



Criteria VII

7.1.3 BEYOND THE CAMPUS ENVIRONMENTAL PROMOTION ACTIVITIES

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Internal Quality Assurance Cell

Report on

Beyond the campus Environmental promotional activities

Environment is very sensitive issue in these days. Environment promotion and conservation is the basic policy adopted by our college. Our attempt is create awareness in the minds of villagers about environment consciousness. Following activities were undertaken by college with the help of local community.




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tree plantation




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Criteria VII

7.1.3 ENERGY AUDIT REPORT

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Dr. Rafiq Zakaria College for Women
Navkhanda, Aurangabad

Energy Audit Manual
2022-2023

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1. INTRODUCTION

Dr. Rafiq Zakaria College for Women, Navkhanda, Aurangabad is in Maharashtra State. This college is affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. This college is established in the year 1990, which has been imparting higher education up to UG, P.G. & Research in Arts & Science faculties. College campus consists of building named as Main Building-A (Baradari) in which administrative office, Library-B, Canteen-C, Various HOD cabins, Staff rooms, Classrooms, various laboratories like, Chemistry, Physics, botany & Zoology are functioning with basic motto to impart quality, employment and entrepreneurship to mostly urban as well as marginal rural students. This college also provides sports facilities to student undergoing through various type of physical education. There is also beautiful library Block-B where student studying in various branches have facility to refer books. The college developed garden & teak wood plantation in campus.

2. ELECTRICAL MAINTAINS COMMITTEE

- | | | |
|----|-------------------|----------|
| 1. | Dr. S. Q. Chishty | Chairman |
| 2. | Dr. QuadriFirdous | Member |
| 3. | Dr. Shaikh Irfan | Member |
| 4. | Dr. BushraZareen | Member |
| 5. | Shri Tajuddin | Member |

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3. OBJECTIVES

To study present level of Energy Consumption



Dept.	No. of Fans	No. of Tubes	No. of L.F.Ds	Computer	Printer	A.C.	Inverter	Photo copy machine
Principal Chamber	2	0	5	2	2	1		1
VP Cabin	1	0	8	1	1		1	1
Ground Floor	3							
Store	0							
Ladies Wash Room	1		2					
Ladies Staff Room	2	6						
Gents Staff Room	3	6						
IQAC Cabin	1	0	2	2	1	1		
Canteen Areas	3	1	1					
Home Science	6	11	6					
Office	6	8	6	10	6	2	0	0
Reading Room	7	2	9	1				
Office Corridor	2							
Library	8	9		9	1			
Dept. Physics	4	6	4					
Corridor	1	2						
Dark Room	1	4						
Computer Dept.	3	11	0	30	1	2		
Chemistry Lab-1	3	9	0					
Chemistry Lab-2	3	9						
Chemistry Lab-3	3	9						
Chemistry Lab-4	2	7						
Chemistry Dept.	2	6	0	1	1	0	0	0
Dept. of Zoology	2	12						
Dept. of Botany	2	9						
Corridor	4	2						
Security Cabin	0							
First Floor	5	0	1					
Store	1	4						

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Dept. of Physical Edu.	2	1	1					
Sport Room	2	2						
Botany Sr.	1	2						
Botany Sr. Lab.	2	5						
Dept. of Pscy.	4	12						
Dept. of English	1	1						
Corner Room	2	3						
Dept. of Urdu	1		2					
Second Floor	0							
Political Science	2	3						
Physics HOD	1	2	0	1	1			
Anti Chamber	1	3						
Language Lab	2	3	2	8	1			
Hall No. 1	9	25	0	0	0	0	0	0
Hall No. 2	6	10	1	0	0	0	0	0
Hall No. 3	5	8	2	0	0	0	0	0
Hall No. 4	4	10	1	0	0	0	0	0
Hall No.5	4	12	0	0	0	0	0	0
Hall No.6	2	2	1	0	0	0	0	0
Hall No.7	2	2	1	0	0	0	0	0
Hall No.8	2	2	0	0	0	0	0	0
Hall No.9	0	0	0	0	0	0	0	0
Hall No.11	5	4	0	0	0	0	0	0
Hall No.12	6	4	0	0	0	0	0	0
Hall No.16	4	6	3	0	0	0	0	0
Hall No.18	4	4	1	0	0	0	0	0
	155	259	59	65	15	6	1	2

Exhaust Fan 8
Fridge 2
Oven 4
TV 1
Focus 3

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4. Methodology:-

a. Electrical Devices wise load

Electrical Devices	Total No.	Watt	Total Watt
Fluorescent Tube	259	40	10360
LED Tub	59	20	1180
Fan	155	90	13950
Computer	65	60	3900
Printer	15	250	3750
A.C.	6	1440	8640
Inverter	1	325	325
Exhaust Fan	8	45	360
Fridge	2	100	200
Oven	4	1860	7440
T.V.	1	110	110
Focus	3	100	300
Xerox	2	1250	2500
		Total	53015

Pump 5 HP	1	746	3750
Pump 1 HP	1	746	746
		Total	4496

	53015
Total	57511
Total Load	57.511KWH

Total Load = 57.511 KW/hr


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b. Study of Electrical Energy Consumption

Electrical Bill Analysis: 2021-22

There is only one type of electricity connection being power supplied by MSEDCL. Monthly electricity bill is served by MSEDCL against electricity used & is paid by college.

A Cost of power is worked out by summing up total KWH of all connections & their amount over the year 2021-22. By dividing total amount by total works out average cost of power per KWH.

Month	Connection No & Tariff Category	
	LT Cons. No.-490010179979	
	Tariff-LT-VII B-I	Load KVA-23
May-22	2502	33825.02
Apr-22	2665	34801
Mar-22	2482	32348
Feb-22	1790	24226
Jan-22	1674	36992
Dec-21	2294	29235
Nov-21	1614	21966
Oct-21	2256	29926
Sept-21	1572	21510
Aug-21	1871	24239
Jul-21	1738	23286
Jun-21	1445	20154
	23903	332508.02
Average cost of power per KWH works out to be		
Rs. 13.91072334		

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c. Analysis of connected load in campus other than motive power:-

As viewed from below table, it understand that lightening & fan load has dominance in total load mix & shares more electric consumption. This load has most potential to identify energy saving opportunity.

Type	No	Total KW	% Load
Lighting Load	318	11.54	22.0882
Fan Load	155	13.95	26.7011
Computer Load	65	3.9	7.46483
AC & Fridge	8	8.84	16.9203
Inverter	1	0.325	0.62207
Printer & Xerox	17	6.25	11.9629
Oven	4	7.44	14.2406
Total	568	52.245	100

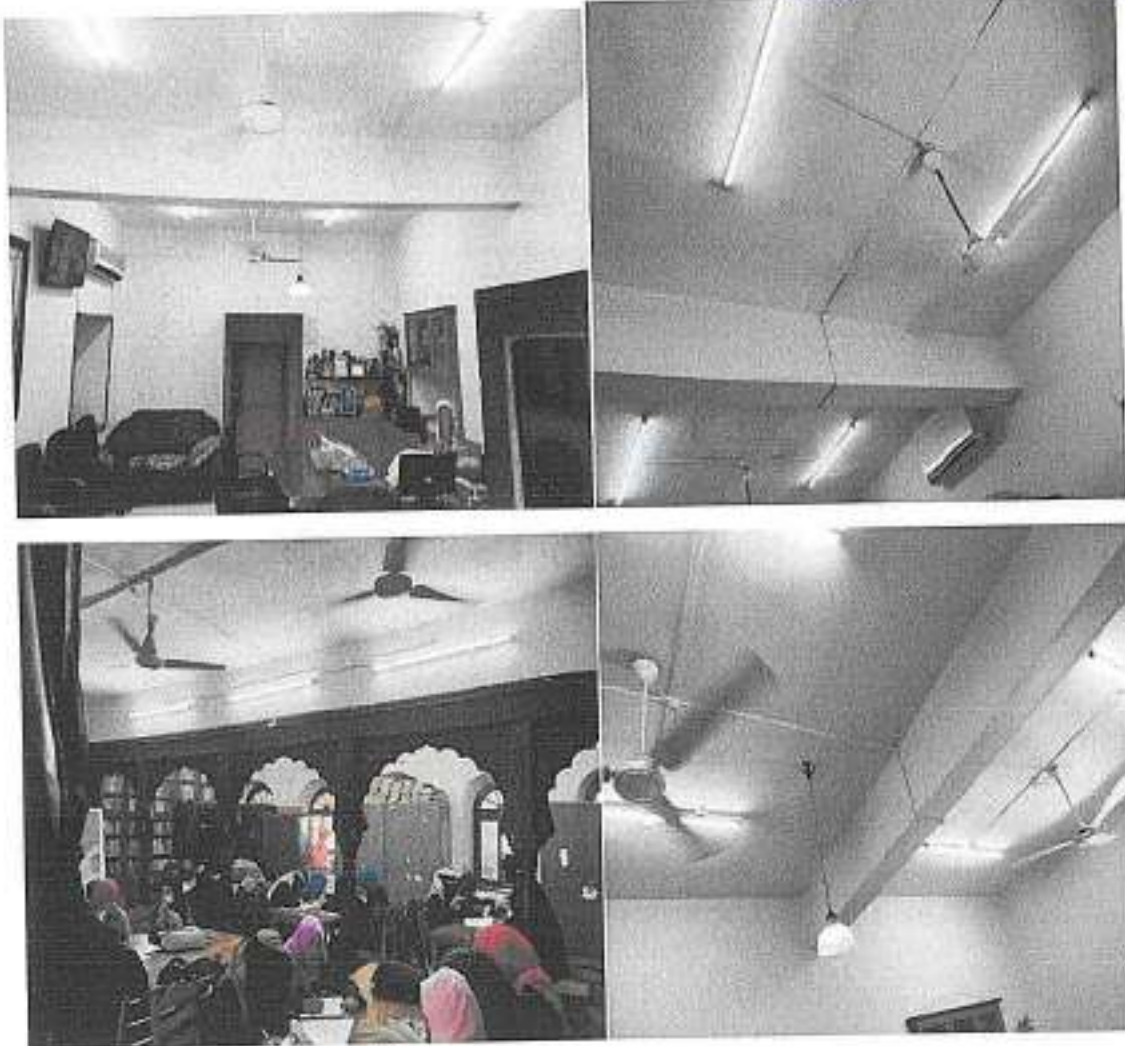
d. Analysis of connected Load of motive power:-

Pump 5 HP	1	746	3750
Pump 1 HP	1	746	746
		Total	4496

Total power connected for motive power = 4.496 KWH

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5. Recommendation:-


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6.

a. Energy Saving from motion sensor proposal:-

To install motion sensor at Principal office, Seminar Hall

Energy Saving

Total lighting & fan load of Principal office, Seminar Hall KW	5.000
Existing operating hours per day	7
Assumed operating hours after installing motion sensor per day	3
Total annual existing energy consumption in KWH/ Annum for 300 working days	2390
Total annual proposed energy consumption in KWH/ Annum for 300 working days	3398
Total annual proposed energy consumption in Rs for 300 working days and taking (13.9 Rs/ KWH)	15420
Total Annual existing consumption in Rs for 300 working days and taking (9.0 Rs / KWH)	4755
Total annual energy saving by using motion sensor in KWH	200
Total annual energy saving by using motion sensor in Rs	2800
Total amount of investment for 1 no. of motion in Rs. (Rs.1000)	3000
Payback period in months only	6
Estimated list of proposed system in year	3

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b. Energy savings from solar pump:-

Electrical motor pump replaced by solar pump

Energy saving

Total electricity required for electric pump in KWH	4.5
Existing operating hours per day	4
Total annual existing energy consumption in KWH/ Annum for 300 working days	1350
Total annual existing energy consumption in Rs for 300 working days and taking (9.0 Rs. / KWH)	18900
Total amount of investment for solar pump	---
Payback period in year	4




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7. Future recommendation:-

- a. Replacement of Fluorescent tube, Fan by LED tube and Atomberg ceiling fans we will save 9548 units and Rs. 40101 per year for 100 % live load.
- b. To install motion sensor at Principal office, Seminar Hall we will save 200 units and Rs 2800 per year for 100 % live load
- c. Department wise KWII meter installation is necessary to monitor & control use of electricity by concern department to enable to fix responsibility.
- d. Awareness among staff & students through Display Board, Rallies etc.
- e. Wind mill project.

8. Acknowledgement

Department of Physics Dr. Rafiq Zakaria College for Women, Navkhanda, Aurangabad is very much thankful to Principal, **Dr. Maqdoom Farooqui** for motivating us for energy audit.

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Electrical committee
Dr. S. Q. Chishty

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Dr. Rafiq Zakaria College for Women,
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ENVIRONMENTAL POLICY OF THE COLLEGE:

Dr. Rafiq Zakaria College for Women, Navkhanda, Aurangabad is a quality-conscious college. It protects its own environment by maintaining it green with the help of about 80 large and many smaller plants in campus. Our staff and students always try to keep the campus pollution free in all possible ways.

The management, administration and the students of the college look after the environment carefully. Every year, during rainy season, we perform tree-plantation and carefully look after the planted trees. As a result, now we have about 80 trees in our campus. Besides, we are having eco-friendly units like rain-water-harvesting units, etc.

We have our own environmental policy that includes-

- To comply with all requisite environmental legislations and government guidelines, wherever applicable.
- To ensure that there is optimum utilization of resources and waste generation is minimized.
- To integrate environmental concerns in decision-making, e.g. purchasing policy, teaching-learning process, communications, etc.
- To implement an environment management system.
- To strive towards continual reduction in ecological footprint of the college as it grows.
- Education and training of students, staff and society in environmental issues and the environmental effects of their activities.
- Monitoring progress and reviewing environmental performance against targets and objectives on a regular basis.
- To maintain the campus pollution-free by all possible ways like maximal use of green-energy like solar energy, wind-mill energy, natural light, etc.


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GREEN & ENVIRONMENTAL AUDIT REPORT 2022-23



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INTRODUCTION:

Dr. Rafiq Zakaria a renowned Islamic Scholar of International Repute, a name to conjure within the intellectual circles of India and abroad the then minister in the State Cabinet, founded the Maulana Azad College of Arts Science & Commerce in the historic campus of Rauza Baugh, Aurangabad in 1963. The year was milestone in the history of Higher Education in the backward Region of Marathwada. Dr. Rafiq Zakaria being the founder president of the Maulana Azad Education Society has been particularly responsible for the phenomenal growth of the Maulana Azad College campus as well as Marathwada Region by introducing quite new courses in Higher Education, which are a departure from the traditional ones. His vision has borne rich fruits. The year 1968 was yet another landmark in the educational environment of Aurangabad City. It witnessed the establishment of a Ladies Section of the Maulana Azad College, in a rental building in the City Chowk area with 35 Students on its rolls. The need for a separate Ladies Section was keenly felt by a section of Society, and people were not ready to send girls to Azad college as it was far away from the main city. Keeping this in view the genuine demand of the establishment of a separate section for women in Arts faculty was justified. In 1975 the Ladies section was housed in a beautiful surrounding of the Nizam's Palace called Navkhanda Palace with strength of 100 students. It is free from noise pollution and ideal for a women college. In 1990 Ladies Section of Maulana Azad College was bifurcated and an independent college named Aurangabad College for Women came into being under the aegis Maulana Azad Education Society. Later after the sad demise of Dr. Rafiq Zakaria Sahab the college was renamed after its founder as Dr. Rafiq Zakaria College For Women.

It is pertinent to highlight the academic programmers of the college particularly suited to Women students. It was felt that the Arts faculty alone would not do. Therefore, Science Stream was introduced at +2 level and 3+level. Today the most suitable subjects for women students are available. Home Science was introduced at B.A. level of 1993. The B.Sc. course has quite new subjects. Apart from the traditional subjects the subjects like Analytical Chemistry and Computer Science at B.Sc. level were also introduced. BCS programme is also functioning successfully in the campus. In 2005 M.Sc. Chemistry was introduced and later M.A.Urdu and M.A-English were also introduced. This year we got 3

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Research Centers from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, in English, Zoology, Botany, Research Centers in Urdu and Chemistry were functioning since last two years. Dr. Yashwantrao Chavan Open University, Nasik, Study Centre has also been sanctioned to our college. Under Kaushalya Vikas Kendra Scheme Paper Bag Making has also been started for needy girls. All results are also excellent in Arts, Science and Computer Science discipline. Our students have also excelled in sports activities bringing Gold and Bronze medals in various sports. We believe that educating a girl is educating a family. Women being backbone of our society need to be educated to accelerate that pace of modernization and socio-economic growth to enable us eradicate superstitions, ignorance, exploitation and create scientific temper. We proudly mention that our sincere efforts and commitment to profession yielded encouraging results and paved the way to achieve highest pedestals in the sphere of academics in the years to come.

1. ENVIRONMENTAL POLICY OF THE COLLEGE:

Dr. Rafiq Zakaria College for Women, Navkhanda, Aurangabad is a quality-conscious college. It protects its own environment by maintaining it green with the help of about 80 large and many smaller plants in campus. Our staff and students always try to keep the campus pollution free in all possible ways.

The management, administration and the students of the college look after the environment carefully. Every year, during rainy season, we perform tree-plantation and carefully look after the planted trees. As a result, now we have about 80 trees in our campus. Besides, we are having eco-friendly units like rain-water-harvesting units, etc.

We have our own environmental policy that includes-

- To comply with all requisite environmental legislations and government guidelines, wherever applicable.
- To ensure that there is optimum utilization of resources and waste generation is minimized.
- To integrate environmental concerns in decision-making, e.g. purchasing policy, teaching-learning process, communications, etc.
- To implement an environment management system.
- To strive towards continual reduction in ecological footprint of the college as it grows.
- Education and training of students, staff and society in environmental issues and the environmental effects of their activities.

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- Monitoring progress and reviewing environmental performance against targets and objectives on a regular basis.
- To maintain the campus pollution-free by all possible ways like maximal use of green-energy like solar energy, wind-mill energy, natural light, etc.

2. GREEN AUDIT COMMITTEE:

Sr. No.	Name of Teacher	Role
1	Dr. Mohammad Mohsin	Chairman
2	Dr. Megha Rai	Member
3	Dr. Mumtaz Baig	Member
4	Mr. Mohammad Rafique	Member

3. CONSTITUTION FOR GREEN AUDIT:

The Green Audit Committee will act as per the environmental policy and shoulder the responsibility for maintaining and protecting the environment in and around the college with the help of students, staff and society. It will work in various fields like-

- ❖ Waste Management
- ❖ Soil Management
- ❖ Water management
- ❖ E-waste management
- ❖ Bio-diversity and threatened species preservations
- ❖ Energy use and conservation
- ❖ Eco-friendly techniques
- ❖ Noise Pollution
- ❖ Air Pollution
- ❖ Paper less & Plastic less operating procedure
- ❖ Green area management and clean campus
- ❖ Fire safety

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4. AIR POLLUTION MANAGEMENT

A. Periodic awareness programmes for students, society and staff:

Our college is continuously conducting the awareness programs for staff, students and society for protecting and maintaining the environment. The awareness is increased by arranging rallies and through discussion with students on various issues, related to environment and health. The students and faculty members are involved in the activities through extension programs like NSS.



Tree plantation and Plastic collection by NSS volunteers of College at Goga Baba Tekri.




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Cleanliness of Municipal corporation Water tank by NSS Volunteers



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College Staff (Teaching and Non-Teaching with NSS volunteers) taking oath on environment cleanliness.

B. Conducting systematic study for carbon emission – Collecting statistical data.

Methodology: -

1. Girth and height of plants was calculated by using meter scale.
2. Generally trees having 72.5% average dry matter and 27.5% moisture content hence a fresh weight of plants was calculated by using the formula as $W = 0.25D^2H$ (Where, D = diameter / girth of plant and H = height of plant)

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3. Dry weight of plants was calculated using the formula as dry weight = wet weight X 72.5%.
4. Total tree volume contains 50% average carbon-content. Thus, amount of the carbon in trees was measured by multiplying dry weight by 50%.
5. CO₂ sequestered by trees was calculated by multiplying weight of carbon in trees by ratio of C in CO₂ i.e. 3.66.

Sr. No.	Botanical name	No. of individuals	Year of Plantation	Girth inches	Height (feet)	Age in years	CO ₂ Sequestered/year lbs
1.	<i>Cassia tora</i>	10					
2.	<i>Ocimum sanctum</i>	4					
3.	<i>Aloe vera</i>	2					
4.	<i>Asparagus</i>	2					
5.	<i>Catharanthus roseus</i>	500					
6.	<i>Oxalis corniculata</i>	Many					
7.	<i>Mirabilis jalapa</i>	Many					
8.	<i>Canna indica</i>	Many					
9.	<i>Tridax procumbens</i>	4					
10.	<i>Tradescantia spathacea</i>	5					
11.	<i>Asparagus officinalis</i>	4					
12.	<i>Datura alba</i>	2					
13.	<i>Cynodon dactylon</i>	Many					
14.	<i>Cardiospermum halicacabum</i>	Many					
15.	<i>Alysicarpus vaginalis</i>	2					
16.	<i>Parthenium hysterophorus</i>	2					
17.	<i>Argemone mexicana</i>	Many					
18.	<i>Mirabilis jalapa</i>	5					
19.	<i>Acalypha wilkesiana</i>	5					
20.	<i>Colocasia esculenta</i>	1					
21.	<i>Gerbera leandrii</i>	1					
22.	<i>Kalanchoe pinnata</i>	2					


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23.	<i>Portulaca grandiflora</i>	8					
24.	<i>Portulacaoleracea</i>	Many					
25.	<i>Syngoniumpodophyllum</i>	Many					
26.	<i>Trachyspermumammi</i>	1					
27.	<i>Tradescantia pallid</i>	10					
28.	<i>Tradescantia zebrina</i>	6					
29.	<i>Zinnia angustifolia</i>	1					
30.	<i>Boerhaviadiffusa</i>	Many					
31.	<i>Hibiscus rosasinensis</i>	5					
32.	<i>Bougainvillea spectabilis</i>	8					
33.	<i>Sida acuta</i>	1					
34.	<i>Murrayakanigii</i>	2					
35.	<i>Bambusa vulgaris</i>	5					
36.	<i>Agave desmetiana</i>	1					
37.	<i>Agave vivipara</i>	1					
38.	<i>Aglaomenacommutatum</i>	8					
39.	<i>Cardylina fruticosa</i>	2					
40.	<i>Cordia sebestena</i>	1					
41.	<i>Euphorbia lactea</i>	1					
42.	<i>Furcraea foetida</i>	2					
43.	<i>Hamelia patens</i>	2					
44.	<i>Ixoracoccinea</i>	1					
45.	<i>Ixorachinensis</i>	1					
46.	<i>Pilosocereusleucocaphalus</i> <i>Parodiamagnifica</i>	5					
47.	<i>Plectanthiscutellarioides</i>	5					
48.	<i>Punica granatum</i>	1					
49.	<i>Rosa gallica</i>	24					
50.	<i>Tecomastans</i>	many					
51.	<i>Thuja occidentalis</i>	1					
52.	<i>Morus alba</i>	20					
53.	<i>Plumeria alba</i>	13					
54.	<i>Azadiractaindica</i>	3	68	35			22629

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55.	<i>Polyanthialongifolia</i>	35		37	45		129080
56.	<i>Cestrum diurnum</i>	1		70	15		4400
57.	<i>Tamarindusindicus</i>	2		210	60		264012
58.	<i>Callistemon verminalis</i>	1		20	15		359
59.	<i>Ficus bengulensis</i>	2		220	50		2897.4
60.	<i>Terminalia catappa</i>	3		5	7		52.38
61.	<i>Milingtoniahortensis</i>	2		45	25		6061.4
62.	<i>Chrsalidocarpuslutescens</i>	5		24	15		2586.2
63.	<i>Cassia sp.</i>	many		54	5		14547
64.	<i>Caesalpinia pulcherrima</i>	3		63	30		21384.9
65.	<i>Cordia dichotoma</i>	1		12	20		31.03
66.	<i>Pithecellobium dulce</i>	1		15	10		40.41
67.	<i>Sapindus laurifolius (Ritha)</i>	1		65	20		5058.7
68.	<i>Psidium guajava</i>	1		2	3		1.197
69.	<i>Artocarpus heterophyllus</i>	1		14	10		117.3
70.	<i>Citrus medica</i>	1		4.5	3		6.06152
71.	<i>Alstonia scholaris</i>	2		11	20		483.72
72.	<i>Dyopsis lutescens</i>	many		32	20		12290.7
73.	<i>Murraya paniculata</i>	2		70	20		11733.8
74.	<i>Peltophorum africanum</i>	1		12	5		43.10
75.	<i>Phyllostachys aurea</i>	4		4	7		26.82
No of Individuals							484977.618

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Table No. 1: List of plants with girth size and CO₂ sequestered details in main campus of college

C. Plantation programme throughout the year:

College arranges plantation programme through NSS unit, Students & staff not only in college campus but in various villages of Aurangabad Tehsil like Daulatabad, Rasoolpura, Gougapi, Kazipure etc. which are adopted by our college for the sake of environment awareness. College has planted and maintained large number of plants through NSS unit.



Tree plantation at College campus throughout the year.


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D. Establishment of oxygen park, plantation of oxrich plants

Our college has a beautiful green campus. We have skillfully planted the plants so as to have oxygen and make the campus fresh full of oxygen. The greenery has remained useful in developing Oxygen Park in our college.

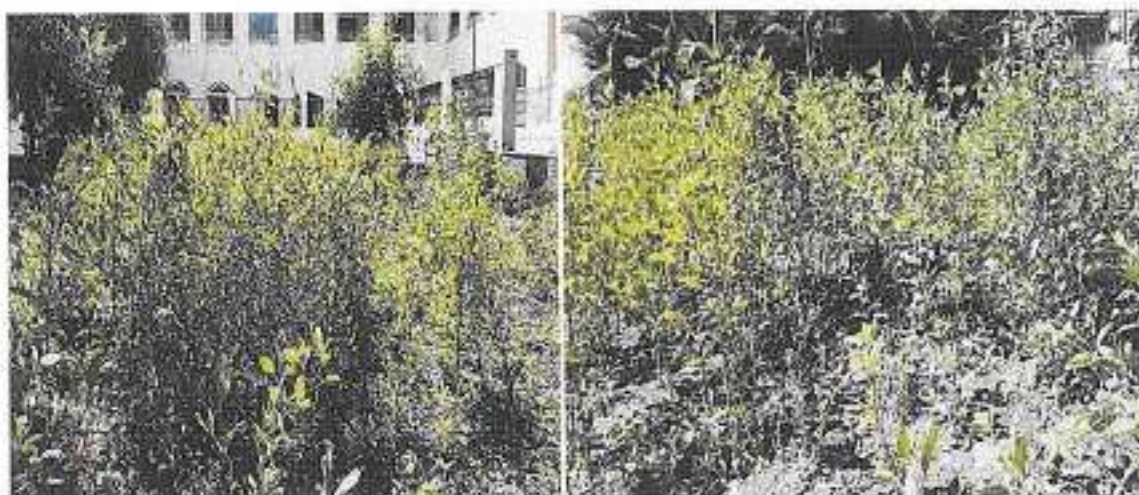
One 'Oxygen Park' has been established in the Botanical garden of college in the year 2017-18. It is established in the area of 1000 sq ft. in which holy basil (Tulsi) has been planted.

College is also maintaining about 100 oxy-rich potted plants like *Croton*, Runner Palm, *Aloe vera*, *Diphenbekia*, *Sensevieria*, *Costus* (Insulin plant), *Chlorophytum*, etc.



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E. 'No Smoking, No Tobacco' in campus area:

College is completely smoking and tobacco free campus. Students and staff members are aware about addiction. We have displayed the boards like 'No Smoking' 'No Tobacco', 'No Gutkha' etc. at several places in the campus for prohibiting from such habits.




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F. Establishment of weather data center:

Soil moisture measuring facility is available in the Department of Chemistry.

- Average Temperature – 30°C
- Average Rainfall – 588 mm

G. Display boards in college campus:

Various boards for increasing the awareness on the environment, noise control, tobacco free campus, conservation of energy, recycling of resources, tree plantation and environmental policy of college are displayed for all the stakeholders.

Boards of increasing awareness about ecofriendly attitude like 'SAVE ENERGY' 'SAVE TREES SAVE LIFE' etc. are displayed in the campus.



H. Eco-ventilators/Exhaust fans in laboratory and library:

All the laboratories and library are having good ventilation and exhaust fans.

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I. Maintain data for flora of college campus:

Dr. Rafiq Zakaria College for Women, Navkhanda, Aurangabad is having green campus, which comprises of following flora:

LIST OF PLANTS IN COLLEGE CAMPUS AND BOTANICAL GARDEN

Sr. no.	Plant habit	Common Name	Botanical name	Family	Number of Plants
1	Herbs	Tarwata	<i>Cassia tora</i>	Caesalpinaceae	10
2		Tulsi	<i>Ocimum sanctum</i>	Lamiaceae	4
3		Ghee kumari	<i>Aloe vera</i>	Liliaceae	2
4		Musli	<i>Asparagus</i>	Asparagaceae	2
5		Sadabahar	<i>Catharanthus roseus</i>	Solanaceae	500
6		Oxalis	<i>Oxalis corniculata</i>	Moraceae	Many
7		Mirabilis	<i>Mirabilis jalapa</i>	Nyctaginaceae	Many
8		Kardali	<i>Canna indica</i>	Cannaceae	Many
9		Jakhmijodi	<i>Tradax procumbence</i>	Asteraceae	4
10		Nargiskeankhe	<i>Tradescantiaspathacea</i>	Commelinaceae	5
11		Asparagus	<i>Asparagus officinalis</i>	Asparagaceae	4
12		Datura	<i>Datura alba</i>	Solanaceae	2
13		Harali	<i>Cynadondictylon</i>	Poaceae	Many
14		Cardiospermum	<i>Cardiospermum helical</i> <i>bunt</i>	Sapindaceae	Many
15		Alysicarpus	<i>Alysicarpus vaginalis</i>	Fabaceae	2
16		Parthenium	<i>Parthenium hysterophorus</i>	Compositae	2
17		Argemone	<i>Argemone mexicana</i>	Papaveraceae	Many
18		Mirabilis	<i>Mirabilis jalapa</i>	Nyctaginaceae	5
19		Fire Fiji Plant	<i>Acalypha wilkesiana</i>	Euphorbiaceae	5

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20		Elephants ear	<i>Colocasia esculenta</i>	Araceae	1
21		Madden gerber daisy	<i>Gerbera leandrii</i>	Compositae	1
22		Miracle leaf	<i>Kalanchoe pinnata</i>	Crassulaceae	2
23		Moss rose	<i>Portulaca grandiflora</i>	Portulacaceae	8
24		Purslane	<i>Portulaca oleraceae</i>	Portulacaceae	Many
25		Arrow head wine	<i>Syngonium podophyllum</i>	Araceae	Many
26		Ajwain	<i>Trachyspermum ammi</i>	Apiaceae	1
27		Purple heart	<i>Tradescantia pallida</i>	Commelinaceae	10
28		Wandering jew	<i>Tradescantia zebrina</i>	Commelinaceae	6
29		Zinnia	<i>Zinnia angustifolia</i>	Compositae	1
30		Punarnava	<i>Boerhavia diffusa</i>	Nyctaginaceae	Many
31		China rose	<i>Hibiscus rosasinensis</i>	Malvaceae	5
32		Bougainvillea	<i>Bougainvillea spectabilis</i>	Nyctaginaceae	8
33		Sida	<i>Sida acuta</i>	Malvaceae	1
34		Radipatta	<i>Murrayakönigii</i>	Rutaceae	2
35		Bamboo	<i>Bambusa vulgaris</i>	Poaceae	5
36		Dwarf century	<i>Agave desertiana</i>	Asparagaceae	1
37		garden sisal	<i>Agave vivipara</i>	Asparagaceae	1
38		Chinese evergreen	<i>Aglaonema commutatum</i>	Araceae	8
39		Broadleaf palm	<i>Cardyline frutescens</i>	Asparagaceae	2
40		Geiger tree	<i>Cordia sebestena</i>	Boraginaceae	1
41		candelabra cactus	<i>Euphorbia lactea</i>	Euphorbiaceae	1
42		Morrisious hemp	<i>Furcraea foetida</i>	Asparagaceae	2
43		Scarlet bush	<i>Hamelia patens</i>	Rubiaceae	2
44		Ixora	<i>Ixora coccinea</i>	Rubiaceae	1

Shrubs

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45		Ixora	<i>Ixorachinensis</i>	Rubiaceae	1
46		1. Woolly Touch	<i>Piloanacerusteucocephalus</i>	Cactaceae	1
		2. Opuntia		"	1
		3. Ball cactus	<i>Parodiadumignificu</i>	"	1
		4. Swizzle Sticks		Cactaceae	1
		5. Blue Candle			1
47		Coleus	<i>Plectanthusscutellarioides</i>	Lamiaceae	5
48		Pomegranate	<i>Punica granatum</i>	Lythraceae	1
49		Rose	<i>Rosa gallica</i>	Rosaceae	24
50		yellow bells	<i>Tecomastans</i>	Bignoniaceae	many
51		White cedar	<i>Thujaoccidentalis</i>	Cupressaceae	1
52		Mulberry	<i>Morus alba</i>	Moraceae	20
53	Trees	Chafa	<i>Plumeria alba</i>	Apocynaceae	13
54		Neem	<i>Azadiractaindica</i>	Meliaceae	3
55		Ashoka	<i>Polyanthialongifolia</i>	Annonaceae	35
56		Dinka raja	<i>Cestrum diurnum</i>	Cestroydcae	1
57		Imli	<i>Tamarindusindicus</i>	Fabaceae	2
58		Bottle brush	<i>Callistemon verminalis</i>	Myrtaceae	1
59		Bargad (Banyan)	<i>Ficus bengalensis</i>	Moraceae	2
60		Badami	<i>Terminalia catappa</i>	Combretaceae	3
61		Ninchanmeli	<i>Milingtoniahortensis</i>	Bignoniaceae	2
62		Palm tree	<i>Chrsalidocarpushutescens</i>	Aracaceae	5
63		Cassia sp.	<i>Cassia sp.</i>	Caesalpinaceae	many
64		Gold mohar	<i>Caesalpinia pulcherima</i>	Caesalpinaceae	3



65		Albizia	<i>Albizia lebbek</i>	Leguminaceae	1
66		Sagwan	<i>Tectona grandis</i>	Verbinaceae	1
67		Soap nut tree R.	<i>Sapindus laurifolius</i> (Ritha)	Sapindaceae	1
68		Rubber tree	<i>Ficus elastica</i>	Moraceae	1
69		Jack fruit tree	<i>Artocarpus heterophyllus</i>	Moraceae	1
70		Jujube	<i>Zizyphus jujube</i>	Rhamnaceae	1
71		Idlimbu	<i>Citrus medica</i>	Rutaceae	1
72		Peepal	<i>Ficus religiosa</i>	Moraceae	1
73		Milkwood	<i>Alstonia scholaris</i>	Apocynaceae	2
74		coconut	<i>Cocos nucifera</i>	Aracaceae	2
75		Palm	<i>Dypsis lutescens</i>	Aracaceae	many
76		Orange jasmine	<i>Murraya paniculata</i>	Rubiaceae	2
77		Rhodesian black wood	<i>Peltophorum africanum</i>	Fabaceae	1
78		Bamboo	<i>Phyllostachys aurea</i>	Poaceae	4
79		Jambul	<i>Syzygium cumini</i>	Myrtaceae	2
80	Climber	Money plant	<i>Epipremnum aureum</i>	Araceae	4

Table No. 2: List of plants in main campus of college

Flowers in the college

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Wildlife Birds



Squirrels

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5. NOISE POLLUTION MANAGEMENT

A. Silence zones in college:

Various display boards are present in library, auditorium and other places for awareness to maintain silence in the college.

Display boards at-

Location	Display board
Library	
Auditorium	
Classroom	
Laboratory	

B. Noise control during any programme in college:

The college has one huge gate for entry and exit of students. It is continuously monitored by the security guards. Entire campus, all class rooms, library & auditorium are under CCTV

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surveillance. This helps to keep the entire campus noise-free. In addition to this, security guards and members of Discipline Committee ensure smooth entry and exit of students without any noise and nuisance.



C. Controlling entry and exit of students and their discipline monitoring.

1. Our college has a huge main gate & another small gate near parking. During the different events we use small gate to avoid mob. Main gate has been divided into two gates, one for entry and other for exit. This helps to avoid the possible chaos during rush hours.
2. Besides, main road in the campus is provided with two foot-paths. Students are instructed to use right side foot-path by girls and left one by boys. This helps to avoid possible chaos during rush-hours.
3. We have the entry register for the visitors visiting our college. They have to register their name, time of entry and exit at the gate and then they are allowed to enter/leave the campus.
4. We have hired the security agency. Personnel of this agency in association with discipline committee of the college take care of all the security aspects including discipline in the campus.
5. We issue ID (Gate Pass) to each student for multiple exit and reentry.


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D. No pressure horns for vehicle:

Our college staff members and students do not use pressure horns and is not permitted to the students.



6. HUMAN HEALTH AND SAFETY MANAGEMENT

A. Group insurance for staff:

To ensure the safety of the staff members, college has adopted the group LIC insurance and accident insurance scheme & one from the Joint Director.

B. Periodic health check-up:

College organizes periodic health checkup for the students and the staff every year in association with Lions Club & different medical agencies.

Department of Zoology arrange check-up drives of various medical parameters like hemoglobin, Blood group, Blood Sugar, Blood Pressure, etc. for Students & Staff on various occasions like World Health Day, IQAC festival, etc. College also organizes the blood donation camps. We use to distribute Tab. Albendazole, Fertic Ascorbate & folic acid.

C. Awareness campaign on human health:

College organizes Guest lectures, Workshops for Staff & Students to increase awareness about their health, also NSS Unit Creates the Awareness with help of Street-plays, Rallies etc. Every year NSS unit organizes a camp in nearby villages and plans to clean the village campus and various lectures are organized to create Awareness among villagers.

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Workshop on health Awareness

For Female students, professors, Teachers & Non-teaching staff:

With the joint efforts of Loins Club Aurangabad, Govt. Medical College, DitasPratishthan, Tulip specialty breast cancer centre we had organized a workshop on Breast Cancer, awareness on 4th October 2018. In the first session of this workshop, Dr. Aruna Karad, well known cancer specialist from Aurangabad interacted with the girl students on adolescence and puberty. She advised the students to be aware of physical cleanliness, balanced diet and regular exercise. She also elaborated about awareness of education, laws, rights and non-violent life for women. In the other workshop on 2nd December 2018, Dr. Shiraz Baig, well known anatomist from Govt. Medical College Aurangabad delivered a talk on HIV-AIDS. In another workshop on Sickle Cell Disease, Counselor Murlidhar Warma Govt. Medical Hospital AamKhas Aurangabad educate the students on the causes and effect of sickle cell anemia and make awareness through the people surrounding them on dated 16th February 2018.



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D. Sanitary napkin-vending machines in ladies room:

These are available in Girls common room. The use of sanitary napkins is very important for girl students and ladies staff for maintaining their health hygiene.

E. Yoga /Meditation for staff :

College campus provides the facilities of indoor and outdoor stadium for the students, staff and the citizens of Aurangabad. Our sports faculty provides proper guidance and we are motivated to do the daily exercise of Yoga / Meditation in the college. On 22nd June 2021, Dr. Jayant Shewtekar and others give speech on Yoga & health. She explains the importance & yoga for healthy & free life also exhibited different poses in yoga.

F. Awareness campaign for Society:

NSS& Cultural units of our college regularly arrange workshop, Lectures and rallies for increasing awareness in society on Dengue and other diseases. Besides, awareness campaigns against communicable diseases like AIDS, TB, etc. are conducted. College also tries to increase the awareness on such and other social issues through competitions like poster-presentation, wallpapers, etc.

G. Arranging Blood donation camps:

The NSS unit of Dr. Rafiq Zakaria College for Women, Aurangabad organizes blood donation camps in association with Dattaji Bhale Blood Bank.

Year	No. of students who donated blood
2021-22	15

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Blood Donation Camp



II. Fire safety:

Dr. Rafiq Zakaria College for Women, Aurangabad is having awareness & safety facility. We have about 14 fire extinguishers all across College. Fire extinguishers are fixed in the Administrative Office, library, Store, Home Science, all science departments of the college for safety purpose.

1. SOP's on safety in laboratory and first aid box:

All the laboratories are equipped with SOP's, Do's Don't's for the laboratory safety. The College conducted regularly Disaster Management Workshop to trained students for first aid and emergency treatment in various Disaster situations. First aid boxes are fixed in administrative office and indoor stadium & all laboratories of the college.

J. Emergency phone numbers:

All the emergency phone numbers are displayed at the entrance.

Sr. No.	Office	Contact No.
1.	Principal	9850640140
1.	Office of the College	0240-240263
2.	Ghati Hospital	0240-2402418


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3.	Begumpura Police Station	100/0240-2240562
4.	Fire Brigade	101/0240-2334000
5.	Ambulance	959511484
6.	Damini Pathak In-Charge ArtiShendge	9823322084
7.	Bus Stand	02402242163-64
8.	Aurangabad MahaNagarPalika	0240-2333536
9.	Security	9665427939
10.	Aurangabad Railway Station	0240-2358018
11.	MSEB Enquiry	0240-2240125
12.	Aurangabad Post Office	0240-2331031

Table No. 3: Important Phone numbers

K. Controlled area for storage of hazardous chemicals:

Instructions -

- **Safety work instruction when using hazardous chemicals**
 - While using hazardous chemicals Don't eat, drink, food beverages & wait until your work is done. You need wash your hands clean & neat.
 - Make sure you know where the nearest firefighting equipment is located.
 - The Hazardous substances should always be in accordance with the M.S.D.S. specification.
 - Only use the product for its intended purpose never misuses the product for anything other than its intended purpose.
- **Personal chemical safety rules:**
 - Wear gloves & protective glasses (Safety goggles) wherever necessary while handling hazardous chemicals.
 - Follow instructor's guidelines.


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- Proper disposal of chemical wastes.
- Strict use of apron / lab-coat in the laboratory.
- Strict use of safe-shoes.

7. SOIL POLLUTION MANAGEMENT:

A. Vermi-compost unit in College:

Use of Bio-fertilizers is eco-friendly and economy method to raise the plants in natural habitats. In connection with this, our college has established two vermi-composting units in the campus. Biodegradable wastes like garden foliage, waste food, etc. are decomposed in these units to produce good quality vermin-compost. This compost is used in the college garden



B. Effluent Treatment Plant (ETP)

- Our college has a facility of effluent treatment plant (ETP) for effluent from Chemistry, Botany, Zoology department. Effluent collecting tank filled completely it is taken for processing. The effluent is stirred with overhead electric motor and mixing with a solution of potash alum for coagulation. Then a solution of calcium hydroxide is added to adjust the pH in the range of 6-7. After adjusting the pH, effluent is lifted in an overhead tank for coagulation and sedimentation for 4-5 hours.
- After 5 hours settlement, the sludge settled down at the bottom is taken in a separating tank and supernatant liquid is collected in another tank and mixed with the solution of sodium-oxy-chloride as germicide.

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- This liquid is allowed to pass through two filters having activated charcoal as molecular sieves. Resultant clean water is collected in another tank and used for gardening.

C. Rain water harvesting:

Rain water collected through the pipes and drained in the adjacent to compound wall of the college where a huge area for water percolation and plantation.

Purpose of Consumption – Drinking water, Toilets, Laboratories, and Toilet water for Irrigation for college garden etc.

D. Plastic free environment:

Attempt of our college is to keep the campus free from plastic as much as possible. We increase the awareness amongst students and staff members regarding the same by display boards and other programmes.

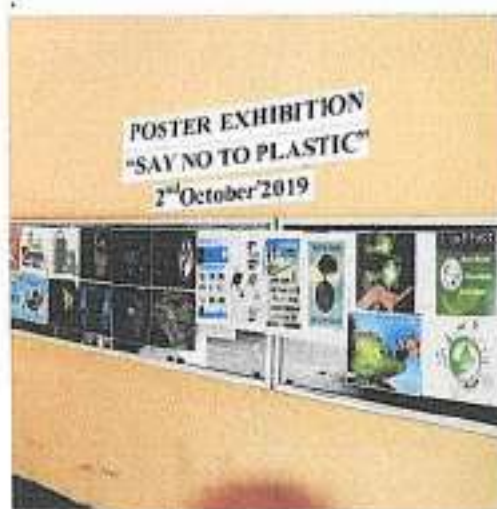
At present our college does not have plastic dumping yard in the campus. But, college has made available the Penguin-dustbins to collect plastic and garbage in the key-places like girls' waiting room, administration building, Auditorium, etc.



Paper Bag Making: Say No To Plastic


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Waste avoidance and
Reduction

Reuse and recycling

Eco- friendly disposal

8. OTHER SECTORS FOR ENVIRONMENT MANAGEMENT:

Three-tier approach of waste management

A. Waste management:

Chemicals and e-waste

College has a facility of ETP plant for effluent from Chemistry, Botany, Zoology, department.

e-waste –

- E-Waste materials are kept in a separate store-room with a dead stock register.
- All the departments are instructed to submit the information of the damaged or outdated computers, CDs and other e-equipment.
- This e-waste equipment is sent to the college central store.

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- Sorting of e-waste is done by central store.
- These e-equipment are sold out by means of a tendering process.

B. Dustbins in the premises:



Dust-bins have been kept in the college at several places. Waste collected in those bins is disposed-off at regular intervals with the help of garbage-disposal vans of the municipality.

Each laboratory and department is provided with dustbins. This helps to maintain the campus garbage-free.

Approximately, 5-6 dust bins are in use in the college campus.

C. Waste control in canteen:

There are two types of waste

- Dry waste
- Wet waste

Dry waste –

- Non-biodegradable material such as Plastic wrappers and bags, broken glass pieces, dishes, etc.
- Biodegradable material such as Paper cups, Paper dishes etc.

Dry waste is collected by waste pick-up van.

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D. No use of plastic in canteen

College canteen uses paper plates and paper cups, news paper and utensil so as to control use of plastic in college campus. It has helped in keeping the campus plastic free.

E. Use of dust proof chalks:

All the classrooms and laboratories are fitted with green and white boards with dust free chalks and marker pens.

F. Minimum use of Photocopy/printing:

In college Maximum data is converted into soft copies and procedures are digitalized which minimizes the use of printing papers. We also put warning stickers on each Photocopy/Printing machine to use. The maximum working procedures are paperless. We take the already one sided Photocopy papers in use to avoid the maximum use of papers.

9. Future Plan

- Establishment of Green Office Concept.
- Green audit should be carried out every year.
- The blue-print of five-year plan should be prepared for eco-friendly campus
- Establishment and implementation of policy to overcome increased use of smart phones in the campus in order to avoid IR emission.

Environmental domains

Air management

- Appeal will be made to students and staff for maximum use of shared transportation facility.
- Use of public transport is encouraged.

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- College will encourage the students & staff to use bicycles. 'Cycle-Day' will be observed with a frequency of once in a month.
- Tree plantation has been planned in five villages adopted under the scheme 'Unnat Bharat Abhiyan' started by MHRD..
- PUC check-up camp is planned in the October-2018 for the vehicles coming in the college campus.
- Street-play will be arranged in association with cultural department of our college to increase the awareness against air pollution.
- As a part of students' project under the compulsory subject- Environmental Awareness, we are planning to allot the survey projects on various topics like use of chullia, eco-friendly agricultural practices, water, soil, air and noise pollution, etc. to the second year students of undergraduate program.
- We are contemplating the idea of making it compulsory to plant the five trees by the first year students and look-after those till completion of their graduation.
- College can arrange various programs like street-plays, eco-weeks, no-vehicle day, poster presentation, model preparation, quiz competition to increase environmental awareness among the students & society on world environmental day.

Noise Management

- Establishment of noise pollution measurement system in college.
- Use of microphones, ICT rooms will help in noise management.
- Silence Zone can be created around the college so that horn-honking, use of loud-speakers will be prevented in and around the campus.

Human Health and Safety

- Yoga/Meditation for staff/ Students at least once in a week
- Health centre will be established in the campus.
- Awareness campaign on human health & organ donation for students, society & Staff.
- Blood donation camps will be arranged on more occasions.
- Conducting Fire Safety Audit
- Controlled area for storage of Hazardous chemicals
- Fire alarm in college campus.

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- MoU with hospitals.
- Minimal use of hazardous chemicals.

Soil /Water Pollution Management

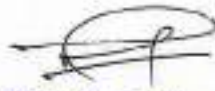
- Implementation of water management and recycling program with full efficiency.
- Monitoring system for consumption of water can be installed at every node.
- Rain water harvesting mechanism has to be implemented at large scale.
- Establishment of separate Plastic Dumping yard in college.

Waste management

- Priority will be given to eco-friendly brands followed by those that are recyclable or made from recycled material for purchases.
- Use of paper cups will be discouraged and people will be motivated to use their own mugs/cups instead of paper cups.
- On-campus use of plastic bags will be discouraged.
- Paper usage will be minimized in various ways. Double-sided printing option can be used at all terminals with access to printers.
- Communication will be encouraged through social media like whatsapp to minimize the paper use.
- Waste segregation will be carried out strictly; organic waste will be composted in-house (biological treatment has proposed for biodegradable waste) in future and the manure will be used for the gardens in the campus.
- E-waste management program can be implemented more effectively by various practices like e-paper office, use of ICT, single window system, etc.
- Dust-bins will be kept in each class-room.

Date: 13 September 2022


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Green Audit Committee


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Criteria VII

7.1.3 GREEN INITIATIVE CERTIFICATE AWARD

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GREEN INITIATIVE CERTIFICATE AWARD

