



Shri Gajanan Maharaj Shikshan Prasarak Mandal's
Sharadchandra Pawar Arts and Commerce College
Alandi Devachi, (Dudulgaon) Tal. Khed, Pune-412105
(Affiliated to Savitribai Phule Pune University, Recognized by Govt. of Maharashtra)



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 2023-24

Index

Sr. No.	Particulars	Page No.
1	Green Audit	02 to 17
2	Energy Audit	18 to 31
3	Environment Audit	32 to 51
4	Clean and Green Campus Recognitions/Awards	52 to 58
5	Beyond the Campus Environmental Promotional Activities	59 to 63



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Sharadchandra Pawar Arts & Commerce College
Dudulgaon (Alandi), Pune.



Shri Gajanan Maharaj Shikshan Prasarak Mandal's
Sharadchandra Pawar Arts and Commerce College
Alandi Devachi, (Dudulgaon) Tal. Khed, Pune-412105
(Affiliated to Savitribai Phule Pune University, Recognized by Govt. of Maharashtra)



GREEN AUDIT REPORT

Shri Gajanan Maharaj Shikshan Prasarak Mandal's,
SHARADCHANDRA PAWAR ARTS AND COMMERCE COLLEGE,
Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 4121



Year: 2023-24

Prepared by:

ENGRESS SERVICES

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



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ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society, Near Muktangan English School,
Parvati, Pune 411 009 Tel: 09890444795 Email: engress123@gmail.com
UDYAM Regn. No: UDYAM-MH-26-0135636,
MEDA Regn. No: ECN/2023-24/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)



GREEN AUDIT CERTIFICATE

Certificate No: ES/SPACC I/23-24/02

Date: 15/6/2024

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 **2023-24**.

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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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

Registration Certificates: UDYAM, MEDA, ASSOCHAM GEM-CP, ISO: 9001 & 14001:

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER: UDYAMMH-26-015434

NAME OF ENTERPRISE: ENGRESS SERVICES

S.No.	Classification Year	Enterprise Type	Classification Date
1	2023-24	Micro	03/02/2024
2	2022-23	Micro	26/04/2023
3	2021-22	Micro	27/07/2021

TYPE OF ENTERPRISE: SERVICES

MAJOR ACTIVITY: GENERAL

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S): Engress Services

OFFICIAL ADDRESS OF ENTERPRISE:

Flat/Shop/Block No.	24	Name of Premises/Building	Unkeshwar
Village/Town	Pune	Block	1
Road/Street/Lane	74/90/91st Ring	City	Pune
State	MAHARASHTRA	District	PUNE, Pin-411009
Mobile	979747234	Email	engress23@gmail.com

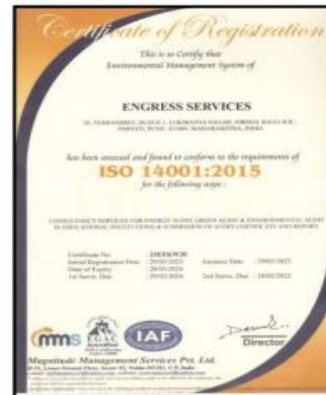
DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE: 12/04/2021

DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS: 12/04/2021

S.No.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	91	9100	91000	Services

NATIONAL INDUSTRY CLASSIFICATION CODE(S): 91000

DATE OF UDYAM REGISTRATION: 27/07/2021



Maharashtra Energy Development Agency

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 Efficient & Energy Auditor" in Maharashtra for Energy Conservation Programmes of MEDA.

Name and Address of the Firm: M/s Engress Services, Unkeshwar, 24, 91st Ring Society, Near Maharashtra English School, Pune-411009.

Registration Category: Registered Consultant for Energy Conservation Programmes for Class 'A'

Registration Number: AWD/REG/2022-23/Class-A/8432

- Energy Conservation Programmes intend to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take economic steps to achieve the optimal 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 requirement is valid till 30th May, 2024 from the date of registration, to carry out energy audits under the Energy Conservation Programmes.
- The Director General, MEDA, reserves the right to cancel the registration of any firm without assigning any reasons therefor.

General Manager (FC)

Engress Services, Pune

Page 2



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

INDEX

Sr. No	Particulars	Page No
I	Acknowledgement	4
II	Executive Summary	5
III	Abbreviations	6
1	Introduction	7
2	Study of Energy Consumption & CO ₂ Emission	8
3	Study of Usage of Renewable Energy	9
4	Study of Waste Management	10
5	Study of Rain Water Management	12
6	Study of Green & Sustainable Practices	13



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

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: 2023-24.

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: 2023-24

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 equipment.

2. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumed	15604	kWh
2	Annual CO ₂ Emissions	14.51	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	Provision of 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:

- Good internal road for easy movement of students in the Campus
- Internal tree plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness on Importance of Plastic Free Campus by display of Posters

7. Assumption:

- 1 kWh of Electrical Energy releases **0.93 Kg** of CO₂ into atmosphere

8. Reference:

- For CO₂ Emissions: www.ccd.qujarat.gov.in



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ABBREVIATIONS

NCRD	National Centre for Rural Development
kWh	Kilo Watt Hour
LPD	Liters Per Day
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
Qty	Quantity



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**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 Key Study Points:

No	Particulars
1	Study of Present Energy Consumption & CO ₂ Emission
2	Study of Usage of Renewable Energy
3	Study of Waste Management Practices
4	Study of Rain Water Management
5	Study of Green & Sustainable Initiatives

1.3 College Location Image:



College
Campus



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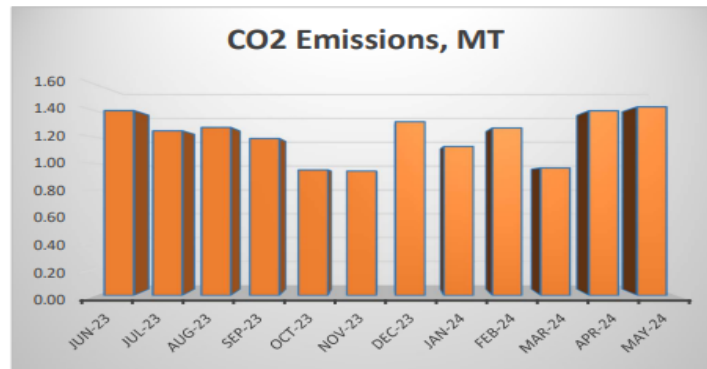
**CHAPTER-II
STUDY OF ENERGY CONSUMPTION & CO₂ EMISSION**

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. **Basis for computation of CO₂ Emissions: 1 kWh of Electrical Energy releases 0.93 Kg of CO₂ into atmosphere.**

Table No 1: Month wise Energy Consumption & CO₂ Emissions:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jun-23	1506	1.40
2	Jul-23	1341	1.25
3	Aug-23	1369	1.27
4	Sep-23	1279	1.19
5	Oct-23	1023	0.95
6	Nov-23	1014	0.94
7	Dec-23	1415	1.32
8	Jan-24	1214	1.13
9	Feb-24	1364	1.27
10	Mar-24	1039	0.97
11	Apr-24	1504	1.40
12	May-24	1536	1.43
13	Total	15604	14.51
14	Maximum	1536	1.43
15	Minimum	1014	0.94
16	Average	1300	1.21

Chart No 1: Month wise CO₂ 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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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

**CHAPTER IV
STUDY OF WASTE MANAGEMENT**

In this Chapter, we present the Waste Management Practices, followed by the College.

Details of Waste Management Practices:

No	Head	Observation	Photograph
1	Solid Waste	Segregation of Waste at Source: Provision of Waste Collection Bins	<p align="center">Waste Collection Bin</p>  <p align="center">GPS Map Camera Pune, Maharashtra, India MVCMMHQQ, Arundhara Society, Maharashtra 412105, India Lat 18.871324° Long 73.884794° 01/02/24 01:13 PM GMT +05:30</p>
2	Organic Waste	Installed a Bio Composting Bed, for conversion of Organic waste.	<p align="center">Bio Composting Bed:</p>  <p align="center">GPS Map Camera Pune, Maharashtra, India MVCMMHQQ, Arundhara Society, Maharashtra 412105, India Lat 18.871324° Long 73.884794° 01/02/24 01:21 PM GMT +05:30</p>



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Green Audit Report: SGMSM's Sharadchandra Pawar Arts and Commerce College: 2023-24

3	Sanitary Waste	Provision of Sanitary Waste Incinerator to dispose of the Sanitary Waste	Sanitary Waste Incinerator:
4	E Waste	Recommended to dispose of through Authorized Agency.	



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

CHAPTER-V 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 Collecting Pipe:



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

**CHAPTER-VI
STUDY OF GREEN & SUSTAINABLE PRACTICES**

In this Chapter, we present the Green & Sustainable Practices followed by the College.

Green & Sustainable Practices:

No	Head	Observation	Photograph
1	Easy Movement of Stake Holders	Provision of Good Internal Road within the Campus	<p align="center">Internal Road:</p> 
2	Tree Plantation	Internal Tree Plantation in the Campus	<p align="center">Internal Tree Plantation:</p> 



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Green Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

3	Facilities for Divyangajan	Provision of Ramp for Divyangajan	<p align="center">Ramp for Divyangajan:</p>
4	Creation of Awareness among Stake Holders	Display of Poster on Plastic Free Campus	<p align="center">Poster on Plastic Free Campus:</p>



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ENERGY AUDIT REPORT

Shri Gajanan Maharaj Shikshan Prasarak Mandal's,
SHARADCHANDRA PAWAR ARTS AND COMMERCE COLLEGE,
Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105



Year: 2023-24

Prepared by:

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society
Near Muktangan English School, Parvati, Pune 411009
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UDYAM Regn. No: UDYAM-MH-26-0135636,
MEDA Regn. No: ECN/2023-24/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)



ENERGY AUDIT CERTIFICATE

Certificate No: ES/SPACC/23-24/01

Date: 15/6/2024

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: **2023-24**.

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 making the Campus Energy Efficient.

For Engress Services,

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



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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

REGISTRATION CERTIFICATES: BEE, UDYAM, MEDA, ISO-9001 & 14001:



UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER: UDYAM MH 26-6125638

NAME OF ENTERPRISE: ENGRESS SERVICES

Sl.No.	Classification Year	Enterprise Type	Classification Date
1	2023-24	Micro	03/02/2024
2	2022-23	Micro	26/06/2022
3	2021-22	Micro	27/07/2021

HARDWARE ACTIVITY: **SERVICES**

SOCIAL CATEGORY OF ENTREPRENEUR: **GENERAL**

NAME OF UNITS:

Sl.No.	Name of Unit
1	Engress Services

OFFICIAL ADDRESS OF ENTERPRISE:

Flat/Block No.	26	Name of Premises Building	Yashwantrao
Village/Town	Phule	Block	5
Road/Street/Lane	Yashwantrao	City	Pune
State	MAHARASHTRA	District	PUNE, Pin-412000
Mobile	878747244	Email	engress22@gmail.com

DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE: 13/04/2021

DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS: 13/04/2021

Sl.No.	NIC-1 Digit	NIC-2 Digit	NIC-3 Digit	Activity
1	9	94	942	Management consultancy activities

DATE OF UDYAM REGISTRATION: 27/07/2021



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Page 2



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INDEX

Sr. No	Particulars	Page No
I	Acknowledgement	4
II	Executive Summary	5
III	Abbreviations	6
1	Introduction	7
2	Study of Connected Load	8
3	Study of Present Energy Consumption	9
4	Study of Energy Performance Index	10
5	Study of Lighting	11
6	Study of Renewable Energy & Energy Efficiency	13



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ACKNOWLEDGEMENT

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



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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 equipment.

2. Present Connected Load & Energy Consumption:

No	Particulars	Value	Unit
1	Total Connected Load	30	kW
2	Annual Energy Consumed	15604	kWh

3. Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	15604	kWh
2	No of students studying in the College	721	Nos
3	Per Capita Energy Consumption = (1) / (2)	21.64	kWh/Annum

4. Study of % Usage of LED Lighting:

No	Particulars	Value	Unit
1	Lighting Power Density	1.08	W/m ²
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. Assumption:

1. 1 kWh of Electrical Energy releases 0.93 Kg of CO₂ into atmosphere

7. References:

- Audit Methodology: www.mahaurja.com
- Energy Conservation Building Code: ECBC-2017: www.beeindia.gov.in
- For CO₂ Emissions: www.ccd.gujarat.gov.in



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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

ABBREVIATIONS

LED	: Light Emitting Diode
MSEDCL	: Maharashtra State Electricity Distribution Company Limited
BEE	: Bureau of Energy Efficiency
ECBC	: Energy Conservation Building Code
MEDA	: Maharashtra Energy Development Agency
PV	: Photo Voltaic
Kg	: Kilo Gram
kWh	: kilo-Watt Hour
CO ₂	: Carbon Di Oxide
MT	: Metric Ton



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Energy Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

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.mahauria.com)
- Tata Power: www.tatapower.com

1.2 Key Study Points:

No	Particulars
1	Study of Present Connected Load
2	Study of Present Energy Consumption
3	Study of Per Capita Energy Consumption
4	Study of Lighting
5	Study of Energy Efficiency & Renewable Energy

1.3 College Location Image:



College
Campus



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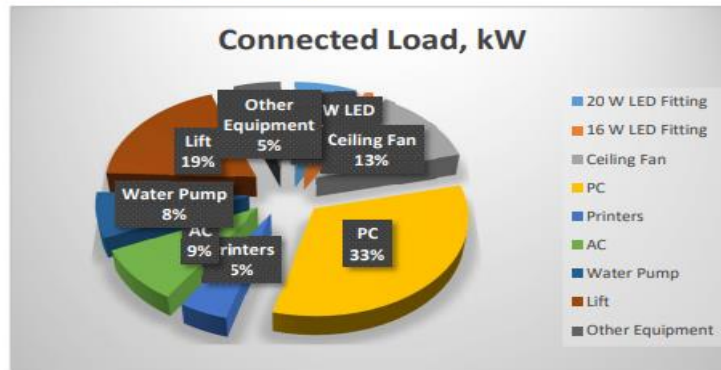
CHAPTER-II STUDY OF CONNECTED LOAD

The major contributors to the connected load of the College include:

Table No 1: 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
7	Water Pump	1	2238	2.24
8	Lift	1	5595	5.60
9	Other Equipment	8	200	1.6
10	Total			30

Chart No 1: Study of Connected Load:



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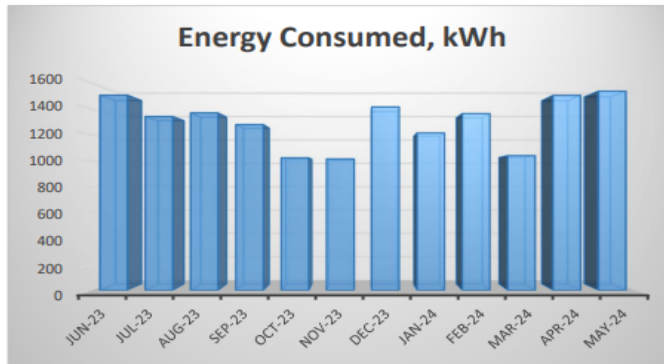
**CHAPTER-III
STUDY OF PRESENT ENERGY CONSUMPTION**

In this chapter, we present the analysis of Electrical Energy Consumption.

Table No 2: Electrical Energy Consumption Analysis- 2023-24:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jun-23	1506	1.40
2	Jul-23	1341	1.25
3	Aug-23	1369	1.27
4	Sep-23	1279	1.19
5	Oct-23	1023	0.95
6	Nov-23	1014	0.94
7	Dec-23	1415	1.32
8	Jan-24	1214	1.13
9	Feb-24	1364	1.27
10	Mar-24	1039	0.97
11	Apr-24	1504	1.40
12	May-24	1536	1.43
13	Total	15604	14.51
14	Maximum	1536	1.43
15	Minimum	1014	0.94
16	Average	1300	1.21

Chart No 2: Variation in Monthly Energy Consumed, kWh:



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CHAPTER-IV
STUDY OF PER CAPITA ENERGY CONSUMPTION

Per Capita Energy Consumption Index: Per Capita Energy Consumption Index of an educational Institute/College is its Annual Energy Consumption in Kilo Watt Hours per student studying in the Institute/College.

It is determined by:

$$\text{Per Capita Energy Consumption} = \frac{\text{Annual Energy Consumption in kWh}}{\text{(Total No of students studying)}}$$

Table No 3: Computation of Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	15604	kWh
2	No of students studying in the College	721	Nos
3	Per Capita Energy Consumption = (1) / (2)	21.64	kWh/Annum



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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/m²)
- 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. 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 percentage usage of LED Lighting to total Lighting Load of the College.

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:	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:	74.19	m ²
5	Lighting Power Density = (3)/(4)	1.08	W/m²

Computation of Usage of LED Lighting:

- The Total Lighting Load of the College is **2.416 kW**
- All the Fittings are **LEDs**
- The % of Usage of LEDs is **100 %**



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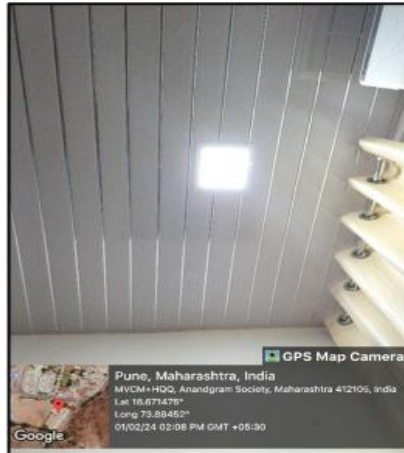
CHAPTER-VI

STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

6.1 Usage of Renewable Energy:

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

Photographs of STAR Rated AC & LED Lighting:



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ENVIRONMENTAL AUDIT REPORT

Shri Gajanan Maharaj Shikshan Prasarak Mandal's,
SHARADCHANDRA PAWAR ARTS AND COMMERCE COLLEGE,
Alandi Devachi (Dudulgaon), Tal. Khed, Dist. Pune 412105



Year: 2023-24

Prepared by:

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UDYAM Regn. No: UDYAM-MH-26-0135636,
MEDA Regn. No: ECN/2023-24/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)



ENVIRONMENTAL AUDIT CERTIFICATE

Certificate No: ES/SPACC/23-24/03

Date: 15/6/2024

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 2023-24.

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 & 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



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Registration Certificates: UDYAM, MEDA, ASSOCHAM GEM-CP, ISO: 9001 & 14001:

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER: UDYAM-MH-26-012626

NAME OF ENTERPRISE: ENGRESS SERVICES

S.No.	Classification Year	Enterprise Type	Classification Date
1	2023-24	Micro	03/02/2024
2	2022-23	Micro	26/06/2022
3	2021-22	Micro	27/07/2021

TYPE OF ENTERPRISE: **SERVICES**

MAJOR ACTIVITY: **SERVICES**

SOCIAL CATEGORY OF ENTERPRISE: **GENERAL**

NAME OF UNITS:

S.No.	Enterprise Name	State of Units
1	Engress Services	

OFFICIAL ADDRESS OF ENTERPRISE:

Field/Block No.	Pin	Name of Premises/Building	Sub-town
Village/Town			
Road/Street/Lane			
State			
Mobile			

DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE: 13/04/2021

DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS: 13/04/2021

S.No.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	76	7629	76299	Services

DATE OF UDYAM REGISTRATION: 27/07/2021



Maharashtra Energy Development Agency

CERTIFICATE OF REGISTRATION FOR CLASS 'A'

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

Name and Address of the Firm: M/s Engress Services, Yashwantrao Chavan Road, Near Maharashtra Engineering School, Pune-411 008.

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

Registration Number: MEDA/EN/2022/20/Class A/04/22

- 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 intended energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quality activities performed by the firm and conducting the registration, if the information is found incorrect.
- This registration is valid till 09th May, 2024 from the date of registration, to carry out energy audits under the Energy Conservation Programme.
- The Ultimate Client, MEDA reserves the right to cancel the registration at any time without assigning any reason thereof.

General Manager (FC)

Engress Services, Pune

Page 2



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Environmental Audit Report: SGMSPM's Sharadchandra Pawar Arts and Commerce College: 2023-24

INDEX

Sr. No	Particulars	Page No
I	Acknowledgement	4
II	Executive Summary	5
III	Abbreviations	7
1	Introduction	8
2	Study of Resource Consumption & CO ₂ Emission	9
3	Study of Usage of Renewable Energy	11
4	Study of Indoor Air Quality	12
5	Study of Indoor Lux & Noise Parameters	13
6	Study of Rain Water Management	14
7	Study of Waste Management	15
8	Study of Eco-Friendly Practices	17



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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: 2023-24

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

Engress Services, Pune

Page 4



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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 equipment.

2. Pollution due to College Activities:

- **Air pollution:** Mainly CO₂ on account of Electricity Consumption
- **Solid Waste:** Bio degradable Garden Waste, Paper & Plastic Waste
- **Liquid Waste:** Human liquid waste

3. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumed	15604	kWh
2	Annual CO ₂ Emissions	14.51	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	93	56	70
2	Minimum	80	50	61

6. Indoor Lux & Noise Level Parameters:

No	Parameter/Value	Lux Level	Noise Level, dB
1	Maximum	241	47.4
2	Minimum	216	42.3

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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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 Importance of Plastic Free Campus by display of Posters

10. Assumption:

1. 1 kWh of Electrical Energy releases 0.93 Kg of CO₂ into atmosphere

11. References:

- For CO₂ Emissions: www.ccd.gujarat.gov.in
- For Various Indoor Air Parameters: www.ishrae.com
- For AQI Quality Standards: www.cpcb.com



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ABBREVIATIONS

Kg	: Kilo Gram
NCRD	: National Centre for Rural Development
MT	: Metric Ton
kWh	: kilo-Watt Hour
LPD	: Liters per Day
LED	: Light Emitting Diode
AQI	: Air Quality Index
PM-2.5	: Particulate Matter of Size 2.5 Micron
PM-10	: Particulate Matter of Size 10 Micron
CPCB	: Central Pollution Control Board
ISHRAE	: The Indian Society of Heating & Refrigerating & Air Conditioning Engineers



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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:

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

1.2 Key Study Points:

No	Particulars
1	Study of Present Resource Consumption & CO ₂ Emission
2	Study of Usage of Renewable Energy
3	Study of Indoor Air Quality
4	Study of Indoor Lux & Noise Level
5	Study of Water Management
6	Study of Waste Management Practices
7	Study of Environment Friendly Practices

1.3 College Location Image:



College Campus



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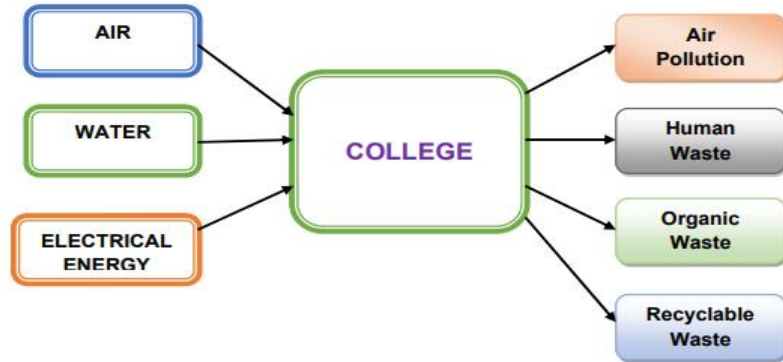
**CHAPTER-II
STUDY OF RESOURCE CONSUMPTION & CO₂ EMISSION**

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 Resource Requirement & Waste of a College:



Now we compute the Generation of CO₂ on account of consumption of Electrical Energy. The basis of Calculation for CO₂ emissions due to Electrical Energy is as under.

- 1 kWh of Electrical Energy releases 0.93 Kg of CO₂ into atmosphere

Table No 1: Study of Purchase of Energy & CO₂ Emissions: 23-24:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jun-23	1506	1.40
2	Jul-23	1341	1.25
3	Aug-23	1369	1.27
4	Sep-23	1279	1.19
5	Oct-23	1023	0.95
6	Nov-23	1014	0.94
7	Dec-23	1415	1.32
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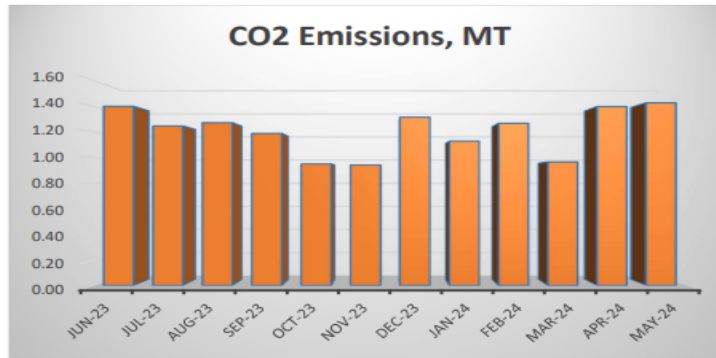
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9	Feb-24	1364	1.27
10	Mar-24	1039	0.97
11	Apr-24	1504	1.40
12	May-24	1536	1.43
13	Total	15604	14.51
14	Maximum	1536	1.43
15	Minimum	1014	0.94
16	Average	1300	1.21

Chart No 2: Month wise CO₂ 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

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

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

3. **Air Quality Index: Air Quality Index (AQI)** is a number used by government agencies to measure the **Air Pollution** levels and communicate it to the population.

In this Chapter, we present three important Parameters: **AQI-** Air Quality Index, **PM-2.5-** Particulate Matter of Size 2.5 micron and **PM-10-** Particulate Matter of Size 10 micron

Table No 2: Indoor Air Quality Parameters:

No	Location	AQI	PM2.5	PM10
1	Administrative Office	93	56	70
2	Classroom	80	50	61
3	Common Room	83	53	64
4	NAAC Room	90	56	68
5	Rading Room	85	53	64
	Maximum	93	56	70
	Minimum	80	50	61

Table No 3: Air Quality Index Values & Concentration of PM 2.5 & PM10: (By CPCB):

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 +

Conclusion:

From the above measured values, we conclude that the observed values of AQI, PM-2.5 & PM-10 are in the **Satisfactory Range**, as per the guidelines given by Central Pollution Control Board.



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CHAPTER V STUDY OF INDOOR LUX & NOISE PARAMETERS

In this Chapter, we present the various Indoor Comfort Parameters measured during the Audit. The Parameters include: **Lux Level and Noise Level.**

Table No 4: Study of Indoor Lux Level and Noise Level Parameters:

No	Location	Lux Level,	Noise Level, dB
1	Administrative Office	216	47.4
2	Classroom	225	45
3	Common Room	241	44
4	NAAC Room	228	46
5	Reading Room	235	42.3
	Maximum	241	47.4
	Minimum	216	42.3

Recommended Lux & Noise Level: As per BEE & ISHRAE Guidelines:

A) Noise Level Reference:		
No	Location	Noise Level Range, dB
1	Offices	45-50
2	Occupied Class Room	40-45
3	Libraries	35-40
B) Reference Lux Level, Lumens:		
1	For Class Rooms	200 Plus
2	For Reading Rooms	200 Plus

Conclusion:

- From the above measured values, we conclude that:
- The Noise Level is within the prescribed Limit
 - The Lux Level at various locations is Okay



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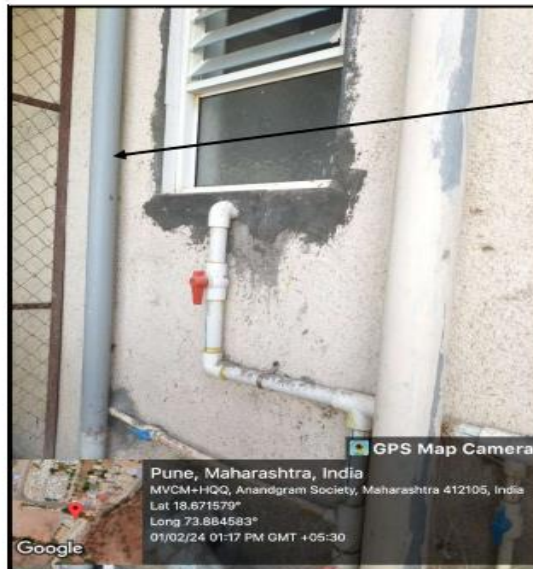


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CHAPTER VI STUDY OF RAIN WATER MANAGEMENT

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 Collecting Pipe:



**Rain Water
Collecting Pipe**



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CHAPTER-VII STUDY OF WASTE MANAGEMENT

In this Chapter, we present the Waste Management Practices, followed by the College.

Details of Waste Management Practices:

No	Head	Observation	Photograph
1	Solid Waste	Segregation of Waste at Source: Provision of Waste Collection Bins	<p style="text-align: center;">Waste Collection Bin</p>  <p style="text-align: center;">GPS Map Camera Pune, Maharashtra, India MVCMMHQZ, Aranyakram Society, Maharashtra 412105, India Lat: 18.873274° Long: 73.888699° 01/03/24 01:33 PM GMT +05:30</p>
2	Organic Waste	Installed a Bio Composting Bed, for conversion of Organic waste.	<p style="text-align: center;">Bio Composting Bed:</p>  <p style="text-align: center;">GPS Map Camera Pune, Maharashtra, India MVCMMHQZ, Aranyakram Society, Maharashtra 412105, India Lat: 18.873274° Long: 73.888699° 01/03/24 01:21 PM GMT +05:30</p>



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3	Sanitary Waste	Provision of Sanitary Waste Incinerator to dispose of the Sanitary Waste	<p align="center">Sanitary Waste Incinerator:</p> 
4	E Waste	Recommended to dispose of through Authorized Agency.	



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**CHAPTER-VIII
STUDY OF ECO-FRIENDLY PRACTICES**

In this Chapter, we present the Eco-Friendly Practices, followed by the College.

Details of Eco-Friendly Practices:

No	Head	Observation	Photograph
1	Tree Plantation	Tree Plantation in the Campus	<p>Photo of Internal Tree Plantation:</p>
2	Creation of Awareness among Stake Holders	Display of Poster on Plastic Free Campus	<p>Poster on Plastic Free Campus:</p>



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Clean and Green Campus



Campus Cleanness



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Campus Cleaness



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Tree Plantation



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Tree Plantation



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Beyond the Campus Environmental Promotional Activities



Alandi Ghat Cleanness



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Cleanliness Under NSS



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आळंदीत स्वच्छता अभियानात प्लास्टिक संकलन

By shikshannews | October 20, 2022



शब्दनाम न्युज | आळंदी

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 सावित्रीबाई 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 धर्ती 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 खजिनदार मयूर डमाले, 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 भताखे, प्रा. दिलीप बारी, आळंदी स्वच्छता अभियानचे समन्वयक अर्जुन मेढनकर, नेचर फाउंडेशनचे अध्यक्ष भाग्यत 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 महारवउत्ता अभियान उल्साहात 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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