



# SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate, Tirupur 638056

## NAAC DOCUMENTS

### QUALITY INDICATOR FRAME WORK

#### CRITERION - 7

### INSTITUTIONAL VALUES & BEST PRACTICES

SUBMITTED BY

# IQAC

INTERNAL QUALITY ASSURANCE CELL

## SASURIE COLLEGE OF ENGINEERING



<b>S.No.</b>	<b>Particulars</b>	<b>Page no</b>
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## 7.1 Institutional Values and Social Responsibilities

**7.1.3 Quality audits on environment and energy regularly undertaken by the institution. The institutional environmental and energy initiatives are confirmed through the following**

1. Green audit / Environmental audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion activities

**GREEN AUDIT / ENVIRONMENTAL AUDIT  
REPORT FROM THE RECOGNIZED BODIES**

Criterion 7	Institutional Values and and Best Practices	100
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**Key Indicator 7.1 - Institutional Values and Social Responsibilities**

**7.1.3 Quality audits on environment and energy regularly undertaken by the institution. The institutional environmental and energy initiatives are confirmed through the following**

1. Green audit / Environmental audit
2. Energy audit
3. Clean and green campus initiatives
4. Beyond the campus environmental promotion activities

Responses: **Option A. All of the above**

**GREEN AUDIT / ENVIRONMENTAL  
AUDIT REPORT  
FROM THE RECOGNIZED BODIES**

# GREEN AUDIT REPORT



**SASURIE COLLEGE OF ENGINEERING**  
**VIJAYAMANGALAM, TIRUPPUR - 638056**  
**TAMILNADU**



**AUDIT CONDUCTED BY**  
**YOJO NETWORK & TRAINING CENTER**

**(Registered Audit Agencies)**  
**GST no: 33AYXPP0304R1ZT**  
**(Chennai ♦ Kumbakonam ♦ Karaikal)**

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### ACKNOWLEDGEMENT

Yojo Network & Training Center is thankful to the Board of Management, Head of Institution, Faculty and Technical team members of SASURIE COLLEGE OF ENGINEERING for providing an opportunity to conduct a detailed Green Audit process in the college premises from 15 May 2023 to 17 May 2023. . It is our great pleasure which must be recorded here that the Management of SASURIE COLLEGE OF ENGINEERING extended all possible support and assistance resulting in thorough completion of the Green audit process. The audit team appreciates the co-operation 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 of Green Audit.

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.

<u>Audit Team Members</u>	
<b>Er. V. Marimuthu., B.E.,</b> <b>Er. C. Saravanakumar., B.E.,</b>	<b>UKAS Certified Energy Auditor (KQ-233)</b> Lead Auditor-ISO-9001:2015,14001:2015(EMS), UKAS, KQ Reg., COC. Carbon Footprint Auditor Mobile:+91-9047205733
<b>Er. R. Rajkumar, B.E.,</b>	<b>Audit Associate</b>

**Dr. M. VIJAYAKUMAR ME., Ph.D.,**  
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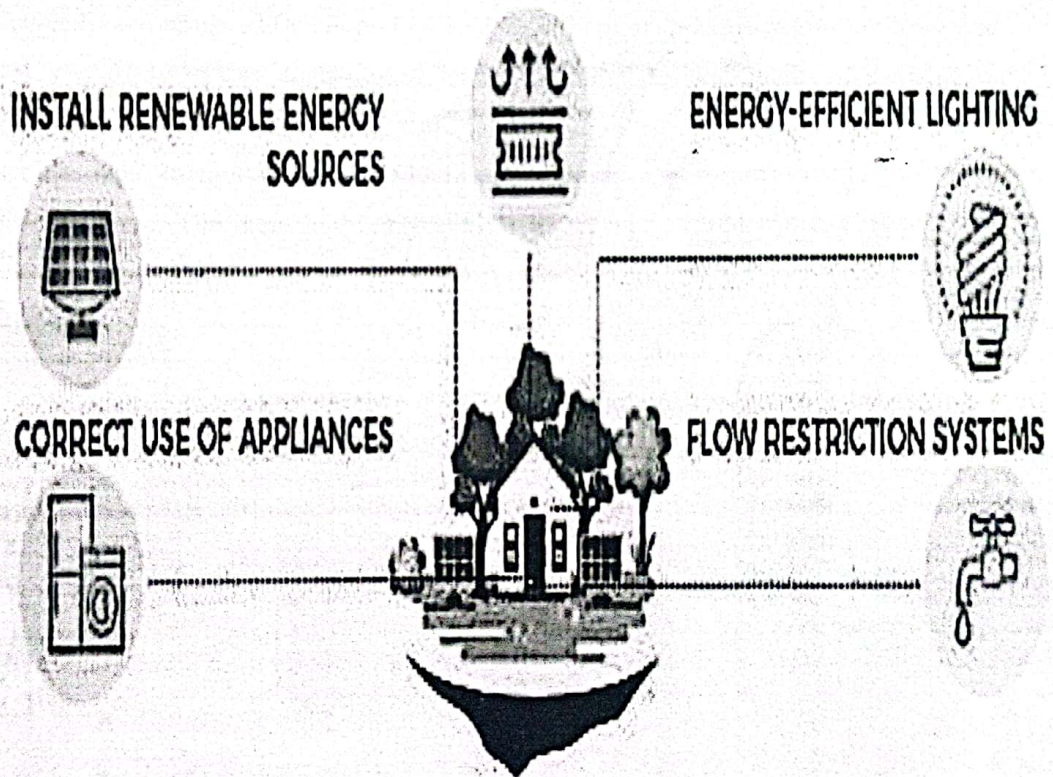


**SASURIE COLLEGE OF ENGINEERING,**  
Vijayamangalam - 638 056, Tirupur (Dt).

# GREEN AUDIT REPORT

## INTRODUCTION TO GREEN AUDIT

### 5 IDEAS FOR A SUSTAINABLE INSTITUTION



  
**Dr.M.VIJAYAKUMAR** ME., Ph.D.,  
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### 1.1 : Preface about the Institution:

SASURIE COLLEGE OF ENGINEERING was seeded by Ponmudi Muthusamy Gounder Trust in the year 2001 to offer B.E / B.Tech, M.E / M.Tech degree courses to inculcate quality education for rural students. This institution is located on the outskirts of Tiruppur district and about 6 kilometers from Vijayamangalam Toll Plaza and almost in a rural atmosphere.

The Institution offers 8 UG [B.E. – Civil, CSE, ECE, EEE, Mech, CSE (Cyber Security) and B.Tech – AI&DS, IT] and 6 PG [MBA, ME. – CSE, Applied Electronics, VLSI Design, Power Electronics and Drives and M.Tech. – IT] programs. This Institution has a good digital library with 300 Mbps high- speed internet facilities to the benefit of students and faculty. The well-stocked library having more number of International and National Journals and Magazines. This Institution has well-qualified faculties, modern infrastructure with well-equipped laboratories. The main building has G+3 floors with a total carpet area of 19,047 Sq.m.

### 1.2 : Quality Policy:

SASURIE COLLEGE OF ENGINEERING maintains various policies to enhance the growth of the students, staff along with the growth of the Institution.

The policies are as follows:

- GREEN POLICY
- CODE OF CONDUCT
- ENVIRONMENT POLICY
- ENERGY POLICY
- WASTE MANAGEMENT POLICY
- E-GOVERNANCE POLICY
- GRIEVANCE & REDRESSAL POLICY
- RESOURCE MOBILISATION POLICY

  
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### **1.3: Scope of the Audit Process:**

- **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<sub>2</sub> due to green energy system and identification of possible implementation and enhancement of current greenery practices.

### **1.4: Outcomes of the Audit Process:**

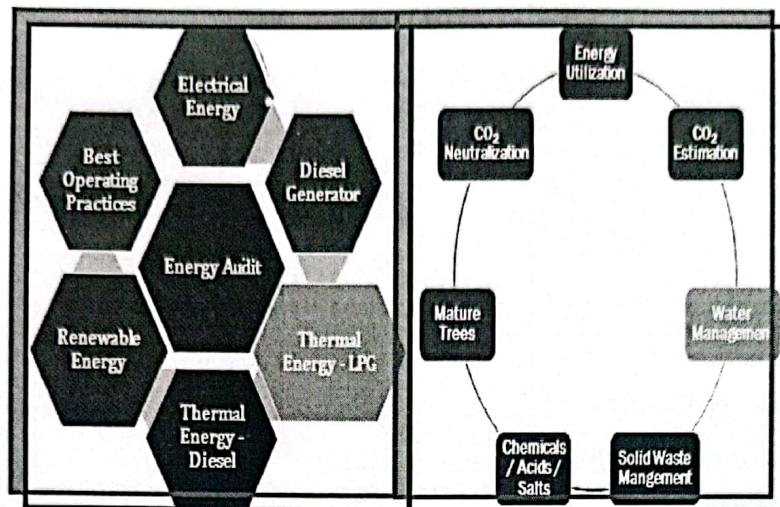
- Recommendations based on field measurement with achievable **Energy Conservation (ENCON)** proposals under **No cost / Low cost and Cost investment categories.**
- **Minimization of present energy cost** by adjusting and optimizing energy usage and reduction of energy wastage without affecting the 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.

### **1.5: Standards Used:**

- Bureau of Energy Efficiency Guidelines to conduct the detailed energy audit process.
- **ISO 14064-Part-1** – Specification with guidance at the organization level for quantification and reporting of GHG emissions and removals (Second Edition).
- **ISO 14064-Part-2** – Specification with guidance at the project level for quantification, monitoring and reporting of GHG emissions reductions or removal enhancement (Second Edition-2019).
- **ISO 14064-Part-3** – Specification with guidance for the verification and validation of GHG statements (Second Edition-2019).
- The Green house Gas Protocol- a Corporate Accounting and Reporting Standard (Revised Edition) released by World Resources Institute & World Business Council for Sustainable Development – 2014.
- Ministry of Environment, Forest and Climate Change Notification on “Battery Waste Management Rules, 2020” & “E- Waste (Management) Rules, 2016”, & “Solid Waste Management Rules, 2015”s.



**1.6: Coverage in Green Audit Process:**



**Dr.M.VIJAYAKUMAR ME., Ph.D.,**  
PRINCIPAL



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**1.7 List of Faculty Members Involved in Audit Process & Data Collection:**

S. No.	Faculty Details	Contribution
1.	Dr.G.SRINIVASAN Prof / Dept. of EEE	Overall Coordinator for the Audit Process.
2.	Mr.V.VENUGOPAL , AP/ Dept. of Civil	Collection of RO water & Water Distribution system.
3.	Mr.S. MOHANRAJ, AP/ Dept. of EEE	Collection of Electrical Energy Parameters from College & Hostel.
4.	Mr.K.NACHIMUTHU, AP/ Dept. of S&H	Fuel consumption of Transport Vehicles & Transport In charge.
5.	Mr.P.VEERASAMY, AP/ Dept. of S&H	Collection of Chemicals/Salts/ Acids.
6.	Mr.S.SRINIVASAN, AP/ Dept. of Civil	Collection of LPG & Fire Wood Data.
7.	Mr.S.SATHYAMOORTHY, AP/ Dept. of EEE	Collection E.B utility & D.G Details.
8.	Mr.P.MUTHURAJA, AP/ Dept. of S&H	Collection of Trees & Plants with Botanical Name.
9.	Mr.K.SURESH, AP/ Dept. of S&H	Collection of Trees & Plants with Botanical Name.
10.	Dr. Saravanan Principal & Chairperson IQAC New Prince Shri Bhavani College of Engineering and Technology, Medavakkam, Chennai	External Member



# GREEN AUDIT REPORT

## GREEN AUDIT REPORT

### PART-A

## WATER UTILIZATION, CONSERVATION & WATER MANAGEMENT

#### AUDIT CONDUCTED BY

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**1.1: Source of Water, Storage and Distribution:**

Table-1 shows the source of water, location of storage along with their application.

**Table-1: Source of Water, Location of Storage and Application**

Type of Water	Source	Application
Bore Water (Interconnected)	• Bore-1; South West Side –320ft	• Input to the RO plant
	• Bore-2; Administrative Block Front Side–320ft	• Cooking Utensil Cleaning, • Bathing & Cloth Washing
Rain Water (9Nos) + One Pond	• Collected from i) buildings run off and ii) road run-offs • Each building has RWH	• Used to increase the ground water level
		• Small pond is also available to Collect the rain water
Treated Water using RO Plant (1 Nos) from Bore well Water. Treated Water using RO Water Purifiers (4Nos) from water tank.		• RO Water: Drinking and Cooking
		• Grey Water: Gardening & Toilet Cleaning (Good Initiative)
• Raw water tank capacity and Location	• Hostel – 10,000 L	• 10,000 Liters
	• Main Block –5,000 L	• 5,000 Liters
<ul style="list-style-type: none"> <li>• All tanks are cleaned monthly once (Good practice).</li> <li>• Water filling is now in manual operation.</li> </ul>		

### 1.2: Treated Water for Drinking Application:

- The college management is keen on providing uninterrupted, safe and healthy drinkingwater to all; throughout the year.
- The over head tanks storing the drinking water which are cleaned at regular intervalsand the water management team has been maintaining a cleaning schedule.
- The specifications of RO Plant and distribution of potable water to the entire campus isgiven inTable-2.

**Table- 2: Specifications of RO Plant and Potable Water Distribution System**

S. No.	Parameters	Description
1.	Total no. of RO Plant	• 01 No's (Total 500L PH)
2.	Source of raw water	• Bore Water
3.	% of RO & grey water out put	• 60 % RO water: 40% grey water
4.	Usage of grey water	• Used for Toilet Cleaning (Good Initiative)
5.	Cleaning schedule of filter	• Once in three months (Replaced every year)
6.	Cleaning schedule of membrane	• Yearly twice
7.	Functioning of RO Plant	• Manual operation
8.	Quality of RO water	• Internally tested (50 TDS)
9.	RO water storage	• Stored in the HPDE tanks and distributed
10.	RO water tank capacity & location	• Main Block – 2000 Litre & Hostel –5000 Liter

### 1.3 : Water Savings in Foreign Toilets:

The list of availability of Indian & Foreign style toilets are presented in the below Table-3.

**Table-3: List of Indian & Foreign Style Toilets**

S. No.	Location	No. of Toilets	
		Indian	Western
1.	Main Block	80	7
<b>Total</b>		<b>80</b>	<b>7</b>

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



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

- The audit team appreciates the effects taken by the management of **SASURIE COLLEGE OF ENGINEERING** for harvesting the rain water almost in all buildings with proper maintenance.
- The roof area is so arranged to collect the rainwater and then passed through proper piping system, and then bring back to the RWH pits which are located close to each pits
- The building run off are collected through each pits mostly located in each buildings. Common area and road run-off are properly collected and routed to nearby water body.



A handwritten signature in blue ink, appearing to read "M. Vijayakumar".

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PRINCIPAL



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# GREEN AUDIT REPORT

## GREEN AUDIT REPORT

### PART-B

## WASTE HANDLING & MANAGEMENT



**AUDIT CONDUCTED BY**  
**YOJO NETWORK & TRAINING CENTER**

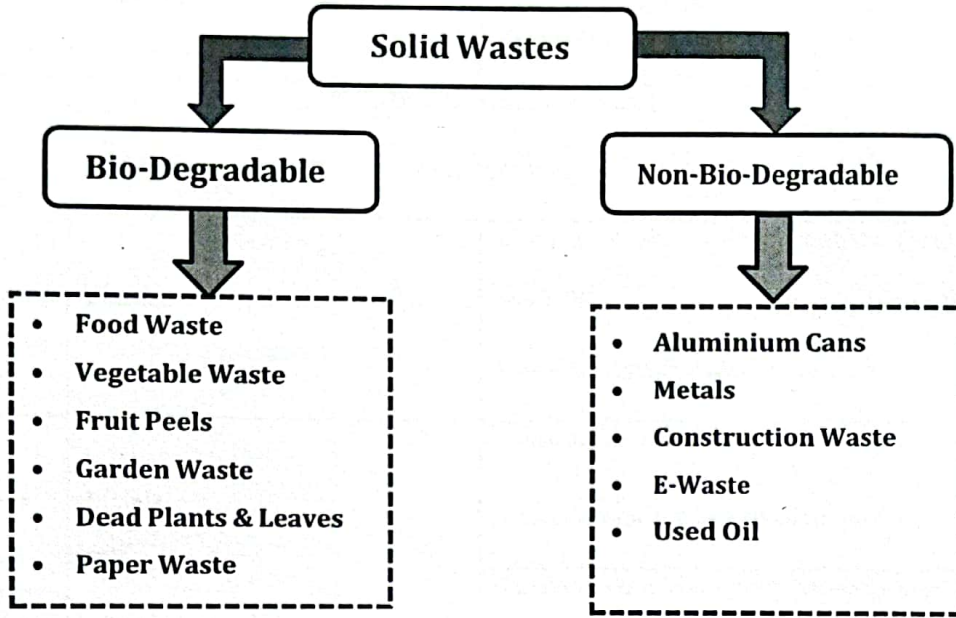
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**1.1: Solid Waste Management System:**

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



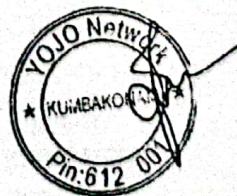
**1.2: Process of Solid Waste Management:**

The college management practiced efficient methods to treat the waste generated and Table-1 shows the process of treating the solid waste generated inside the college campus.

**Table-1: Process of Waste Management**

S. No.	Waste Type	Waste Treatment
<b>Bio-Degradable Waste Management</b>		
1.	Food and Vegetable Waste	Collected and dumped in a yard (used as manure)
2.	Garden Wastes and Plant Leaves	Daily collected and dumped in a yard

3.	Paper Waste	Collected and stored in a separate place to dispose further. Sold to third party for recycling
4.	Napkin Pads	Collected, dumped in a separate Napkin incinerator unit is available in the campus.
<b>Non-Bio- Degradable Waste Management</b>		
5.	Plastics	Banned in the college campus (Welcome step). The chemical / salt storage plastic containers are disposed to third party.
6.	Metals	Construction metals or metals from any other sources are stored in a separate place.
		Used for sale to third party for recycling
7.	Transport Oil + Tyres	Stored in a separate place and used for sale to third Party.
8.	Transport Vehicle and Computer Batteries	Procuring new batteries with buyback offer (old battery replacement)
9.	Used edible oil	Almost zero waste. Mostly used for internal cooking And frying.
10.	E- Waste Management	Used for sale to third party for recycling



# GREEN AUDIT REPORT

## GREEN AUDIT REPORT

### PART-C

## ASSESSMENT ON MATURED TREES AND BIO DIVERSITY

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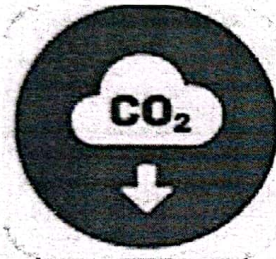


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### 1.1: Campus Greenery:

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 391 with 22 varieties of trees. Apart from the mature trees; preserving the ecology; the entire college campus is planted with various flowering shrubs and bushes.



Total No. of Mature Trees available in the college campus is 391 which contributes for reduction of 20.4 Tons of CO<sub>2</sub> emission/ Annum

### 1.2: Recommendations for Indoor Plants as Natural Air Purifier:

- Indoor plants are available more numbers in the institution campus, which will be helpful to look good while bringing life to our living space and they also help to purify the air.



  
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**TABLE 1**  
**GREEN AUDIT**

**LIST OF TREES AND SAPLINGS**

SL.NO.	TREES / SAPLINGS TAMIL NAME	TREES / SAPLINGS ENGLISH NAME	BOTANICAL NAME	NOS.	
				TREES	SAPLINGS
1	Thennai maram	Cocunut	Cocos nucifera	210	47
2	Veppa maram	Neem	Azadirachta indica	111	13
3	Maamaram	Mango	Mangifera indica	NIL	10
4	Sapota	Sapota	Manilkara zapota	NIL	4
5	Naaval maram	Java plum or indian blackberry	Syzygium cumini.	1	11
6	Badam	Almond	Terminalia catappa	NIL	2
7	Koyya	Guava	Psidium guajava	1	26
8	Udhiya maram	Odina wodier	Lanea coromandelica	16	7
9	Maadhulai tree	Pomegranate	Punica granatum	1	NIL
10	Pungai tree	Pongamia	Millettia pinnata.	14	1
11	Puliya maram	Tamrind tree	Tamarindus indica	1	NIL
12	Semmaram	Red sandal wood	Pterocarpus santalinus	1	NIL
13	Marudha maram	Arjuna tree	Terminalia arjuna	2	4
14	Poovarasu maram	Portia tree	Thespesia populnea	1	5
15	Nagalinga maram	Cannonball tree	Couropita guianensis	NIL	3
16	Ilupai tree	Mahua tree / butter nut tree	Madhuca longifolia	NIL	12
17	Mahogany tree	Mahogany tree	Swietenia macrophylla	NIL	8
18	Nelli maram	Gooseberry	Phyllanthus emblica	NIL	9
19	Vaagai maram	Surrogate tree	Albizia lebbeck	2	NIL
20	Christmas palm tree	Foxtail palm	Wodyetia bifurcata	30	20
21	Moongil	Bamboo	Bambusa vulgaris		14
22	-	Crotons	Godlaeum variegatum		24
<b>TOTAL</b>				<b>391</b>	<b>210</b>



## **AUDIT SUMMARY & CONCLUSION**



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### SUMMARY OF THE AUDIT PROCESS:

In order to make SASURIE COLLEGE OF ENGINEERING campus 100% Environmental sustainability and lush Greenery, the audit team appreciate the measures followed by the institution to maintain environmental friendly, green campus.

The following measures are followed by the institution:

#### i. Water Conservation & Management:

- Retrofit aerator based water taps are used for good water savings
- Water treatment log (for RO plant) is maintained for treated and outlet water quality
- Installed sensor based water controller in each Over Head Tanks to reduce the water waste and power required to operate the pump

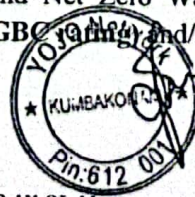
#### ii. Waste Management:

- The institution stores solid wastes properly in a separate place for safe disposal.
- Scientific method of handling chemicals/Acids/Salt and safe disposal through 3rd party
- Used napkins are safely disposed using napkin disposal machine
- Having all records for the solid waste items given to the 3rd party

#### iii. Way Forward towards Energy & Environmental Sustainability:

- Available an exclusive **Energy and Environment Policy** based on the energy and environment practices are followed in the campus and reflects the
  - i) Present energy consumption & generation
  - ii) Projection of energy need
  - iii) Commitment by the college to conserve energy
  - iv) Roadmap to achieve the commitment
  - v) Facilities needed to achieve the same
  - vi) Roles and responsibilities of all stakeholder
  - vii) Corrective measures, if the results deviates from the committed value
- Implemented ENCONs and best operating practices proposed in the audit report
- Adopted effective Waste Management Policy and reduced the food print of waste generation (Net zero waste campus)
- Working towards Net Zero Energy and Net Zero Water Campus and achieve **Gold rated Global Leadership campus** (as per IGBC rating) and/or 4-star rated campus

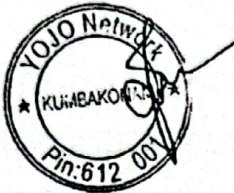
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# COMPLETION OF THE REPORT

This report is prepared as a part of the Green Audit process conducted at **SASURIE COLLEGE OF ENGINEERING, Tiruppur** from 15 May 2023 to 17 May 2023 by **YOJO Network and Training Center, Tamil Nadu.**



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**YOJO NETWORK**  
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## CERTIFICATE FOR GREEN AUDIT PROCESS

This is to certify that, we have conducted GREEN AUDIT at **SASURIE COLLEGE OF ENGINEERING**, Vijayamangalam, Tiruppur Dt, Tamil Nadu, India from 15 May 2023 to 17 May 2023 and it is appreciated that, the institution strictly follows and maintain environment friendly clean and green campus initiatives to provide conducive atmosphere for active teaching learning.

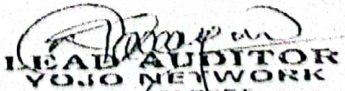
The process investigated the following activities;

- ✓ Coverage of Mature trees and more bushes & shrubs (nearly 642 Matured trees)
- ✓ Plan to increase the green coverage and natural water bodies
- ✓ Initiatives taken to promote green coverage inside the college campus
- ✓ Appreciating the Institution for following Ban on one time usage plastic material in the campus
- ✓ Appreciating the Institution for strictly following Ban on one time usage plastic material in the campus
- ✓ Appreciating the Institution for maintaining excellent Bio-diversity and Ecology in the campus
- ✓ Appreciating the initiatives followed towards Green campus initiatives tirelessly



Thank You

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# ENVIRONMENT AUDITREPORT



**SASURIE COLLEGE OF ENGINEERING**  
**VIJAYAMANGALAM, TIRUPPUR - 638056**  
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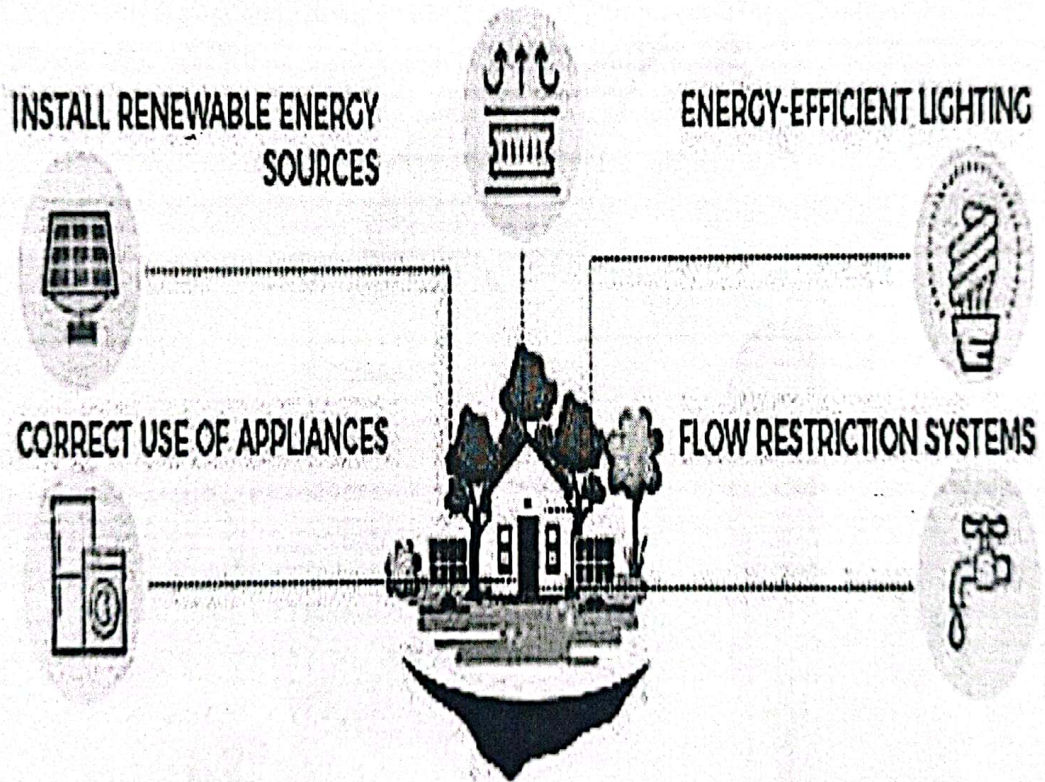
<u>Audit Team Members</u>	
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<b>Er. C. Saravanakumar., B.E.,</b>	<b>Carbon Footprint Auditor</b>
<b>Er. R. Rajkumar, B.E.,</b>	<b>Audit Associate</b>

  
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 **SASURIE COLLEGE OF ENGINEERING,**  
Vijayamangalam - 638 056, Tirupur (Dt).

# ENVIRONMENT AUDIT REPORT

## INTRODUCTION TO ENVIRONMENT AUDIT

### 5 IDEAS FOR A SUSTAINABLE INSTITUTION



  
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PRINCIPAL  
**SASURIE COLLEGE OF ENGINEERING,**  
Vijayamangalam - 638 056, Tirupur (Dt).



### 1.1 : Preface about the Institution:

**SASURIE COLLEGE OF ENGINEERING** was seeded by Ponmudi Muthusamy Gounder Trust in the year 2001 to offer B.E / B.Tech, M.E / M.Tech degree courses to inculcate quality education for rural students. This institution is located on the outskirts of Tiruppur district and about 6 kilometers from Vijayamangalam Toll Plaza and almost in a rural atmosphere.

The Institution offers 8 UG [B.E. – Civil, CSE, ECE, EEE, Mech, CSE (Cyber Security) and B.Tech – AI&DS, IT] and 6 PG [MBA, ME. – CSE, Applied Electronics, VLSI Design, Power Electronics and Drives and M.Tech. – IT] programs. This Institution has a good digital library with 300 Mbps high- speed internet facilities to the benefit of students and faculty. The well-stocked library having more number of International and National Journals and Magazines. This Institution has well-qualified faculties, modern infrastructure with well-equipped laboratories. The main building has G+3 floors with a total carpet area of 19,047 Sq.m.

### 1.2 : Quality Policy:

**SASURIE COLLEGE OF ENGINEERING** maintains various policies to enhance the growth of the students, staff along with the growth of the Institution.

The policies are as follows:

- GREEN POLICY
- CODE OF CONDUCT
- ENVIRONMENT POLICY
- ENERGY POLICY
- WASTE MANAGEMENT POLICY
- E-GOVERNANCE POLICY
- GRIEVANCE & REDRESSAL POLICY
- RESOURCE MOBILISATION POLICY

### **1.3 : Scope of the Audit Process:**

- **Environmental Audit:** Identification of history of activities, present environmental practices followed, monitoring records and known sources of environmental issues inside the college.

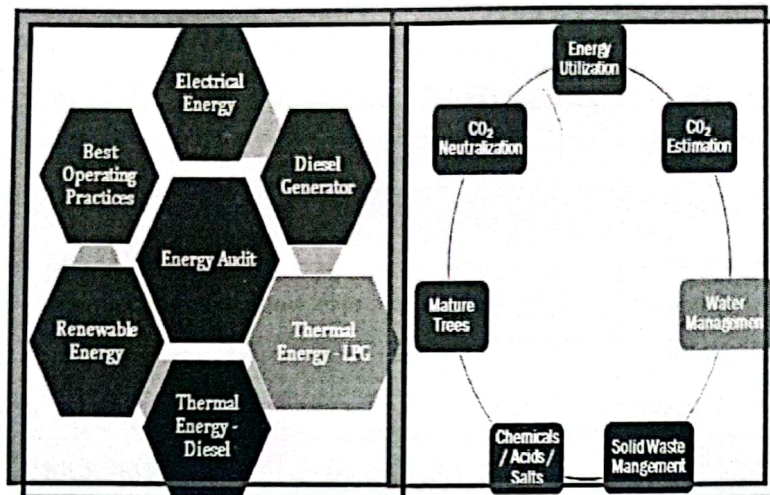
### **1.4 : Outcomes of the Audit Process:**

- 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.

### **1.5 :Standards Used:**

- Bureau of Energy Efficiency Guidelines to conduct the detailed energy audit process.
- **ISO 14064-Part-1** – Specification with guidance at the organization level for quantification and reporting of GHG emissions and removals (Second Edition).
- **ISO 14064-Part-2** – Specification with guidance at the project level for quantification, monitoring and reporting of GHG emissions reductions or removal enhancement (Second Edition-2019).
- **ISO 14064-Part-3** – Specification with guidance for the verification and validation of GHG statements (Second Edition-2019).
- The Green house Gas Protocol- a Corporate Accounting and Reporting Standard (Revised Edition) released by World Resources Institute & World Business Council for Sustainable Development – 2014.
- Ministry of Environment, Forest and Climate Change Notification on “**Battery Waste Management Rules, 2020**” & “**E- Waste (Management) Rules, 2016**”, & “**Solid Waste Management Rules, 2015**”s.

**1.6: Coverage in Environment Audit Process:**



*me*  
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**1.7 List of Faculty Members Involved in Audit Process & Data Collection:**

S. No.	Faculty Details	Contribution
1.	Dr.G.SRINIVASAN Prof / Dept. of EEE	Overall Coordinator for the Audit Process.
2.	Mr.V.VENUGOPAL , AP/ Dept. of Civil	Collection of RO water & Water Distribution system.
3.	Mr.S. MOHANRAJ, AP/ Dept. of EEE	Collection of Electrical Energy Parameters from College & Hostel.
4.	Mr.K.NACHIMUTHU, AP/ Dept. of S&H	Fuel consumption of Transport Vehicles & Transport In charge.
5.	Mr.P.VEERASAMY, AP/ Dept. of S&H	Collection of Chemicals/Salts/ Acids.
6.	Mr.S.SRINIVASAN, AP/ Dept. of Civil	Collection of LPG & Fire Wood Data.
7.	Mr.S.SATHYAMOORTHY, AP/ Dept. of EEE	Collection E.B utility & D.G Details.
8	Dr. Saravanan Principal & Chairperson IQAC New Prince Shri Bhavani College of Engineering and Technology, Medavakkam, Chennai	External Member



  
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# ENVIRONMENT AUDIT REPORT

## ENVIRONMENT AUDIT REPORT

### PART-A

#### ESTIMATION OF CO<sub>2</sub> EMISSION & NEUTRALIZATION (ELECTRICITY, DIESEL, LPG & MATURE TREES)

#### AUDIT CONDUCTED BY



YOJO NETWORK & TRAINING CENTER

(Registered Audit Agencies)  
GST no: 33AYXPP0304R1ZT  
(Chennai ♦ Kumbakonam ♦ Karaikal)

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**1.1 : Assessment of Annual Energy Usage:**

Table-1 Shows the types of energy carriers used for the irregular operation in the collegecampus 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 for College	Powering to all electrical & electronic/HVAC/Motors/Pumps	From TANGEDCO Captive power plant
2.	Diesel	Transport vehicles and Diesel Generator(Captive Generation)	From authorized distributor
3.	Liquified Petroleum Gas(LPG)	Used for cooking application	
4.	Mature Trees	Nearly 391 Nos of different varieties with more than 15 years old.	

**1.2: Environmental System: CO2 Balance Sheet:**

The following tables 2 to 6 provide the balance sheet indicating various energy carriers associated with the regular activities and their CO<sub>2</sub> mapping from 2018-19 to 2022-23 Academic Year.

  
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TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LIMITED									
Registered Office: No.144, NPKRR Main Road, Anna Salai, Chennai - 600 002									
Tax Invoice for LT Current Consumption Charges for the Month of October 2023									
Section	VJAYAMANGALAM				GSTN No:		33AADCT4784E12C		
Circle	ERODE				Invoice No.	L426231011151462 / Date: 25/10/2023			
Distribution	DASAMPALAYAM				Tariff Applied	LM2B2	Sanctioned Load	112.0 KW	
Service Connection Number	04-057-008-370				Phase	3 phase	Invoice Type	INVOICE	
Name/Address & GST of the Consumer					CT/Non-CT	CT	Place of Supply	Tamil Nadu	
THE PRESIDENT Sasurie College Of Engineering, Dno 8/140, Vijayamangalam, Nadapatty.					Meter No:	839330	Supply Type	Regular	
State: TAMILNADU	State Code	33			Solar RTS	NO	Reverse Charge	NO	
Consumer GST No:					Welding	NO	Billing Cycle	Bi-Monthly	
Pay This Bill By Online in <a href="https://www.tnebnat.org/qwp4pay">https://www.tnebnat.org/qwp4pay</a>					Bill Period	25/09/2023-25/10/2023	மின்னகம் 94987 94987		
					Bill Amount	Rs.76,427/-			
					Due Date	14/11/2023			
Energy Consumption	Final Reading	Initial Reading	MF	Consumption [After MF & DT Loss]	Max Dmd Recorded	Max Dmd Recorded with MF	Power Factor Recorded		
READING	4305.67	4204.77	40	4036.0	0.79	31.44	0.92		
DATE	25/10/2023	25/09/2023							
STATUS	Normal	Normal							
SAVE ELECTRICITY		PARTICULARS		HSN/SAC	Base Amount Rs.	CGST @ 9%	SGST @ 9%	Invoice Amount Rs.	
SECURITY DEPOSIT		Energy Charges		2716 0000	36968.86			36968.86	
Balance as of 01-04-2022	394869.00	Fixed Charges		2716 0000	37184.00			37184.00	
Interest Credited on above	22508.00	Sub Total (a)			74052.86			74052.86	
Less: TDS		Less:							
Collection During the Year	0.00	Govt Subsidy		2716 0000	-0.00			-0.00	
Refund made in the Year	0.00	Sub Total (b)			-0.00			-0.00	
Balance as of 25/10/2023	417377.00	Welding Sur Chg		996 912					
MCD as of 25/10/2023	2500.00	Excess MD Charges		996 912					
OLD ARREARS / CREDITS		Penalty for LPF		996 912					
Particulars	Period	Amount	Net Work Charges		998 631				
Total		0.00	Sub Total (c)			0.00	0.00	0.00	0.00
ADVANCE CC ACCOUNT		Electricity Tax			2374.60			2374.60	
Balance as of 25/08/2023	0.00	TCS /TDS [w/s 206(1C)]			0.00	0.00	0.00	0.00	
Collection During the Period	0.00	Sub Total (d)			2374.60	0.00	0.00	2374.60	
Interest Allowed	0.00	Other Charges		996 912					
Adjusted (including this Bill)	0.00	ASD Demand							
Balance as of 25/10/2023	0.00	Old Arrears							
		Sub Total (e)			0.00	0.00	0.00	0.00	
		Less:							
		Adjustments							
		Advance CC Adj							
		Refund Of SD							
		Sub Total (f)			0.00	0.00	0.00	0.00	
		Round off (g)			-0.46			-0.46	
		Net Payable Amt		(a+b+d+e-f+g)	76,427.00	0.00	0.00	76,427.00	
(Rupees Seventy Six thousand Four hundred Twenty Seven only)									
Notes: 1. Bill amount shall be payable within the due date to avoid disconnection as per Sec 56(1) of Electricity Act 2003. 2. Payment after due date will attract delayed payment surcharge and other charges as applicable. 3. This is system generated invoice Does not require signature									
Asst Engineer/VJAYAMANGALAM									

*M*

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**Table-2: Environmental System: CO<sub>2</sub> Balance Sheet (2018-19)**

S. No	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Usage	CO <sub>2</sub> Emission (Tons)	Description	Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Diesel	4332Liters	12.8	MatureTrees	391No's	19.9
2.	Electrical Energy	48322 kwh	77.3			
3.	LPG	1611 kg	16.6	-	-	-
Total Emission			106.7	Total-Neutralized		19.9
Balance CO2 to be Neutralized = 106.7 Tons / Annum & Per Capita CO2 Consumption = 19.9 Tons / Annum <sup>1</sup>						

**1.3 : Environmental System: CO<sub>2</sub> Balance Sheet (2019-20):**

**Table-3: Environmental System: CO<sub>2</sub>Balance Sheet (2019-20)**

S. No	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Usage	CO <sub>2</sub> Emission (Tons)	Description	Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Diesel	4,445 Liters	13.2	Mature Trees	391No's	19.9
2.	Electrical Energy	47636 kWh	76.2			
4.	LPG	1,611 kg	16.6	-	-	-
Total Emission			106	Total- Neutralized		19.9
Balance CO2 to be Neutralized = 106 Tons/Annum & Per Capita CO2 Consumption = 19.9 Tons/Annum						

**1.4 : Environmental System : CO<sub>2</sub> Balance Sheet (2020-21):**

**Table-4: Environmental System: CO<sub>2</sub> Balance Sheet (2020-21)**

S. No.	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Usage	CO <sub>2</sub> Emission (Tons)	Description	Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Diesel	1269 Liters	3.8	Mature Trees	391 No's	19.9
2.	Electrical Energy	27857.2 kWh	44.6			
3.	LPG	349 kg	7.2	---	---	---
Total Emission			<b>55.6</b>	Total- Neutralized		19.9
Balance CO <sub>2</sub> to be Neutralized = 55.6 Tons / Annum & Per Capita CO <sub>2</sub> Consumption = 19.9 Tons / Annum						

**1.5 : Environmental System: CO<sub>2</sub> Balance Sheet (2021-22):**

**Table-5: Environmental System: CO<sub>2</sub> Balance Sheet (2021-22)**

S. No.	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Usage	CO <sub>2</sub> Emission (Tons)	Description	Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Diesel	4141 Liters	12.3	Mature Trees	391 No's	20.2
2.	Electrical Energy	45153.5 kWh	72.2			
3.	LPG	1815 kg	18.7	Biogas	---	---
Total Emission			<b>103.2</b>	Total- Neutralized		20.2
Balance CO <sub>2</sub> to be Neutralized = 103.2 Tons / Annum & Per Capita CO <sub>2</sub> Consumption = 20.2 Tons / Annum						

**1.6: Environmental System: CO<sub>2</sub> Balance Sheet (2022-23):**

**Table-6: Environmental System: CO<sub>2</sub> Balance Sheet (2022-23)**

S. No.	Annual Energy Consumption & CO <sub>2</sub> Emission			Annual CO <sub>2</sub> Neutralization		
	Description	Usage	CO <sub>2</sub> Emission (Tons)	Description	Usage	CO <sub>2</sub> Neutralized (Tons)
1.	Diesel	4155 Litres	12.3	Mature Trees	391 No's	20.2
2.	Electrical Energy	35845 kWh	76.2			
3.	LPG	1510 kg	15.6	---	----	-----
<b>Total Emission</b>			<b>104.1</b>	<b>Total-Neutralized</b>		<b>20.2</b>
<b>Balance CO<sub>2</sub> to be Neutralized = 104.1 Tons / Annum &amp; Per Capita CO<sub>2</sub> Consumption = 20.2 Tons / Annum</b>						

**1.8: Observations:**

- From the above tables; it is evident that the college is now trying to neutralize their CO<sub>2</sub> emission through various initiatives like i) Installation of roof top solar PV system & solar thermal hot water generation(cooking & bathing application) iii) Planting more number of trees and iv) Implementing various energy conservation measures (FTL to LED conversion, conventional fan to BLDC fans, Energy efficient motor replacement, judicious use of all types of energy etc.,)

**1.9: References:**

<https://ecoscore.be/en/info/ecoscore/co2>

<http://www.tenmilliontrees.org/trees/#:~:text=A%20mature%20tree%20absorbs%20carbon,the>

[%20average%20car's%20annual%20mileage.](#)



# ENVIRONMENT AUDIT REPORT

## ENVIRONMENT AUDIT REPORT

### PART-B

## TRANSPORT & REFRIGERANT GASES IN AC SYSTEM



**AUDIT CONDUCTED BY  
YOJO NETWORK & TRAINING CENTER**

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**1.1: List of Transport Vehicles:**

Pollution level of all vehicles is regularly monitored and is maintained within the prescribed limit since the college is committed to provide green environment for better atmosphere.

All the transport vehicles are having pollution certificates and maintaining the emission level within the Pollution Control Board limits

The no. of vehicles available in the college campus is represented in Table-1.

**Table-1: List of Transporting Vehicles available in the College**

S. No.	Type of Vehicle	Quantity	Purpose
1.	Bus	14	Students & Faculty Transportation
2.	Van	04	Office and Administrative Works
3.	Car	03	Transportation for the Principal & Visitors

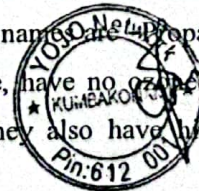
**1.2 : List of Air Conditioning System along with its Refrigerant:**

Most of the AC system has R-32 as refrigerant which has Global Warning Potential (GWP) of 675 and hence Ozone Depletion Potential (ODP) is Zero.

**Table-2: List of Multi-variant AC System available in the College**

S. No.	Tonnage Capacity (TR)	Quantity
1.	1.5	13 Nos
<b>Total</b>		<b>13 Nos</b>

**Note:** The most environment-friendly refrigerants that are available in Indian market currently are R-290 and R-600A. They are Hydrocarbons and their chemical names are Propane for R-290 and Iso-Butane for R-600A. They are completely halogen free, have no ozone depletion potential and are lowest in terms of global warming potential. They also have high-energy efficiency but are highly flammable as they are hydrocarbons.





# ENVIRONMENT AUDIT REPORT

## ENVIRONMENT AUDIT REPORT

### PART-C

## USAGE OF CHEMICALS SALS AND ACIDS

### (STORAGE, HANDLING AND BEST OPERATING PRACTICES)

AUDIT CONDUCTED BY

YOJO NETWORK & TRAINING CENTER

(Registered Audit Agencies)

GST no: 33AYXPP0304R1ZT

(Chennai ♦ Kumbakonam ♦ Karaikal) Mobile:

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**1.1: Handling of Chemicals / Salts / Acids used in the Laboratories:**

- The S & H and Civil departments use 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

**1.2: Storage of Chemicals / Salts / Acids:**

- Less concentrated chemicals, salts and acids are stored in proper racks; cupboard 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.
- Only trained teaching and non-teaching staffs are handling the chemicals and also they are well trained to handle any abnormal situations.
- Laboratories with chemicals are well ventilated with proper emergency exits. Adequate and correct sequence of fire extinguishers is placed near all the laboratories.



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### 1.3 Use of Chemical for Vessels & Floor Cleaning:

In order to maintain hygiene in the College campus; the administration regularly clean the floor and restrooms. In addition to this, the hostel management has to monitor the cleaning of vessels, kitchen floor, dining hall, store room and gas station. Table-1 shows the cleaning agents used to clean the above mentioned area;

**Table-1: Cleaning Agents used for Floor and Vessel Cleaning**

S.No.	Cleaning Agent	Application
1	Soap & Washing Powder	Vessel Cleaning
2	Soap Oil & Bleaching Powder	Floor Cleaning

### 1.4 : Recommendations: Eco Friendly – Green Cleaning Agents:

- On an average; the cleaning agents used today have about 51 harmful chemicals like Paraben, Phosphates or Chlorides. A lot of them are multi-purpose cleaners
- It is recommended to use natural ingredients like orange peel extract & vinegar. It leaves a mild and pleasant fragrance after use. The formula is free from all harmful chemicals & toxins. It is pH-neutral, gentle on the skin as well as on the surface where it is used
- Fig.1 shows the sample eco-friendly Green Pro certified cleaning agents used in the Institution for cleaning purpose.



## **AUDIT SUMMARY & CONCLUSION**



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### **SUMMARY OF THE AUDIT PROCESS:**

In order to make SASURIE COLLEGE OF ENGINEERING campus 100% Environmental sustainability and lush Greenery, the audit team appreciate the measures followed by the institution to maintain environmental friendly, green campus.

The following measures are followed by the institution:

#### **i. Water Conservation & Management:**

- Retrofit aerator based water taps are used for good water savings
- Water treatment log (for RO plant) is maintained for treated and outlet water quality
- Installed sensor based water controller in each Over Head Tanks to reduce the water wasteland power required to operate the pump

#### **ii. Waste Management:**

- The institution stores solid wastes properly in a separate place for safe disposal.
- Scientific method of handling chemicals/Acids/Salt and safe disposal through 3rd party
- Used napkins are safely disposed using napkin disposal machine
- Having all records for the solid waste items given to the 3rd party

#### **iii. Way Forward towards Energy & Environmental Sustainability:**

- Available an exclusive **Energy and Environment Policy** based on the energy and environment practices are followed in the campus and reflects the
  - i) Present energy consumption & generation
  - ii) Projection of energy need
  - iii) Commitment by the college to conserve energy
  - iv) Roadmap to achieve the commitment
  - v) Facilities needed to achieve the same
  - vi) Roles and responsibilities of all stakeholder
  - vii) Corrective measures, if the results deviates from the committed value
- Implemented ENCONs and best operating practices proposed in the audit report
- Adopted effective Waste Management Policy and reduced the food print of waste generation (Net zero waste campus)
- Working towards Net Zero Energy and Net Zero Water Campus and achieve Gold rated Global Leadership campus (as per IGBC Gold rating) and/or 4-star rated campus



Page 20 of 22

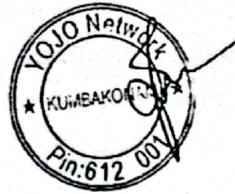
**Dr.M.VIJAYAKUMAR ME., Ph.D.,**  
PRINCIPAL



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Vijayamangalam - 638 056, Tirupur (Dt).

## COMPLETION OF THE REPORT


This report is prepared as a part of the Environment Audit process conducted at **SASURIE COLLEGE OF ENGINEERING, Tiruppur** from 15 May 2023 to 17 May 2023 by **YOJO Network and Training Center, Tamil Nadu.**



*[Handwritten Signature]*  
**HEAD AUDITOR**  
**YOJO NETWORK**  
MAT STREET  
KUMBAKONAM-612 001  
THANJAVUR-DIST.

*[Handwritten Signature]*

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## CERTIFICATE FOR ENVIRONMENT AUDIT PROCESS

This is to certify that, we have conducted ENVIRONMENT AUDIT at **SASURIE COLLEGE OF ENGINEERING**, Vijayamangalam, Tiruppur Dt, Tamil Nadu, India from 15 May 2023 to 17 May 2023 and it is **appreciated that, the institution strictly follows and maintain environment friendly clean campus initiatives to provide conducive atmosphere for active teaching and learning.**

The process investigated the following activities;

- ✓ Pollution certificates for all transport vehicles were verified
- ✓ Inspection on Rain Water Harvesting (RWH) both from buildings and road run-off verified
- ✓ Inspection on Swage Water Treatment Plant (STP) operation verified
- ✓ Recommendation for Rooftop Solar Thermal system for cooking application and water heating system for hostel students (bathing application)
- ✓ Carried out detailed field Study on effective Waste Management system followed in the Institution, that includes
  - Solid Waste Management (SWM) system and their policy documents were verified
  - E-waste: Collection, Segregation, Storage and Safe Disposal are verified
  - Safe disposal of chemical waste from the laboratories were verified
- ✓ Availability of Waste to Wealth, Waste to Energy possibilities were explored
- ✓ Improvement of Indoor and Ambient Air Quality (IAQ) and Indoor Environment quality (IEQ) were verified
- ✓ Appreciating the Institution for maintaining excellent Bio-diversity and Ecology in the campus
- ✓ Detailed Recommendation on green initiatives are represented in the Audit report



Thank You

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