

ENERGY AUDIT REPORT

Dnyanvardhini Trust's,
SONUBHAU BASWANT COLLEGE OF ARTS & COMMERCE COLLEGE,
Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601



Year: 2023-24

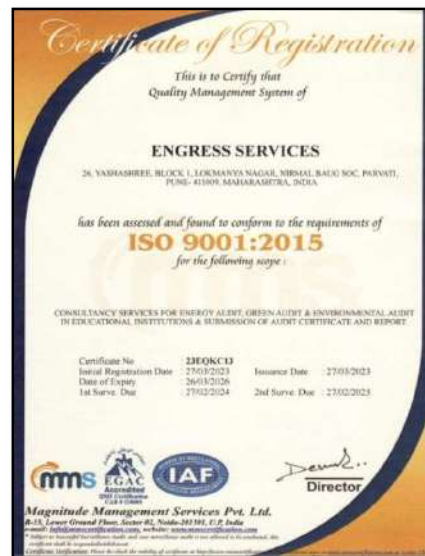
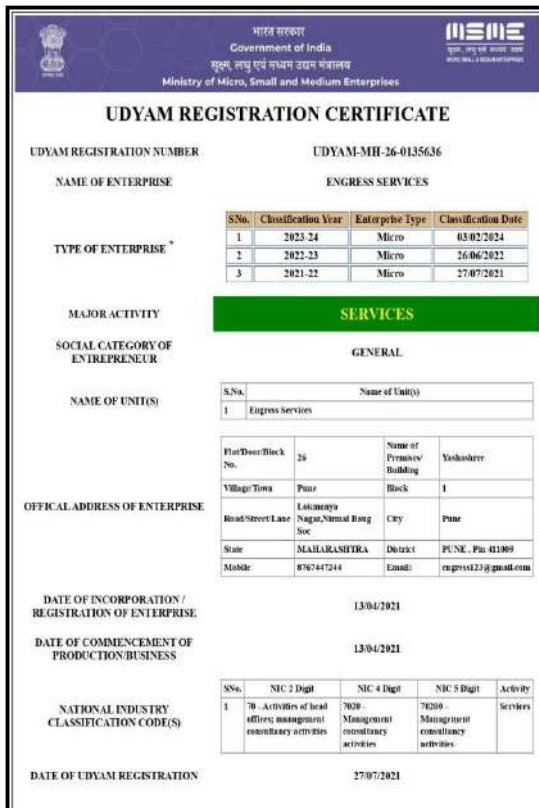
Prepared by:

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society
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REGISTRATION CERTIFICATES: BEE, UDYAM, MEDA, ISO-9001 & 14001:



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	12

ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Dnyanvardhini Trust's Sonubhau Baswant College of Arts & Commerce College, Shahapur, for awarding us the assignment of Energy Audit of their College Campus for the Year: 2023-24.

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

EXECUTIVE SUMMARY

1. Dnyanvardhini Trust's, Sonubhau Baswant College of Arts & Commerce College, Shahapur 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	36.84	kW
2	Annual Energy Consumed	18655	kWh

3. Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	18655	kWh
2	Total No of Students	1406	Nos
3	Per Capita energy Consumption =(1) / (2)	13.27	kWh/Annum

4. Study of % Usage of LED Lighting:

No	Particulars	Value	Unit
1	Lighting Power Density	0.92	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
- Usage of BEE STAR Rated A C

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

ABBREVIATIONS

LED	: Light Emitting Diode
SBCACC	: Sonubhau Baswant College of Art's & Commerce College
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

CHAPTER-I INTRODUCTION

1.1 Introduction:

An Energy Audit is conducted at Dnyanvardhini Trust's Sonubhau Baswant College of Arts & Commerce College, Shahapur.

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)
- 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

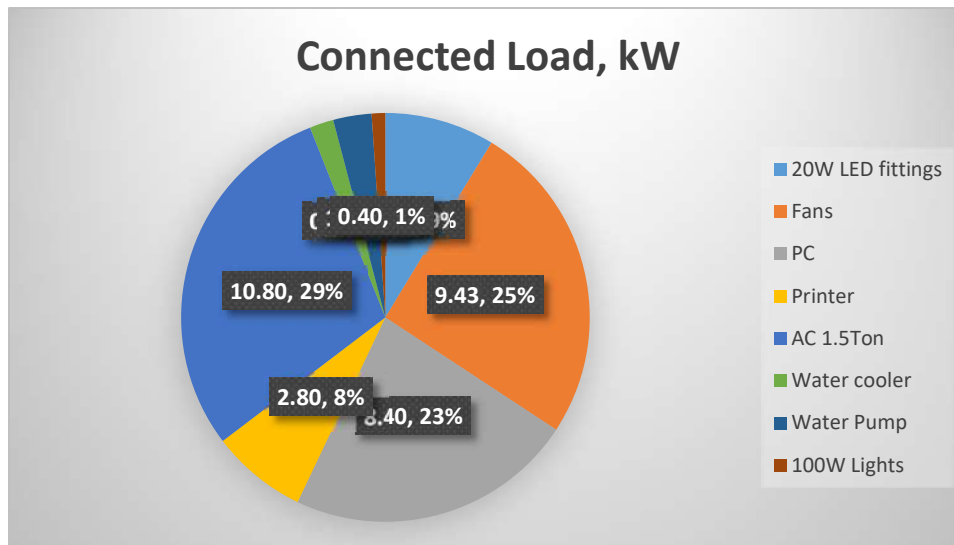
CHAPTER-II STUDY OF CONNECTED LOAD

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	20W LED fittings	160	20	3.20
2	Fans	145	65	9.43
3	PC	56	150	8.40
4	Printer	16	175	2.80
5	AC 1.5Ton	6	1800	10.80
6	Water cooler	2	350	0.70
7	Water Pump	1	1119	1.12
8	100 W Lights	4	100	0.40
9	Total			36.84

Chart No 1: Study of Connected Load:



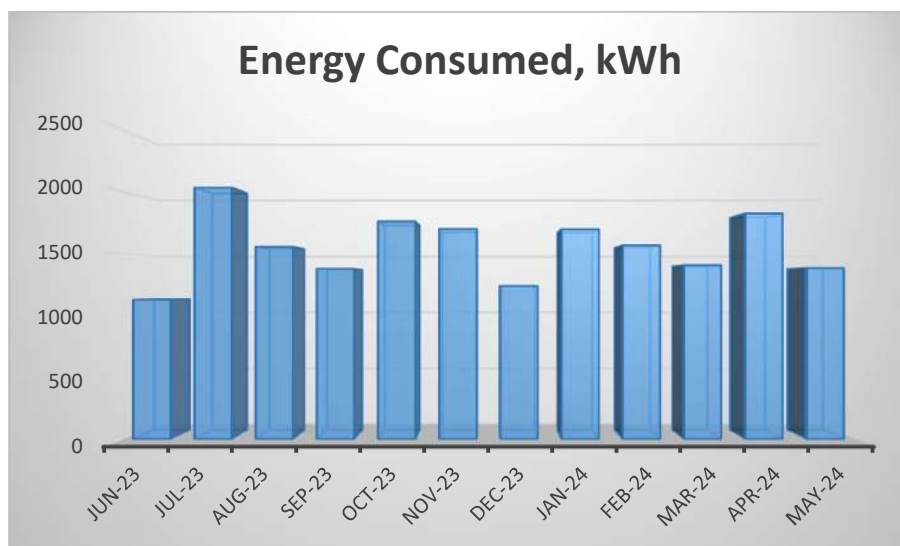
CHAPTER-III STUDY OF PRESENT ENERGY CONSUMPTION

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	1126	1.05
2	Jul-23	2030	1.89
3	Aug-23	1555	1.45
4	Sep-23	1378	1.28
5	Oct-23	1757	1.63
6	Nov-23	1697	1.58
7	Dec-23	1239	1.15
8	Jan-24	1694	1.58
9	Feb-24	1566	1.46
10	Mar-24	1406	1.31
11	Apr-24	1822	1.69
12	May-24	1385	1.29
13	Total	18655	17.35
14	Maximum	2030	1.89
15	Minimum	1126	1.05
16	Average	1554.58	1.45

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



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:

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

Now we compute the Per Capita Energy Consumption for the College as under:

Table No 3: Computation of Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	18655	kWh
2	Total No of Students	1406	Nos
3	Per Capita energy Consumption =(1) / (2)	13.27	kWh/Annum

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)

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:

No	Particulars	Value	Unit
1	Qty of 20 W LED Fittings in Class Room:	2	Nos
2	Load of 20 W Fitting	20	W/unit
3	Total Load of 2 Nos, 20 W Fittings	40	W
4	Built up area of Class Room:	43.74	m ²
5	Lighting Power Density = (3)/(4)	0.92	W/m ²

Computation of Percentage Usage of LED Lighting to Total Lighting Load:

- The Total Lighting Load of the College is **3.60 kW**.
- All the Fittings are LED Fittings
- The % of LEDs is **100 %**.

CHAPTER-VI

STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

6.1 Usage of Renewable Energy:

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

6.2 Energy Efficiency Measures adopted:

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

Photographs of STAR Rated AC & LED Lighting:



ENGRESS SERVICES

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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/SBCACC/23-24/01

Date: 8/6/2024

This is to certify that we have conducted Energy Audit at Sonubhau Baswant College of Arts & Commerce College, Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601 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



ENGRESS SERVICES

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



ENVIRONMENTAL AUDIT CERTIFICATE

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

Date: 8/6/2024

This is to certify that we have conducted Environmental Audit at Sonubhau Baswant College of Art's & Commerce College, Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601, in the Year 2023-24.

The College has adopted following Eco-Friendly Practices:

- Usage of Energy Efficient LED Fittings
- Segregation of Waste at source
- Provision of Bio Composting Bed for conversion of Organic Waste
- Provision of Septic Tank, for disposal of Liquid Waste
- Installation of Rain Water Management Project
- Tree Plantation in the campus
- Creation of awareness about 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 & 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



ENVIRONMENTAL AUDIT REPORT

Dnyanvardhini Trust's,
SONUBHAU BASWANT COLLEGE OF ARTS & COMMERCE COLLEGE,
Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601



Year: 2023-24


Prepared by:

ENGRESS SERVICES

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


 भारत सरकार
 Government of India
 सूक्ष्म, मध्य एवं बड़े मध्यम उद्यम विभाग
 Ministry of Micro, Small and Medium Enterprises

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER: UDYAM-MH-26-0135636

NAME OF ENTERPRISE: ENGRESS SERVICES

S.No.	Classification Year	Enterprise Type	Classification Date
1	2023-24	Micro	03/02/2024
2	2022-23	Micro	16/06/2022
3	2021-22	Micro	27/07/2021

TYPE OF ENTERPRISE: SERVICES

MAJOR ACTIVITY: SERVICES

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S):

S.No.	Name of Unit(s)
1	Engress services

OFFICIAL ADDRESS OF ENTERPRISE:

Flat/Door/Block No.	Name of Premises/ Building	Yashwantrao
26		

Village/Town	Pin	Block	I
Lokamanyu Nagar, Nirmal Bang Soc			

Road/Street/Lane	City	Pin
	PUNE	411009

State	District	PUNE, Pin 411009
MAHARASHTRA		

Mobile	Email	engress22@gmail.com
8767447244		

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	79 - Activities of least officers; management consultancy activities	7900 - Management consultancy activities	79209 - Management consultancy activities	Services

NATIONAL INDUSTRY CLASSIFICATION CODE(S):

DATE OF UDYAM REGISTRATION: 27/07/2021




 MAHARASHTRA ENERGY DEVELOPMENT AGENCY
 Maharashtra Energy Development Agency
 (Government of Maharashtra Institution)
 Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandry,
 Aundh, Pune, Maharashtra 411067
 Ph No: 020-35000450
 Email: ee@meda.org.in, Web: www.maharaja.com

ECN/2022-23/CR-41/1709 10th May, 2022

CERTIFICATE OF REGISTRATION FOR CLASS 'A'

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

Name and Address of the firm: M's Engress Services, Yashwantrao, 26, Nirmal Bang Society, Near Mukangan English School, Farvati, Pune - 411 009.

Registration Category: 1. Empanelled Consultant for Energy Conservation Programme for Class 'A'

Registration Number: 1. MEDA/ECN/2022-23/Class A/EA-12.

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

General Manager (EC)



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	16

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

EXECUTIVE SUMMARY

1. Dnyanvardhini Trust's, Sonubhau Baswant College Of Arts & Commerce College, Shahapur consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

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	18655	kWh
2	Annual CO ₂ Emissions	17.35	MT

4. Usage of Renewable Energy:

- The College has yet to install Solar PV Plant.

5. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	71	43	56
2	Minimum	63	38	52

6. Indoor Lux & Noise Level Parameters:

No	Parameter/Value	Lux Level	Noise Level, dB
1	Maximum	241	49
2	Minimum	226	45

7. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Organic Waste	Provision of Bio Composting Bed Arrangement
3	Liquid Waste	Provision of Septic Tank

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 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 & Water Quality Standards: www.cpcb.com

ABBREVIATIONS

Kg	: Kilo Gram
MSEDCL	: Maharashtra State Distribution Company Limited
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

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

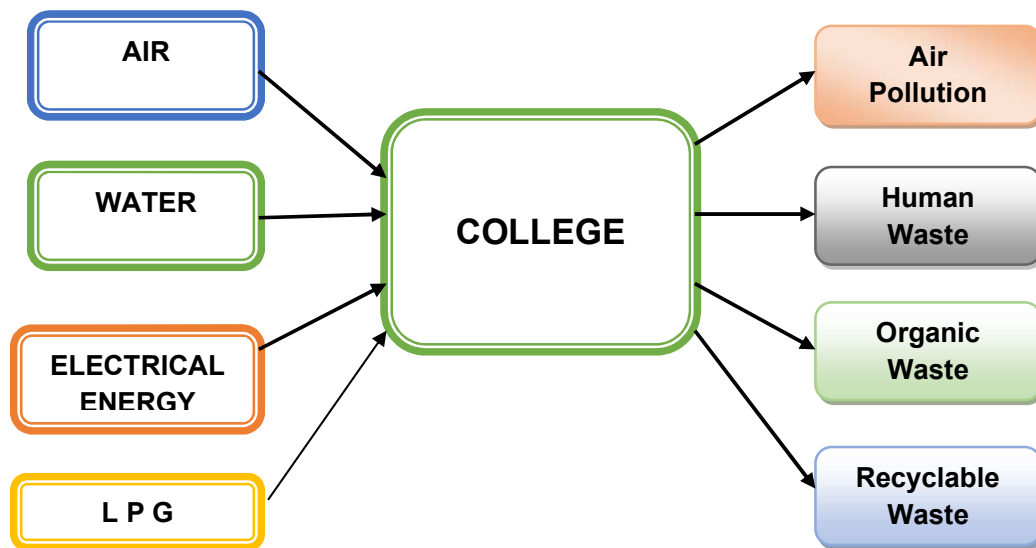
CHAPTER-II STUDY OF RESOURCE CONSUMPTION & CO₂ EMISSION

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.

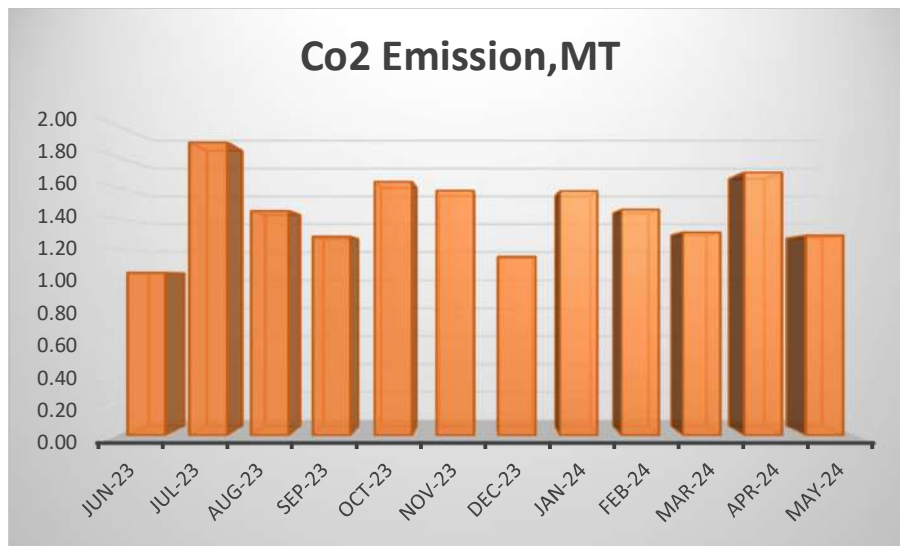
- **1 kWh** of Electrical Energy releases **0.93 Kg of CO₂** into atmosphere

Table No 1: Study of Purchase of Energy & CO₂ Emissions: 2023-24:

No	Month	Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jun-23	1126	1.05
2	Jul-23	2030	1.89
3	Aug-23	1555	1.45
4	Sep-23	1378	1.28
5	Oct-23	1757	1.63
6	Nov-23	1697	1.58
7	Dec-23	1239	1.15
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11	Apr-24	1822	1.69
12	May-24	1385	1.29
13	Total	18655	17.35
14	Maximum	2030	1.89
15	Minimum	1126	1.05
16	Average	1554.58	1.45

Chart No 2: Month wise CO₂ Emissions:



CHAPTER III

STUDY OF USAGE OF RENEWABLE ENERGY

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

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	S Y B A Classroom	66	40	54
2	T Y B Com Classroom	63	38	52
3	Office	70	42	56
4	Principal cabin	71	43	56
5	Faculty Room	65	39	52
	Maximum	71	43	56
	Minimum	63	38	52

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.

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 & Noise Parameters:

No	Location	Lux Level, Lumen	Noise Level, dB
1	S Y B A Classroom	235	49
2	T Y B Com Classroom	229	48.8
3	Office	241	46
4	Principal cabin	236	43.6
5	Faculty Room	226	45
	Maximum	241	49
	Minimum	226	45

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

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:


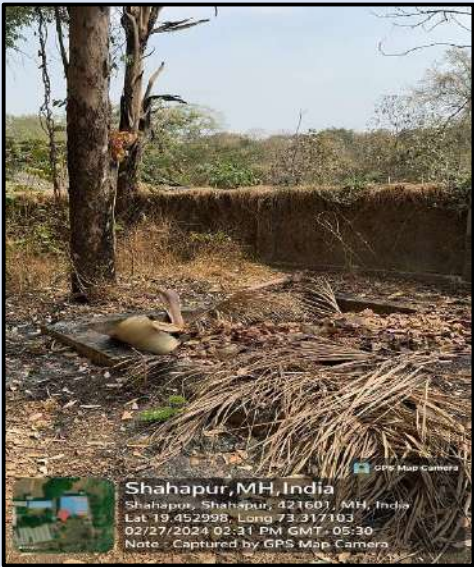


Rain Water
Collecting Pipe

CHAPTER-VII STUDY OF WASTE MANAGEMENT

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

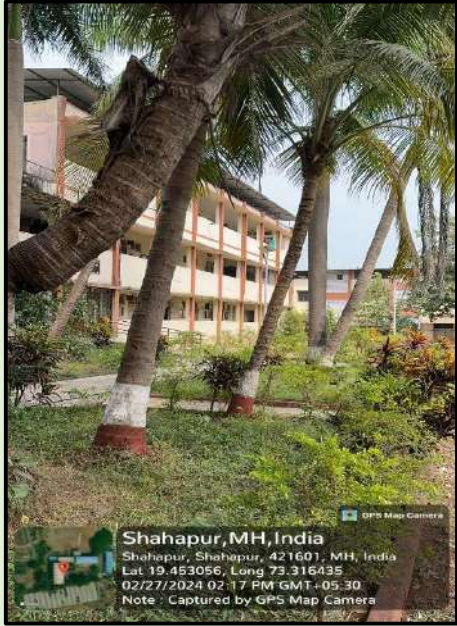

Details of Waste Management Practices:

No	Head	Observation	Photograph
1	Solid Waste	Segregation of Waste at Source: Provision of Waste Collection Bins	<p>Waste Collection Bin:</p> 
2	Organic Waste	Provision of Bio Composting Bed: For conversion into Bio Compost	<p>Bio Composting Bed:</p> 
3	Liquid Waste	Provision of Septic Tank & Periodic Cleaning	

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	Internal Tree Plantation in the Campus	<p>Internal Tree Plantation:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat 19.453056, Long 73.316435 02/27/2024 02:17 PM GMT-05:30 Note : Captured by GPS Map Camera</p>
2	Creation of Awareness among Stake Holders	Display of Poster on Plastic Free Campus	<p>Plastic Free Campus:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat 19.453246, Long 73.316875 02/27/2024 01:52 PM GMT+05:30 Note : Captured by GPS Map Camera</p>

GREEN AUDIT REPORT

Dnyanvardhini Trust's,
SONUBHAU BASWANT COLLEGE OF ARTS & COMMERCE COLLEGE,
Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601



Year: 2023-24


Prepared by:

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


 भारत सरकार
 Government of India
 सूक्ष्म, मध्य एवं बड़े मध्यम उद्यम विभाग
 Ministry of Micro, Small and Medium Enterprises

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER: UDYAM-MH-26-0135636

NAME OF ENTERPRISE: ENGRESS SERVICES

S.No.	Classification Year	Enterprise Type	Classification Date
1	2023-24	Micro	03/02/2024
2	2022-23	Micro	16/06/2022
3	2021-22	Micro	27/07/2021

TYPE OF ENTERPRISE: SERVICES

MAJOR ACTIVITY: SERVICES

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S):

S.No.	Name of Unit(s)
1	Engress services

OFFICIAL ADDRESS OF ENTERPRISE:

Flat/Door/Block No.	26	Name of Premises/ Building	Yashadree
Village/Town	Pune	Block	1
Road/Street/Lane	Lokmanya Nagar, Nirmal Bang Soc	City	Pune
State	MAHARASHTRA	District	PUNE, Pin 411009
Mobile	8767447244	Email	engress22@gmail.com

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	79 - Activities of least offices; management consultancy activities	7900 - Management consultancy activities	79209 - Management consultancy activities	Services

NATIONAL INDUSTRY CLASSIFICATION CODE(S):

DATE OF UDYAM REGISTRATION: 27/07/2021




 MAHARASHTRA ENERGY DEVELOPMENT AGENCY
 Maharashtra Energy Development Agency
 (Government of Maharashtra Institution)
 Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandry, Aundh, Pune, Maharashtra 411067
 Ph No: 020-35000450
 Email: ee@meda.org.in, Web: www.maharaja.com

ECN/2022-23/CR-41/1709 10th May, 2022

CERTIFICATE OF REGISTRATION FOR CLASS 'A'

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

Name and Address of the firm: M's Engress Services, Yashadree, 26, Nirmal Bang Society, Near Mukangan English School, Farvati, Pune - 411 009.

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

Registration Number: MEDA/ECN/2022-23/Class A/EA-12.

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

General Manager (EC)



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

ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Dnyanvardhini Trust's Sonubhau Baswant College of Arts & Commerce College, Shahapur, for awarding us the assignment of Green Audit of their College Campus for the Year: 2023-24.

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

EXECUTIVE SUMMARY

1. Dnyanvardhini Trust's, Sonubhau Baswant College Of Arts & Commerce College, Shahapur consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

2. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumed	18655	kWh
2	Annual CO ₂ Emissions	17.35	MT

3. Usage of Renewable Energy & Reduction in CO₂ Emission:

- The College has yet to install Solar PV Plant.

4. Waste Management:

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

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 Plastic Free campus by Display of Posters

7. Assumption:

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

8. Reference:

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

ABBREVIATIONS

BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
LPD	Liters Per Day
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
Qty	Quantity

CHAPTER-I INTRODUCTION

1.1 Introduction:

A Green Audit is conducted at Dnyanvardhini Trust's Sonubhau Baswant College of Arts & Commerce College, Shahapur.

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

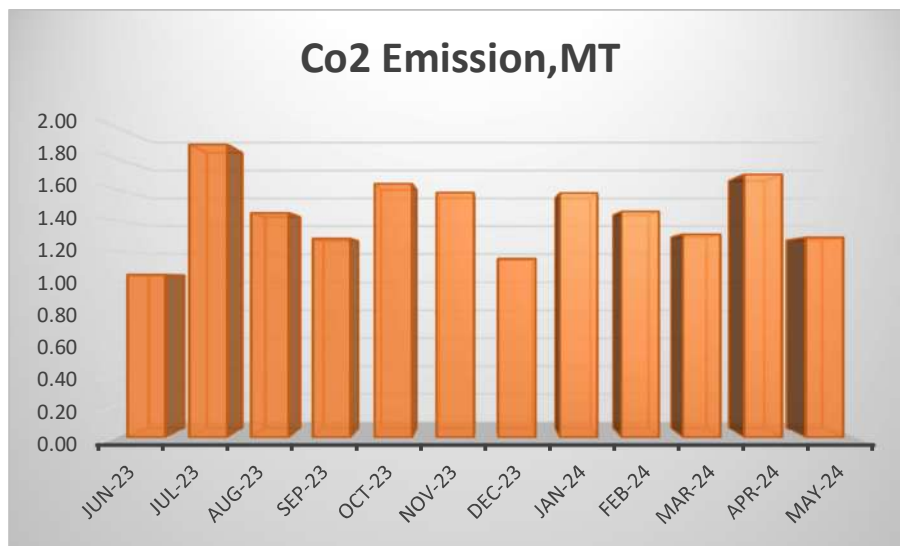
CHAPTER-II STUDY OF ENERGY CONSUMPTION & CO₂ EMISSION

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	1126	1.05
2	Jul-23	2030	1.89
3	Aug-23	1555	1.45
4	Sep-23	1378	1.28
5	Oct-23	1757	1.63
6	Nov-23	1697	1.58
7	Dec-23	1239	1.15
8	Jan-24	1694	1.58
9	Feb-24	1566	1.46
10	Mar-24	1406	1.31
11	Apr-24	1822	1.69
12	May-24	1385	1.29
13	Total	18655	17.35
14	Maximum	2030	1.89
15	Minimum	1126	1.05
16	Average	1554.58	1.45

Chart No 1: Month wise CO₂ Emissions:



CHAPTER III



STUDY OF USAGE OF RENEWABLE ENERGY

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

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>Waste Collection Bin:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat 19.453383, Long 73.316982 02/27/2024 02:18 PM GMT+05:30 Note - Captured by GPS Map Camera</p>
2	Organic Waste	Provision of Bio Composting Bed: For conversion into Bio Compost	<p>Bio Composting Bed:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat 19.452698, Long 73.317103 02/27/2024 02:31 PM GMT+05:30 Note - Captured by GPS Map Camera</p>
3	Liquid Waste	Provision of Septic Tank & Periodic Cleaning	

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 Carrying Pipe:


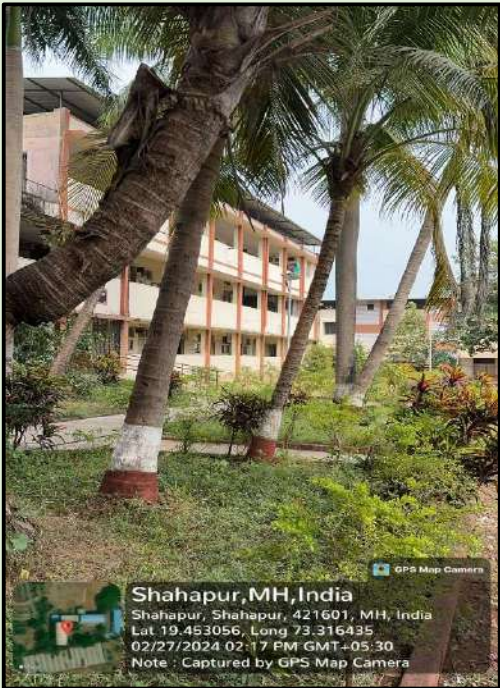



Rain Water
Collecting Pipe

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>Internal Road:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat: 19.453133, Long: 73.316575 02/27/2024 01:58 PM GMT+05:30 Note : Captured by GPS Map Camera</p>
2	Tree Plantation	Internal Tree Plantation in the Campus	<p>Internal Tree Plantation:</p>  <p>Shahapur, MH, India Shahapur, Shahapur, 421601, MH, India Lat: 19.453056, Long: 73.316435 02/27/2024 02:17 PM GMT+05:30 Note : Captured by GPS Map Camera</p>

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

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/SBCACC/23-24/02

Date: 8/6/2024

This is to certify that we have conducted Green Audit at Sonubhau Baswant College of Art's & Commerce College, Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601 in the year 2023-24.

The College has adopted following Green & Sustainable Practices:

- Usage of Energy Efficient LED Fittings
- Segregation of Waste at source
- Provision of Bio Composting Bed for conversion of Organic Waste
- Provision of Septic Tank, for disposal of Liquid Waste
- Installation of Rain Water Management Project
- Maintenance of Good Internal Roads
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness about 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,

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



ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,
Near Mukhtangan English School, Parvati, Pune 411 009
Phone: 09890444795 Email: engress123@gmail.com

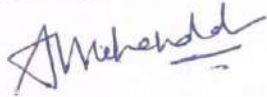
TAX INVOICE

To The Principal, Sonubhau Baswant College of Arts & Commerce College, Naginabhai Vasa Marg, Savroli Road, Shahapur, Dist: Thane 421 601	Invoice No: 2024-25/115 Date: 29/10/2024
--	---

Work Order No	
Our PAN No	AMOPM6853B
Our GST No	27AMOPM6853B1ZT
HSN Code	998331

No	Particulars	Charges per Unit, Rs.	Quantity Nos.	Amount in Rs.
1	Consultancy Service Charges for Energy, Green & Environmental Audit of your Campus: 2023-24	7500.00	Lot	7500.00
2			Add CGST@ 9%	675.00
3			Add SGST @ 9%	675.00
4			Total Invoice Amount	8850.00
5	Amount in Words: Rupees Eight Thousand Eight Hundred Fifty only.			

For Engress Services,



Authorized Signatory



Bank Details:

Name of Account	Engress Services
Bank	SVC Co-Operative Bank Ltd
Branch	Sahakarnagar Branch, Pune
Current Account	112904180000319
IFSC Code	SVCB0000129