ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

AUDIT CONDUCTED FOR

PAAVAI ENGINEERING COLLEGE

(Autonomous Institution)

Paavai Nagar, NH-44, Pachal - 637 018, Namakkal (Dt), Tamilnadu.

DATE OF AUDIT

16 JUNE 2025

(Audited and accounted from June 2024 to May 2025)

AUDIT CONDUCTED BY

RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING

(An ISO 9001: 2025 Certified Company & Registered Under MSME, GoI)

Mobile: +91- 80567 19372, 99420 14544 (WhatsApp) E-mail: ramkalamcect@gmail.com

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(Autonomous Institution)

Paavai Nagar, NH-44, Pachal -637 018,

Namakkal (Dt), Tamil Nadu.

1. ACKNOWLEDGEMENT

Energy Earns or Simply Burns: Choice is yours....

ACKNOWLEDGEMENT

RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING, Coimbatore – 641 062 is thankful to the Management, Principal, Faculty and Technical team members of M/s. PAAVAI COLLEGE OF ENGINEERING, Paavai Nagar, NH-44, Pachal -637 018, Namakkal (Dt), Tamilnadu for providing an opportunity to conduct a detailed Energy, Environment and Green Audit process in the college premises.

It is our great pleasure which must be recorded here that the Management of M/s. PAAVAI COLLEGE OF ENGINEERING extended all possible support and assistance resulting in thorough completion of the audit process. The audit team appreciates the cooperation and guidance extended during the course of site visit and measurements. We are also thankful to all those who gave us the necessary inputs and information to carry out this very vital exercise.

Finally, we offer our sincere thanks to all the members in the engineering division/ technical / non-technical divisions and office members who were directly and indirectly involved with us during collection of data and while conducting field measurements.

Management Team Members	
Shri. N.V. NATARAJAN, B.Com., FCA	Chairman
Dr. M. PREMKUMAR	Principal

Audit Team Members	
Dr. S.R. SIVARASU, Ph.D.,	BEE Certified Energy Auditor (EA-27299) Lead Auditor-ISO-14001:2015 (EMS), IGBC AP, GRIHA CP, CII CP in SWM Carbon Footprint Auditor & Implementor Mobile: +91- 80567 19372, 99420 29372

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2. INTRODUCTION

TO

ENERGY-ENVIRONMENT-GREEN

AUDIT PROCESS

2.1: Preface about the Institution:

- The vision of our Chairman, Shri CA N.V. Natarajan, started with the founding of the 'Paavai Varam Educational Trust' in 1997. The trust aims to offer quality education to underprivileged youth, especially from rural and remote areas around Rasipuram, a small town in Tamil Nadu known for its historical significance and products like pure ghee, sago and silk.
- Paavai Engineering College started in the year 2001, offering UG programmes and PG programmes has been approved by AICTE, NAAC and accredited by NBA. The college is securing top ranks consistently among the leading engineering colleges in Coimbatore region.
- The departments of Engineering and Management Studies are recognized as approved research Centre's by Anna University Chennai to offer Ph.D. programmes. It has obtained research grants from AICTE, TNSCST and other funding agencies. The college has been organizing Seminars, Workshops, FDP and Conferences periodically in the state-of-the-art technologies. The institution has signed MoUs with leading MNCs like Infosys, Microsoft, Wipro and also Spoken Tutorial of IIT Bombay resource Centre.
- The College is located in Namakkal, just 7 km from the nearest railway station and right on NH-44 and is easily accessible by road and rail. It is situated on a 10.29 acres campus that is clean, green and serene.

2.2: Vision:

To strive to be a globally model Institution all set for taking 'lead-role' in grooming the younger generation socially responsible and professionally competent to face the challenges ahead.

2.3: Mission:

- To provide goal- oriented, quality – based and value – added education through state – of – the – art technology on a par with international standards.
- To promote nation – building activities in science, technology, humanities and management through research.
- To create and sustain a community of learning that sticks on to social, ethical, ecological, cultural and economic upliftment.

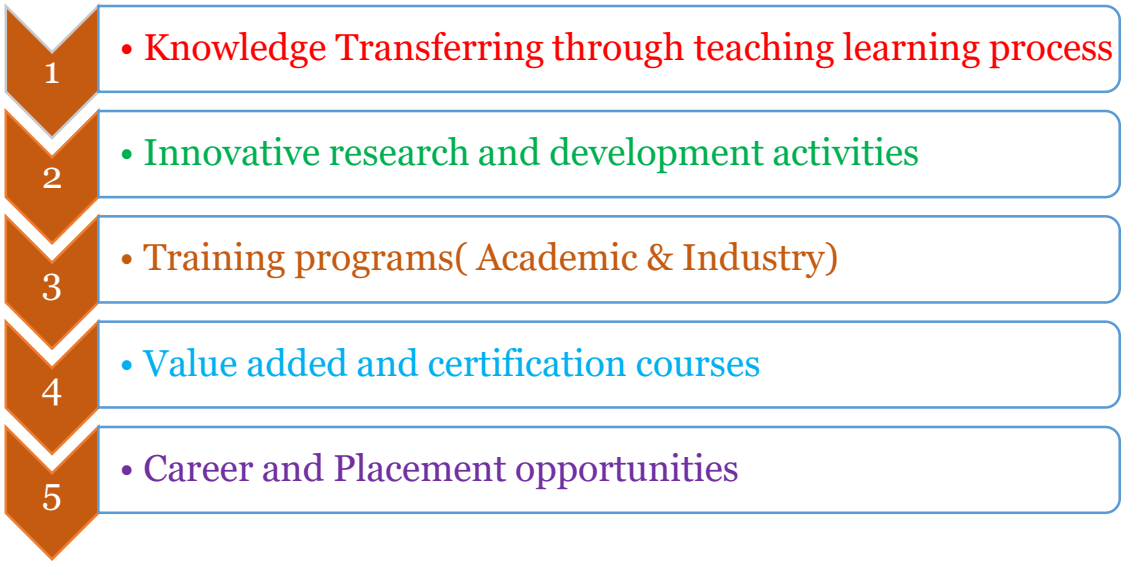
2.4: Quality Policy:

Paavai Institutions strives to be recognized as a centre of excellence for learning in Engineering, Technology and Management. To achieve this we are committed to:

- Continuously improving the quality of education and maintaining the institution as an effective human resource development organization under all changing environment.
- Pursuing Global standards of excellence in all our endeavors namely teaching, research and consultancy.

- Contributing to the nation and beyond, through the state-of-the-art technology, by producing vibrant technocrats, outstanding engineers and excellent managers who are ever willing to work to the spirit of challenge and innovation with high ethical and professional standards.

2.4: Major Activities in the Institution:



2.5: Scope of the Audit Process:

- Energy Audit: To conduct a detailed energy audit in the college campus with a main focus to identify judicious usage of electrical and thermal energy (where, when, why and how energy is being utilized).
- Environmental Audit: Identification of history of activities, present environmental practices followed, monitoring records and known sources of environmental issues inside the college.
- Green Audit: Assessment on Campus greenery in terms of mature trees, flowering shrubs, bushes, medicinal plants, adoption of green energy generation and utilization, reduction of CO_2 due to green energy system and identification of possible implementation and enhancement of current greenery practices.

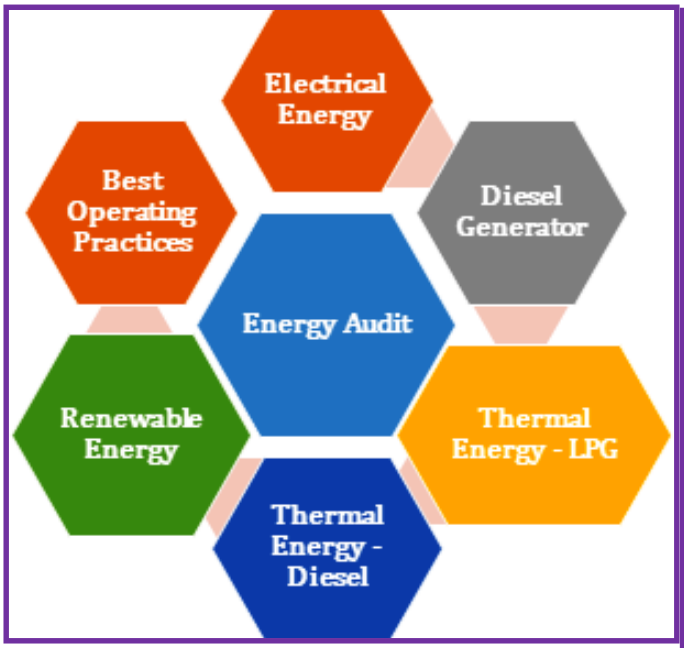
2.6: Outcomes of the Audit Process:

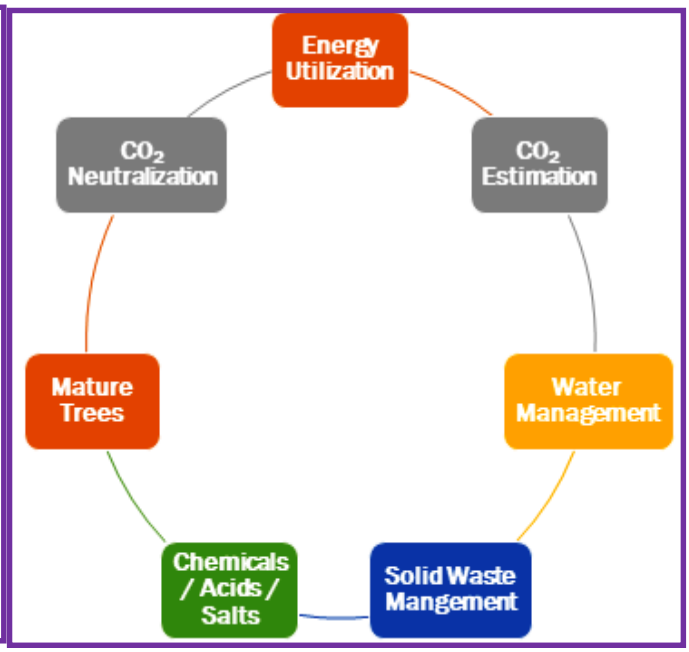
- Recommendations based on field measurement with achievable Energy Conservation (ENCON) proposals under No cost/Low cost and Cost investment categories
- Minimization of present energy cost by adjusting and optimizing energy usage and reduction of energy wastage without affecting the regular activities
- Identification of possible cost and energy saving from energy conservation, waste reduction, reuse and recycling
- Formation of methodology for long term road map for maintaining green environment within the campus and encourage the stakeholders for continuous improvements

2.7: Audit Approach:

The audit team completed the assessment of energy consumption in the factory premises and operating hours of each machine (system) using two approaches namely i) Objective Approach in which a detailed measurement was taken and ii) Subjective Approach in which field data is collected from the maintenance department.

2.8: Coverage in Energy- Environment & Green Audit Process:





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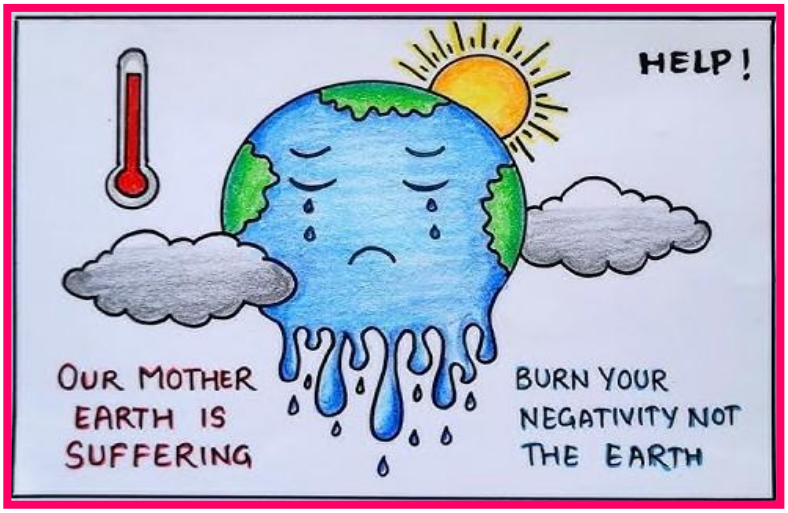
3. ESTIMATION OF

CO_2 EMISSION AND NEUTRALIZATION

(ELECTRICITY, DIESEL, LPG, WOOD, SOLAR PV & TREES)



3.1: Assessment of Annual Energy Usage:

Table-1 shows the types of energy carriers used for their regular operation in the college campus along with application area and their source.

Table-1: Energy Carriers, Application area and their sources used for College Operation

S. No.	Type of Energy Carrier	Application Area	Source of Procurement
1.	Electricity (LT Service - 01 No)	Powering to all electrical / electronic / HVAC equipment's	From TANGEDCO
2.	Roof Top Solar PV System		5.72 kW located in the Temple Tower Building
3.	Diesel	Transport vehicles and Diesel Generator (Captive Generation)	From authorised distributor
4.	Liquified Petroleum Gas (LPG)	Used only for cooking	
5.	Seasonal Wood		From Local Vendor
6.	Mature Trees, Bushes & Shrubs	The college has nearly 770 mature trees of different varieties which are more than 10 years old.	

Table-2: Annual Energy Consumption and Energy Generation (2024-2025)

S. No.	Month	Electricity Consumption (kWh)	LPG Consumed (kg)	Wood Consumption (Tons)	Diesel Consumed (L)			Solar Energy Generation (kWh)
					DG	Transport	Total	
1.	Jun-24	29,510.0	3,452	17.5	714	17,889	18,603	494
2.	Jul-24	31,791.2	3,549	18.5	724	17,933	18,657	472
3.	Aug-24	27,584.8	3,900	19.5	726	17,863	18,589	488
4.	Sep-24	32,700.8	3,608	19.0	720	18,713	19,433	496
5.	Oct-24	27,744.8	3,627	19.5	714	18,764	19,478	510
6.	Nov-24	30,046.4	3,705	18.5	712	17,964	18,676	492
7.	Dec-24	25,714.8	3,510	18.5	716	18,810	19,526	472
8.	Jan-25	23,772.8	3,432	18.0	730	16,808	17,538	479
9.	Feb-25	26,200.4	3,861	18.5	724	16,868	17,592	642
10.	Mar-25	31,789.2	3,725	19.5	730	17,709	18,439	658
11.	Apr-25	35,524.8	3,803	19.0	732	16,864	17,596	646
12.	May-25	36,585.6	3,666	18.5	715	16,884	17,599	645
Total		3,58,966	43,836	225	8,657	2,13,069	2,21,726	6,494

- The cost of the electricity is Rs. 12.32/kWh.

3.2: Environmental System: CO_2 Balance Sheet:

→ CO_2 Balance sheet is the indicator on the carbon emission and their neutralization in a year

→ As per the Environmental Management System (EMS); only Scope-1 & Scope-2 based energy consumption is accounted.

→ The following tables provide the balance sheet indicating various energy carriers associated with the regular activities and their CO_2 mapping.

Table-3: Environmental System: CO_2 Balance Sheet (2024-25)

S. No.	Annual Energy Consumption & CO_2 Emission			Annual CO_2 Neutralization		
	Description	Parameters	Emission (Tons)	Description	Parameters	Neutralized (Tons)
1.	Electricity	3,58,966 kWh	294.4	Electricity (DG)	3,56,106 kWh	292.0
2.	Diesel	2,21,726 Litres	585.4			
3.	LPG	43,836 kg	131.5	Solar Thermal PV	6,494 kWh	5.3
4.	Wood	225 Tons	426.6	Mature Tree	770 No's	16.8
Total Emission			1,437.8	Total-Neutralized		314.1
Balance CO_2 to be Neutralized = 1,123.6 Tons/Annum;						

3.3: Calculation Table:

For Electricity = $\left[\text{kWh x } \frac{0.82 \text{ kg of CO2 emission}}{\text{kWh}}\right]$
For Diesel = $\left[\text{Diesel Consumption (Litre) x } \frac{2.64 \text{ kg of CO2 emission}}{\text{Litre of Fuel Consumption}}\right]$
For LPG = $\left[\text{LPG Consumption (kg) x } \frac{3.0 \text{ kg of CO2 emission}}{\text{kg of LPG Consumption}}\right]$
For Wood = [Wood Consumption (kg) x 1.9 kg of CO2 Consumption]
A mature tree is able to absorb nearly CO_2 at a rate of 21.8 kg/annum; $\frac{(21.8\ x\ 770)}{1,000} = 16.8\ \frac{\textbf{Tons}}{\textbf{Annum}}$

3.4: Recommendations:

From the above discussion points; it is evident that activities taken forward to neutralize the CO_2 is predominant and to become a Net-Zero Carbon Emission buildings. The management has to plan several activities achieve the target.

- Increase the foot print of trees planted inside the college campus.
- Encourage the students to plant more trees and account them all.
- It is a right time to install considerable amount of roof top solar PV plant and generate the electricity. This must reduce the utility supply and hence reduce the direct CO_2 reduction.
- As per the Solar Policy-2019 from Government of Tamilnadu; for any educational institutions have to implement substantiate a minimum of 6 % of its energy generation from renewable energy source.

- Convert existing convention street lightings into solar based battery-operated lightings.
- Identify higher fuel consuming vehicle and either rework or replace it.
- Conduct training programmes for the transport staffs at regular interval and encourage them to maintain the vehicles at good condition throughout the year.

3.5: References:

[1] https://ecoscore.be/en/info/ecoscore/co2

[3]http://www.tenmilliontrees.org/trees/#:~:text=A%20mature%20tree%20absorbs%20carbon,the%20average%20car's%20annual%20mileage

3.6: List of Transport Vehicles:

- ✓ Pollution level of all vehicles are regularly monitored and are maintained within the prescribed limit since the college is committed to provide green environment for better atmosphere.
- ✓ The list of transporting vehicles along with their type of engine are represented in Table-4.

Table-4: List of Transporting Vehicles available in the College

S. No.	Type of Vehicle	Fuel used	No. of vehicles	Pollution certified (Y/N)
1.	AL	Diesel	14	Yes
2.	Eicher	Diesel	3	Yes
3.	SML	Diesel	1	Yes
4.	Mahendra	Diesel	1	Yes
5.	Force	Diesel	4	Yes
Total No. of Vehicles			23	Yes

3.7: Details of Pollution Free Transport Vehicles & Copy of Pollution Certificate:

- ↗ The college is committed to green environment not only in the campus; but also, to the entire atmosphere. In order to commute the students and staff; the management is operating vehicle services from various places to the college.
- ↗ These vehicles are well maintained by a set of dedicated bus operators and are continuously monitored by the management officials.
- ↗ No history of accidents (either major and/or minor) for the past five years. Maintaining best performance on the engine, tyre and other accessories.
- ↗ Maintaining proper records on each trip, fuel consumption, distance travelled, no. of passengers and mileage (kmpl)
- ↗ All the drives and helpers are well experienced with good track records on i) fuel economy, ii) maintenance free operation, iii) accident free and iv) student friendly.
- ↗ All the vehicles are checked periodically and are having valid pollution certificate and certificate of insurance. These vehicles are fitted with Bharat Standard (BS)-IV type engines. However, the

management has a commitment to convert the vehicles to BS-VI; once the life time of the vehicles are ended.

- The college administration is also providing skill development training to the bus operator through renowned experts and improve their productivity. Further the management is also conducting regular medical camps for all the bus operator through which i) complete body check-up, ii) blood pressure, iii) blood sugar level, iv) vision check-up and v) other general medical examination are carried out.
- High Speed Diesel (HSD) is used as fuel for all the vehicles; which emits less CO_2 in the atmosphere than compared to conventional fuel. Further; the fuel is procured from a single consumer and hence it maintains the quality and provides good engine life.

Form 59

[See rules 115 (2)]

Pollution Under Control Certificate

Authorised By :

State Transport Department

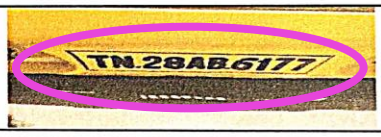
Date	:	18/03/2025
Time	:	12:54:53 PM
Validity upto	:	17/09/2025

Test Validity

Certificate SL. No.	:	TN02800250025461
Registration No.	:	TN28AB6177
Date of Registration	:	20/Aug/2007
Month & Year of Manufacturing	:	May-2007
Valid Mobile Number	:	******0000
Emission Norms	:	BHARAT STAGE II
Fuel	:	DIESEL
PUC Code	:	TN0280025
PUC VIN	:	
Fees	:	Rs.150.00
MIL observation	:	No

Vehicle Photo with Registration plate
60 mm x 30 mm

Vehicle Number



Sr. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (upto 2 decimal places)
1	2	3	4	5
Idling Emissions	Carbon Monoxide (CO)	percentage (%)		
	Hydrocarbon, (THC/HC)	ppm		
High idling emissions	CO	percentage (%)		
	RPM	RPM	2500 ± 200	
	Lambda	-	1 ± 0.03	
Smoke Density	Light absorption coefficient	1/metre	2.45	0.43

This PUC certificate is system generated through the national register of motor vehicles and does not require any signature.

Note : 1. Vehicle owners to link their mobile numbers to registered vehicle by logging to https://puc.parivahan.gov.in

Authorised Signature with stamp of PUC Operator
60mm x 20 mm

T.L.S POLLUTION TESTING CENTRE
NAMAKKAL - 637 003.
Mobile : +91 91422 21536.

Sample Pollution Certificate for a Transport Vehicle

3.8. E- Vehicle:

→ PCE is more conscious about locally created environment pollution and are now running a Battery-Operated Electrical Vehicle (BOEV).

→ This vehicle is mainly employed to carry the visitors for campus tour and is nearly running for 4-5 hours/day.

→ Charged every day and put in to service for operation. Nearly it runs 30-40 km per charging. The charging point is located inside the college campus.

→ Battery powered vehicles are operated with posted speed limits within this campus for pick and drops the students and teachers from parking area to college campus.

3.9: Installation on Fire extinguishers:

- The list of Fire Extinguishers are given below:

S. No.	Type	Capacity	Quantity
1.	CO 2	4.5 kg	20
2.	CO 2	2.0 kg	15
3.	ABC	6.0 kg	30
4.	ABC	2.0 kg	10
5.	ABC	1.0 kg	10
Total			**85**

- Recommend to install adequate Fire extinguishers in all the vulnerable points.
- They are also inspected with refilled and in good condition (with adequate pressure indicated in the meter).
- The institution is recommended to conduct the following fire safety training Programmes to all levels of people at regular interval and list of the training programme along with the type & frequency is represented in the below table.

S. No	Training Description	Mode of Training	Subject	Frequency
1.	Fire mock drill	Internal faculty	✓ Alarm operation ✓ Isolation of power supply ✓ Fire brigade ✓ Evacuation Procedures ✓ Assembly & Roll call	Every 6 Months
2.	Fire mock drill & Fire Fighting Training	External Faculty	✦ Same as Mock drill ✦ Recognize the fire hazards ✦ Fire safety equipment's ✦ Hands on FE operation	Every 12 Months

3.10: Handling of Chemicals/Salts/Acids used in the Laboratories:

The science departments uses chemicals for experimental applications and are having strict safety rules as follows;

- Well trained faculty and lab assistants who have knowledge about the hazardous nature of each and every chemical are only allowed to handle the chemicals safely
- Strictly follow the manufacturer's instruction on the container in order to prevent accidents
- Volatile or highly odorous chemicals, fuming acids are stored in a ventilated area
- Chemicals are stored in eye level and never on the top shelf of storage unit
- All stored chemicals; especially flammable liquids are kept away from heat and direct sunlight. Reactive chemicals are not stored closely
- Hazardous and corrosive chemicals are kept on sand platform to avoid corrosion
- First aid box and fire extinguishers are readily available in the laboratory

3.11: Storage of Chemicals/Salts/Acids:

Less concentrated chemicals, salts and acids are stored in proper racks, cupboards and high concentrated acids are stored in separate area filled with sand.

- Most of the chemicals, salts and acids used in the science departments are inorganic in nature and no harmful effects are created during the experiment process
- However, after completion of each experiment, the wastes are washed in the water sink and are rooted to common choke pit.
- Only trained teaching and non-teaching staffs are handling the chemicals and also, they are well trained to handle any abnormal laboratories.
- Recommend to fix adequate and correct sequence of fire extinguishers are placed near all the laboratories


Chemicals/Salts are
Stored in a Rack


Chemicals/Salts are
Stored in a Rack


Concentrated Acids
placed in Sand Bed


Personal Protective
Equipment's (PPEs)


Personal Protective
Equipment's (PPEs)

BEE Star Rated Energy Efficient Refrigeration in Lab

3.12: Recommendations:

- ⇒ Display the Dos and Don'ts inside the laboratory
- ⇒ Print the Dos & Don'ts in the Students laboratory manual
- ⇒ During the first class, demonstrate a PPT presentation and explain the safety procedures
- ⇒ Provide training to the teaching and technical staffs member on latest updates on chemical storage, handling, and safe disposal
- ⇒ Also encourage to conduct such type of training programmes by the faculty member to nearby schools and college (as an outreach programme)
- ⇒ Fix the First Aid Box (with all necessary medicines)
- ⇒ Place the names (along with their photo and mobile number) of the professionals training to handle fire extinguishers
- ⇒ Prepare & adopt a Chemical Policy (Including procurement, storage, handling, distribution, & disposal

3.13: Use of Chemical for Vessels & Floor Cleaning:

In order to maintain hygiene in the College campus; the administration regularly clean the floors and restrooms. In addition to this, the hostel management has to monitor i) the cleaning of vessels, kitchen floor, dining hall, store room and gas station. Table-5 shows the cleaning agents used to clean the above-mentioned area;

Table-5: Cleaning Agents used for Floor and Vessel Cleaning

S. No.	Cleaning Agent	Application
1.	Soap Oil	Vessel Cleaning
2.	Phenol	Floor Cleaning

Cleaning & Refreshing Agents used for Vessel & Floor Cleaning

3.14: Source of Water, Storage and Distribution:

Table-6 shows the source of water, location of storage along with their application.

Table-6: Source of Water, Location of Storage and Application

Source of Water	Location	Application
Municipal Water	Separate sump of **20,000 Litre** capacity	◆ Only used for drinking application
Open well (01 No.)	Front of the College with nearly **70 Feet Depth**	Utensil Cleaning, Bathing, Cloth Washing, Gardening & Construction
Bore Water	**3 Nos** of bore wells located inside the college campus	
Rain Water Harvesting System (RWHS)	Centralised location named as **"Amarthavarshini"** with a storage capacitor of **2 Crore Litres.**	↗ To store building & road run-offs ↗ Used to increase the ground water

3.15: Details of the Water Utilities, Storage, Motor Capacity and Approximate Run Hours:

The following table provides the details of the Water Utilities, Storage, Motor Capacity and Approximate Run Hours available inside the college for regular application.

Table-7: Details of the Water Utilities, Storage, Motor Capacity and Approximate Run Hours

S. No.	Source of Water	Depth	Sump Capacity	Tank Capacity
1.	Open well	Nearly 70 ft	20,000 Litres	Main Building: 2,000 L x 2 No's HDPF Tank (Interconnected) to store drinking water
				20,000 L; Cement tank is used to store Bore and Open well water
2.	Bore Well	Nearly 350 ft		Core Building: 20,000 L capacity Cement tank patrician with 12,000 L capacity each

Note:

- ☞ Over Head (OH) tanks drinking water tanks are High Density Polyehelne models.
- ☞ OH salt water tanks are Cement construction.
- ☞ The maintenance team ensure to clean the tank for three months once.
- ☞ Bleaching power is mostly used to clean the inside tank.
- ☞ Water Dispenser is located and used to distribute the drinking water with Normal, Hot and Cold options
- ☞ Nearly 09 Nos of water dispensers are located inside the college campus.
- ☞ Treated water from the Sewage Treatment Plant (STP) is used for Gardening application.

3.16: Treated Water for Drinking Application:

- The college management is keen on providing uninterrupted, safe and healthy drinking water to all; throughout the year.
- Water dispenser are provided at appropriate places offering the treated water for the students (Both Normal and Hot temperature)
- The overhead tanks storing the well water are cleaned at regular intervals and the water management team has been maintaining a cleaning schedule Utensil Cleaning, Bathing & Cloth Washing.

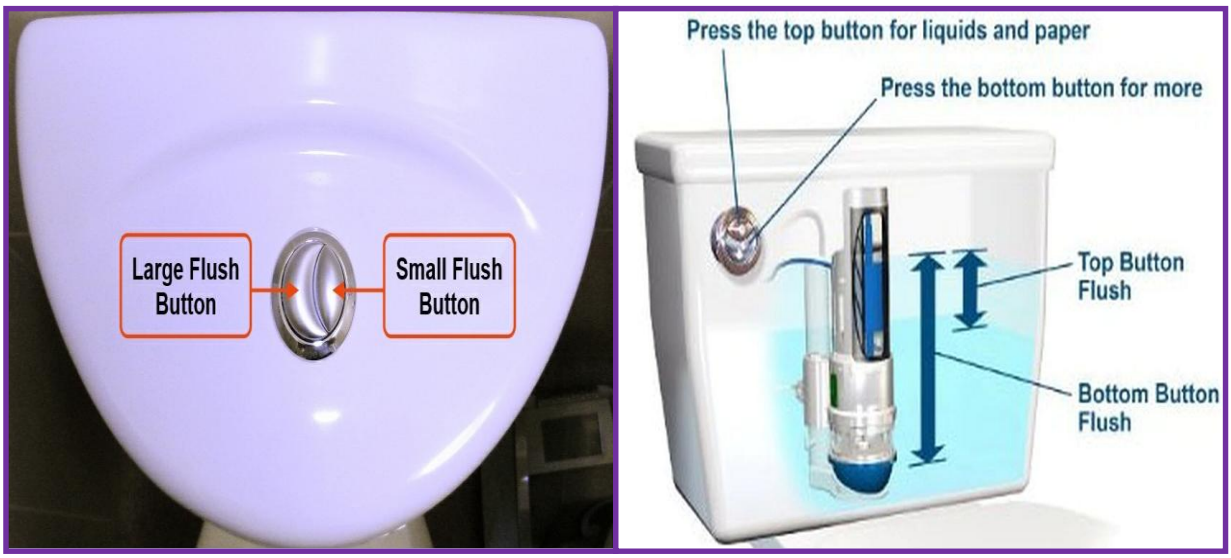
3.17: Water Savings in Foreign Toilets:

- The list of availability of Indian & Foreign style toilets are presented in the below Table-8.

Table – 8: List of Indian & Foreign Style Toiles available in the College

S. No.	Location	Description (Quantity)	
		Indian	Foreign
1.	Main Building	34	08
2.	Temple Tower Building	30	08
3.	Additional Block	30	06
4.	PIF Block	38	12
Total		132	34

- In general, the flush tank capacity may be 8 to 10 Litres (depends on make and model). Water savings also leads to power saving it saves the operating duration of the water pumps directly.



3.18: Rain Water Harvesting (RWH) – from Building Roof Area & Road Run-off Area:

- ☞ The audit team appreciates the effects taken by the management of PAAVI COLLEGE OF ENGINEERING for harvesting the rain water almost in all buildings.
- ☞ The roof area is so arranged to collect the rainwater and then passed through proper piping system, and then bring back to a Common Collection System named as "Amarthavarshini" with a collection capacity of Nearly 2 Crore Liters.
- ☞ It look like a Pond and many living species are available in and around the pond.
- ☞ Because of implementing this centralized storage facility; the ground water level in and around the college are in increased.

3.19: Sewage Treatment Plant:

- It must be appreciated that the management of PCE has implemented conventional wastewater treatment (with a capacity of 2,00,000 litres/day).
- All the sewage waters are collected in main tank with a capacity of 1 Lakh Litres. It is then agitated using raw sewage pump for specified period of time and then let it out to filter tank.
- From the main tank; the treated water is then passed to Aerator tank having 11 HP blower used to deliver dissolved oxygen at 4-6 bar pressure. However this motor is running 24 hours. However this motor is operated based on the quantity of the sewage collected. If the quantity is less (during lean period of college operation), this motor is turned off manually.
- Urea + TFA (Trifluoroacetic Acid) urea acts as an effective catalyst for sludge removal and processing is being added at regular interval.

- Sludge Treatment and Usage: All the sludge's are settled in the tank and pumped back to main tank. Once the quantity of the sludge is appreciable; then it will be taken out and used as manure for gardening.

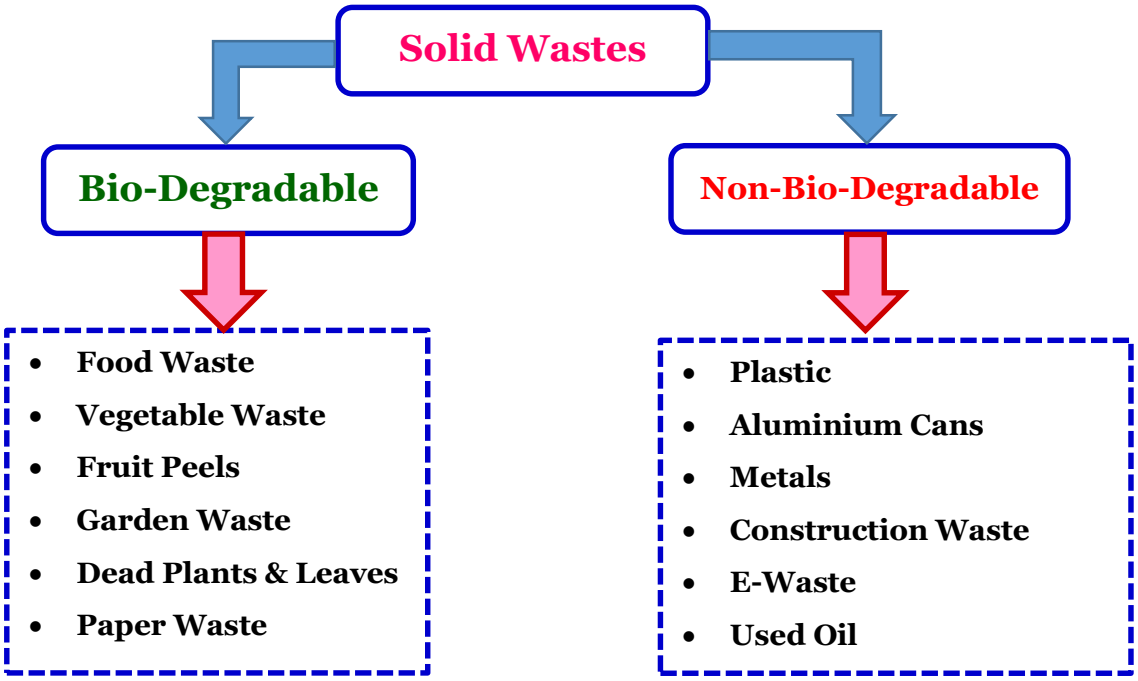
Various Stage of Sewage Treatment Plant (STP)

3.20: Recommendations for Water Distribution Network:

- → Display of Water Consumption: Water consumption is the major utility in the factory. The consumption pattern is not constant and all the stack holders should know the facts of usage of water (and also energy) metrics along with its financial debuts.
- → Hence monitor and display the water consumption at appropriate places and encourage everyone to save water.
- → All the pump motor must be controlled by floating sensor and hence the motors are automatically ON and OFF. It avoids the overflow and hence saves water and electrical energy.
- → All the buildings are fitted with water flow meters and hence the water utilization is properly accounted. However clear picture of actual consumption must be recorded (either manually or digitally).
- → Similar to the water flow meter; energy consumption of all pumping motors is recorded using panel board meters. Manually the readings are taken and computed to calculate the cost of the treated water.
- → Fault and leakage in the water distribution line will be promptly informed by the respective in-charges to the maintenance team and immediately arrested.
- → It is advisable to replace all the old taps without aerator into aerator-based taps in a phased manner.
- → Faucet aerators consists of a small screen which spans the opening of the faucet. Aerators helps to reduce and regulate water flow and also offer the following benefits;
    - ✦ Decreased Faucet Noise & Consistent Water Pressure
    - ✦ Lower Water Bills
    - ✦ Improved Water Pressure
    - ✦ Increased Filtration
    - ✦ Minimized Splashing
    - ✦ Simple and Quick Installation

3.21: Solid Waste Management System:

Different types of wastes generated inside the college premises are represented in the block diagram given below.



3.22: Process of Waste Management:

The college management practised some methods to treat the waste generated and Table-9 shows the process of treating the solid waste generated inside the college campus.

Table-9: Process of Waste Management

S. No.	Waste Type	Waste Treatment
Bio-Degradable Waste Management		
1.	Food and Vegetable Waste	• Collected and used as a input fuel for the Biogas Energy Generation System
2.	Garden Wastes and Plant Leaves	• Daily collected and dumped in a yard
3.	Paper Waste	• Collected and stored in a separate place • Sold to third party for recycling • Daily paper waste stored in a yard
Non-Bio-Degradable Waste Management		
4.	Plastics	• Banned in the college campus (Welcome step). • The chemical/salt storage containers are disposed to third party
5.	Construction Waste	• Mostly used by their own construction and used for internal land filling

6.	Metals	• Construction metals or metals from any other sources are stored & sale to third party for recycling
7.	Transport Oil + Tyres	• Stored in a separate place and sold to third party
8.	DG Engine oil & Coolant	• Stored in a separate place and sold to Construction Purpose Only
9.	Vehicle & Computer Batteries	• Procuring new batteries with buyback offer • (Old battery replacement)
10.	Used edible oil	• Almost zero waste. Mostly used for internal cooking and frying.
11.	E-Waste Management	• Used for sale to third party for recycling

3.23: Standards Followed for Waste Handling & Management:

1. Solid Waste Management Rules – 2016
2. E-Waste Management Rules – 2016
3. Hazardous Waste Management Rules – 2016 (Management & Transboundary)
4. Battery Management Rules – 2001 (Management & Handling)

3.24: General Note:

- ❖ Prepare a flow chart for collection of E-waste from Generation to Disposal and paste it on appropriate places
- ❖ An electronic weighing scale (with suitable capacity) must be installed in the storage yard and should be properly calibrated
- ❖ One emergency lamp (with UPS supply) must be installed along with suitable fire extinguisher. Ensure proper ventilation in the yard
- ❖ Form rule for declaring the waste as E-Waste & Assign the singing authorities
- ❖ Identify a third-party vendor to procure the E-waste from the college
- ❖ Establish MoU with that party. Disseminate the following information at appropriate places i) E-Waste Policy, ii) Process Methodology, iii) Copy of MoU with third party vendor, iv) Contact persons mobile number and E-mail.
- ❖ Identify certain vehicle to carry the waste from generation to storage yard
- ❖ Provide training to the man power who are handling the waste
- ❖ Maintain separate Delivery Challan, Billing, weighing mechanism for handling the E-Waste
- ❖ Update the status of E-waste (through digital circular) to all the concerned management representatives, faculty members and staff at regular intervals (month wise is good)

Solid Waste Management (Collection, Segregation, Storage & Safe Disposal)

3.25: E-Waste Management:

- With the proliferation of electronics also comes the challenge of their proper disposal. The institute has very efficient mechanism to dispose E wastes generated from various sources.
- The major e-waste such as written-off instruments/equipment, old version computers, printers, electronic gadgets/circuits, kits have been written off on regular basis and condemned devices and materials from computer lab are sold to the e-waste management companies/buyers in Coimbatore.
- All the miscellaneous e-waste such as CDs, batteries, fluorescent bulbs, PCBs, and electronic items are collected and delivered for safe disposal. Minor repairs are addressed by the lab technician with the support of staff members whereas the major issues are repaired by professionally trained personnel.

GKV Computers & Solutions Pvt Limited.

CERTIFICATE OF E-WASTE DISPOSAL

This is to certify that e-waste received from **Paavai Engineering College, Pachal, Namakkal** has been disposed in an environment friendly manner. Date/Period of receipt of material 03.07.2024.

We thank you for your effort in contributing towards a **CLEAN & GREEN** environment.

Place : Pachal

Date : 03.07.2024

For GKV COMPUTERS AND SOLUTIONS P LTD

Authorized Signature

Certificate for E-Disposal

#82, NGN Street, New Sidhapudur, Coimbatore 641044 Phone: 0422 2525349 : FAX : 0422 2525369:

ASUS ZEBRONICS IBM

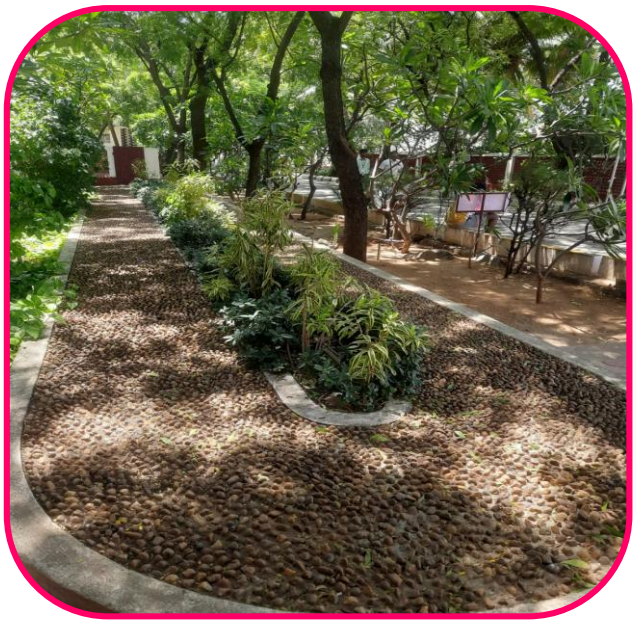
3.26: Campus Greenery:

The college is completely covered with mature trees grown for more than 10 years. The total number of mature trees available in the college campus is *770 with many varieties of trees.*

Table-11: List of Mature Trees available in the College Campus

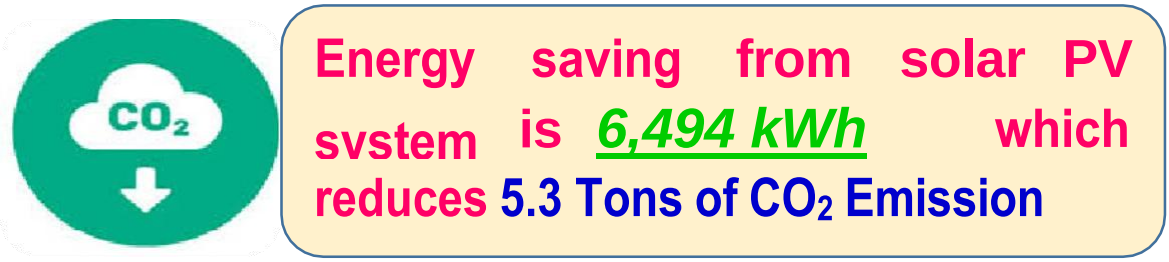
S. No.	Location	Name of the Tree	Quantity
1	Entire Campus Location	Variety of Mature Trees	770

Total No. of Mature Trees available in the college campus is **770** which contributes for reduction of **16.8 Tons of CO_2 emission/Annum**



3.27: Roof Top Solar Photovoltaic System:

The college has installed at Temple Tower Building solar PV plants with a capacity of nearly 5.72 kW generate and feed power to the respective LT services and are utilized by the campus load.

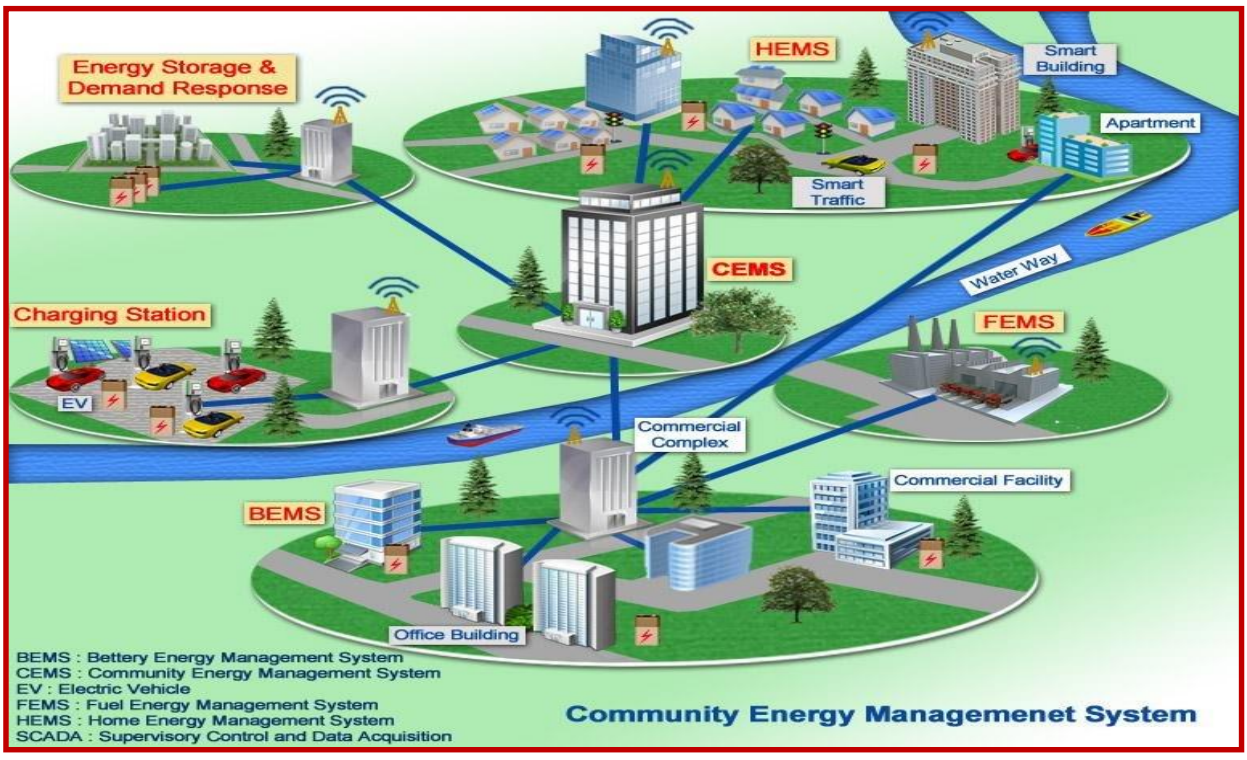


3.28: Bio-gas Plant Generating Cooking Gas:

- Again to voice for Green Energy; PCE has implemented a Bio-gas (natural fuel) plant generating energy from food and vegetable wastes daily generated in mess and canteen.
- Production of biogas obtained from "anaerobic digestion" which consists in micro-organisms breaking down complex organic substances (lipids, protides, and glucides), contained in plants, sludge and by-products of animal origin.
- Biogas is primarily methane (CH_4) and carbon dioxide (CO_2) and may have small amounts of hydrogen sulphide (H_2S), moisture and siloxanes. The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen.
- Food waste generated from cooked rice, cut portions of vegetables and non-used vegetables waste. This waste is crushed by mixer grinder and slurry was prepared by adding water.
- The college has installed a biogas plant having capacity of 80 Cubic Meter (2 Nos of Cu.M) at hostel of Paavai College of Engineering to process food waste and other biodegradable garbage generated on the campus. The plant capable of processing up to 680 kg of waste daily.

3.29: Integrated Green Building – Future Plan for Today's Requirement:

- Green concepts also realize some indirect benefits like superior air quality, excellent day lighting, health and well-being of the occupants and visitors. Implementation of Green Building Concepts ensures the energy savings to the tune of 20-30%.
- Hence the audit team recommended to the management, plan and construct the future building as per the guidelines of Green Building System (IGBC/GRIHA/GEM) to save Energy, Environment and Ecology.



3.30: Bio-Diversity in the Campus:

- Biodiversity is all the different kinds of life you'll find in one area—the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world.
- Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life.

3.31: Formation of Green Energy Team (GET):

- It is essential and the right time to form an Energy Management Team comprising of the following members with their roles and responsibilities as shown in Table-11.

Table-11: Roles of Responsibilities of Green Energy Team (GET)

S. No	Members	Roles	Responsibilities
1.	Management Commitment	Overall Monitoring	• Encourage members to carry out activities • Propose possible think tank ideas to be implemented in the college campus
2.	Head of the Institution	Team Head	• Monitoring all energy related activities • Report to the Management
3.	Heads of various Departments	Team Manager	• Assessing the energy target • Monitoring the energy performance • Revising the target based on performance • Projects/activities/implementation
4.	Faculty members from various department	Team Members	• Identify the viable energy saving projects • Prepare the detailed work plan/time frame • Project guides for energy related projects • Pre and post project implement study • Rework if there is any deviation
5.	Student volunteers	Energy Ambassadors	• Responsible of identified areas • Floor in-charge for energy utilities • Development energy saving projects • Testing and Implementation

- Educate all the faculty, staff and students about the need for the energy conservation
- Energy conservation related projects are to be implemented in the college premises
- Nominate brand ambassadors for energy saving among students (for each building/floor)
- Cash incentives/awards may be given to the prominent energy achievers
- Circulate the success stories as energy conservation measures

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

M/s. PAAVAI ENGINEERING COLLEGE

(Autonomous Institution)

Paavai Nagar, NH-44, Pachal -637 018,

Namakkal (Dt), Tamil Nadu.

4. ACTIVITIES COMPLETED

&

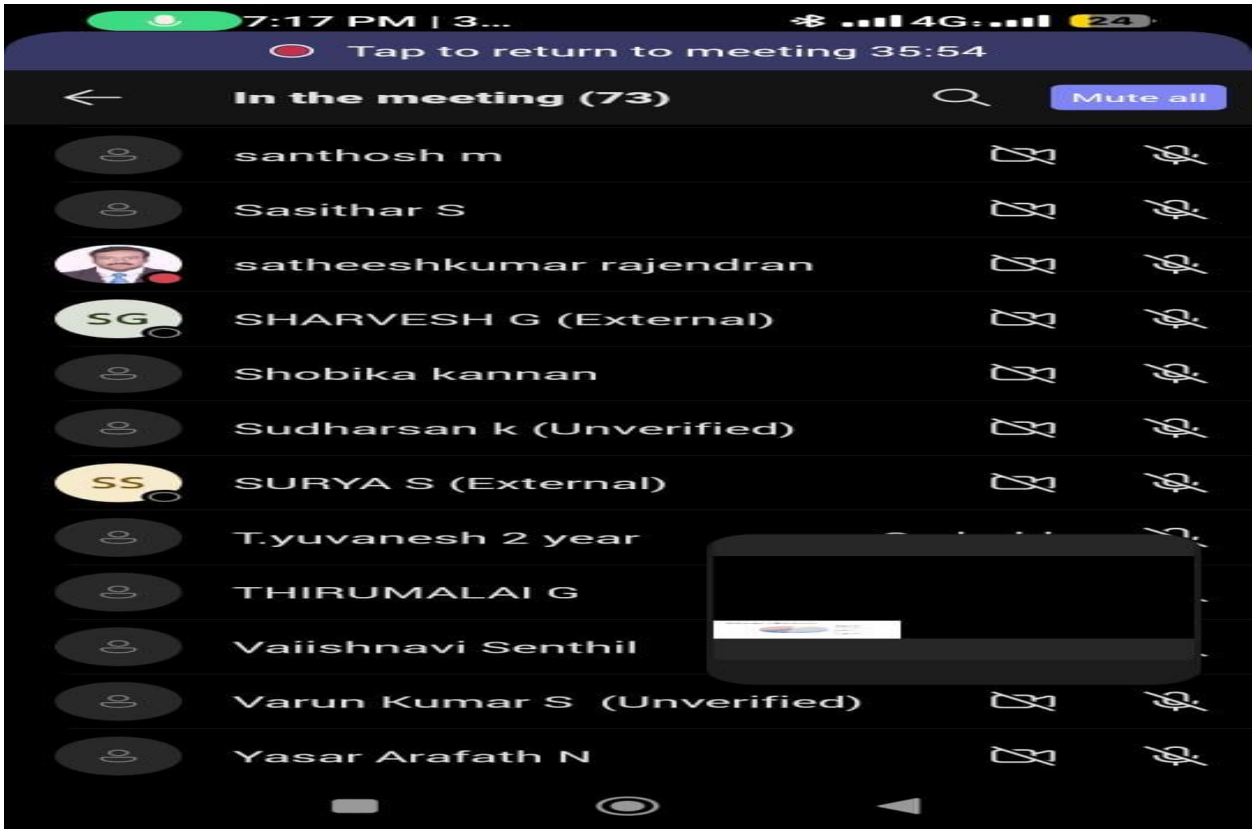
RECOMMENDATIONS

4.1: Activities Completed:

The Audit Team appreciates that the management of PAAVAI COLLEGE OF ENGINEERING has been implemented "Go Green Initiative" several Measured to save energy and to protect the environment inside the College Campus. The Followings are the activities completed accounted for the last year.

A: Guest Lecture On "Solar Renewable Energy and Its Opportunities" Organized by The Department of EEE on 03.05.2025:

- The Department of Electrical and Electronics Engineering successfully organized a guest lecture on the topic "Solar Renewable Energy and Its Opportunities" on 3 rd May 2025. The session was conducted virtually and witnessed enthusiastic participation from the students of the department.
- The event featured Mr. N. Arunmozhi, Project Manager at HCT Energy, Dubai, as the esteemed speaker. Drawing from his extensive industry experience and insights into the global renewable energy landscape, Mr. Arunmozhi provided a comprehensive overview of solar power generation, emerging technologies, and career prospects in the solar energy sector.
- The session commenced with a warm welcome address by Ms. Indumathi, a second-year EEE student, who introduced the speaker and set the tone for the event. Mr. Arunmozhi then delivered a highly engaging and informative presentation, highlighting real-world projects, trends in solar infrastructure, and the increasing demand for skilled professionals in the renewable energy sector.
- The session concluded with an interactive Q&A segment, where students actively posed questions and explored various aspects of solar energy applications and career pathways. The event concluded with a heartfelt vote of thanks delivered by Ms. Kusuma, also a second-year EEE student, who expressed gratitude to the speaker, organizers, and participants.
- The lecture successfully broadened the students' understanding of the solar energy sector and inspired many to consider renewable energy as a potential career path, aligning with global sustainability goals.



B. The national service scheme (NSS) of PEC organized a blood donation camp on 15.03.2025:

- The National Service Scheme (NSS) of Paavai Engineering College, in collaboration with Sree Jayam Ortho and Multi-Speciality Hospital, Mallur, Salem, jointly organized a Blood Donation Camp on March 15, 2025, on the college premises.
- The event was graced by Dr. S. Pandiyan, Medical Officer, Rainbow Blood Centre, Karur, Dr. M. Premkumar, Principal, Paavai Engineering College, and Mr. C. Rathnakumar, NSS Programme Officer, Paavai Engineering College. They encouraged students to contribute to this noble cause by donating blood.
- The students of Paavai Engineering College eagerly participated in the camp, demonstrating their commitment to social welfare. A total of 108 students donated blood during the event.
- As a token of appreciation, each donor received a Certificate of Appreciation along with refreshments. The camp was successfully organized and coordinated by Mr. C. Rathnakumar, NSS Programme Officer.

C. The Youth Red Cross (YRC) In Association with Salem Blood Bank Organized a Blood Donation Camp On 13.02.2025.

- ⊕ The Youth Red Cross (YRC) of Paavai Engineering College, in association with the Salem Blood Bank, organized a Blood Donation Camp on February 13, 2025, at Visvesvaraya Hall from 9:30 AM to 1:00 PM. Dr. Sriram, M.B.B.S., from the Salem Blood Bank, was the Guest Speaker for the event. The program commenced with a prayer song, followed by a welcome address. In his presidential address, Dr. K. K. Ramasamy, Director of Administration, Paavai Institutions, emphasized the importance of volunteering and blood donation camps, which play a crucial role in saving lives. Dr. Sriram, M.B.B.S., delivered an insightful speech on the significance of blood donation, outlining the eligibility criteria, requirements for donors, and the positive impact and benefits of donating blood.
- ⊕ Following the session, 104 students came forward to donate blood (Welcome Step), demonstrating their commitment to social service and humanitarian efforts.
- ⊕ The event was successfully organized by Mr. S. Sathish, YRC Faculty Coordinator, along with the YRC volunteers. The participants' contributions to this noble cause reflected the spirit of service to society and the importance of saving lives through blood donation.

D. The Department of Agricultural Engineering Observed World Agriculture Day On 09.09.2024.

- ☞ On September 9, 2024, the Agricultural Engineering Department of Paavai Engineering College observed World Agriculture Day with a pledge-taking ceremony organized by Paavai Velaan Mandram. The event aimed to raise awareness about the importance of sustainable agriculture and the role students can play in promoting eco-friendly farming practices. During the ceremony, students collectively pledged to contribute to sustainable agricultural development, ensure global food security, and promote environmentally responsible practices.

E. Youth Red Cross in Association with Manipal Hospital, Salem Organized an Awareness Program On 08.08.2024.

- On August 8, 2024, Paavai Engineering College, Youth Red Cross and in association with Manipal Hospital, Salem. Organized a significant awareness program on "Organ Donation" The initiative aimed to educate students on the importance of organ donation and encourage them to become informed advocates for this life-saving cause. The event was presided over by Dr. K.K. Ramasamy, Director of Administration at Paavai Institutions.
- The program was honoured by the presence of Dr. Karthikeyan Selvaraj MBBS, MS, who served as the Chief Guest. In his compelling address to the students and faculty, Dr. Karthikeyan Selvaraj underscored the critical need for organ donation and its profound impact on saving lives. He praised Paavai Engineering College and its students for organizing such an essential awareness program and shared his vast experience in the healthcare field, providing valuable insights into the process of organ donation, current challenges, and the legal and ethical considerations involved.
- The day's events commenced with an informative session led by Dr. Karthikeyan Selvaraj, where he discussed the importance of organ donation, dispelled common myths, and explained the steps required to become an organ donor. His insights were both enlightening and encouraging, helping to clarify misconceptions and highlight the life-saving potential of organ donation. The session saw the enthusiastic participation of 110 students, all eager to learn more about this crucial topic.
- The organ donation awareness program at Paavai Engineering College was a resounding success, characterized by active student participation and valuable educational experiences. The presence of Dr. Karthikeyan Selvaraj as Chief Guest significantly enriched the event, inspiring students to consider becoming organ donors and to spread awareness within their communities. This program serves as a powerful reminder of our shared responsibility to save lives through organ donation. In the presence of Director of Administration, the Principal, Mr. S. Sathish – YRC coordinator, Faculty members from various departments the event completed successfully.

F. The Department of Agri Organized a Aadi Pattam Thedi Vidhai Event On 27.07.2024.

→ The Aadi Pattam Thedi Vidhai event was successfully held on July 27, 2024, at M.S. Swaminathan Vayal Kudam. The event aimed to promote traditional seed conservation and sowing practices. Dr. A. Vivekanandhini, Head of the Department of Agricultural Engineering, led the ceremony, which was graced by the presence of Shri. L. Mohanalaxmanan, Assistant Agriculture Officer. Students and participants actively engaged in seed sowing activities, showcasing various traditional seed varieties. The event highlighted the importance of preserving our natural heritage and adopting sustainable agricultural practices. The organizers thanked participants and stakeholders for their support, marking the event as a significant step towards promoting traditional seed conservation.

G. World Environment Day Celebration Was Held on 05.06.2024 By the Department of Agri.

- The celebration began with an inaugural address by Dr. A. Vivekanadhini, highlighting the significance of World Environment Day and the importance of sustainable practices in agriculture. The chief guest, R. N. Moulishwaran, emphasized the need for environmentally conscious farming methods and the role of agricultural engineering in promoting sustainability.
- The program concluded with a tree planting ceremony in the Bus Yard of Paavai Education Institutions, symbolizing the commitment to environmental protection and sustainability. Over 20 trees were planted, involving students, faculty members, and staff.
- The World Environment Day celebration at Paavai Engineering College was a resounding success, fostering a sense of responsibility towards environmental stewardship among the academic community. The event demonstrated the institution's commitment to sustainability and its potential to inspire positive change.

H. The Department of Civil Engineering Jointly with Environmental Club Organized an Event On 05.06.2024.

- Department of Civil Engineering jointly with Environmental Club of Paavai Engineering College celebrated "World Environmental Day" on June 5th 2024 by conducting events on the title Recyclables Art and Logo Competition on 05.06.2024 from 02.30 p.m to 04.30 p.m. in T226 as a part of club activity.
- The main aim of a recyclable's art and logo competition for World Environmental Day would likely be to raise awareness about environmental issues, particularly related to waste management and recycling. Encouraged participants to think creatively about how recyclable materials can be repurposed into artistic creations and preparation of logos that convey messages about environmental sustainability. Students were used the opportunity to showcase the recyclable art work made from the various recyclable materials.
- Prof. K. Sharmiladevi, HoD/Civil, Dr. A. Vivekanandhini, HoD/Agri, Dr. Murshithabanu, Head/FDD, A. Jayapal, AP/Civil along with faculty members and students of various departments around 60 participants were involved in the competition.

I. YRC in Association with IIC and The Tamil Nadu Pollution Control Board Celebrated "World Environment Day" Series On 05.06.2024.

⇒ On June 5, 2024, Paavai Engineering College, Youth Red Cross in association with the Institution's Innovation Council and the Tamil Nadu Pollution Control Board, Namakkal, celebrated "World Environment Day" with a series of impactful events aimed at raising environmental awareness and encouraging proactive environmental stewardship among students. Dr. K.K. Ramasamy, Director Administration, Paavai Institutions presided over the function.

⇒ This event was graced by the presence of Mr. D. Raghunathan, District Environmental Engineer, Namakkal who was the Chief Guest. He delivered an inspiring address to the gathered students and faculty. In his speech, Mr. Raghunathan emphasized the critical role that young people play in the fight against environmental degradation. He lauded the efforts of Paavai Engineering College and its students for organizing such an awareness rally. Mr. Raghunathan also shared insights from his extensive experience in Environmental Engineering, providing valuable knowledge on sustainable practices and the latest technological advancements in pollution control. The Celebration began with a sapling plantation and a vibrant rally that saw the enthusiastic participation of 50 students. The rally, which was organized to draw attention to pressing environmental issues, wound its way through the college premises and nearby areas, spreading messages about the importance of environmental conservation. Their spirited march highlighted the collective responsibility of the community to combat pollution and promote sustainability.

⇒ Following the rally, a drawing competition was conducted on the theme of "Our land, our future". The artwork produced was a vivid display of the student's understanding and concern for various environmental issues, ranging from deforestation and pollution to climate change and wildlife conservation, and 90 students participated in the drawing competition. The best three drawing were awarded with trophy and certificates.

⇒ The celebration of World Environment Day at Paavai Engineering College was a resounding success, marked by active student participation and valuable educational experiences. The rally and drawing competition not only provided a platform for students to express their environmental concerns creatively but also reinforced the importance of individual and collective action in protecting our planet. The presence of Mr. D. Raghunathan as Chief Guest added significant value to the event, inspiring students to pursue sustainable practices in their daily lives. This celebration of World Environment Day serves as a reminder of our shared duty to safeguard the environment for future generations. Director Administration, Principal, Youth Red Cross, and National Service Scheme coordinators were present in the program.

4.2: RECOMMENDATIONS:

- Prepare a schedule to clean the air filters of AC indoor units at regular intervals
- Measure the earth resistance at regular interval and maintain within the standard.
- Voltage drops at the load end can be improved by load end capacitors compensation
- Battery voltage of each UPS must be measured and monitored.
- Prepare and adhere a cleaning schedule for UPS
- Conduct awareness programmes on Energy Conservation to all the stake holders.
- Foot valve of all the submersible and open well pipes must be cleaned at regular intervals and this ensure i) free flow of water and ii) reduced power consumption.
- Connect load end compensation capacitors to reduce the cable distribution loss.
- Set the air conditioning area temperature within a range of 24-26 ^{o}C to have better human comfort and hence to save power.
- Provide electronic energy meters and run-hour meters for each pump.

Audit Conducted and Verified by,

Dr. S.R. SIVARASU
BEE Certified Energy Auditor (EA-27299)
Lead Auditor – ISO 14001: EMS; IGBC AP, GRIHA CP
CII Certified Professional in SWM
ISO-14064: Implementor & Auditor - Carbon Footprint Management

COMPLETION OF THE REPORT

This report is prepared as a part of the Energy, Environment and Green Audit process conducted GOBI ARTS & SCIENCE COLLEGE, Karattadipalayam, Gobichettipalayam – 638 453, Tamil Nadu, India by RAM-KALAM CENTRE FOR ENERGY CONSULTANCY AND TRAINING, Coimbatore – 641 062.

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

M/s. PAAVAI ENGINEERING COLLEGE

(Autonomous Institution)

Paavai Nagar, NH-44, Pachal -637 018,

Namakkal (Dt), Tamil Nadu.

ANNEXURE:

AUTHORISED CERTIFICATES OF THE AUDITOI

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

South Asia

CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited

certifies that

M/S RAMKALAM CENTRE FOR ENERGY CONSULTANCY & TRAINING

No.8, VPK Garden, Velanaipatti, Coimbatore – 641 062, India

has implemented Quality Management System

in accordance with **ISO 9001:2015**

for the scope of

Providing Energy, Environment, Green audits to industry, Academic institutions and organizations

The certificate is valid from **2023-11-22** until **2026-11-21**

Subject to successful completion of annual periodic audits

The present status of this certificate can be obtained through TUV SUD website by scanning below QR code and by entering the certificate number (without spaces) on web page. Further clarifications regarding the status & scope of this certificate may be obtained by consulting the certification body at info.in@tuvsud.com

Certificate Registration No. **99 100 23573**

Date of Initial certification: **2023-11-22**

Issue Date: **2023-11-22** Rev. **00**

Rahul Kale
Head of Certification Body
of TÜV SÜD South Asia Private Limited,
Mumbai
Member of TÜV SÜD Group

NABCB QM011

TÜV SÜD South Asia Pvt. Ltd. ● TÜV SÜD House ● Saki Naka ● Andheri (East) ● Mumbai – 400072 ● Maharashtra ● India

Reg No.: EA-27299

Certificate No.: 9645/19

NATIONAL PRODUCTIVITY COUNCIL

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr./ Mrs./ Ms. **SIVARASU SULUR RATHINAVELU**

son / daughter of Mr. **P RATHINAVELU** *has passed the National certification Examination for Energy Auditors held in September 2018, 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 Accredited Energy Auditor and issuance of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

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

Digitally Signed by:K V R RAJU
Mon Apr 22 16:22:42 IST 2019
Controller of Examination, NPC AIP Chennai

Place : Chennai, India
Date : **22nd April, 2019**

Controller of Examination

TÜV NORD

ISO 14001:2015 Lead Auditor
(Environmental Management Systems)
Training course

it is hereby certified that

Dr. S. R. Sivarasu

has successfully completed the above mentioned course and examination

08th - 12th December 2017

Coimbatore, India

Certificate No. 3521 2982 02

Delegate No. 71968

for TÜV NORD CERT GmbH

Essen, 2018-01-11

Course 18125 is certified by CQI/IRCA and meets the training requirements for those seeking certification under the IRCA EMS auditor certification scheme.

TÜV NORD CERT GmbH Langemarckstraße 20 45141 Essen www.tuev-nord-cert.com

CQI | IRCA CERTIFIED COURSE

CQI | IRCA APPROVED TRAINING PARTNER

IGBC

Confederation of Indian Industry

The Indian Green Building Council

hereby certifies that

Sivarasu S R

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their Impacts, required to be awarded the title of

IGBC Accredited Professional

K S Venkatagiri
Executive Director
CII-Godrej GBC

V Suresh
Chairman
Indian Green Building Council

Gurmit Singh Arora
Vice-Chairman
Indian Green Building Council

200239

20 June 2020

GRIHA

GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT

GRIHA CERTIFIED PROFESSIONAL CERTIFICATE

This is to certify that

Sivarasu sr

has qualified as a **GRIHA** Certified Professional For V. 2015

Date of issue: 18th September 2020

Note : This certification is valid only for GRIHA version 2015.

Chief Executive Officer
GRIHA Council

Confederation of Indian Industry

This is to certify that

SIVARASU S R

is a

CII Certified Professional in Sustainable Waste Management

K S Venkatagiri
Executive Director
CII - Godrej GBC

Pradeep Bhargava
Chairman
CII GreenCo Council

IGBC

e-Learning

Issued by CII Sohrabji Godrej Green Business Centre | Issued on 9 June 2021 | CIGBC-SWM-0621-298

HSSERisk Academy

CERTIFICATE

OF APPRECIATION

EMPOWERING PEOPLE THROUGH KNOWLEDGE TRANSFER

THIS CERTIFICATE IS AWARDED TO

Sivarasu Rathinavelu

FOR SUCCESSFUL COMPETION OF TRAINING COURSE ON

ISO 14064-1:2018
ISO 14064-2:2019
ISO 14064-3:2019
ISO 14066:2011
ISO 14067:2018

AND CERTIFY HIM/ HER AS

IMPLEMENTOR & AUDITOR
CARBON FOOTPRINT MANAGEMENT

This certificate is awarded for successful completion of Global Virtual Training course conducted from August 27, 2021 to September 01, 2021. It's serves as a proof of his/her knowledge, competence and ability to implement, verify and validate carbon footprint as per above mentioned standards and methods. This certificate was awarded on August 01, 2021.

01.09.21
DATE

SIGNATURE

010920211006

HSSERisk MANAGEMENT SERVICES
www.hsserisk.com