460	1.31
15	Minimum	936	0.84
16	Average	1215	1.09

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



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**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:

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

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 Consumed	14582	kWh
4	Total Built up area of College	1988	m <sup>2</sup>
5	Energy Performance Index = (1) / (2)	7.33	kWh/m <sup>2</sup>

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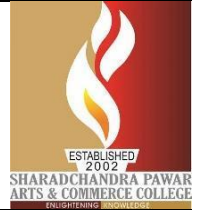
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### CHAPTER-V STUDY OF LIGHTING

#### Terminology:

- 1. Lumen** is a unit of light flow or luminous flux. The lumen rating of a lamp is a measure of the total light output of the lamp. The most common measurement of light output (or luminous flux) is the lumen. Light sources are labeled with an output rating in lumens.
- 2. Lux** is the metric unit of measure for illuminance of a surface. One lux is equal to one lumen per square meter.
- 3. Circuit Watts** is the total power drawn by lamps and ballasts in a lighting circuit under assessment.
- 4. Installed Load Efficacy** is the average maintained illuminance provided on a horizontal working plane per circuit watt with general lighting of an interior. Unit: lux per watt per square metre (lux/W/m<sup>2</sup>)
- 5. Lamp Circuit Efficacy** is the amount of light (lumens) emitted by a lamp for each watt of power consumed by the lamp circuit, i.e. including control gear losses. This is a more meaningful measure for those lamps that require control gear. Unit: lumens per circuit watt (lm/W)
- 6. Installed Power Density.** The installed power density per 100 lux is the power needed per square metre of floor area to achieve 100 lux of average maintained illuminance on a horizontal working plane with general lighting of an interior. Unit: watts per square metre per 100 lux (W/m<sup>2</sup>/100 lux) 100 Installed power density (W/m<sup>2</sup>/100 lux)
- 7. Lighting Power Density:** It is defined as Total Lighting Load in a room divided by the Area of that Room in square meters.

In this Chapter we compute the Lighting Power Density of Class Room and the percentage usage of LED Lighting to total Lighting Load of the College.

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

**Table No 4: Computation of Lighting Power Density: Class Room: E-01:**

No	Particulars	Value	Unit
1	Qty of 20 W Fittings in Class Room: E-01	4	Nos
2	Load of 20 W Fitting	20	W/unit
3	Total Load of 4 Nos, 20 W Fittings	80	W
4	Built up area of Class Room: E-01	74.19	m <sup>2</sup>
5	Lighting Power Density = (3)/(4)	1.08	W/m <sup>2</sup>

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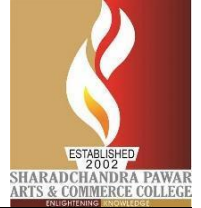
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**Table No 5: Percentage Usage of LED Lighting to Total Lighting Load:**

No	Particulars	Value	Unit
1	Qty of 20 W LED Fittings	108	Nos
2	Load per Unit of 20 W LED Fitting	20	W/Unit
3	Total Load of 20 W LED Fittings	2.16	kW
4	Qty of 16 W LED Fittings	16	Nos
5	Load per Unit of 16 W LED Fitting	16	W/Unit
6	Total Load of 16 W LED Fittings	0.26	kW
7	Total LED Lighting Load=3+6	2.416	kW
8	Total Lighting Load=3+6	2.416	kW
9	% of Total Lighting Load met by LEDs=7*100/8	100	%



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**CHAPTER-VI  
STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY**

**6.1 Energy Efficiency Measures adopted:**

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

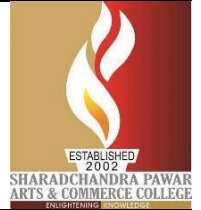
**Photographs of STAR Rated AC & LED Lighting:**



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SHARADCHANDRA PAWAR ARTS AND COMMERCE COLLEGE,  
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## ENVIRONMENTAL AUDIT REPORT

**Year: 2022-23**

Prepared by

### ENGRESS SERVICES

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



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Environmental Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College 2022-23

## 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/ SGMSPMSPACC/22-23/03

Date: 15/6/2023

This is to certify that we have conducted Environmental Audit at Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105 in the year 2022-23.

The College has adopted following Environment Friendly Practices:

- Usage of Energy Efficient LED Fittings
- Maximum Usage of Day Lighting
- Segregation of Waste at source
- Provision of Bio Composting Pit, for conversion of Organic Waste
- Provision of Sanitary Waste Incinerator, for Disposal of Sanitary Waste
- Installation of Rain Water Management Project
- Tree Plantation in the campus
- Creation of awareness on Resource Conservation by Display of Posters

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

For Engress Services,

A Y Mehendale,  
B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192  
ASSOCHAM GEM Certified Professional: GEM: 22/788



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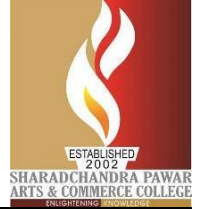
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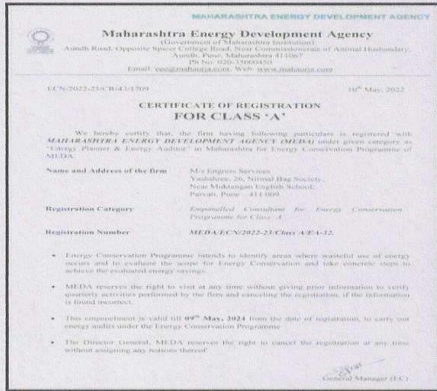


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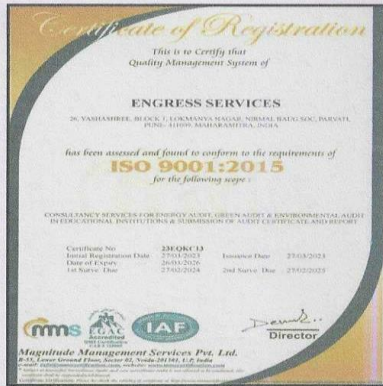
**REGISTRATION CERTIFICATES**



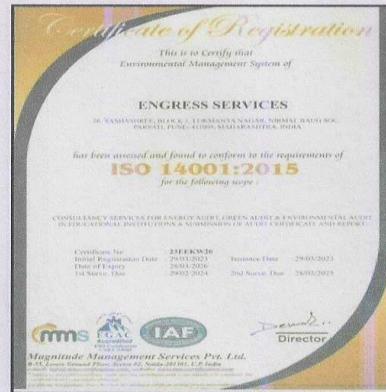
**MEDA REGISTRATION CERTIFICATE**



**ASSOCHAM GEM CP CERTIFICATE**



**ISO: 9001-2015 CERTIFICATE**



**ISO: 14001-2015 CERTIFICATE**

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3	Study of Usage of Renewable Energy	13
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5	Study of Indoor Comfort Condition Parameters	15
6	Study of Waste Management	16
7	Study of Rain Water Management	18
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	<b>Annexure</b>	
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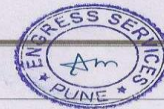
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**ACKNOWLEDGEMENT**

We Engress Services, Pune, express our sincere gratitude to the management of Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune-412105, for awarding us the assignment of Environmental Audit of their Dudulgaon campus for the Year: 2022-23.

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

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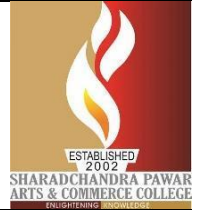
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### EXECUTIVE SUMMARY

1. Shri Gajanan Maharaj Shikshan Prasarak Mandal's Sharadchandra Pawar Arts and Commerce College, Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105 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, Paper & Plastic Waste
- **Liquid Waste:** Human liquid waste

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

No	Particulars	Value	Unit
1	Annual Energy Consumed	14582	kWh
2	Annual CO <sub>2</sub> Emissions	13.12	MT

#### 4. Usage of Renewable Energy:

- The College has yet to install Roof Top Solar PV Plant.

#### 5. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	71	43	52
2	Minimum	59	31	42

#### 6. Indoor Comfort Conditions:

No	Parameter/Value	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Maximum	29.1	42	147	45.6
2	Minimum	28.9	41	114	41.3

#### 7. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Organic Waste	Provision of Vermi Composting Pit
3	Sanitary Waste	Installed Sanitary Waste Incinerator
4	E Waste	Recommended to dispose of through Authorized Agency

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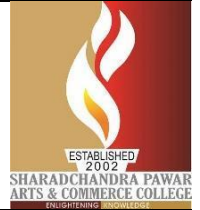
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**8 . Rain Water Management:**

The College has installed Rainwater Management Project. The rain water falling on the terrace is collected through pipes and is used to increase the underground water table.

**9. Environment Friendly Initiatives:**

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

**10. Assumption:**

1. 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 Quality Standards: [www.cpcb.com](http://www.cpcb.com)

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**ABBREVIATIONS**

SGMSPM	:	Shri Gajanan Maharaj Shikshan Prasarak Mandal
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
PM	:	Particulate Matter

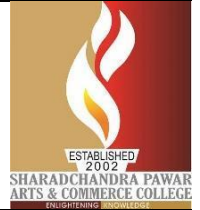
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**CHAPTER-I  
INTRODUCTION**

**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 complied 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:**



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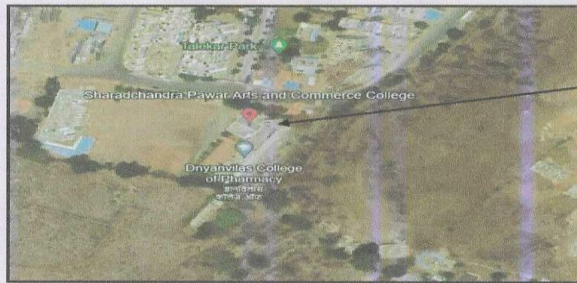


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**1.5 College Location Image:**



College  
Campus

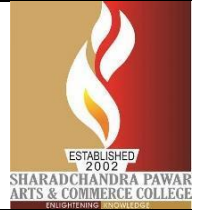
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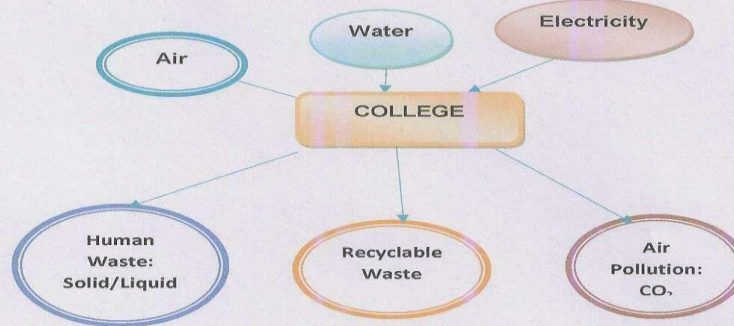
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**CHAPTER-II  
STUDY OF RESOURCE CONSUMPTION & CO<sub>2</sub> EMISSION**

The College consumes following basic/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 & Study of Resources & Waste**



Now we compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy. The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy is as under.

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

**Table No 1: Study of Consumption of Energy & CO<sub>2</sub> Emissions: 22-23:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	1402	1.26
2	Jul-22	1295	1.17
3	Aug-22	1273	1.15
4	Sep-22	1275	1.15
5	Oct-22	936	0.84
6	Nov-22	949	0.85
7	Dec-22	1354	1.22

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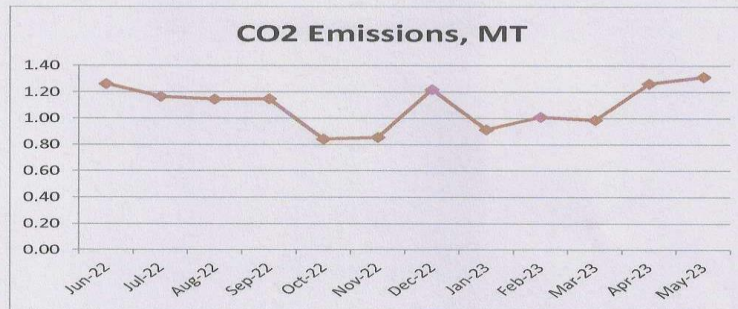
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8	Jan-23	1015	0.91
9	Feb-23	1122	1.01
10	Mar-23	1097	0.99
11	Apr-23	1404	1.26
12	May-23	1460	1.31
13	Total	14582	13.12
14	Maximum	1460	1.31
15	Minimum	936	0.84
16	Average	1215	1.09

Chart No 2: Month wise CO<sub>2</sub> Emissions:



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**CHAPTER-III**  
**STUDY OF USAGE OF RENEWABLE ENERGY**

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

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#### 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.**

##### 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. As the AQI increases, it means that a large percentage of the population will experience severe adverse health effects.

We present herewith following important Parameters.

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

Table No 2: Indoor Air Quality Parameters:

No	Location	AQI	PM-2.5	PM-10
1	Board Room	65	36	49
2	Girls Common Room	63	33	48
3	F.Y.B.A. Marathi Classroom	70	39	49
4	M. A.II Classroom	60	32	43
5	F.Y.B.Com Classroom	71	43	52
6	Library	59	31	42
	<b>Maximum</b>	<b>71</b>	<b>43</b>	<b>52</b>
	<b>Minimum</b>	<b>59</b>	<b>31</b>	<b>42</b>

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**CHAPTER-V**  
**STUDY OF INDOOR COMFORT 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 Condition Parameters:**

No	Location	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Board Room	28.9	42	123	43.6
2	Girls Common Room	28.9	41	120	45.6
3	F.Y.B.A. Marathi Classroom	28.9	41	124	44.6
4	M. A.II Classroom	29	41	147	45
5	F.Y.B.Com Classroom	29	41	114	41.3
6	Library	29.1	41	141	44
	<b>Maximum</b>	<b>29.1</b>	<b>42</b>	<b>147</b>	<b>45.6</b>
	<b>Minimum</b>	<b>28.9</b>	<b>41</b>	<b>114</b>	<b>41.3</b>



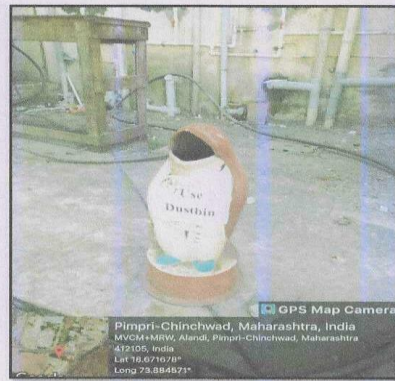
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## CHAPTER-VI STUDY OF WASTE MANAGEMENT

### 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:

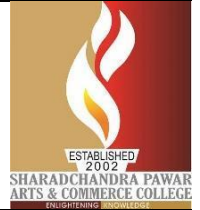
The College has constructed facility for composting the Organic Waste into Bio Compost.

Photograph of Vermi Composting Pit:





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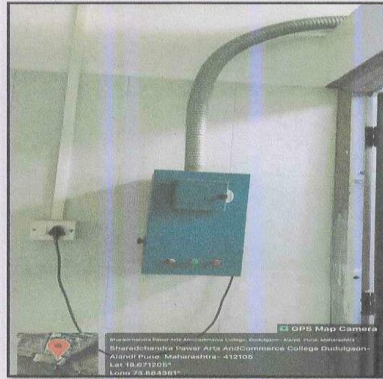


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**6.3 Sanitary Waste Management:**

The College has installed a Sanitary Waste Incinerator to dispose of the Sanitary Waste.

**Photograph of Sanitary Waste Incinerator:**



**6.4 E Waste Management:**

It is recommended to dispose of E Waste through Authorized Agency.

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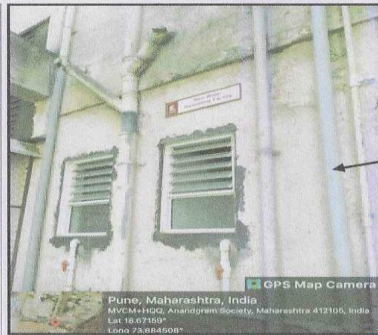


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**CHAPTER-VII**  
**STUDY OF RAIN WATER MANAGEMENT**

The College has implemented the Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used to increase the underground water table.

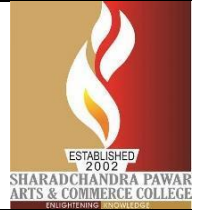
Photograph of Rain Water Carrying Pipe:



Rain Water Pipe



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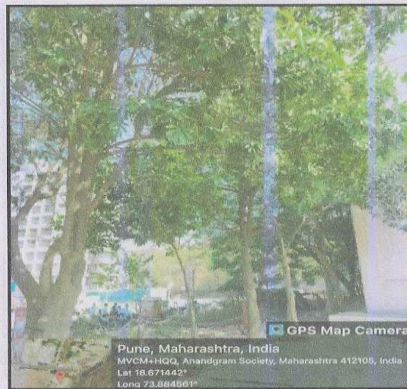
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**CHAPTER VIII**  
**STUDY OF ENVIRONMENT FRIENDLY INITIATIVES**

**8.1 Internal Tree Plantation:**

The College has well maintained Tree plantation.

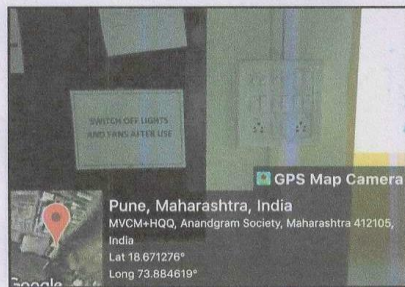
**Photograph of Tree Plantation:**



**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:**



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**ANNEXURE-I:**  
**VARIOUS AIR QUALITY, NOISE & 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°C
2	Humidity	Less Than 70%

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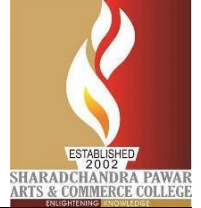
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**Clean and Green Campus**



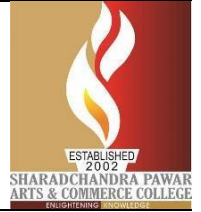
**Campus Cleanness**



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### **Campus Cleanness**



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**Green Campus**

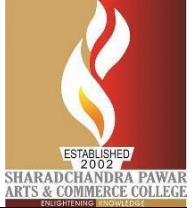


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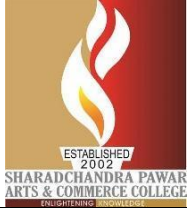


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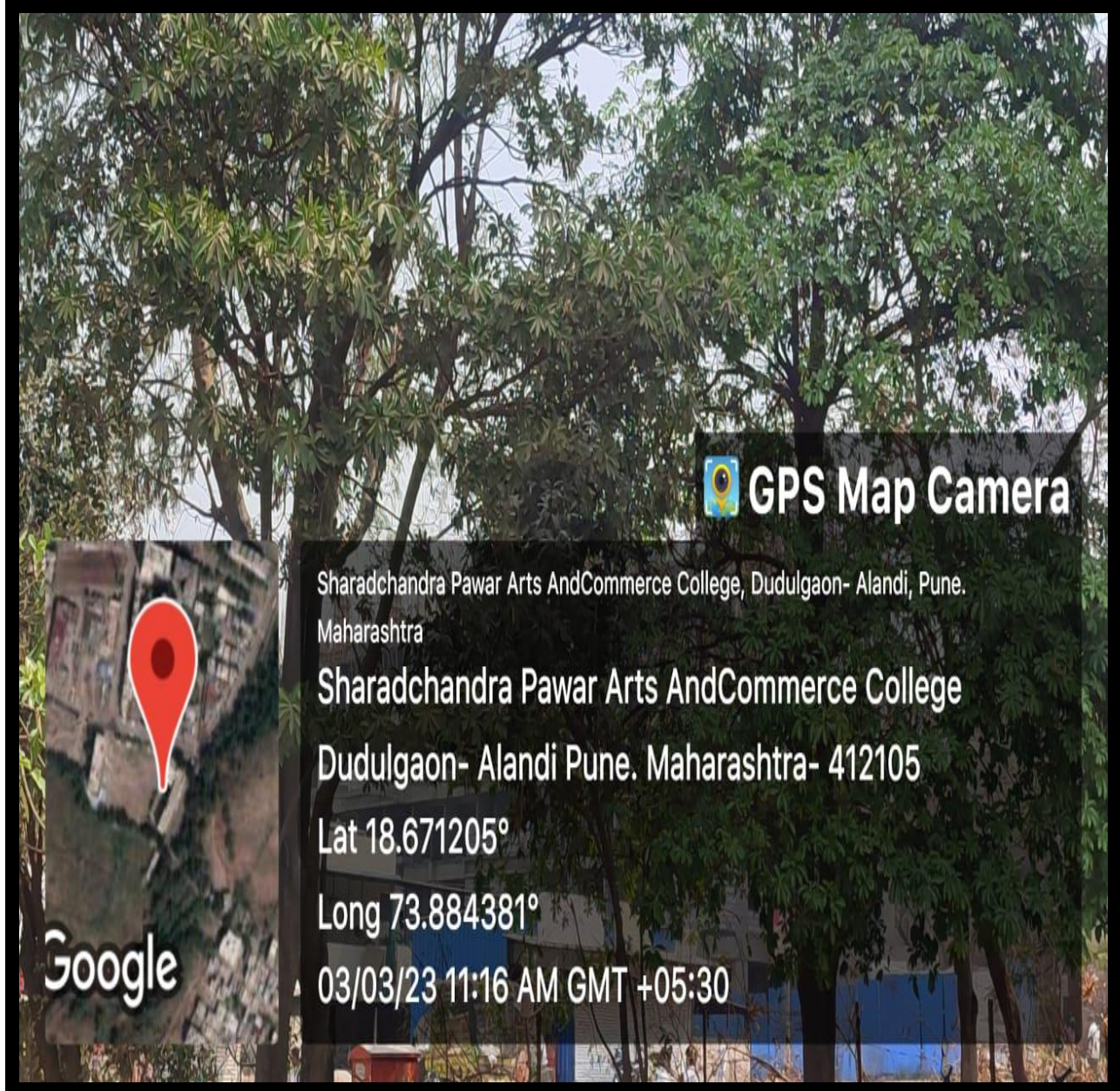
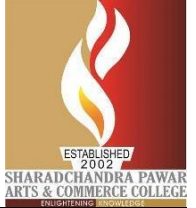
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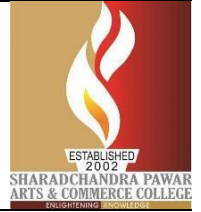
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**Tree Plantation**



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**Beyond the Campus Environmental Promotional Activities**



**Alandi Ghat Cleanness**



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by shabnamnews | November 25, 2022

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श्री गजानन महाराज शिक्षण प्रसारक मंडळ संवर्धित. शरदचंद्र पवार कला आणि वाणिज्य महाविद्यालय, डुडुळगाव व आळंदी नगरपरिषद यांच्या संयुक्त विद्यमाने स्वच्छता मोहिमेच्या आयोजन करण्यात आले होते. शरदचंद्र पवार महाविद्यालय व नगरपरिषद आळंदी यांच्या अंतर्गत कार्तिकी वारी २०२२ निमित्त आळंदी परिसरात इंद्रायणी घाट, महात्मा गांधी स्मारक, भवत पुंडलिक मंदिर व सिद्धेश्वर मंदिर परिसरात स्वच्छता अभियानाच्या माध्यमातून स्वच्छता आणि प्लास्टिक मुक्तीचा संदेश देऊन महाविद्यालयातील राष्ट्रीय सेवा योजनेच्या वतीने स्वच्छता मोहीम राबविण्यात आली. यावेळी महाविद्यालयाचे प्राचार्य डॉ. हंसराज थोरात यांनी स्वच्छतेचे महत्त्व पटवून देत स्वच्छतेचे फायदे कसे आहेत हे विविध उदाहरणांचे दाखले देत मार्गदर्शन केले.



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By shabnamnews | October 20, 2022

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भारत सरकार युवा व खेल मंत्रालय, क्षेत्रीय संचालक राष्ट्रीय सेवा योजना, क्षेत्रीय संचालनालय भारत सरकार, राज्य संपर्क अधिकारी राष्ट्रीय सेवा योजना मुंबई यांच्या निर्देशानुसार आळंदीत स्वावित्रीबाई फुले पुणे विद्यापीठ, राष्ट्रीय सेवा योजना या विभागा अंतर्गत श्री गजानन महाराज शिक्षण प्रसारक मंडळ संचालित शरदचंद्र पवार कला आणि वाणिज्य महाविद्यालय आणि आळंदी नगरपरिषद यांचे वतीने प्लास्टिक कचरा संकलन दिन साजरा करण्यात आला.

या उपक्रमात महाविद्यालय परिसर आणि आळंदी परिसरात स्वच्छ भारत अभियानाच्या धरती वर प्लास्टिक कचरा गोळा करीत प्लास्टिक कचरा यामुळे होणारे दुष्परिणाम यावर आधारित जनजागृतीसाठी विविध उपक्रमांचे आयोजन करण्यात आले. या उपक्रमात महाविद्यालयातील राष्ट्रीय सेवा योजनेचे स्वयंसेवक, आळंदी नगरपरिषद कर्मचारी, अधिकारी, आळंदी जनहित फाउंडेशन आदींनी सहभाग घेतला.

यावेळी युवक तरुणांना प्लास्टिक चे दुष्परिणाम यावर श्री गजानन महाराज शिक्षण प्रसारक मंडळाचे खाजिनदार मयूर वमाते, प्राचार्य डॉ. हंसराज धोरात, संवेदना फाउंडेशनचे अध्यक्ष गणेश गरुड यांनी मार्गदर्शन केले. राष्ट्रीय सेवा योजना कार्यक्रमाधिकारी प्रा. कैलास अस्तरकर, प्रा. संजीव कांबळे, डॉ. रणजीत कदम, प्रा. परमेश्वर भताशे, प्रा. दिलीप बारी, आळंदी स्वच्छता अभियानचे समन्वयक अर्जुन मेढनकर, नेचर फाउंडेशनचे अध्यक्ष भागवत काटकर, आळंदी नगरपरिषद मुकादम मालन पाटोळे, नगरपरिषद कर्मचारी आदी उपस्थित होते. आळंदी नगरपरिषद मुख्याधिकारी अकृषा जाधव यांचे मार्गदर्शनात आळंदी नगरपरिषद मुकादम मालन पाटोळे यांचे कडे संकलन करण्यात आलेले प्लास्टिक व कचरा सुपूर्द करण्यात आला. आळंदी नगरपरिषद व शरदचंद्र पवार महाविद्यालयाचे रा.से. योजना यांचे वतीने स्वच्छ भारत अभियान २.० अंतर्गत आळंदीत स्वच्छता अभियान राबवित जनजागृती करीत प्लास्टिक संकलन महास्वच्छता अभियान उत्साहात राबविण्यात आहे. यासाठी शरदचंद्र पवार महाविद्यालयातील राष्ट्रीय सेवा योजना विभाग यांनी विशेष परिश्रम घेतले. अशी माहिती महाविद्यालयाचे प्रसिद्धी विभाग प्रमुख, प्रा. प्रविण डोळस यांनी दिली.

## News of Plastic Collection



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**Shri Gajanan Maharaj Shikshan Prasarak Mandal's  
Sharadchandra Pawar Arts and Commerce College  
Alandi Devachi, (Dudulgaon) Tal. Khed, Pune-412105**  
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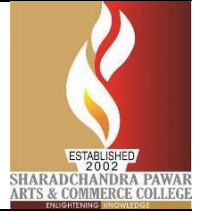
## Construction of Dam



*H. Borat*  
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**Construction of Dam**



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