Criteria 7- Institutional Values and Best Practices

KEY INDICATOR- 7.1- Institutional Values and Social Responsibilities

7.1.6.1 - The institutional environment and energy initiatives are confirmed through the following 1.Green audit 2. Energy audit 3.Environment audit 4.Clean and green campus recognitions/awards 5. Beyond the campus environmental promotional activities

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ENERGY AUDIT REPORT

Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's,

DR. D. Y. PATIL CENTRE FOR MANAGEMENT AND RESEARCH,

Newale Vasti, Chikhali, Pune 412 114

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

ENGRESS SERVICES PUNE

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

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency
(Government of Maharashtra Institution)
Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary, Aundh, Pune, Maharashtra 411067
Ph No: 020-35000450
Email: eec@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709 — 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
Yashshree, 26, Nirmal Baug Society,
Near Muktangan English School,
Parvati, Pune – 411 009.

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

Registration Number : *MEDA/ECN/2022-23/Class A/EA-32.*

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and cancelling 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)

Regn. No. EA-8192 — No. 2942

National Productivity Council
(National Certifying Agency)
PROVISIONAL CERTIFICATE

This is to certify that Mr. / Ms. Achyut Yashavant Mehendale
son / daughter of Mr. Yashavant
has passed the National Certification Examination for Energy Auditors in April - 2007, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India
Date : 10th August 2007

Controller of Examination

भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER	UDYAM-MH-26-0135636
NAME OF ENTERPRISE	ENGRESS SERVICES

TYPE OF ENTERPRISE *

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

MAJOR ACTIVITY: **SERVICES**

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S)

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

OFFICAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	26	Name of Premises/ Building	Yashashree
Village/Town	Pune	Block	1
Road/Street/Lane	Lokmanya Nagar,Nirmal Baug Soc	City	Pune
State	MAHARASHTRA	District	PUNE , Pin 411009
Mobile	8767447244	Email:	engress123@gmail.com

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

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

NATIONAL INDUSTRY CLASSIFICATION CODE(S)

SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	70 - Activities of head offices; management consultancy activities	7020 - Management consultancy activities	70200 - Management consultancy activities	Services

DATE OF UDYAM REGISTRATION: 27/07/2021

Certificate of Registration

This is to Certify that
Environmental Management System of

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

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

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

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

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P. India

---

Certificate of Registration

This is to Certify that
Quality Management System of

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

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

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

Certificate No : 23EQSC13
Initial Registration Date : 27/03/2023 — Issuance Date : 27/03/2023
Date of Expiry : 26/03/2026
1st Surve. Due : 27/02/2024 — 2nd Surve. Due : 27/02/2025

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P. India

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4	Study of Energy Performance Index	10
5	Study of Lighting	11
6	Study of Renewable Energy & Energy Efficiency	12

ACKNOWLEDGEMENT

We at Engress Services, Pune, express our sincere gratitude to the management of, Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management and Research, Chikhali Pune, for awarding us the assignment of Energy Audit of Chikhali campus for the Academic Year: 2023-24.

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

EXECUTIVE SUMMARY

1. Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management And Research, Chikhali, Pune consumes Energy in the form of **Electrical Energy;** used for various gadgets, Office & other facilities.

2. Present Connected Load & Energy Consumption:

No	Particulars	Value	Unit
1	Total Connected Load	**60**	kW
2	Annual Energy Consumed	**23771**	kWh

3. Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	**23771**	kWh
2	Total No of Students	**660**	m^2
3	Per Capita Energy Consumption = (1) / (2)	**36.02**	kWh/Annum

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

No	Particulars	Value	Unit
1	Lighting Power Density	**0.90**	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 Equipment
- Installation of Solar Thermal Water Heating System at Hostel Block.

6. Assumption:

1. **1 kWh** of Electrical Energy releases **0.93 Kg of CO_2** into atmosphere

7. References:

- Audit Methodology: www.mahaurja.com
- Energy Conservation Building Code: ECBC-2017: www.beeindia.gov.in
- For CO_2 Emissions: www.ccd.gujarat.gov.in

ABBREVIATIONS

AC	:	Air conditioner
LED	:	Light Emitting Diode
kWh	:	kilo-Watt Hour
Qty	:	Quantity
W	:	Watt
kW	:	Kilo Watt
PC	:	Personal Computer
MT	:	Metric Ton

CHAPTER-I
INTRODUCTION

1.1 Introduction:

An Energy Audit is conducted at Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management and Research, Chikhali Pune.

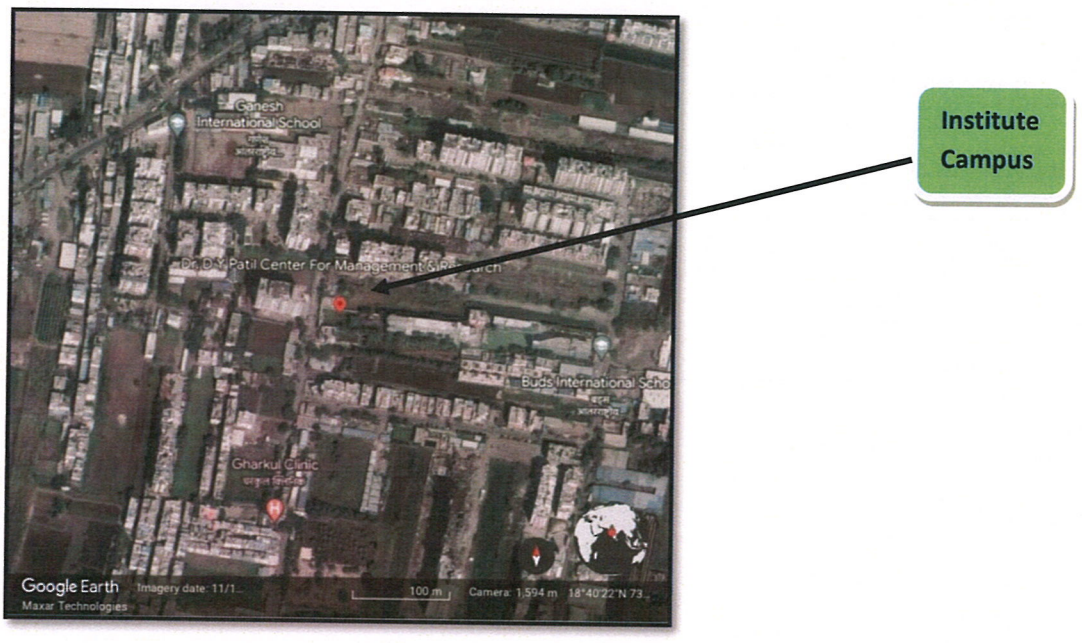
The guidelines followed for conducting the Energy Audit are:

- BEE India's Energy Conservation Building Code: ECBC-2017
- Maharashtra Energy Development Agency (www.mahaurja.com)
- 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 Institute Location Image:



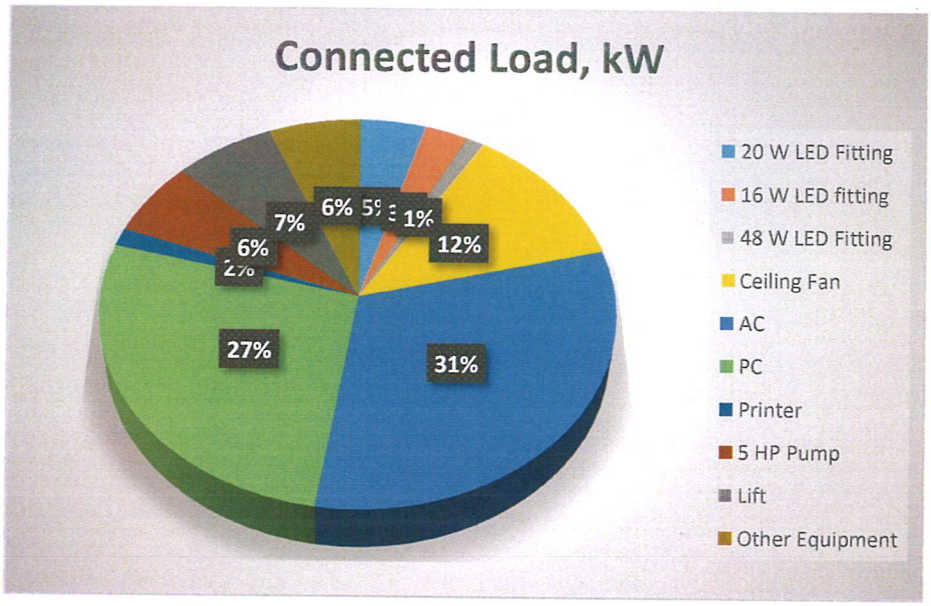
CHAPTER-II
STUDY OF CONNECTED LOAD

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

Table No 1: Study of Equipment wise Connected Load:

No	Equipment	Qty	Load, W/Unit	Load, kW
1	20 W LED Fitting	135	20	2.7
2	16 W LED fitting	112	16	1.792
3	48 W LED Fitting	15	48	0.72
4	Ceiling Fan	113	65	7.345
5	AC	10	1875	18.75
6	PC	107	150	16.05
7	Printer	5	175	0.875
8	5 HP Pump	1	3730	3.73
9	Lift	1	4103	4.103
10	Other Equipment	25	150	3.75
11	**Total**			**60**

Chart No 1: Study of Connected Load:



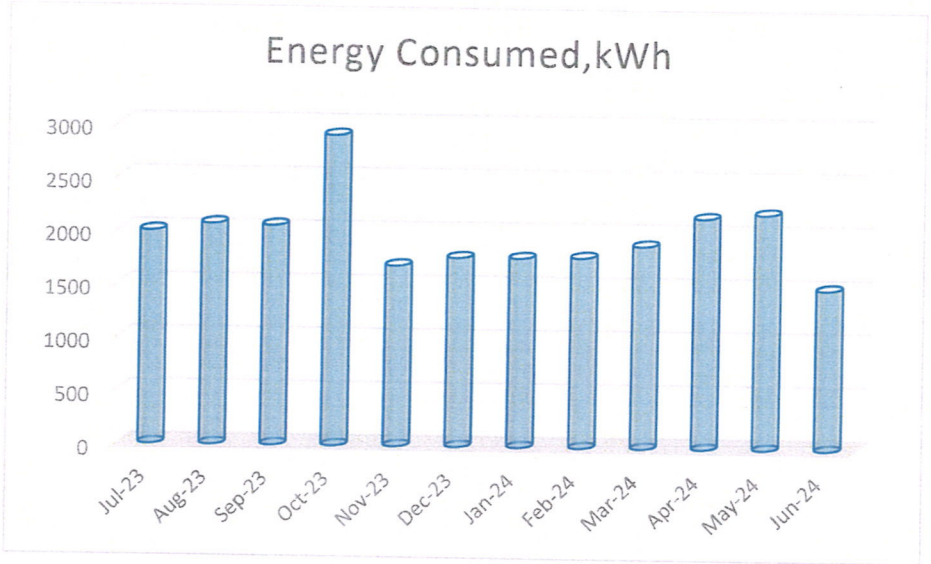
CHAPTER-III
STUDY OF PRESENT ENERGY CONSUMPTION

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	Jul-23	1995	1.86
2	Aug-23	2065	1.92
3	Sep-23	2053	1.91
4	Oct-23	2903	2.70
5	Nov-23	1690	1.57
6	Dec-23	1768	1.64
7	Jan-24	1769	1.65
8	Feb-24	1779	1.65
9	Mar-24	1892	1.76
10	Apr-24	2157	2.01
11	May-24	2199	2.05
12	Jun-24	1501	1.40
13	Total	23771	22.11
14	Maximum	2903	2.70
15	Minimum	1501	1.40
16	Average	1980.92	1.84

Chart No 2: Monthly Energy Consumption Details:



CHAPTER-IV
STUDY OF PER CAPITA ENERGY CONSUMPTION

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

It is determined by:

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

Table No 3: Computation of Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	**23771**	kWh
2	Total No of Students	**660**	m^2
3	Per Capita Energy Consumption **= (1) / (2)**	**36.02**	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)

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 Lighting Power Density of Class Room and the percentage usage of LED Lighting to total Lighting Load of the College.

Table No 4: Computation of Lighting Power Density:

No	Particulars	Value	Unit
1	No of 20 W LED Tube Lights in Classroom	3	Nos
2	Demand of 20 W LED Tube Light	20	W/Unit
3	Total Lighting Load in the Classroom = **(1) * (2)**	**60**	W
4	Area of Classroom	66.90	m^2
5	Lighting Power Density = **(3)/ (4)**	**0.90**	W/m^2

Computation of LED Lighting to Total Lighting Load:

- The Total Lighting Load of the College is **5.212 kW**
- All the Fittings are LED Fittings.
- The % of LEDs to Total Lighting Load is **100 %**

CHAPTER-VI
STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

6.1 Usage of Renewable Energy:

- The Institute has installed Solar Thermal Water Heating System at the Hostel Block.
- The Institute has yet to install Roof Top Solar PV Plant.

Photograph of Solar Thermal Water Heating System:

6.2 Energy Efficiency Measures adopted:

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

Photographs of STAR Rated AC & LED Lighting:

GREEN AUDIT REPORT

Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's,

DR. D. Y. PATIL CENTRE FOR MANAGEMENT AND RESEARCH,

Newale Vasti, Chikhali, Pune - 412114

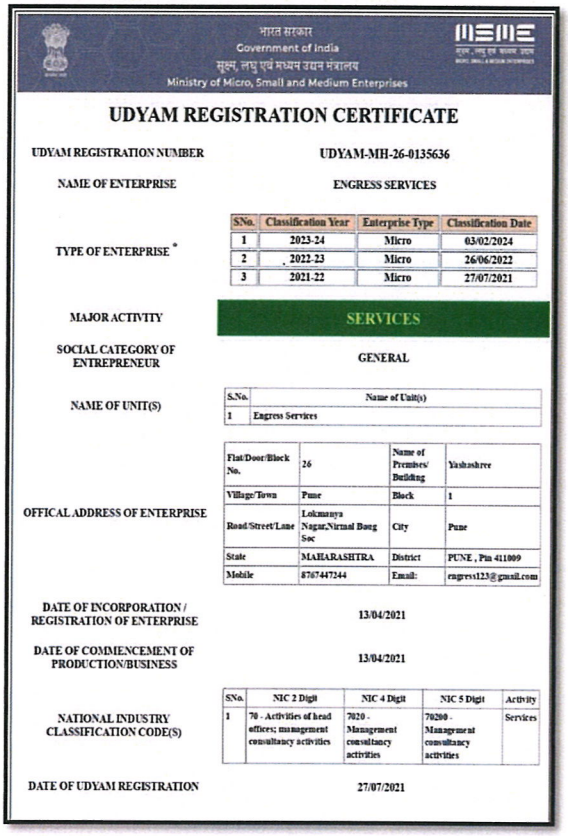
Year: 2023-24

Prepared by:

ENGRESS SERVICES

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

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



भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER	UDYAM-MH-26-0135636
NAME OF ENTERPRISE	ENGRESS SERVICES

TYPE OF ENTERPRISE *

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

MAJOR ACTIVITY: SERVICES

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S)

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

OFFICAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	26	Name of Premises/ Building	Yashashree
Village/Town	Pune	Block	1
Road/Street/Lane	Lokmanya Nagar,Nirmal Baug Soc	City	Pune
State	MAHARASHTRA	District	PUNE , Pin 411009
Mobile	8767447244	Email:	engrevs123@gmail.com

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

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

NATIONAL INDUSTRY CLASSIFICATION CODE(S)

SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	70 - Activities of head offices; management consultancy activities	7020 - Management consultancy activities	70200 - Management consultancy activities	Services

DATE OF UDYAM REGISTRATION: 27/07/2021

ASSOCHAM

GEM Certificate

ASSOCHAM hereby certifies that

Mr. A Y Mehendale

has successfully passed the
Green and Eco-friendly Movement Certified Professional Test (GEM CP)
with
"Excellent Performance"
on
06 June, 2022

He/she is now eligible to execute the GEM Sustainability Certification Projects.
ASSOCHAM feels proud to award the GEM Certified Professional title to him/her.

Pankaj R. Dharkar, Chairman, GEM
GEM CP 22/788
Deepak Sood, Secretary General, ASSOCHAM

Certificate of Registration

This is to Certify that
Quality Management System of

ENGRESS SERVICES

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

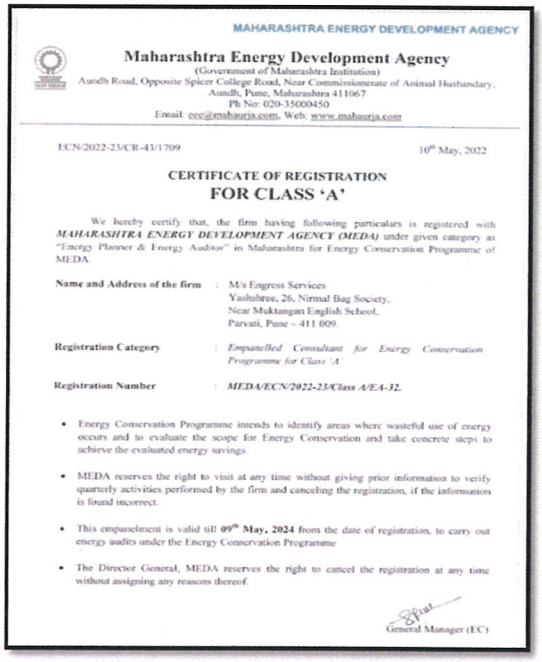
has been assessed and found to conform to the requirements of
ISO 9001:2015
for the following scope :

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

Certificate No	23EQKC13		
Initial Registration Date	27/03/2023	Issuance Date	27/03/2023
Date of Expiry	26/03/2026		
1st Surve. Due	27/02/2024	2nd Surve. Due	27/02/2025

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P. India



MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency
(Government of Maharashtra Institution)
Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary, Aundh, Pune, Maharashtra 411067
Ph No: 020-35600450
Email: eec@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709 — 10th May, 2022

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

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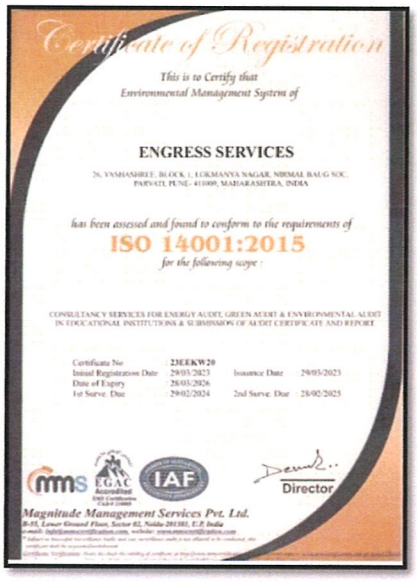
General Manager (EC)



Certificate of Registration

This is to Certify that
Environmental Management System of

ENGRESS SERVICES

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

Director

Magnitude Management Services Pvt. Ltd.
B-55, Lower Ground Floor, Sector 02, Noida-201301, U.P. India

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6	Study of Green & Sustainable Practices	13
	Annexure	
I	List of Trees & Plants	15

ACKNOWLEDGEMENT

We at Engress Services, Pune, express our sincere gratitude to the management of, Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management and Research, Chikhali, Pune, for awarding us the assignment of Green Audit of Chikhali campus for the Academic Year: 2023-24.

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

EXECUTIVE SUMMARY

1. Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management and Research, Chikhali, Pune consumes Energy in the form of **Electrical Energy;** used for various gadgets, Office & other facilities.

2. Present Energy Consumption & CO_2 Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumed	**23771**	kWh
2	Annual CO_2 Emissions	**22.11**	MT

3. Usage of Renewable Energy & Reduction in CO_2 Emissions:

- Usage of Energy Efficient LED fittings
- Maximum Usage of Day Lighting
- Installation of Solar Thermal Water Heating System at Hostel Block.

4. Waste Management:

No	Head	Particulars
1	Solid Waste Management	Segregation of Waste at Source
2	Organic Waste	Provision of Bio Composting Machine
3	Liquid Waste	Provision of Waste Water Treatment Plant
4	E Waste Management	Disposal though Agency Unique IT Solutions

5. Rain Water Management:

The College has installed Rain Water Management project, wherein 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
- Maintenance of Landscaped Garden
- Provision of Ramp & Dedicated Wash room for Divyangajan
- Awareness creation on Energy Conservation by display of Posters

7. Assumption:

1. **1 kWh** of Electrical Energy releases **0.93 Kg** of **CO_2** into atmosphere

8. Reference:

- For CO_2 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

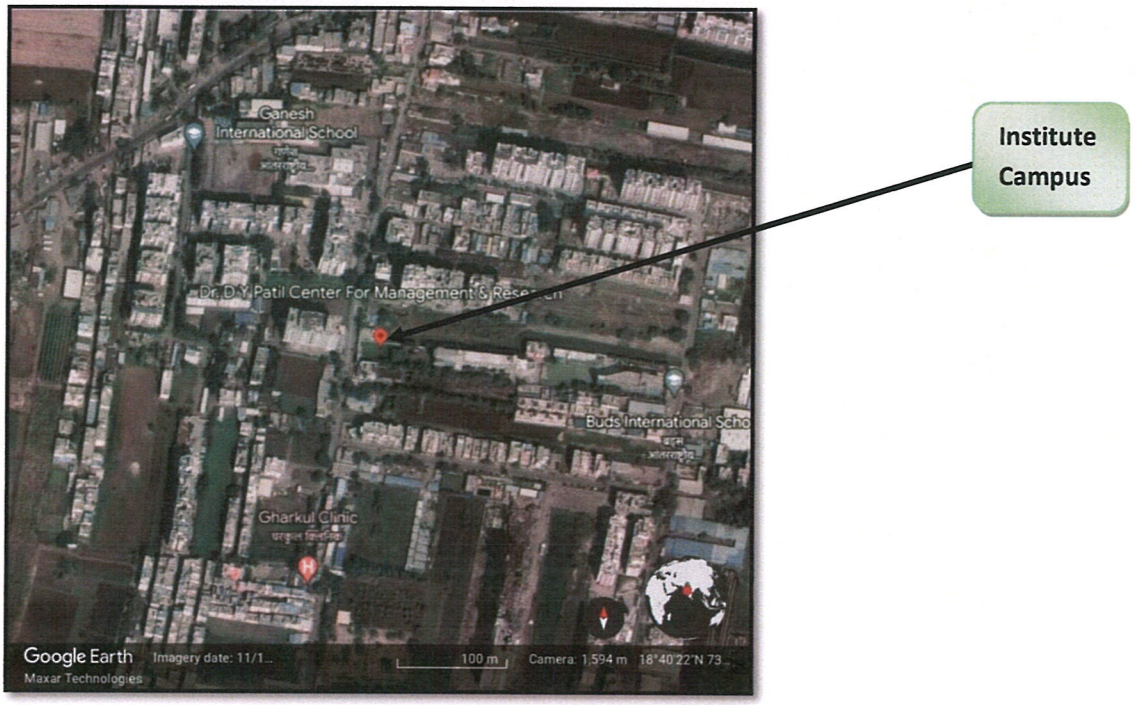
1.1 Introduction:

A Green Audit is conducted at conducted at Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's Dr. D. Y. Patil Centre for Management and Research, Chikhali Pune.

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 Institute Location Image:



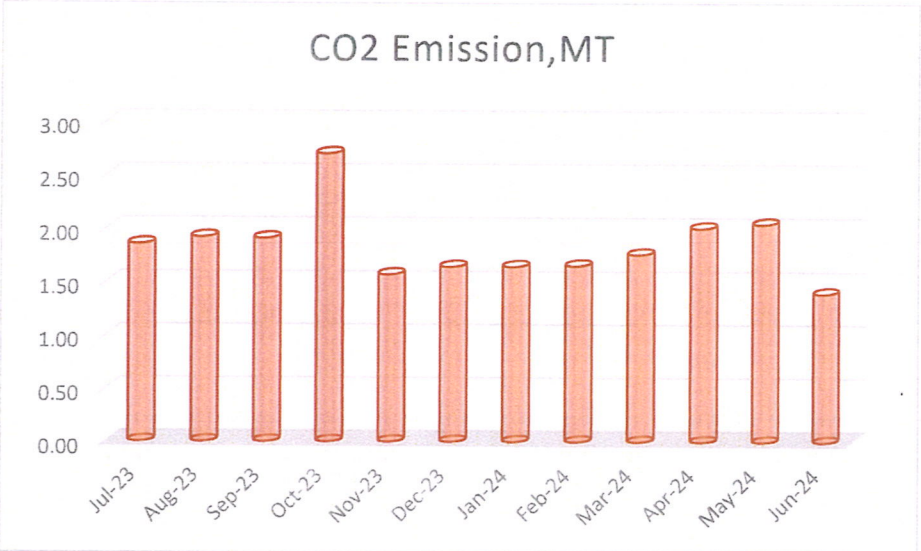
CHAPTER-II
STUDY OF ENERGY CONSUMPTION & CO_2 EMISSION

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. The Institute uses Electrical Energy for various Electrical gadgets.
Basis for computation of CO_2 Emissions: The basis of Calculation for CO_2 emissions due to Electrical Energy is as under. **1 kWh** of Electrical Energy releases **0.93 Kg of CO_2** into atmosphere

Table No 1: Month wise CO_2 Emissions:

No	Month	Energy Consumed, kWh	CO_2 Emissions, MT
1	Jul-23	1995	1.86
2	Aug-23	2065	1.92
3	Sep-23	2053	1.91
4	Oct-23	2903	2.70
5	Nov-23	1690	1.57
6	Dec-23	1768	1.64
7	Jan-24	1769	1.65
8	Feb-24	1779	1.65
9	Mar-24	1892	1.76
10	Apr-24	2157	2.01
11	May-24	2199	2.05
12	Jun-24	1501	1.40
13	Total	23771	22.11
14	Maximum	2903	2.70
15	Minimum	1501	1.40
16	Average	1980.92	1.84

Chart No 1: Month wise CO_2 Emissions:



CHAPTER III
STUDY OF USAGE OF RENEWABLE ENERGY

- The Institute has installed Solar Thermal Water Heating System at the Hostel Block.
- The Institute has yet to install Roof Top Solar PV Plant.

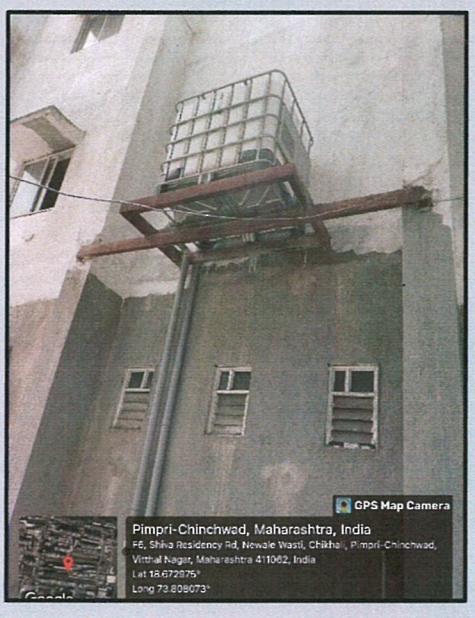
Photograph of Solar Thermal Water Heating System:

CHAPTER IV
STUDY OF WASTE MANAGEMENT

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

Details of Waste Management Practices:

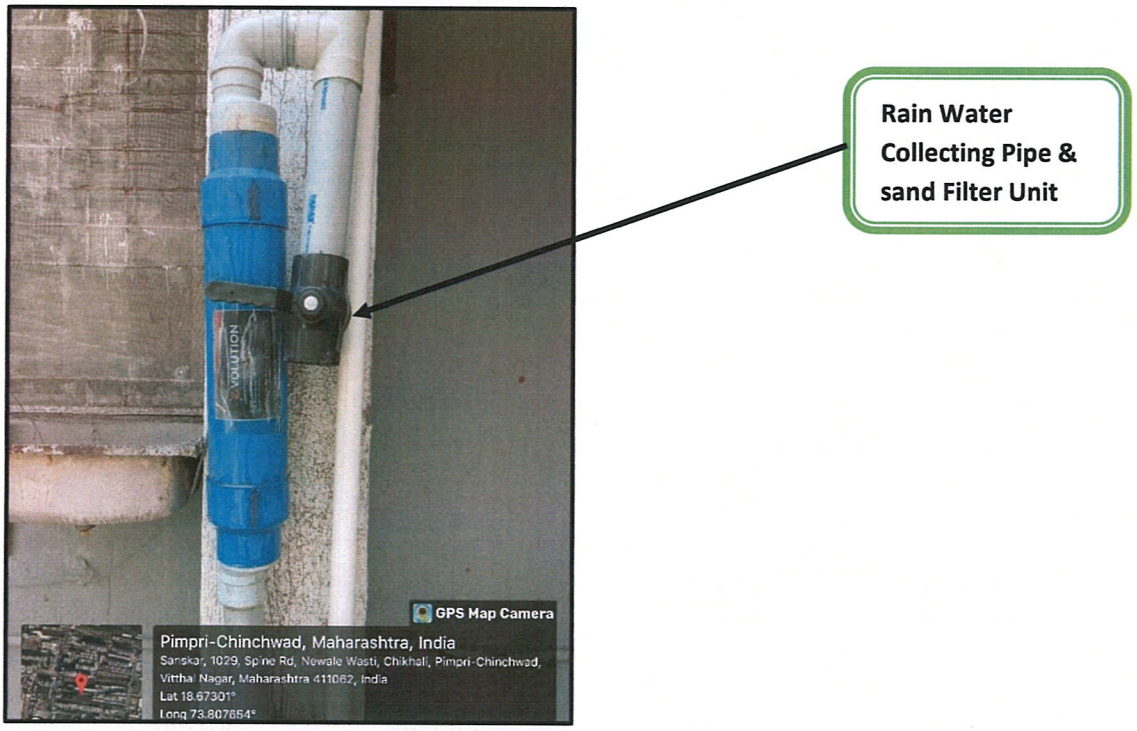
No	Head	Observation	Photograph
1	**Solid Waste**	Segregation of Waste at Source: Provision of Waste Collection Bins	**Waste Collection Bin:** 
2	**Organic Waste**	Provision of Bio Composting Machine for conversion of Leafy Waste in to Bio compost.	**Bio Composting Bed** 

3	**Liquid Waste**	Provision of Waste Water Treatment Plant	**Waste Water Treatment Plant** 
4	**E Waste**	Disposed of through Agency Unique IT Solutions	

CHAPTER-V
STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for increasing the underground water table.

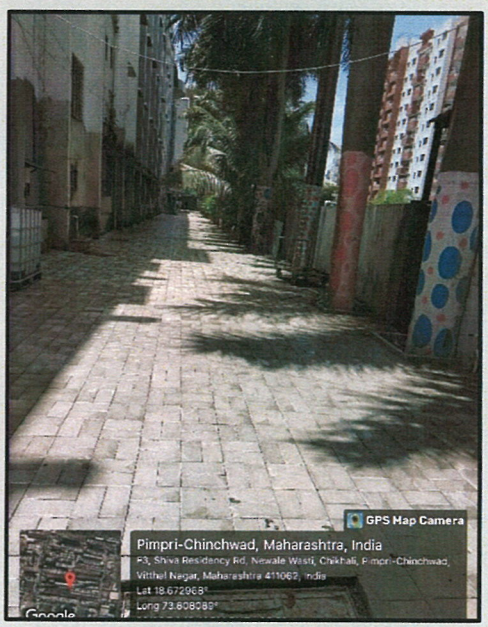
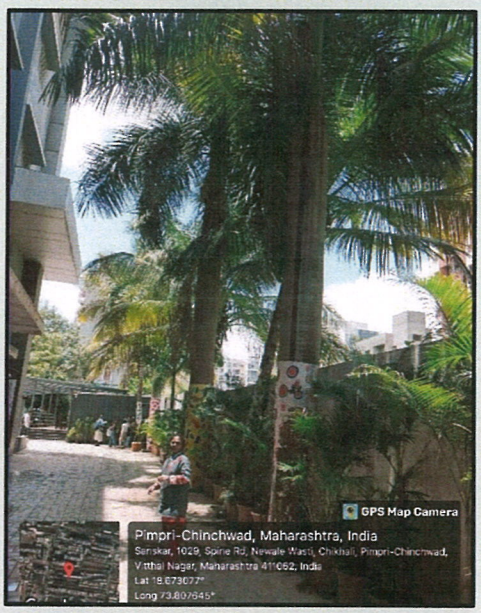
Photograph of Rain Water Carrying Pipe:

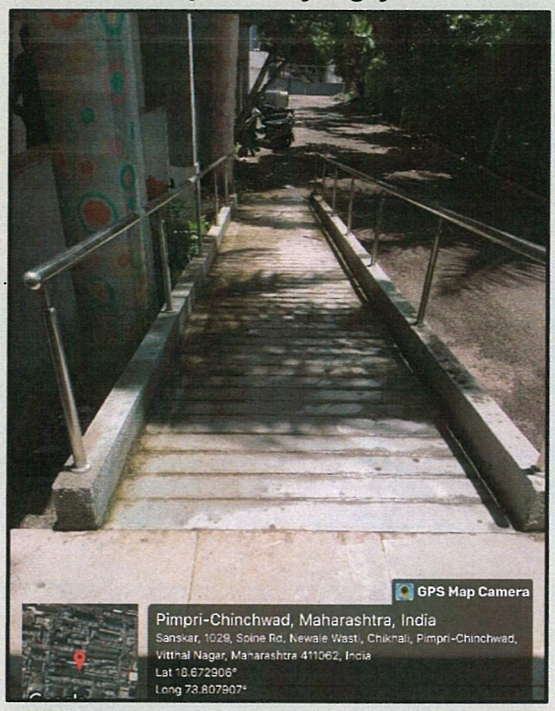
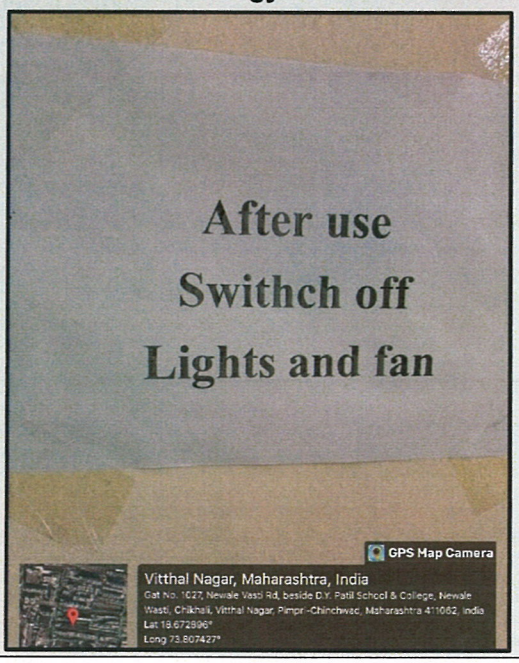


CHAPTER-VI
STUDY OF GREEN & SUSTAINABLE PRACTICES

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	**Internal Road:** 
2	**Tree Plantation**	Internal Tree Plantation in the Campus	**Internal Tree Plantation:** 

3	**Facilities for Divyangajan**	Provision of Ramp & Lift for Divyangajan	**Ramp for Divyangajan:** 
4	**Creation of Awareness among Stake Holders**	Display of Poster on Energy Conservation	**Poster on Energy Conservation:** 

ANNEXURE-1:
LIST OF TREES & PLANTS IN THE CAMPUS:

List of Trees:

No	Name of Tree	Qty
1	Coconut	10
2	Palm	50
3	Sitaphal	3
4	Ramphal	4
5	Mango	2
6	Ficus	2
7	Audumbar	1
8	Vad	1
9	Kaduneem	1
10	Yellow Flame	1
11	Champa	3
12	Badam	1
13	Jamun	1
14	Nagchampa	1
		81

List of Plants:

No	Name of Plant
1	Hibiscus
2	Coleus
3	Croton
4	Madhu Malti
5	Rose
6	Jasmine
7	Mexican Petunia
8	Drecena
9	Christmas

ENVIRONMENTAL AUDIT REPORT

Shikshan Maharshi Dr. D. Y. Patil Shikshan Sanstha's

DR. D. Y. PATIL CENTRE FOR MANAGEMENT AND RESEARCH,

Newale Vasti, Chikhali, Pune 412 114

Year: 2023-24

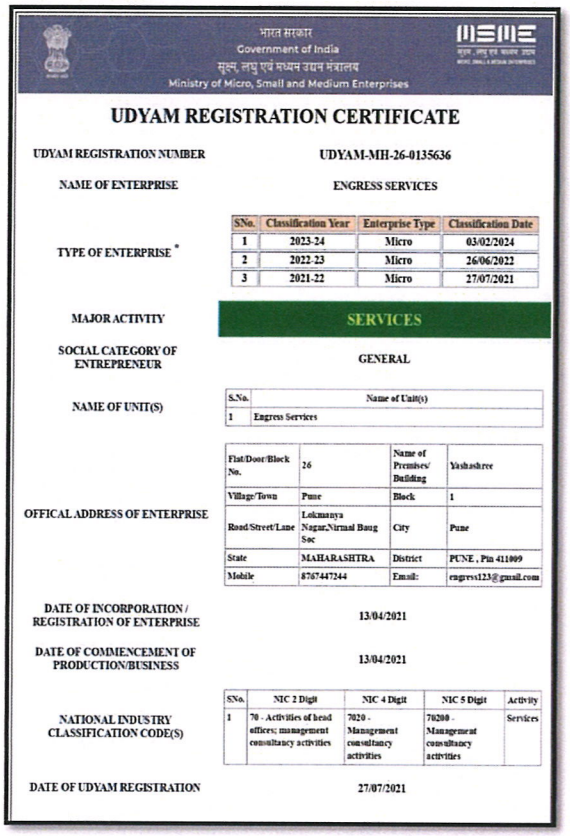
Prepared by:

ENGRESS SERVICES

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

ENGRESS SERVICES PUNE

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



भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

UDYAM REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER	UDYAM-MH-26-0135636
NAME OF ENTERPRISE	ENGRESS SERVICES

TYPE OF ENTERPRISE *

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

MAJOR ACTIVITY: SERVICES

SOCIAL CATEGORY OF ENTREPRENEUR: GENERAL

NAME OF UNIT(S)

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

OFFICAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	26	Name of Premises/ Building	Yashashree
Village/Town	Pune	Block	1
Road/Street/Lane	Lokmanya Nagar,Nirmal Baug Soc	City	Pune
State	MAHARASHTRA	District	PUNE , Pin 411009
Mobile	8767447244	Email:	engress123@gmail.com

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

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

NATIONAL INDUSTRY CLASSIFICATION CODE(S)

S.No.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	70 - Activities of head offices; management consultancy activities	7020 - Management consultancy activities	70200 - Management consultancy activities	Services

DATE OF UDYAM REGISTRATION: 27/07/2021

ASSOCHAM

GEM Certificate

ASSOCHAM hereby certifies that

Mr. A Y Mehendale

has successfully passed the
Green and Eco-friendly Movement Certified Professional Test (GEM CP)
with
"Excellent Performance"
on
06 June, 2022

He/she is now eligible to execute the GEM Sustainability Certification Projects.
ASSOCHAM feels proud to award the GEM Certified Professional title to him/her.

Pankaj R. Dharkar
Chairman, GEM

GEM CP 22/788

Deepak Sood
Secretary General, ASSOCHAM

Certificate of Registration

This is to Certify that
Quality Management System of

ENGRESS SERVICES

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

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

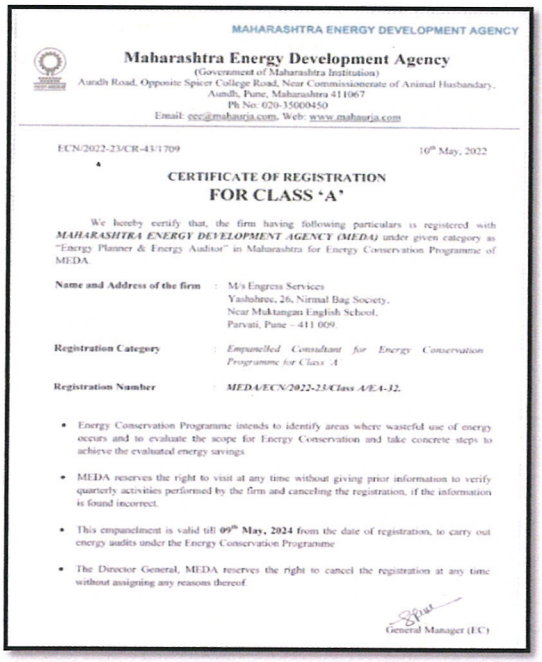
CONSULTANCY SERVICES FOR ENERGY AUDIT, GREEN AUDIT & ENVIRONMENTAL AUDIT IN EDUCATIONAL INSTITUTIONS & SUBMISSION OF AUDIT CERTIFICATE AND REPORT

Certificate No	23EQKC13		
Initial Registration Date	27/03/2023	Issuance Date	27/03/2023
Date of Expiry	26/03/2026		
1st Surve. Due	27/02/2024	2nd Surve. Due	27/02/2025

rms EGAC IAF

Director

Magnitude Management Services Pvt. Ltd.
B-35, Lower Ground Floor, Sector 02, Noida-201301, U.P. India



MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency
(Government of Maharashtra Institution)
Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary, Aundh, Pune, Maharashtra 411067
Ph No: 020-35000450
Email: eec@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709 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
Yashshree, 26, Nirmal Bag Society,
Near Muktangan English School,
Parvati, Pune – 411 009.

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

Registration Number : *MEDA/ECN/2022-23/Class A/EA-32.*

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till **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)

Certificate of Registration

This is to Certify that
Environmental Management System of

ENGRESS SERVICES

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

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Date of Expiry	28/03/2026		
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5	Study of Indoor Comfort Condition Parameters	13
6	Study of Rain Water Management	14
7	Study of Waste Management	15
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ACKNOWLEDGEMENT

We at Engress Services, Pune, express our sincere gratitude to the management of Dr. D. Y. Patil Pratishthan's D. Y. Patil Institute of Master of Computer Applications and Management, Akurdi, Pune, for awarding us the assignment of Environmental Audit of Akurdi campus for the Academic Year: 2023-24.

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

EXECUTIVE SUMMARY

1. Dr. D. Y. Patil Pratishthan's D. Y. Patil Institute of Master of Computer Applications and Management, Akurdi, Pune consumes Energy in the form of **Electrical Energy;** used for various gadgets, Office & other facilities.

2. Pollution due to Institute Activities:

- **Air pollution:** Mainly CO_2 on account of Electricity Consumption
- **Solid Waste:** Bio degradable Garden Waste, Paper & Plastic Waste
- **Liquid Waste:** Human liquid waste

3. Present Energy Consumption & CO_2 Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumed	**23771**	kWh
2	Annual CO_2 Emissions	**22.11**	MT

4. Usage of Renewable Energy & reduction in CO_2 Emissions:

- The Institute has installed Solar Thermal Water Heating System
- The Institute 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	**66**	**39**	**46**
2	Minimum	**50**	**30**	**32**

6. Indoor Lux & Noise Level Parameters:

No	Parameter/Value	Lux Level	Noise Level, dB
1	Maximum	**252**	**47**
2	Minimum	**209**	**42.6**

7. Waste Management:

No	Head	Particulars
1	Solid Waste Management	Segregation of Waste at Source
2	Organic Waste	Provision of Bio Composting Machine
3	Liquid Waste	Provision of waste water Treatment Plant
4	E Waste Management	Disposal though Agency Unique IT Solutions

8. Rain Water Management:

The College has installed Rain Water Management project, wherein 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 **0.93 Kg** of **CO_2** into atmosphere

11. References:

- For CO_2 Emissions: www.ccd.gujarat.gov.in
- For Various Indoor Air Parameters: www.ishrae.com
- For AQI 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

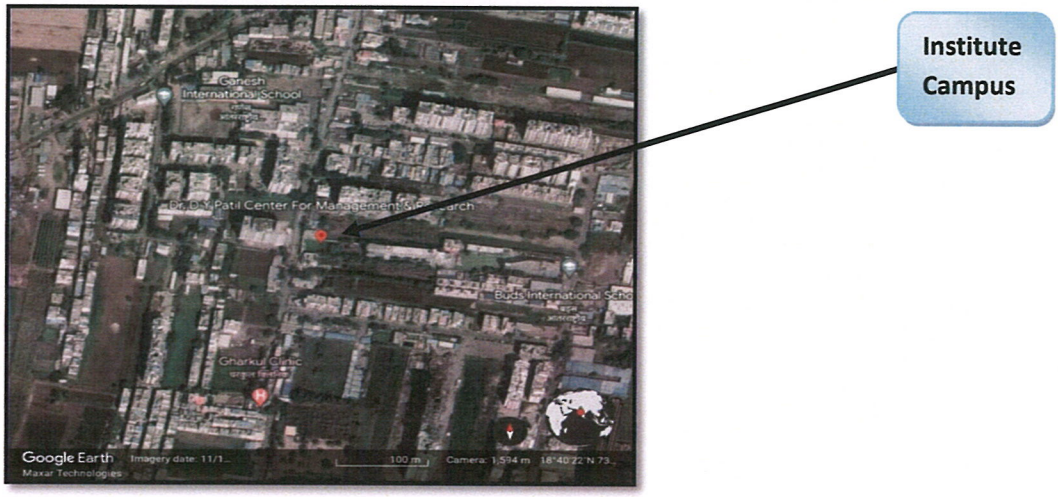
1.2. Environmental Audit: Definition:

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

1.5 Institute Location Image:



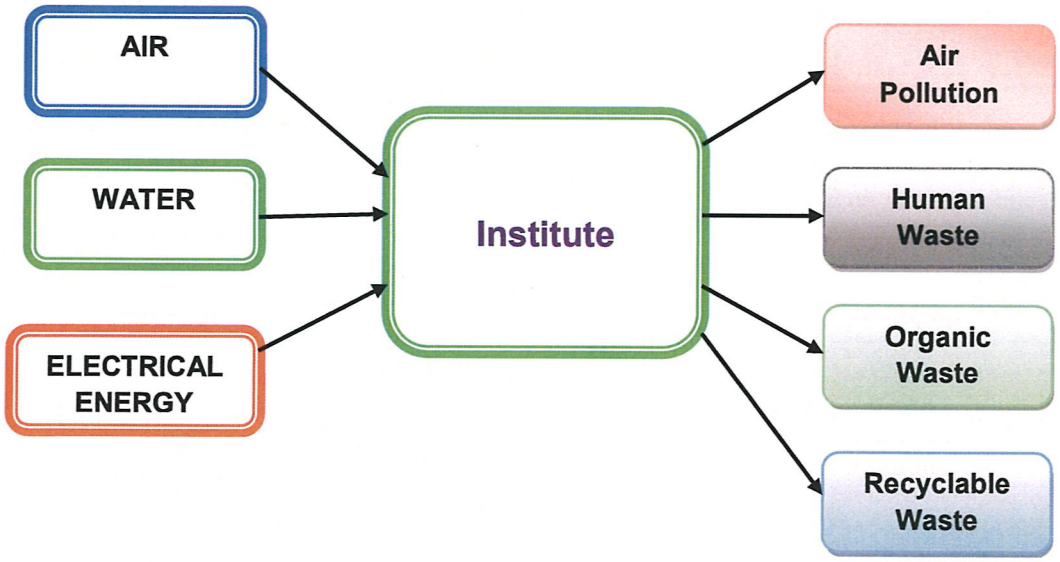
CHAPTER-II
STUDY OF RESOURCE CONSUMPTION & CO_2 EMISSION

The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy

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

Chart No 1: Representation of Resource Requirement & Waste of a College:



Now we compute the Generation of CO_2 on account of consumption of Electrical Energy. The basis of Calculation for CO_2 emissions due to Electrical Energy is as under.

- **1 kWh** of Electrical Energy releases **0.93 Kg of CO_2** into atmosphere

Table No 1: Study of Consumption of Electrical Energy & CO_2 Emissions: 23-24:

No	Month	Energy Consumed, kWh	CO_2 Emissions, MT
1	Jul-23	1995	1.86
2	Aug-23	2065	1.92
3	Sep-23	2053	1.91
4	Oct-23	2903	2.70
5	Nov-23	1690	1.57
6	Dec-23	1768	1.64
7	Jan-24	1769	1.65
8	Feb-24	1779	1.65
9	Mar-24	1892	1.76

10	Apr-24	2157	2.01
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14	Maximum	2903	2.70
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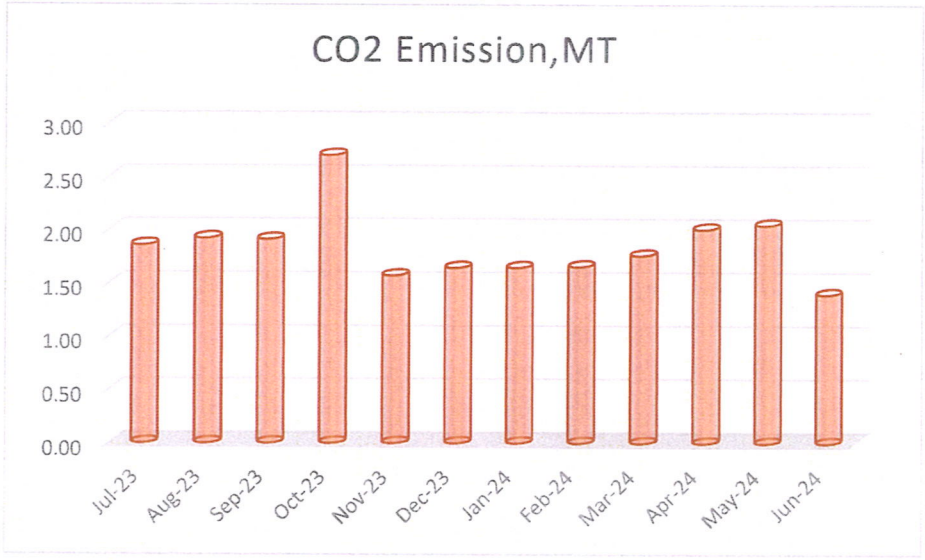
16	Average	1980.92	1.84

Chart No 2: Month wise CO_2 Emissions:



CHAPTER III
STUDY OF USAGE OF RENEWABLE ENERGY

- The Institute has installed Solar Thermal Water Heating System at the Hostel Block.
- The Institute has yet to install Roof Top Solar PV Plant.

Photograph of Solar Thermal Water Heating System:

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	Office	57	34	41
2	Boys Common Room	50	30	32
3	Classroom	66	39	46
4	Computer Center	59	35	42
5	Seminar hall	60	36	42
	Maximum	**66**	**39**	**46**
	Minimum	**50**	**30**	**32**

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 Level and Noise Level Parameters:

No	Location	Lux Level	Noise Level, dB
1	Office	252	44.7
2	Boys Common Room	226	46
3	Classroom	243	42.6
4	Computer Center	209	44.9
5	Seminar hall	219	47
	Maximum	**252**	**47**
	Minimum	**209**	**42.6**

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:

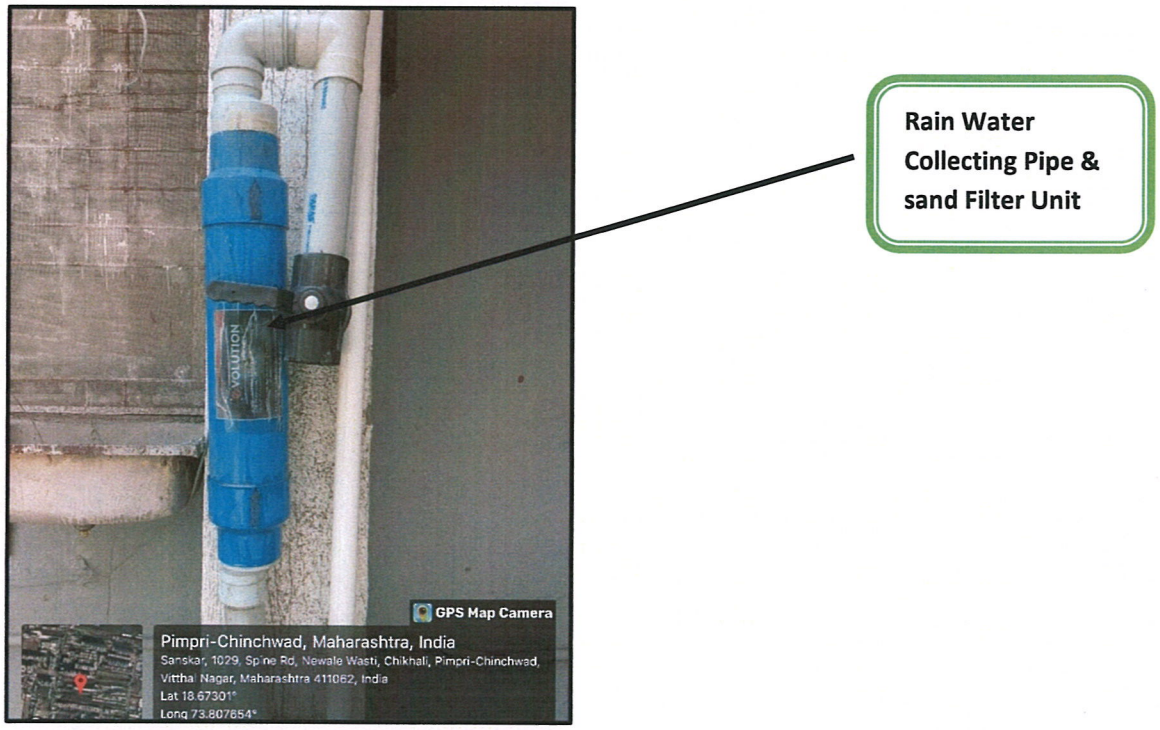
From the above measured values, we conclude that:

- The Noise Level is within the prescribed Limit
- The Lux Level at various locations is Okay

CHAPTER VI
STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for increasing the underground water table.

Photograph of Rain Water Carrying Pipe:

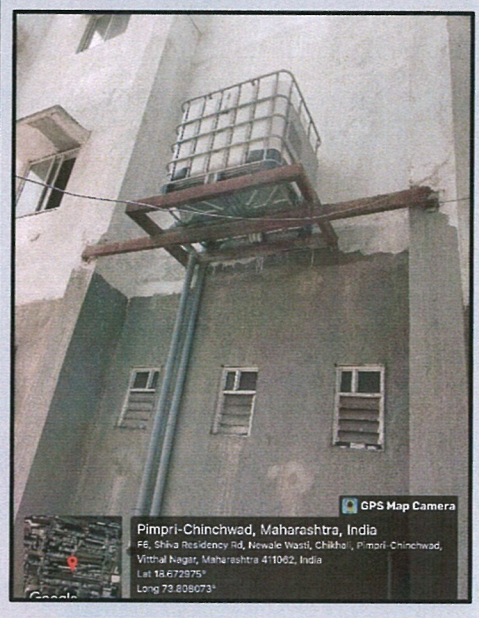


CHAPTER-VII
STUDY OF WASTE MANAGEMENT

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

Details of Waste Management Practices:

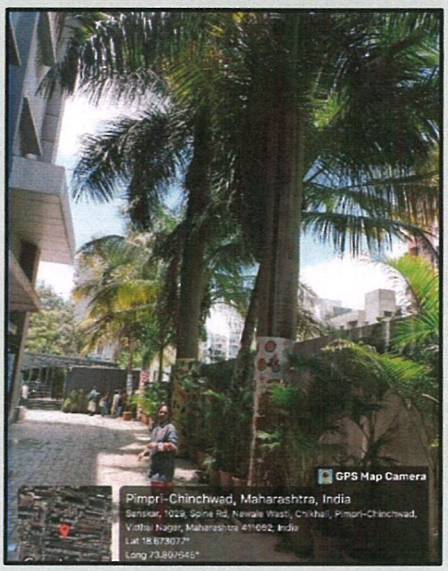
No	Head	Observation	Photograph
1	**Solid Waste**	Segregation of Waste at Source: Provision of Waste Collection Bins	**Waste Collection Bin:** 
2	**Organic Waste**	Provision of Bio Composting Machine for conversion of Leafy Waste in to Bio compost.	**Bio Composting Bed** 

3	**Liquid Waste**	Provision of Waste Water Treatment Plant	**Waste Water Treatment Plant** 
4	**E Waste**	Disposed of through Agency Unique IT Solutions	

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	**Internal Tree Plantation:** 
2	**Creation of Awareness among Stake Holders**	Display of Poster on Energy Conservation	**Poster on Energy Conservation:**