

ENVIRONMENTAL AUDIT REPORT

Priyadarshini College of Engineering,

Priyadarshini Campus, C.R.P.F., Nagpur - 440019 (MH)



Year: 2024-25

Prepared by:

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society
Near Mukhtangan 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

OFFICIAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	26	Name of Premises/ Building	Yashashree
Village/Town	Pune	Block	1
Road/Street/Lane	Lokmanya Nagar, Nirmal Bag Society	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



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: 020-35000430
Email: eec@mahaurja.com, Web: www.mahaurja.com

ECN/2024-25/CR-02/389 8th October, 2024

**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.

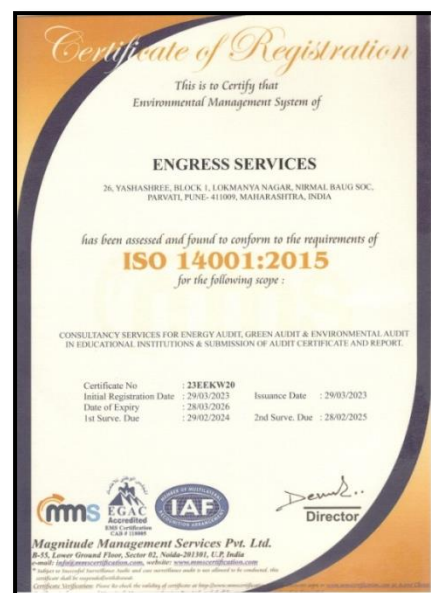
Name and Address of the firm : M/s Engress Services
Yashashree, 26, Nirmal Bag Society,
Near Mukhtangan English School,
Parvati, Pune -411 009.

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

Registration Number : MEDA/ECN/2024-25/Class A/EA-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 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 **7th October, 2026** 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 (I-C)



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ACKNOWLEDGEMENT

We at Engress Services, Pune, express our sincere gratitude to the management of Priyadarshini College of Engineering, Nagpur, for awarding us the assignment of Environmental Audit of their campus for the Academic Year: 2024-25.

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

EXECUTIVE SUMMARY

1. An Environmental Audit was conducted at Priyadarshini College of Engineering, Nagpur.

2. Pollution due to Institute Activities:

No	Head	Particulars
1	Solid Waste	Paper, Plastic Waste, Food, Organic Waste
2	Liquid Waste	Human Waste, Lab Liquid Waste
3	Air Pollution	CO ₂ : On Account of Electrical Energy Consumption

3. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Total Energy Purchased	111355	kWh
2	Annual CO ₂ Emissions	41.75	MT

4. Usage of Renewable Energy & Reduction in CO₂ Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Roof Top Solar PV Plant	400	kWp
2	Total Energy Generated by kWp Plant in 24-25	132000	kWh
3	Annual Reduction in CO ₂ Emissions in 24-25	141.93	MT

5. Indoor Air Quality:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	92	59	62
2	Minimum	90	57	56

5. Indoor CO₂ Level:

No	Parameter/Value	CO ₂
1	Maximum	576
2	Minimum	566

6. Indoor Lux & Noise Level Parameters:

No	Parameter/Value	Lux Level	Noise Level, dB
1	Maximum	271	46.6
2	Minimum	235	38.2

6. Water Quality Parameters:

No	Parameter	Value
1	pH Level	7.8
2	Total Dissolved Salts	89

7. Waste Management Practices:

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

8. Environment Friendly Initiatives:

No	Head	Particulars
1	Initiatives on National Mission on Green India	Internal Tree Plantation
2	Initiatives on National Sustainability Scheme	Creation on Awareness on Ban on Single Use Plastic like- Straws, Cutlery, Plates
3	Actions taken for CO ₂ Emission Reduction	3.1 Usage of Energy Efficient Equipment: LED Tubes

10. Assumptions:

1. Emission Factor of Electricity: **0.93 Kg of CO₂/kWh**
2. Average Solar PV Energy Generation: **3.5 kWh/Day**
3. Annual Solar Energy Generation Days: **300 Nos**
4. CO₂ Emissions are computed For **Scope- 2**
5. CO₂ Emissions are computed based on Electrical Energy purchased

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
- For Solar PV Energy Generation: www.rooftopsolar.gov.in

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

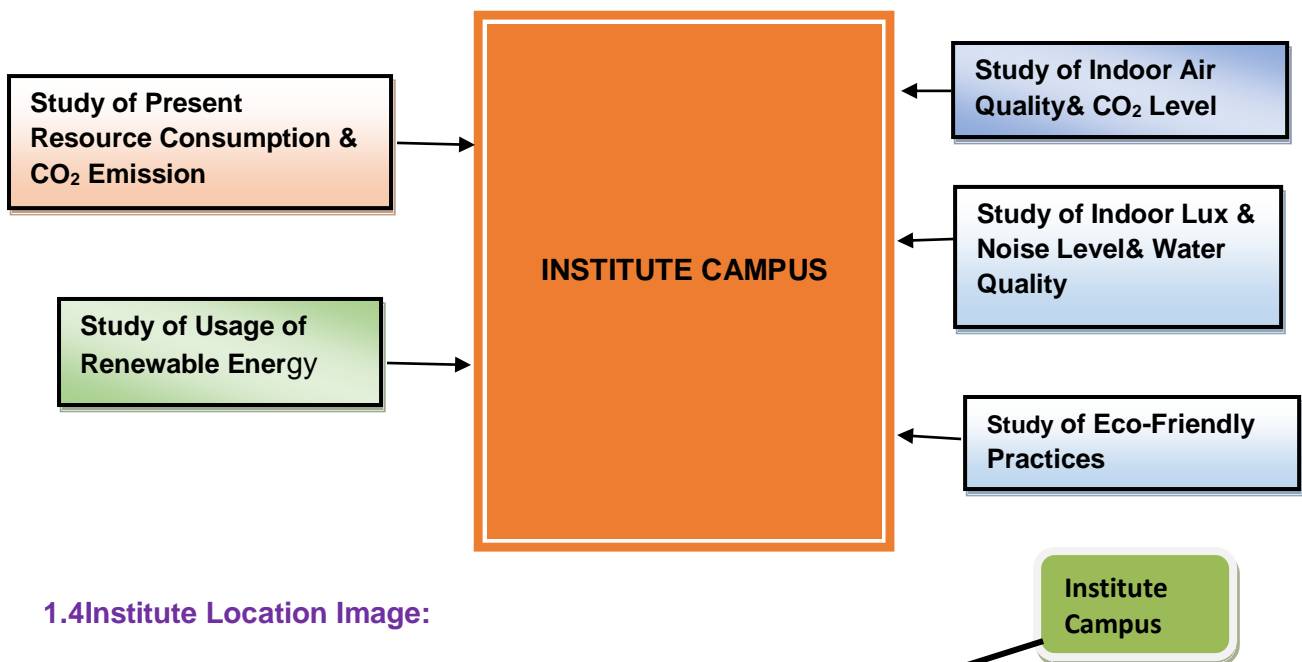
INTRODUCTION

1. Important Definitions:

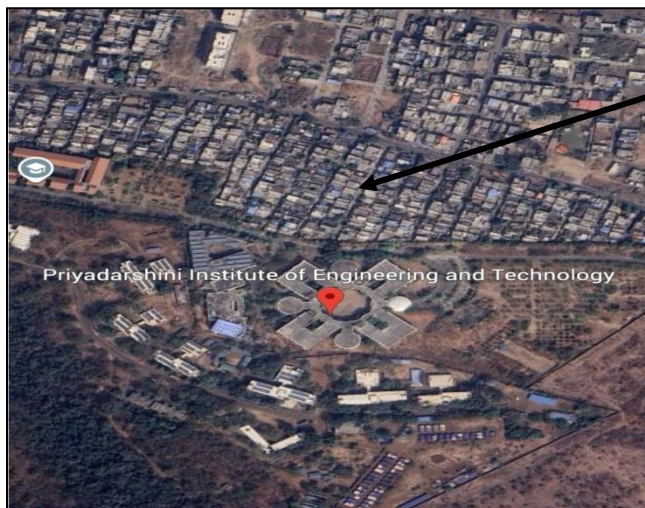
1.1.1 Environment: Definition as per environment Protection Act: 1986

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 Key Study Points:



1.4Institute Location Image:



CHAPTER-II

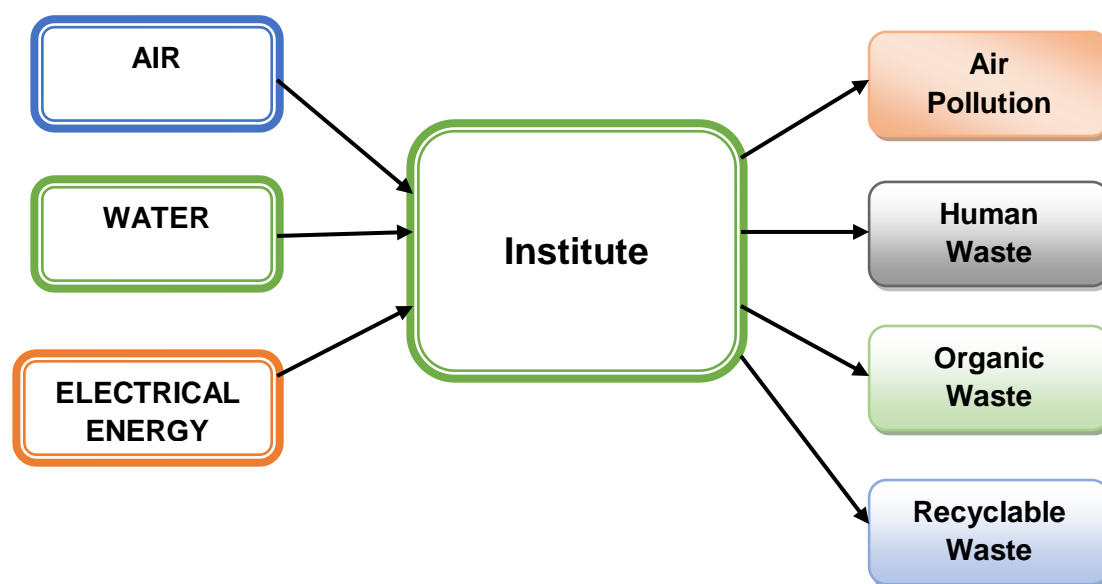
STUDY OF RESOURCE CONSUMPTION & CO₂ EMISSION

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 Institute:



A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. The CO₂ Emission is computed for **Scope-2**

Emission Factor:

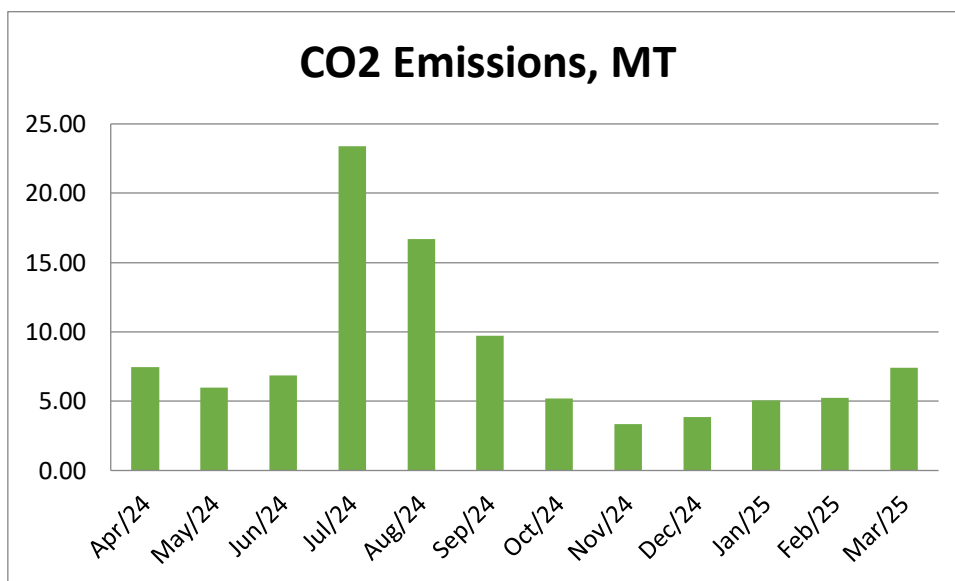
- Emission Factor of Electricity: **0.93 Kg of CO₂/kWh**

Table No 1: Study of Purchase of Energy & CO₂ Emissions: 24-25:

No	Month	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Apr-24	8295	7.47
2	May-24	6652	5.99
3	Jun-24	7600	6.84
4	Jul-24	25990	23.39
5	Aug-24	18535	16.68
6	Sep-24	10815	9.73
7	Oct-24	5794	5.21
8	Nov-24	3697	3.33
9	Dec-24	4287	3.86

10	Jan-25	5620	5.06
11	Feb-25	5820	5.24
12	Mar-25	8250	7.42
13	Total	111355	100.22
14	Maximum	25990	23.39
15	Minimum	3697	3.33
16	Average	9280	8.35

Chart No 2: Month wise CO₂ Emissions:



CHAPTER III

STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has installed Roof Top Solar PV Plant of Capacity **400 kWp**
In the following Table, we present the reduction in CO₂ emissions due to Solar Energy:

Table No 2: Computation of Reduction in CO₂ Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Roof Top Solar PV Plant Capacity	400	kWp
2	Energy Generated in the Year: 24-25	132000	kWh
3	1 kWh of Electrical Energy saves	0.93	Kg/kWh
4	Qty of CO₂ Saved by Solar PV Plant $= (2) * (3) / 1000$	141.93	MT of CO₂

Photograph of 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 3: Indoor Air Quality Parameters:

No	Location	AQI	PM2.5	PM10
1	Principal Office	91	58	61
2	Admin Office	92	59	62
3	Library	90	58	56
4	Class Room 1	92	57	59
	Maximum	92	59	62
	Minimum	90	57	56

Table No 4: 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 CARBON-DI-OXIDE LEVEL

In this Chapter, we present the CO₂ Level in the Campus.

Table No: Study of CO₂ Level:

No	Location	CO ₂ Level in ppm
1	Principal Office	573
2	Admin Office	574
3	Library	566
4	Class Room 1	576
	Maximum	576
	Minimum	566

The Acceptable Value of CO₂ Level is **1000 ppm**.

Conclusion:

From the above measured values, we conclude that the observed values of CO₂ Level are within the Limit

CHAPTER VI

STUDY OF LUX & NOISE LEVEL 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 5: Study of Indoor Lux Level and Noise Level Parameters:

No	Location	Lux Level	Noise Level, dB
1	Principal Office	244	42.2
2	Admin Office	245	46.6
3	Library	235	38.2
4	Class Room 1	271	46
	Maximum	271	46.6
	Minimum	235	38.2

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 VII STUDY OF WATER QUALITY

In this Chapter, we present the Water Parameters like pH and TDS.

Table No 5: Study of Water pH and TDS:

No	Parameter	Value
1	pH Level	7.8
2	Total Dissolved Salts	89

Recommended Values of Water pH & TDS, as per BIS: IS: 10500: 2012

A) Reference:		
No	Parameter	Noise Level Range, dB
1	pH	6.5 to 8.5
2	TDS	500 (Max)

Conclusion:

From the above measured values, we conclude that the observed Values of pH and TDS are within the prescribed Limits.



CHAPTER-VIII

STUDY OF ECO-FRIENDLY PRACTICES

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

Details of Eco-Friendly Practices:

No	Head	Particulars	Photograph
1	Initiatives on Supporting National Mission on Green India	Internal Tree Plantation	<p>Internal Tree Plantation:</p> 
2	Initiatives on National Sustainability Scheme	Creation of Awareness on Ban on Single Use Plastic like- Straws, Cutlery, Plates in the Campus	<p>Poster on Ban on Single Use Plastic:</p> 
3	Actions taken for CO ₂ Emission Reduction	4.1 Usage of Roof Top Solar PV Plant	<p>Solar PV Plant:</p>

			
		4.2 Usage of LED Fittings	

ENGRESS SERVICES

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Parvati, Pune 411 009 Tel: 09890444795 Email: engress123@gmail.com
UDYAM, MEDA Registered, ISO-9001 & 14001 Certified



ENVIRONMENTAL AUDIT CERTIFICATE

Certificate No: ES/PCE/24-25/03

Date: 8/5/2025

This is to certify that we have conducted Environmental Audit at **Priyadarshini College of Engineering, Nagpur**, in the Academic Year 2024-25.

The Institute has adopted following Eco-Friendly Practices:

- Usage of Energy Efficient LED Fittings
- Installation of Solar Power Plant on College Building
- Segregation of Waste at Source
- Implementation of Rain Water Management Project
- Internal Tree Plantation
- Creation of awareness on Ban on Single Use Plastic by Display of Posters

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

