

EXCELSSIOR EDUCATION SOCIETY'S

K. C. College of Engineering & Management Studies & Research Mith Bunder Road, Kopri, Thane (E)



Cycle - 2 NAAC Accreditation 2024

Criteria 7: Institutional Values and Best Practices

- 7.1.3 Quality audits on environment and energy regularly undertaken bythe Institution. The institutional environment and energy initiatives are confirmed through the following.
 - 1. Green audit / Environment audit
 - 2. Energy audit:
 - 3. Clean and green campus initiatives
 - 4. Beyond the campus environmental promotion and sustainability activities



National Assessment and Accreditation Council

Green, Energy & Environment Audit Report K.C. Collage of Engineering and Management Studies & Research

Report

On

GREEN, ENERGY & ENVIRONMENT AUDIT

of

K.C. Collage of Engineering and Management Studies & Research

Prepared

Ву

Senergy Consultants Pvt Ltd

April - 2024

Helping You to Conserve Energy

Phone: 022 2555 3297

Green, Energy & Environment Audit Report K.C. Collage of Engineering and Management Studies & Research

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I	Electrical Gadgets Environmental System Water Management Waste Generation & Management Infrastructure & Safety Green Culture



Dr. Vilas M. Nitnaware

Principal

K.C. College meering & Management Studies & Research.

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Green, Energy & Environment Audit Report K.C. Collage of Engineering and Management Studies & Research

I Introduction

Green & Energy Audit was undertaken at K.C. Collage of Engineering and Management Studies & Research, Mithbunder Road, near Sadguru Gardens, Kopri, Thane (East) – 400 603, During the month of April 2024.

The organization is very keen to promote green culture wherever possible, as a commitment towards better environment and conservation of energy. A lot of efforts have already been put up to bring down the carbon footprint. To further optimize consumption and identify saving opportunities, M/s Senergy Consultants was assigned to carry out Green & Energy Audit of the premises.

This Audit Report presents the analysis of the data collected, observations made at the facility and is governed by the objectives, scope of work, methodology etc. discussed in the ensuing paragraphs.

Team:

The team members of the audit study.

- Mr Ravindra Datar
- Mr Nitesh Kharche
- Mr Vivek Pawar
- Mr Vikas Kharatmol

Acknowledgment:

We wish to express our gratitude towards Dr. Saikiran Khanna (Managing Director - Excelssior Education Society), Dr. Puja Rai Pradhan (COO), Dr. Vilas Nitnaware (Principal), Dr. Avishek Ray (Vice Principal), Dr. Shelly Oberoi (Head of Department HAS) for having given us the opportunity for conducting the study and the support provided during the study.

We are thankful to Prof. Amarja Adgoankar (IQAC- Co-Ordinator), Dr. Pallavi Chopade (Creteria 7 Incharge), Prof. S. Bhuma Devi (Kc-Green Club Co-Ordinator), Prof. Sushma Kore (Kc-Green Club Sub Co-Ordinator), Prof. Punam Bagul (Kc-Green Club Member) for extending necessary help and co-operation from their side.

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II **Executive Summary**

The premises were evaluated against the various criterions laid down by the National Assessment and Accreditation Council (NAAC). The major observations are

Renewable Energy:

- The college has installed Rooftop Solar Photovoltaic System with Net Metering Facility.
- There are no applications for Solar hot water.
- The quantity of plate waste (organic waste with higher starch contents) is negligible, consequently, there is no Potential for biogas generation. The College has already installed the Compost pit.

Air Quality & Ventilation:

- The classrooms and other areas are well ventilated to ensure proper air quality.
- The fans are appropriately installed to ensure proper air circulation.
- Indoor as well as outdoor plants have also been provided to improve the environment.
- The air conditioned rooms are provided with proper ventilation and fresh air.

Lighting System:

- The usage of natural light is optimized through well designed structures and windows.
- Almost all the lamps are replaced with energy efficient LED lamps.
- It is suggested to automate the switching of lamps in the common areas and washrooms with sensor based control.

Green Campus Initiative:

- The movement of vehicle inside the campus is restricted with vehicles of Staff and Special Dignitaries are allowed to enter the campus with designated parking area.
- Pedestrian friendly pathways have been constructed for easy movement inside the campus.
- The use of plastic has been reduced inside the campus.
- The campus is surrounded by a lot of greenery, trees, and proper landscaping.
- The college has internal committee for conservation of resources like energy, water.
- The student participation are also encouraged in such activities through student clubs and groups.

Environment & Energy Initiative:

- The college has formed internal committees and student Eco-club for promoting environmental and conservation
- Various tree plantation & seed plantation drive was undertaken by students and staff members. Dry waste and E-waste collection drive was conducted by students inside the campus

Water Quality & Conservation:

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- The water is supplied by the Municipal Corporation, which is a common practice in and around Mumbal,
- Water purifiers & coolers are provided on convenient locations.

The distribution network and piping are satisfactory and adequate.

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Waste Management:

- The effluent water is discharged in the municipal drain, which is a common practice in and around Mumbai, Thane
- The organic waste is segregated and converted into manure in the composting pits.
- There is no hazardous or medical waste generated in the college.
- The electronic gadgets / waste is either donated if useful or handed over to appropriate waste collectors.
- The general solid waste is disposed through municipal corporation.

Infrastructure usage:

- Ramps and lifts are provided on the ground floor to address the needs of differently abled persons.
- The on-campus movement is distributed with multiple staircases.
- The fire extinguishers are provided at key areas.
- The draining system for washrooms is efficient and effective.
- There were no seepages observed in the building premises.

Air Conditioning System:

- The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
- The room temperature is maintained at 24 to 25 °C, which is well within the recommended values.
- The Air Conditioners are serviced regularly and properly maintained.
- Most of the Air Conditioners units are energy efficient with star rating of 3 & above.
- The air conditioned space is properly sealed to prevent air ingress / cold air loss.

Green IT culture:

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- Energy efficient computers and laptops have been procured.
- Electronic communication is encouraged to minimize usage of papers.
- Most of the papers are reused for double sided printing to further minimize usage of paper.

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III **Electrical Gadget**

Gadget List

Light Fittings:

Sr No.	Location	LED Lamps		
1st Floor				
1	Language Lab	5		
2	EDC 107	9		
3	MDC 100	8		
4	DLDA 106	6		
- 5	Cabin	1		
6	Project Lab 104-A	3		
7	Common Lab 110	6		
8	Microprocessor Lab 111	8		
9	X Lab 112	14		
10	Computer LAB 104	5		
11	Classroom 103	8		
12	Classroom 101	9		
13	RB Office	7		
14	Store	4		
15	Corridor	8		
TON THE STATE OF T	2nd Floor	200		
16	Physics Lab	6		
17	Chemistry Lab	4		
18	Chemistry Lab Corridor	2		
19	Biology Lab	10		
20	Classroom 203	8		
21	Classroom 204	3		
22	HOD	2		
23	Classroom 210	8		
24	Classroom 211	12		
25	Classroom 212	7		
26	Classroom 213	7		
27	New Computer Lab	6		
28	Old Computer Lab	3		
29	HOD IT	2		
30	Lab	10		
31	Classroom 207	7		
32	Classroom 208	15		
33	Boys Common Room	4		
34	209	4		

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Sr No.	Location	LED Lamps		
3rd Floor				
35	Hall	10		
36	Classroom 310	10		
37	Classroom 311	11		
38	Classroom 312	7		
39	Classroom 313	6		
40	Classroom 300	10		
41	Classroom 307			
42	Classroom 306	9		
43	Corridor			
44	Classroom 308	12		
45	309 Lab	5		
46	HOD Cabin	5 2		
	4th Floor			
47	Corridor	15		
48	Washroom	15		
49	Library	1 17		
50	SSL Lab	17		
	5th Floor	10		
51	510	4		
52	511	10		
53	512	6		
54	513	12		
+	Total	392		

Ceiling Fans:

Sr No.	Location	Celling Fans		
1st Floor				
1	Language Lab	6		
2	EDC 107	8		
3	MDC 100	9		
4	DLDA 106	6		
5	Cabin	1		
6	Project Lab 104-A	2		
7	Common Lab 110	8		
8	Microprocessor Lab 111	8		
9	X Lab 112	8		
10	Computer LAB 104	4		
11	Classroom 103	8		
12	Classroom 101	8		
13	RB Office	4		
14	Store	2		
15	Corridor			

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Sr No.	Location	Celling Fans
	2nd Floor	
16	Physics Lab	4
17	Chemistry Lab	2
18	Chemistry Lab Corridor	1
19	Biology Lab	4
20	Classroom 203	8
21	Classroom 204	4
22	HOD	1
23	Classroom 210	8
24	Classroom 211	8
25	Classroom 212	4
26	Classroom 213	4
27	New Computer Lab	4
28	Old Computer Lab	4
29	HOD IT	1
30	Lab	9
31	Classroom 207	8
32	Classroom 208	8
33	Boys Common Room	2
34	209	4
	3rd Floor	
35	Hall	36
36	Classroom 310	7
37	Classroom 311	8
38	Classroom 312	4
39	Classroom 313	4
40	Classroom 300	10
41	Classroom 307	8
42	Classroom 306	8
43	Corridor	
44	Classroom 308	4
45	309 Lab	4
46	HOD Cabin	. 1
212 ²	4th Floor	
47	Corridor	8
48	Washroom	1
49	Library	16
50	SSL Lab	8
	5th Floor	
51	510	1
52	511	2
53	512	1
54	513	8
	Total	309





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Air Conditioning Units:

Sr No.	Lab Name	Floor	Oupstite
1	Internet Lab (Lab 1)	Ground	Quantity
2	Operating system Lab (Lab 2)		3
3	System Programming (Lab 3)	Ground	2
4	Seminar hall	Ground	3
5	Database Lab (Lab 4)	Ground	4
6	Training And Placement Office	Ground	3
7	Conference Room	Ground	1
8	Lobby	Ground	1
9	Chairperson cabin	Ground	1
10	MMS	Ground	1
11	IQAC	Ground	1
12		Ground	2
13	Principal Sir Cabin Account	Ground	1
14		Ground	- 1 5.2%
15	Temple Admin	Ground	1
16		Ground	1
17	Lab x	First	3
	Lab 109	First	2
18	K. B	First	3
19	Communication Lab	First	1
20	Microprocessor Lab	First	1
21	Lab 200(Fab Lab)	Second	2
22	208 LAB	Second	4
23	Lab 209	Second	2
24	Lab 309	Third	2
25	Simulation Lab	Fourth	2
26	IQAC	Ground	2
27	Principal Sir Cabin	Ground	1
28	Admin	Ground	1
29	Seminar hall	Fourth	2
30	MMS CLASSROOM	Fifth	6
31	Library	Fifth	. 1
7 3,25	Total	My Company	61



Observations & Suggestions:

- Almost all the lamps are replaced with energy efficient LED lamps.
- Dr. Vilas N. Nitnaware
- The fans are of standard efficiency, which may be replaced with high efficiency fans with BLDC motor.
- The Air Conditioning Units are with star rating of 3 & above, which are intrinsically operate at high energy efficiency.

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- The Air Conditioners are operated as required with manual control. The operation is minimal consequently automation may not be economical.
- The temperature is maintained at 24 to 25 °C for air conditioning spaces, which is within the recommended values.
- The rooms are well ventilated and provided with fans at appropriate location for proper air circulation.
- The gadgets are serviced properly and maintained in good condition.

Electricity Bill:

Consumer Name: K.C. Collage of Engineering and Management Studies & Research				
Consumer No., 000033051492	Utility Provider: Maharashtra Stat	te Electricity Distribution Co. Ltd.		
Meter No.: 055-XC463891	Tariff Category: 89/LT-VII B I	Contract Demand: 50 KW		

Description	Unit	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Average
Energy Consumption	KWH	11478	11071	13999	7939	7961	7999	10075
Bill	Rs	185388	173460	179310	126020	116910	119630	150120
Cost	Rs/KWH	16.15	15.67	12.81	15.87	14.69	14.96	14.9

Observations:

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The power consumption & cost is within the normal range.

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IV **Environmental System**

Ventilation & Air Quality:

- The air ventilation is adequate.
- Several indoor & outdoor plants have been installed to improve air quality.







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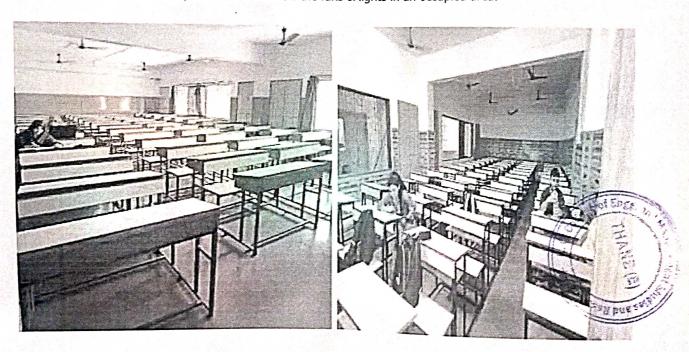
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- Natural light is been used for maximum illumination during daytime.
- It has been a general practice to switch off the fans & lights in an occupied area.



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K.C. C-1 of Engineering & Management Studies & Research.

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Indoor & Outdoor Plants:

Sr No	Name of Plants
1	Arabian jasmine - Jasminum sambac
2	Almond - Terminalia Catappa
3	Hibiscus - Hibiscus rose-sinesis
4	river tamarind - Leucaena leucocephala
5	Monoon longifolium - Polyalthia longifolia
6	Ti - Cordyline fruticosa
7	Rubber fig - Ficus elastica
8	Bamboo - bambusa
9	Papaya - Carica papaya
10	Sago palm - Cycas revoluta
11	Banana - musa
12	Camphor - Ficus benjamina
13	Nile tupil - markhamia
14	Lemon - Citrus limon Burm
15	Pomegranate - Punica granatum
16	Oak - Casuarina equisetifolia
17	Oyster - tradescantia
18	Snake plant - dracaena Tri Fascista
19	Coconut - Cocos nucifera
20	Areca palm - dypsis lutescens
21	Banyan - Ficus benghalensis
	Total Number of Plants = 241

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Water Management

Water Source:

The water supplied by the municipal corporation is used for drinking & other requirements. The incoming water from the municipal corporation is metered.



The water consumption is generally within the norms.

Water Coolers & Purifiers:

The water purifiers and coolers are provided on convenient locations, the details are as under.

Sr no.	Location	Total
1	First Floor	1
2	Second Floor	1
3	Fifth Floor	1

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Water Distribution System:

The distribution network and piping are more or less satisfactory and adequate.

Rainwater Harvesting:

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The rainwater from the terrace area of the college building is being drained into municipal storm water system through requisite ducts and pipes.

However, considering proximity to the seashore, rainwater harvesting may not be practical.



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Waste Generation & Management

Sewage & Wastewater:

The sewage is fed into the municipal drainage. This is a common practice and the municipal corporation which charges towards the sewage charges

Solid Waste:

- The organic as well as inorganic waste is segregated in the college premises.
- The dustbins for Recyclable waste and Non-Recyclable Waste have been provided at appropriate locations.
- The organic waste is used to generate manure by composting.
- The electronic gadgets with residual life may be donated while the electronic waste is properly segregated and handed over to appropriate scrap collector.





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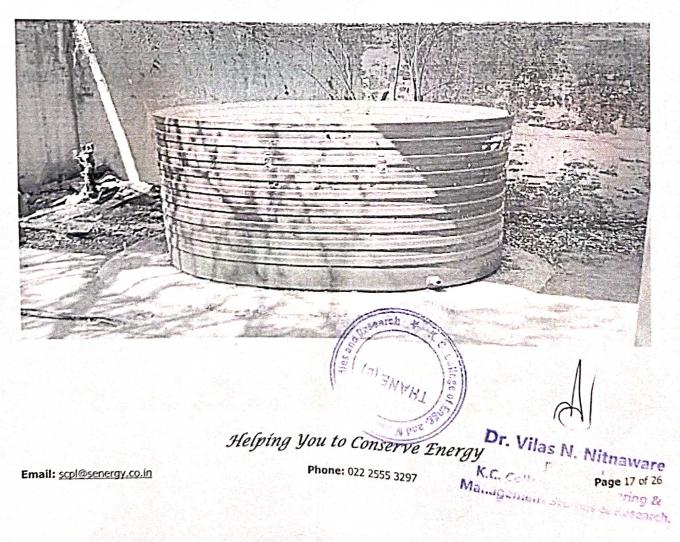
Manager

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The college has installed the compost pit, in which canteen waste, garden waste & wet waste are converted in to organic manure. The manure is used for gardening purpose; & the excess available manure, if any, is sold within the staffs & students for personal use.



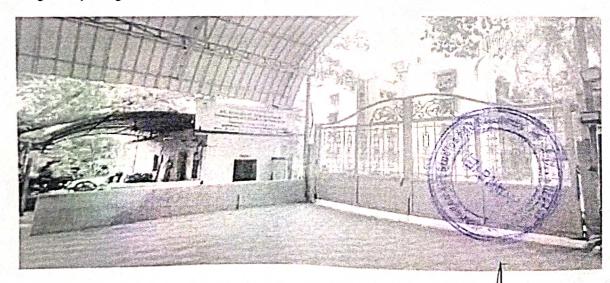
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VII Infrastructure & Safety



Movement on-campus (Distributed / non-distributed leading to crowds)

- The premises are provided with multiple staircases with necessary entrances to ensure quick and effective movement in normal as well as emergency conditions.
- The movement of vehicle inside the campus is allowed for the students as well as staff to enter the campus with designated parking area.



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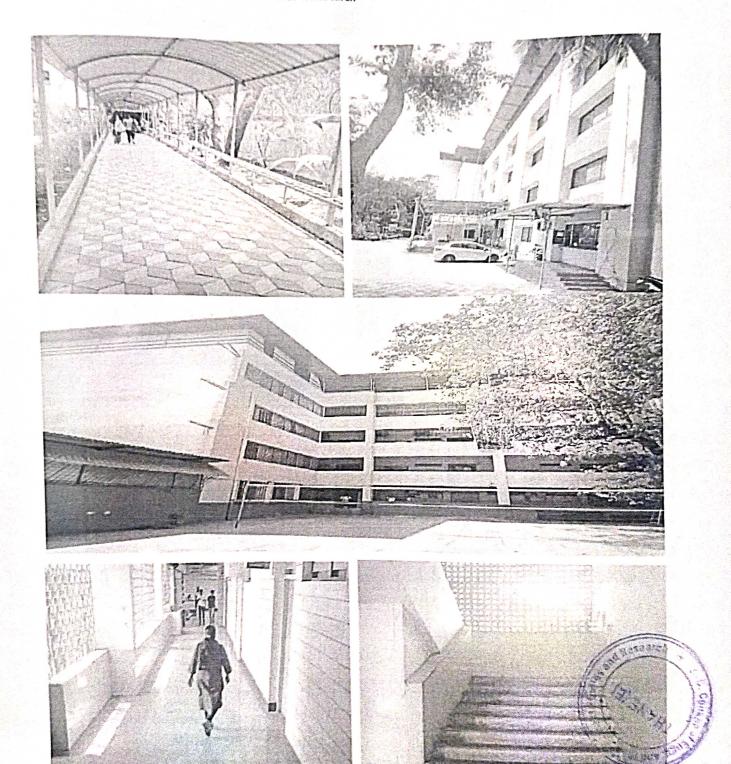
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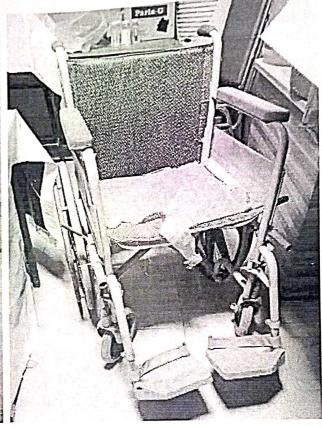
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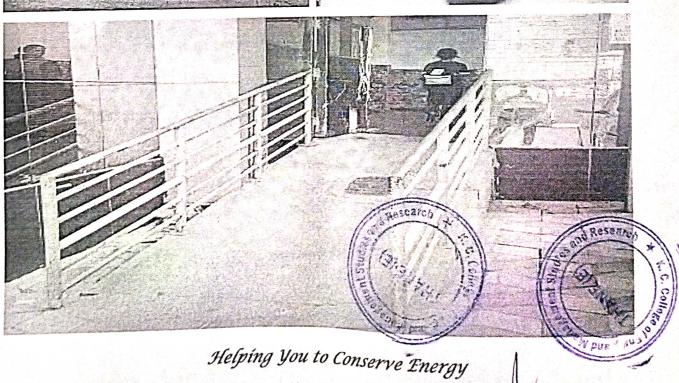
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- The use of plastic has been reduced inside the campus.
- Ramps & Wheelchair are provided on the ground floor to address the needs of differently abled persons.







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Parking space:





There is adequate parking space for vehicles/four wheelers. However, almost all the students and many of the faculty members avail public transport system which is very convenient due to proximity to railway station and bus services.

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Firefighting & fire escape system:





There are efficient fire extinguishers in the premises, which are checked / refilled as per the stipulated frequency.

Sr no.	Location	Quantity	
1	Ground Floor	15	
2	Second Floor	2	
3	Third Floor	3	
4	Fourth Floor	1	
5	Fifth Floor	2	
	Total	23	

The premise is provided with multiple staircases with requisite entrances to ensure quick and effective movement in emergency conditions.

Draining system:

The drains from the washrooms are connected to the municipal drainage, which is a common practice in the colleges in and around Mumbai, Thane & Navi Mumbai.

The municipal corporation charges for water disposal.

Seepage in the building:

The premise was visually inspected for seepages. No seepages were observed in any of the places.

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VIII **Green Culture**





1. The LED / LCD monitors & Laptops has been procured, which are energy efficient.

These monitors are not only energy efficient but also generate minimal heat and cut down on pair conditioning load.

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The following steps may be initiated to further enhance efficiency of the systems.

1. An efficient power management system may be incorporated to

- a. Switch off the display if not in use. b. Put the computer in Sleep mode / switching off the machines, if not used for prolonged period.
- 2. Optimize brightness of the screen.
- Discourage use of screen savers, which has similar power consumption.

Computers:

Sr. No.	Lab. Name	Floor	Quantity	
1	Internet Lab	Ground	25	
2	Operating System Lab - 2	Ground	25	
3	System Programming Lab - 3	Ground	45	
4	Database Lab - 4	Ground	50	
5	Computer Center Lab - X	First	55	
6	Language Lab 109	First	20	
7	Computer Network Lab - 104 A	First	40	
8	Computer Network - 104 B	First	12	
9	Fab. Lab - 200	Second	20	
10	Lab. 204 A	Second	20	
11	IT Project Lab - 204 B	Second	17	
12	Machine Learning Lab - 209	Second	20	
13	Cloud Computing Lab - 309	Third	20	
14	Lab - 305 A	Third	20	
15	Lab - 305 B	Third	10	
16	Simulation Lab	Fourth	45	
17	E Cell	Third	10	
18	K C Library	Fourth	10	
19	NPTEL Lab	First	10	
20	Incubation Lab	Ground	20	
Total			494	

Paper-less communication:

The major internal as well as external communication is through electronic medium.

Re-using one sided paper for printing:

It was observed that two side printing / printing on the back side of used paper in more than 80% of the case.

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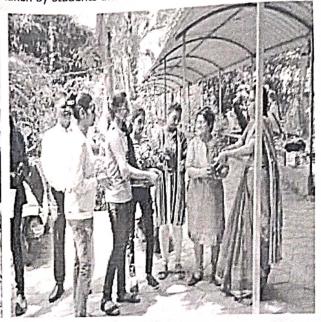
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Green Environmental Activities:

Tree plantation drive and Seed plantation trek was undertaken by students and staff members.





Dry waste and E-waste collection drive conduct by students inside the campus.





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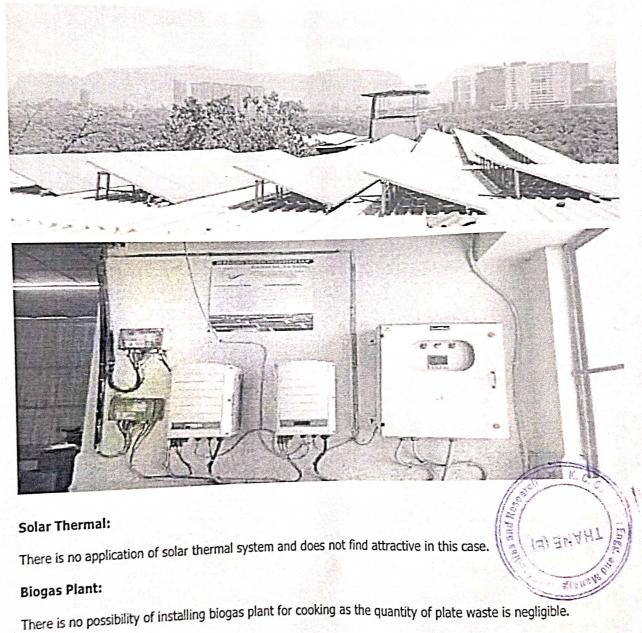
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IX Renewable Energy

Solar Photovoltaic:

The college has installed roof-top solar photovoltaic system with net metering facility.



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Certificate

This is to certify that Green Audit was carried out at K.C. Collage of Engineering and Management Studies & Research, Mithbunder Road, near Sadguru Gardens, Kopri, Thane (East) - 400 603 during the month of April 2024.

The scope, coverage, findings and recommendations are submitted vide our report SCPL-PR-937-080424 dated April 08, 2024.

For SENERGY CONSULTANTS PVT LTD

Tushar Kamble

(Project coordinator)

Dr. Viles N. Nithaware

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Ref: SCPL-CE-937-020424 Date: April 08, 2024

Certificate

This is to certify that Environment Audit was carried out at K.C. Collage of Engineering and Management Co. Engineering and Management Studies & Research, Mithbunder Road, near Sadguru Gardens, Kopri The Control of April 2024. Sadguru Gardens, Kopri, Thane (East) – 400 603 during the month of April 2024.

The scope, coverage, findings and recommendations are submitted vide our report SCPI -PR-037,000424 report SCPL-PR-937-080424 dated April 08, 2024.

For SENERGY CONSULTANTS PVT LTD

Tushar Kamble (Project coordinator)

Dr. Villa

Helping You to Conserve Energy

3, Aastha II, B S Devshi Road, Govandi East, Mumbai 400 088, India.

Email: scpl@senergy.co.in Phone: +91 22 2555 3297 Website: http://www.senergy-india.com

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IV **Environmental System**

Ventilation & Air Quality:

- The air ventilation is adequate.
- Several indoor & outdoor plants have been installed to improve air quality.







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- Natural light is been used for maximum illumination during daytime.
- It has been a general practice to switch off the fans & lights in an occupied area.





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Indoor & Outdoor Plants:

Sr No	Name of Plants		
1	Arabian jasmine - Jasminum sambac		
2	Almond - Terminalia Catappa		
3	Hibiscus - Hibiscus rose-sinesis		
4	river tamarind - Leucaena leucocephala		
5	Monoon longifolium - Polyalthia longifolia		
6	Ti - Cordyline fruticosa		
7	Rubber fig - Ficus elastica		
8	Bamboo - bambusa		
9	Papaya - Carica papaya		
10	Sago palm - Cycas revoluta		
11	Banana - musa		
12	Camphor - Ficus benjamina		
13	Nile tupil - markhamia		
14	Lemon - Citrus limon Burm		
15	Pomegranate - Punica granatum		
16	Oak - Casuarina equisetifolia		
17	Oyster - tradescantia		
18	Snake plant - dracaena Tri Fascista		
19	Coconut - Cocos nucifera		
20	Areca palm - dypsis lutescens		
21	Banyan - Ficus benghalensis		
	Total Number of Plants = 241		

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V Water Management

Water Source:

The water supplied by the municipal corporation is used for drinking & other requirements. The incoming water from the municipal corporation is metered.



The water consumption is generally within the norms.

Water Coolers & Purifiers:

The water purifiers and coolers are provided on convenient locations, the details are as under.

Sr no.	Location	Total
1	First Floor	1
2	Second Floor	1
3	Fifth Floor	1

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Water Distribution System:

The distribution network and piping are more or less satisfactory and adequate.

Rainwater Harvesting:

The rainwater from the terrace area of the college building is being drained into municipal storm water system through requisite ducts and pipes.

However, considering proximity to the seashore, rainwater harvesting may not be practical.

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VI Waste Generation & Management

Sewage & Wastewater:

The sewage is fed into the municipal drainage. This is a common practice and the municipal corporation which charges towards the sewage charges.

Solid Waste:

- The organic as well as inorganic waste is segregated in the college premises.
- The dustbins for Recyclable waste and Non-Recyclable Waste have been provided at appropriate locations.
- The organic waste is used to generate manure by composting.
- The electronic gadgets with residual life may be donated while the electronic waste is properly segregated and handed over to appropriate scrap collector.





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• The college has installed the compost pit, in which canteen waste, garden waste & wet waste are converted in to organic manure. The manure is used for gardening purpose; & the excess available manure, if any, is sold within the staffs & students for personal use.



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VII Infrastructure & Safety



Movement on-campus (Distributed / non-distributed leading to crowds)

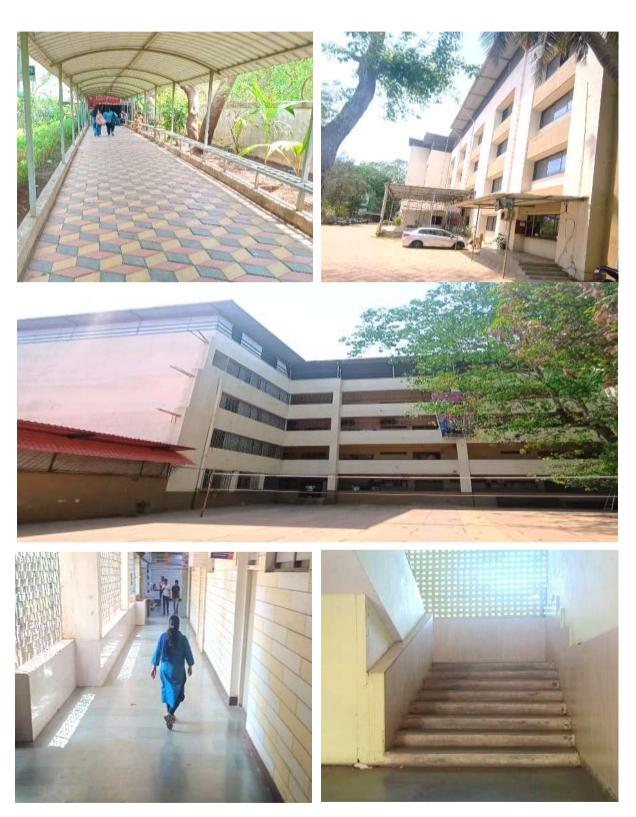
- The premises are provided with multiple staircases with necessary entrances to ensure quick and effective movement in normal as well as emergency conditions.
- The movement of vehicle inside the campus is allowed for the students as well as staff to enter the campus with designated parking area.



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- The use of plastic has been reduced inside the campus.
- Ramps & Wheelchair are provided on the ground floor to address the needs of differently abled persons.







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Parking space:





There is adequate parking space for vehicles/four wheelers. However, almost all the students and many of the faculty members avail public transport system which is very convenient due to proximity to railway station and bus services.

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Firefighting & fire escape system:





There are efficient fire extinguishers in the premises, which are checked / refilled as per the stipulated frequency.

Sr no.	Location	Quantity
1	Ground Floor	15
2	Second Floor	2
3	Third Floor	3
4	Fourth Floor	1
5	Fifth Floor	2
	Total	23

The premise is provided with multiple staircases with requisite entrances to ensure quick and effective movement in emergency conditions.

Draining system:

The drains from the washrooms are connected to the municipal drainage, which is a common practice in the colleges in and around Mumbai, Thane & Navi Mumbai.

The municipal corporation charges for water disposal.

Seepage in the building:

The premise was visually inspected for seepages. No seepages were observed in any of the places.

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VIII Green Culture





Computers/Laptops:

- 1. The LED / LCD monitors & Laptops has been procured, which are energy efficient.
- 2. These monitors are not only energy efficient but also generate minimal heat and cut down on air conditioning load.

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The following steps may be initiated to further enhance efficiency of the systems.

- 1. An efficient power management system may be incorporated to
 - a. Switch off the display if not in use.
 - b. Put the computer in Sleep mode / switching off the machines, if not used for prolonged period.
- 2. Optimize brightness of the screen.
- 3. Discourage use of screen savers, which has similar power consumption.

Computers:

Sr. No.	Lab. Name	Floor	Quantity
1	Internet Lab	Ground	25
2	Operating System Lab - 2	Ground	25
3	System Programming Lab - 3	Ground	45
4	Database Lab - 4	Ground	50
5	Computer Center Lab - X	First	55
6	Language Lab 109	First	20
7	Computer Network Lab - 104 A	First	40
8	Computer Network - 104 B	First	12
9	Fab. Lab - 200	Second	20
10	Lab. 204 A	Second	20
11	IT Project Lab - 204 B	Second	17
12	Machine Learning Lab - 209	Second	20
13	Cloud Computing Lab - 309	Third	20
14	Lab - 305 A	Third	20
15	Lab - 305 B	Third	10
16	Simulation Lab	Fourth	45
17	E Cell	Third	10
18	K C Library	Fourth	10
19	NPTEL Lab	First	10
20	Incubation Lab	Ground	20
Total		_	494

Paper-less communication:

The major internal as well as external communication is through electronic medium.

Re-using one sided paper for printing:

It was observed that two side printing / printing on the back side of used paper in more than 80% of the cases.

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Green Environmental Activities:

Tree plantation drive and Seed plantation trek was undertaken by students and staff members.





Dry waste and E-waste collection drive conduct by students inside the campus.





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IX Renewable Energy

Solar Photovoltaic:

The college has installed roof-top solar photovoltaic system with net metering facility.





Solar Thermal:

There is no application of solar thermal system and does not find attractive in this case.

Biogas Plant:

There is no possibility of installing biogas plant for cooking as the quantity of plate waste is negligible.

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Green Audit Report.



Dr. Vilas N. Nitnaware Principal K.C. College of Engineering & Management Studies & Research



Mith Bunder Road, Near Sadguru Garden, Kopri, Thane (E) 400603.

Green Audit was conducted by

Quality Certification Services.

Saket 101, Shivaji Park, Dadar (W), Mumbai – 400028.

Green Audit was conducted by

CA. Dr. Ashis .Arun. Palkhiwale.

(ACA, GDCA, Mcom, Msc (Env Sc), MA (Eco), PhD (Env), Automobile Engg, DISA, DFM, DAM, DPT, DCL & DJL)

Lead Auditor & Trainer for ISO 9001, 14001, 45001, 20000, 22000, 27001, 50001, 14064, 14046 & OHSAS 18001, SA 8000, BS 25999 & CG, CSR, SOX, CDM.

Mobile: - +91 9029800664.

Green Audit was conducted on

3rd & 4th January 2019.

Dr. Vilas N. Nitnaware

K.C. College of Engineering & Management Studies & Research

Mith Bunder Road, Near Sadguru Garden, Kopri, Thane (E) 400603.

Profile of KCCEMSR

A brief about the Institute

Established in 2001, Excelssior Education Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Its College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Recognition Society's KC College of Engineering & Management Studies & Manageme Management Studies & Research at Thane is Punjabi Linguistic Minority Institute. It is an educational and charitate at Thane is Punjabi Linguistic Minority Institute. is an educational and charitable trust which has been contributing in the mission of transforming rural India into transforming rural India into a developed nation by providing quality education in engineering as well as manual by providing providing quality education in engineering as well as management .The institute is approved by AICTE & DTE and is affiliated to the University of the institute is approved in Thane region. It is affillated to the University of Mumbai which is the only institute in Thane region. It provides following course which is the only institute in Engineering, provides following courses: Electronics and Telecommunication Engineering, Computer Engineering, Information Technology, MMS(MBA).

With the spotlight on the outcome-based education (OBE) and experiential learning helps students to gain an analysis and enhances to helps students to gain an excellent theoretical knowledge base and enhances to develop thinking skills, develop thinking skills, industry-ready technical skills, communication skills, entrepreneurial skills entrepreneurial skills, and analytical frameworks. In their pre-final semester

students are exposed to Industry oriented projects & internship.

The college also provides ample of scope in co-curricular and extracurricular activities wherein, the students ample of scope in co-curricular and extracurricular ensures wherein, the students are encouraged to show their talents. The College ensures that the students are encouraged to show their talents. that the students prove themselves to be not only well qualified engineers but also very responsible and ideal citizens of our country.

The college has different cells to help students become self sufficient and independent Entrangement of the college has different cells to help students become self sufficient and independent Entrangement of the college has different cells to help students become self sufficient and independent Entrangement of the college has different cells to help students become self sufficient and independent entrangement of the college has different cells to help students become self sufficient and independent entrangement cells to help students become self sufficient and independent entrangement cells to help students become self sufficient and independent entrangement e independent Entrepreneurial Development Cell (E-Cell) provides an apt platform for budding entrepreneurs Gate Study Cell sensitize students about Graduate Aptitude Test, and Training &Placement cell is vigorously working to prepare them for aptitude test and harness opportunities in and beyond the industry .Gender Equity Cell is to sensitized about the issues of women through camps and workshop. Eco Club: "Excel the greener way", Youth Red Cross, Rotract; we rise by uplifting others, Training &Placement cell etc. These clubs enhaces our students and inculcate value based education making them better human beings.

Sansad Adarsh Gram Yojana (SAGY) with a motto "Developed Village-Developed Nation", is a rural development program broadly focusing upon the development in the villages which includes social development, cultural development and spread motivation among the people on social mobilization of the village community. The program was launched by the Prime Minister of India, Narendra Modi on the birth anniversary of Jayaprakash Narayan, on 11 October 2014. The distinct feature of this Yojana is that it is (a) demand driven (b) inspired by society (c) based on people's participation. SAGY, has inspired us in taking up a benevolent task and challenging

the skills of our students which can be put to use for a noble cause.

KCCEMSR has bagged the award of 'Best Engineering College with academic Excellence' by Worldwide Achievers Pvt. Ltd in an exclusive event, by the Asian Education Summit & Awards. The award recognizes the professional contribution and academic achievement of the organization in the area of education . Midday Excellence award in Engineering and Management Education, Thane Beyond. Our college was awarded BEST Engineering college with academic excellence in Mumbai in Asia Education Summit 2016, The award recognizes the professional contributions and academic achievement of an organization in area of education. Our College was awarded with "Great Achievers Award for education excellence" for outstanding achievements in chosen field of activity held at Bangkok, Thailand. Both the awards were conferred upon our Managing Director Dr Sai Kiran Khanna.

A dream doesn't become reality through magic; it takes sweat, determination & hard work. Human spirit & creativity is endowed with infinite potential & power, hence, we

aim at producing not only good professionals but also worthy citizens.

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Inclusions & Exclusions while performing the Green Audit.

- Carbon emissions due to Students Travelling is not considered.
- Carbon emissions due to Faculty Travelling is considered.
- Carbon emissions during Industrial Visits travelling not considered.
- Carbon emissions from the Construction of Building are not considered as the Building is more than 10 Years old.
- All Wood is more than 6 years old so not considered. (Classroom Faculty Platforms).
- Plywood is not considered as Plywood is already recycled.
- Total Consumption of Electricity for the Institute is considered.
- 8) Total Consumption of Water for the Institute is considered.
- LPG Cylinders are consumed in Canteen only. No consumption in Chemistry Lab.
- 10)Record presented by Eco Club members is considered to be Authentic.
- 11)Green Cover not only considered in Institute campus but also in the adopted village for NSS.
- 12)Emissions from Tiles, Paints & Printers are not considered.
- 13)Ambient Air Quality Monitoring is performed only at 3 Locations.
 (Which is seriously inadequate considering the area of the Campus / Building of the Institute).
- 14)Analysis of Water entering the drains is not performed. (Sewage water, Lab washing water, Washing & Cleaning water, Canteen water) is let out in drains. The Drains are connected to the creek.
- 15)Raw Water Analysis is not performed.
- 16) Radiation due to Wifi & Mobile Phones is not considered.



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<u>Air.</u>

Ambient Air Quality was monitored at 3 Locations.

Sr No.	Sample No.	
01	11	Location
01	LI	Ground Floor Near Temple.
02	12	Ground Floor Near Security Cabin.
03	13	sthe sthe street Security Comments
-		5 th Floor near Open Terrace.

(Performing Air Quality Monitoring at only 3 Locations is seriously inadequate considering the area of the Considering the area of the Campus / Building of the Institute).

The Ambient Air Quality Monitoring was performed by Open Bottle method.

The Bottle kept at local: The Bottle kept at location open for 24 Hours. The Ambient Air Quality Monitoring was performed by Waste Encare (India) Pvt. Ltd.

The results are as under.

Test Parameters	Unit	Specification Limits as per CPCB	Sample 1 L- 1	Sample 2 L – 2	Sample 3 L - 3
Sulphur Dioxide (So2)	mg/m3	80	07	09	10
Nitrogen Dioxide (No2)	mg/m3	80	06	11	09
Particulate Matter (PM 10)	mg/m3	100	23	36	32
Particulate Matter (PM 2.5)	mg/m3	60	31	44	38
Carbon Monoxide (CO)	mg/m3	02	0.005	0.004	0.002

(All Values are found within the CPCB limits)

Separate signed report is also given to the Institute.

Diesel Generator is not used Frequently. Stack Emissions from the Diesel Generator stack is not performed.

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Dr. Vilas N. Principal



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Water.

Total Consumption of water is considered from the Meter reading shown in the Water Bill.

Water used for

Drinking. Cleaning. Washing & Flushing, Gardening. In Laboratory. In Canteen,

Total Water Consumption from 01/04/2018 to 30/09/2018 is 10,97,000 Liters.

So the Water Foot print is

10,97,000 / 183 Days = 5995.

So the Water Foot Print id 5995 Liters of Water Per Day.

A separate Water Foot Print Certificate is given to the Institute.

Currently no measures are being taken to save water or to recycle water.

Paper.

Each A 4 paper is used from both the sides.

After use on both the sides then it is sold to Old Paper Merchant.

To the extent possible use of soft copies of documents is promoted.

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Electricity.

Total Consumption of Electricity is considered from the Meter reading shown in the Electricity Bill in the Electricity Bill.

Electricity used for

Tube Lights, Lights & Fans. Air conditioners. Computers & Printers. To run the Utilities.

The details of the Electricity Units consumed from June to October 2018 are as below

Sr No.	Month	Units Consumed	
01	June	4,387	
02	July	14,966	
03	August	8,926	
04	September	6,194	
05	October	8,743	
TOTAL		43,216	
Monthly Average		8,643	

Power Generation by running the 63 KVA Diesel Generator.

Monthly Average Consumption of Diesel is not more than 15 Liters of Diesel.

Measures taken for Energy / Electricity Conservation.

- 1) Replacing the conventional Florescent Tube Lights with LED Tube Lights. (nearly 70% are replaced).
- 2) Replacing the CFL Blubs with LED Bulbs. (nearly 80% are replaced).
- 3) Solar Power Generation. Solar Power Generation of 80 KW.
- 4) Periodic Maintenance of the Diesel Generator to get Optimum performance.

LPG Consumption

Liquefied Petroleum Gas.

In the Canteen depending on the semester schedule on an average 10 LPG Cylinders Per month are required.

There is no other application of LPG Cylinders in the Institute.

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Dr. Vilas N. Principal

Excelsior Education Society's Green Audit Report January 2019

Consumption of Petrol & Diesel by Staff travelling to & fro the Institute.

According to the data given by the Eco Club following are the Travelling details. details.

Distance Travelled by staff To & Fro the Institute by 2 Wheeler	Petrol Consumption per day by 2 Wheeler	Distance Travelled by staff To & Fro the Institute by	Petrol Consumption	Distance Travelled by staff To & Fro the Institute by 4 Wheeler	Diesel Consumption per day by 4 Wheeler
160 Km	Allba	4 Wheeler		20 Km	2 Liters
TOO KIII	4 Liters	60 Km	4 Liters	20.	Average of
	Average of		Average of		10 Kmpl
	40 Kmpl		15 Kmpl	Daysi	n a Month.
So Mont	40 Kmpl thly Fuel Const	imption con	sidering 25 W	orking Days	50 Liters
	100 Liters		100 Liters		1

So Following is the Calculation of the Carbon Foot Print.

Calculation of Kg of CO2 emissions

1	2 As per ISO 14064	3	4	Total Kg of
Category	per unit of consumption	Average Monthly Consumption	2*3	CO2 2*3=5
Electricity	4.3 Kg Per Unit	8,643 Units	8,643 X 4.3 =	94
Diesel	2.68 per liter		35 X 2.68=	462
Petrol	2.31 per liter		200 X 2.31= 190X 1.51=	287
LPG	1.51 per Kg	190 Kg TOTAL	1307 1:02	38,008

So the Average Monthly CO2 Emissions are 38,008 Kg of CO2.

A separate Carbon Foot Print Certificate is given to the Institute.

The Consumption of Average Electrical Units is calculated based on units consumed from June to October 2018.

The CO2 emissions from the manufacturing of the Cement used in Plastering & Tiles & Granites is not considered as it does not fall in the period of June to October 2018.

It will be considered next year while performing the Green Audit.

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Environment / Green Audit related activities carried out by the Institute & Eco Club

- 1) 400 Kgs of E Waste disposed via Eco Rox on 05/07/2018.
- 2) Beach Clean Drive on 20.07.2018.
- Demonstration on Home Composting Bucket & Terrace Gardening on 07.03.2018.
- 4) Printer Tonner Refilling. Total 185 Refilling in 2017-18.
- 5) Herbal Pest Control.
- Composting facility for processing Canteen waste.
- 7) Tree Plantation in the Village nominated for NSS Activity.
- 8) Replacing Conventional Florescent Tube Light by LED Tube Light.
- 9) Installation of Solar Power of 80 Kw.
- 10)Used Batteries are given in Buy Back.
- 11)Use of waste Plywood for Interior Decoration.
- 12)Preparation of Paper & Cloth Bags & promoting its use in neighborhood.
- 13)Eco Army Initiative.

Proposed Environment / Green Audit related activities to be carried out by the Institute & Eco Club

- Fitting of Ceiling Fans with less Power Consumption.
- 2) Installing Central Air conditioner to reduce power consumption. 1
- 3) Water from the roof of those structures where corrugated metal sheets are there & letting it on the open spaces where the soil is loosened so that it leads to re charging of water into the Ground level water table.
- 4) Increasing the size of the Compost pit.
- 5) 100% conversion to LED Lighting.



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Dr. Vilas N. Mitriaware

Prinapal

K.C. College of Engineering &

Green Cover Details.

Green cover area in the campus is 70% of the Open space. It is 1,161 Sq mts.

Following are the trees planted in the campus.

JAMUN

BANANA

JACKFRUIT

Neem

Bael

Jamun

Chiku

Gulmohar

Ashoka

Banyan

Peepal

Mango

Jackfruit

Coconut.

Various Vegetables.

Various Flowering Plants.

The Village in which NSS activities are carried out by the Institute a tree plantation drive was undertaken twice. Out of the 100 trees planted 25 are surviving & out of 25 trees planted 8 are surviving.

Hazardous Waste Disposal

E waste is disposed through authorized Disposer. (Eco Rox).

Used Batteries are given in Buy Back to the Supplier of New Batteries.

Laboratory Waste & Used Chemicals are diluted & let out in Drain.

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Dr. Vilas N. Mindware Principal

Suggestions for Environment / Green Audit related activities to be carried out by the Institute & Eco Club

- STP (Sewage Treatment Plant) can be installed for processing & reusing the Sewage reusing the Sewage waste water.
- The Flushing Tanks of WC (Toilets) to be modified such that only half gets filled & thus white it. gets filled & thus while flushing only half of the water is used.
- Drip irrigation can be implemented for the garden & vegetables & Flower plants Flower plants.
- (4) To fit the atomizer devise to taps to save water.
- 5) Testing of the water in the drain as it is directly going into the creek.
 - Motion sensors can be fitted for the Light fittings in Washrooms, Lift and Lobby where and Lobby where continuous usage is not there.
- 7) Survival rate of planted trees should improve.
 - Grafting of new plants in the trunk of dead trees can be done.
 - 9) In the next Green Audit to test the Ambient Air Quality at least at 20 Locations.
 - 10)To test the Diesel Generator Stack Emissions.
 - 11)To verify the radiation from Wifi & Mobile phones.
 - 12)To conduct Poster & other Innovative Environment Idea Competition among students.

The Above Report is prepared based on the Records & facts shown by the Office bearers of Institute & the members of Eco Club & also based on the observations made by the Auditor on 3rd & 4th January 2019.

CA. Dr. Ashis .Arun. Palkhiwale.

(ACA GOCA Moore, Mac (Erry Sc), MA (Eco), PhD (Erry), Automobile Engg, DISA, DFM, DAM, DPT, DCL & D.I.L.) Lead Auditor & Trainer for

ISO 9001, 14001, 45001, 20000, 22000, 27001, 50001, 14064, 14046 & OHSAS 18001, SA 8000, 8S 25999 & CG, CSR, SOX, CDM.

12 01/201

Mith Bunder Road, Near Sadguru Garden, Kopri, Thane (E) 400603.

Dr. Vilas N. Mitnaware

GSTIN : 27AAHHP1572M12Q Ciriginal Copy TAX INVOICE SAINATH ENTERPRISES Shop No. 1, Ground Floor, Jeevan P shart CHS. Opp. Union Bank, Louiswadi Thane (W) 400 604. Tel.: 9867706377 / 9087195088 | mail: Infinity-have All Type of LED & Electrical Product Supplier Party Details : KC COLLEGE OF ENGINEERING & MANAGEMENT 02-04-2019 Invoice No. : Maharashtra (27) THANE WEST Dated Place of Supply N Reverse Charge GSTIN / UIN S.N. Description of Goods Price Amount(₹) Qty. Unit HSN/SAC Code 1,52,500.00 1. CORVI NEW TUBE 20W 5000K 250.00 610.00 Pcs. 9405 2. CORVI 2*2 PANEL 36W 5000K 56,750.12 2,026.79 28.00 Pcs-9405 2,09,250.12 6.00 % 12,555.01 Add : CGST (D) Add : SGST 6.00 % 12,555.01 Less : Rounded Off (-) 0.14 2,34,360.00 638.00 Pcs. **Grand Total** Tax Mate Taxable Amt. CGST Amt. SGST Amt. Total Tax 2,09,250.12 12,555.01 12,555.01 25,110.02 17% Rupees Two Lakh Thirty Four Thousand Three Hundred Sixty Only Bank Details : BANK NAME : UNION BANK OF INDIA, BRANCH: LGUISWADT, THANE IFSC CODE: UBIN0562963, ACCOUNT NO.: 629601010050441 Terms & Conditions Receiver's Signature : 1. Goods once sold will not be taken back, 2. Interest & 24% p.a. will be charged if the payment For SAINATH ENTERPRISES is not made with in the stoulated time. 3. Subject to 'Maharashtra' Jurisdiction only. Authorised Signatory Dr. Vilas N. Milnaware Principlan K.C. College of Car recting & Management Studies & Research

Excelssior Education Society's Regd, Under Public Trust Act. 1950 Regd, No. F-638

K. C. COLLEGE OF ENGINEERING &

MANAGEMENT STUDIES & RESEARCH

(Affiliated To University of Mumbai, Approved by AICTE & DTE) (DTE Code 3210)

Ref. No.

Date:

Terms and conditions

- 1) 60 % Advance Payment and Balance 35% after completion of work and 5 % retained for 5 Months
- 2) Payment will be made by cheque only
- 3) 3 year warranty period of entire High mast light, 12 mtr Pole.

Yours faithfully,

KC.College of engineering Management and research

(Mr. Sai Kiran Khanna) Managing Director.

Dr. Vilas N

K.C. College of Management

Mith Bunder Road, Near Sadguru Garden, Kopri, Thane (E) - 400 603.

Tel.: 2532 7100 Fax: 2532 6496 • E-mail.: kcce21@hotmail.com

SOLAR ENERGBIE TECHNOLOGIES

H.O.- RM.13 salunke chawl, near municipal school, temphipada road, bhandup(west)400078 Fmail-solarenergy123@ rediffmail.com . GST NO. - 27ALMPB4767A179

Contact Nos. 7039033681,9146252275,7039033680

Date:07/05/2018

Ref.MAHA-P1/070518/2018/1

Proforma Invoice

	PIOIOI	Ha HIVOIC	-	0	
TO K C Colleg	e	PI no5/20 Quotation Date: 07/05/			
Thane KIND ATTN: Robit sir		Order No oral disc.		Date:07/05/2018	
E-MAIL	į.	T.R. No.Da	te : nil		
Mobile : Sr. No.	PARTICULARS	Unit Rate (Rs.)	QTY	Total Amount (Rs.)	
	Highmast light One - 200 watt LED High flood light (6 numbers) { Rs.7000/- each}, 12 mtr Pole (1 Number) { Rs.24000/-}, Installation of pole (one number)	78000.00	01	78,000.00	
2	[@Rs.1200]/-] Highmast light Two - 150 watt LED High flood light (6 numbers) {@Rs.6000/- each}, 12 mtr Pole (1 Number) [@Rs.24000/-], Installation of pole (one number)	72,000.00	01	72,000.00	
3	[@Rs.12000/-] Transportation	LS	LS	Additional ac actual	
	GST @12% ON LED LIGHTS (Rs.42000/-) Rs.35000/-)			9360.00	
	GST @18% on Pole (Rs.48,000/-)			8640.00	
	Total			1,68,000.00	
	Amounts In Words: One Lac Sixty Eight Thousand only		.00		
0% advar Vork Com 0 days af Varrantee	terms and conditions — nce , balance 40% after completion of work of appletion time — iter receipt of advance. a — 3 years 27ALMPB4767A1Z9	within 15 days			

For Solar Energbie Technologies

Authorized Signatory

Dr. Vilas N. Niinaware

Principal

Yahisar, Mui v C College Of Engine a is adopted gram SOLAR ENERGBIE TECHNOLOGIES H.O.- RM.13. salunke chawl.near municipal school,temphipada road,bhandup(west)400078

Email: solurenergy123@souttfmail.com Contact Nos. 7039033681.9146252275.7039033680 Date:07/05/2018 Quotation for LED High Bay Light Ref MAHA/070518/2018/1 Quotation No.: 2985 Date: 07/05/2018 Date:07/05/2018 TO k c College Order No.- oral disc. Thane T.R. No.Date: nil KIND ATTN: Robit sit Total Amount (Rs.) QTY E-MAIL Unit Rate 78,000.00 Mobile: PARTICULARS (Rs.) Sr No 01 78000.00 Highmast light One -200 watt LED High flood light (6 numbers) (@Rs.7000/- each), 12 mtr Pole (1 Number) [@Rs.24000/-], 72,000.00 Installation of pole (one number) 01 72,000.00 [@Rs.12000/-] Highmast light Two -150 watt LED High flood light (6 numbers) (@Rs.6000/- each), 12 mtr Pole (1 Number) [@Rs.24000/-], Installation of pole (one number) (@Rs.12000/-) Additional ac actual LS LS Transportation 3 9360.00 GST @12% ON LED LIGHTS (Rs.42000/- Rs.36000/-) 8640.00 GST @18% on Pole (Rs.48,000/-) 1,68,000.00 Total Amounts In Words: One Lac Sixty Eight Thousand only Payment terms and conditions -60% advance, balance 40% after completion of work within 15 days Work Completion time

20 days after receipt of advance.

ment Stud

Warrantee - 3 years

<u> Milnaware</u>



SENERGY Consultants (P) Ltd



Ref: SCPL-CE-937-080424 Date: April 08, 2024

Certificate

This is to certify that Green Audit was carried out at K.C. Collage of Engineering and Management Studies & Research, Mithbunder Road, near Sadguru Gardens, Kopri, Thane (East) – 400 603 during the month of April 2024.

The scope, coverage, findings and recommendations are submitted vide our report SCPL-PR-937-080424 dated April 08, 2024.

For **SENERGY CONSULTANTS PVT LTD**

Tushar Kamble

(Project coordinator)

Page 1 of 3

Helping You to Conserve Energy

SENERGY Consultants (P) Ltd



Ref: SCPL-CE-937-080424 Date: April 08, 2024

Certificate

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For **SENERGY CONSULTANTS PVT LTD**

Tushar Kamble

(Project coordinator)

Page 2 of 3

Helping You to Conserve Energy

SENERGY Consultants (P) Ltd



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For **SENERGY CONSULTANTS PVT LTD**

Tushar Kamble

(Project coordinator)

Page 3 of 3

Helping You to Conserve Energy

Website: http://www.senergy-india.com



Excelssior Education Society's K. C. College of Engineering and Management Studies and Research (Affiliated to University of Mumbai)

MithBunder Road, Near Hume Pipe, Kopri, Thane (E) – 400603

Green Campus Award

(January 2019)

