ENVIRONMENT AUDIT REPORT (2021-22)

WALCHAND COLLEGE OF ARTS AND SCIENCE , SOLAPUR

(AN AUTONOMOUS COLLEGE)

CONTENTS

1. CONCEPT

The term ‘Environmental audit’ or ‘Green audit’ means differently to different people. Terms like ‘assessment’, ‘survey’ and ‘review’ are also used to describe similar activities. Furthermore, some organizations/Institutions believe that an ‘environmental audit’ addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Green Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as:

“A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects.”

The outcome of Green Audit should be established with concrete evidence that the measures undertaken and facilities in the institution under green auditing.

2. INTRODUCTION

A Nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. Educational institutions now a days are becoming more sensitive to environmental factors and more concepts are being introducedto make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc.. The activities pursued by colleges can also create a variety of adverse environmental impacts.

Environmental auditing is a process whereby an organization's environmental performance is tested against its environmental policies and objectives. Green audit is defined as an official examination of the effects a college has on the environment. As a part of such practice, internal environmental audit (Green Audit) is conducted to evaluate the actual scenario at the campus.

Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. Green auditing and the implementation of mitigation measures is a win-win situation for all the college, the learners and the planet. It can also create health consciousness and promote environmental awareness,values and ethics. It provides staff and students better understanding of Green impact on campus.

Green auditing promote financial savings through reduction of resource use. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. Thus it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues.

Environmental Management Systems (EMS) is very popular in the industrial sector, but the general belief is that EMS is something pertaining to industries only. Other parts of the world have started adopting compatible environmental management systems either voluntarily or for promoting standards by external certification. International environmental standards do not suit the existing Indian educational system. Hence EHS Alliance has developed a compatible system by developing locally-applicable techniques.

A very simple indigenized system has been devised to monitor the environmental performance of educational institutions. It comes with a series of questions to be answered on a regular basis. Environmental conditions may be monitored from angles that are relevant to Indian requirements, withoutstress on legal issues or compliance.

This innovative scheme is user-friendly and totally voluntary. The environmental monitoring system helps the institution to set environmental examples for the community and to educate younglearners. It can be adapted to urban and / or rural situations.

3. OVERVIEW OF COLLEGE

Shri Aillak Pannalal Digambar Jain Pathashala Trust, established in 1885, started WCAS, in 1964 which is appropriately named after Seth Walchand Hirachand, one of our country's pioneers of industrial development. It is the sincere desire of the trust and the Governing Body of the Institute to maintain high academic and technological standards. This would indeed be a fitting tribute to the celebrated industrial giant. The facilities provided at the college have been adjudged amongst the best, according to an independent Newspaper study and by an inspiration team of Directorate of Education, Maharashtra. The College is autonomous and affiliated to the P.A.H. Solapur University, Solapur and approved by the All India UGC, New Delhi . As on date, it has 25 Departments offering UG, PG and Doctoral courses. The student strength of the College is about 2100, with faculty strength of about 85 and supporting staff of about 70 over an area of about 13 acres. College has three boys' hostels with intake capacity of 742 students, and girls hostel with intake capacity of 260 students. Total student strength of the hostel campus is about 1002, with faculty strength of about 4 and supporting staff of about 15 over a carpet area of about 7630.91 m^2.

- **Vision of the College**

  To produce young, globally competent graduates/ post graduates/ doctoral engineers with an aptitude for leadership & research, to face the challenges of modernization & globalization courageously, who will be instrumental for overall growth of the society

- **Mission of the College**

  - To impart quality technical education in accordance with the needs of the society through various academic programs.
  - To foster disruptive learning process for innovation in education and to provide proper ambience for motivating students for creating awareness to excel in the ever expanding field of science and technology.
  - To enhance career opportunities for students through exposure to Industries and research institutes.
  - To strive for excellence by encouraging independent critical thinking, creativity and discipline.
  - To create awareness for engineering ethics and human values for instilling moral, social values, loyalty and to appreciate the rights of others and respect towards society and its heritage.
  - To help the students to implement their acquired engineering knowledge for society and community development, thus, enhancing a strong sense of social responsibility and accountability.
  - To reach to the community through various outreach programs to include the Scientific and Technological spirit among all.
  - To promote and provide a framework to meet campus sustainability goals and mitigate climate change.
  - To help in nation building through a pool of dedicated, disciplined, intellectual and integrated man power.

- **Quality Policy of the College**

  To empower Faculty and Students by subscribing to Total Quality Management(TQM) and by adopting dynamically improving teaching-learning process in the field of Science & Technology to become a force to be reckoned with.

- **Goal of the College**

  - To develop an ideal model for effective teaching-learning process.

- To develop a healthy liaison between industry and institute to get rich dividends of both the fields.
- To simulate field environment so as to impart quality education to students.
- To develop close academia-industry interaction for enriching teaching-learning process for faculty and students & explore opportunities for students.
- To develop state-of-the-art infrastructure, laboratories and facilities in accordance with the need for delivering Quality Technical Education.
- To promote ecologically sustainable growth of the campus by preparing action plan on climate change.

The Walchand Institute of Technology imparts education to *Undergraduates* in the following departments:

- ✓ Department of Chemistry
- ✓ Department of Mathematics
- ✓ Department of Zoology
- ✓ Department of Gology
- ✓ Department of Electronics
- ✓ Department of Physics
- ✓ Department of Botany
- ✓ Department of Microbiology
- ✓ Department of Biotechnology
- ✓ Department of Marathi
- ✓ Department of English
- ✓ Department of Hindi
- ✓ Department of Economics
- ✓ Department of Political science
- ✓ Department of Sociology
- ✓ Department of History
- ✓ Department of Ardhamagdhi

4. OBJECTIVES AND SCOPE

The broad aims/benefits of the eco-auditing system would be

- Environmental education through systematic environmental management approach
- Improving environmental standards
- Benchmarking for environmental protection initiatives
- Sustainable use of natural resource in the campus.
- Financial savings through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the College campus and its environment
- Enhancement of College profile
- Developing an environmental ethic and value systems in young people

5. AUDIT PARTICIPANTS

On behalf of Institute:

Name	**Position/Department**
Sr. Dr. S.V. Koti	Principal, WCAS, Solapur
Sr. Dr. R. V. Hippargi	Vice Principal WCAS ,Solapur
Sr. Dr. M. R. Asabe	Department of Chemistry
Sr. Dr. S.P. Navale	Department of Zoology
Sr. Dr. V.V . Mahajan	Professor, Department of Social Work

6. EXECUTIVE SUMMARY

An environmental audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance.

Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvementof environmental consciousness.

7. AREAS OF IMPROVEMENT

- Environment Policy to be adopted by the Institute.
- Water Meter should be installed and maintain the inventory of ground water extraction resource bore well.
- Internal inspection system should be developed for various aspects of environment available in campus.
- Water audit to be done on yearly basis.
- Waste Management plan should be prepared for the campus.
- Display of environment awareness posters should be there in the prominent areas of campus.

8. ENVIRONMENTAL AUDIT-QUESTIONNAIRE

The areas of eco/environmental auditing to be followed/practiced by participating Institution:

8.1. Integrated Solid Waste Management

8.2. Greening the campus

8.3. Energy Conservation

8.4. Water Conservation

8.5. Clean Air

8.6. Animal Welfare

8.7. Environmental Legislative

8.8. General Practices

Does any Environmental Audit conducted earlier?

The college has conducted the internal Green Audit every year. The Annual reports records reviewed during the audit, Main focus of this is to bring awareness of environmental values in students and society.

What is the total permanent population of the Institute?

	Male	Female	Total
Students	1635	842	**2477**
Teachers	112	57	**169**
Non-Teaching Staff	109	11	**120**
Sub Total	1856	910	**2766**
Approximate Number of Visitors (Per day)			**40**
What is the total number of working days of your campus in a year?			**289**

Where is the campus located?

The campus is Located in Solapur, Maharashtra.

Which of the following are available in your institute?

1	Garden area	Available
2	Play ground	Available
3	Kitchen	Available
4	Toilets	Available
5	Garbage Or Waste Store Yard	Available
6	Laboratory	Available
7	Canteen	Available
8	Hostel Facility (numbers)	Available
9	Guest House	Available

Which of the following are found near your institute?

1	Municipal dump yard	Not in vicinity of institute
2	Garbage heap	No Garbage heaps
3	Public convenience	Yes
4	Sewer line	1 km sewer line within campus
5	Stagnant water	No stagnant water
6	Open drainage	No
7	Industry – (Mention the type)	No
8	Bus / Railway station	Faraway from campus
9	Public halls	Faraway from campus

1. *WASTE MINIMIZATION AND RECYCLING*

<table>
<tr><td>1.</td><td>Does institute generate any waste?
If so, what are they?</td><td colspan="4">Yes, Solid waste, Garbage, Rubbish, e- waste, construction and Demolition waste etc.</td></tr>
<tr><td>2.</td><td>What is the approximate amount of waste generated per day? (in Kilograms/month) (approx.)</td><td>Bio Degradable</td><td>Non-Biodegradable</td><td>Hazardous</td><td>others</td></tr>
<tr><td></td><td></td><td>4 kg</td><td>11.53 kg</td><td>0 kg</td><td><6 kg</td></tr>
<tr><td>3.</td><td>How is the waste generated in the institute managed? By
1 Composting
2 Recycling
3 Reusing
4 Others (specify)</td><td colspan="4">2 pits are there in campus, Reuse of one side printed Paper for internal communication. Grey water coming out from boys hostel is treated in Anaerobic treatment plant. Treated water is reused in gardening purposes in the campus. Remaining sewage water is discharged to public Sewer. Solid Waste viz. garbage is taken to vermicomposting plant located in the campus. Rubbish, construction and demolition waste and inerts are given to Municipal Corporation. Three types of Waste bins are provided at campus for biodegradable, non-biodegradable, and E- waste. Incinerator is used for managing sanitary waste.</td></tr>
<tr><td>4.</td><td>Do you use recycled paper in institute?</td><td colspan="4">Yes, in academic evaluation works</td></tr>
<tr><td>5.</td><td>Do you use reused paper in institute?</td><td colspan="4">Yes</td></tr>
<tr><td>6.</td><td>How would you spread the message of recycling to others in the community? Have you taken any initiatives? If yes, please specify.</td><td colspan="4">Yes, NCC carried out numerous activities.
Recycling campaigns, e waste management, Anti-plastic campaigns, sustainable goal awareness programme, etc.</td></tr>
<tr><td>7.</td><td>Can you achieve zero garbage in your institute? If yes, how?</td><td colspan="4">Yes, as per new waste management rules all kind of waste is managed in an adequate manner without any deviation.</td></tr>
</table>

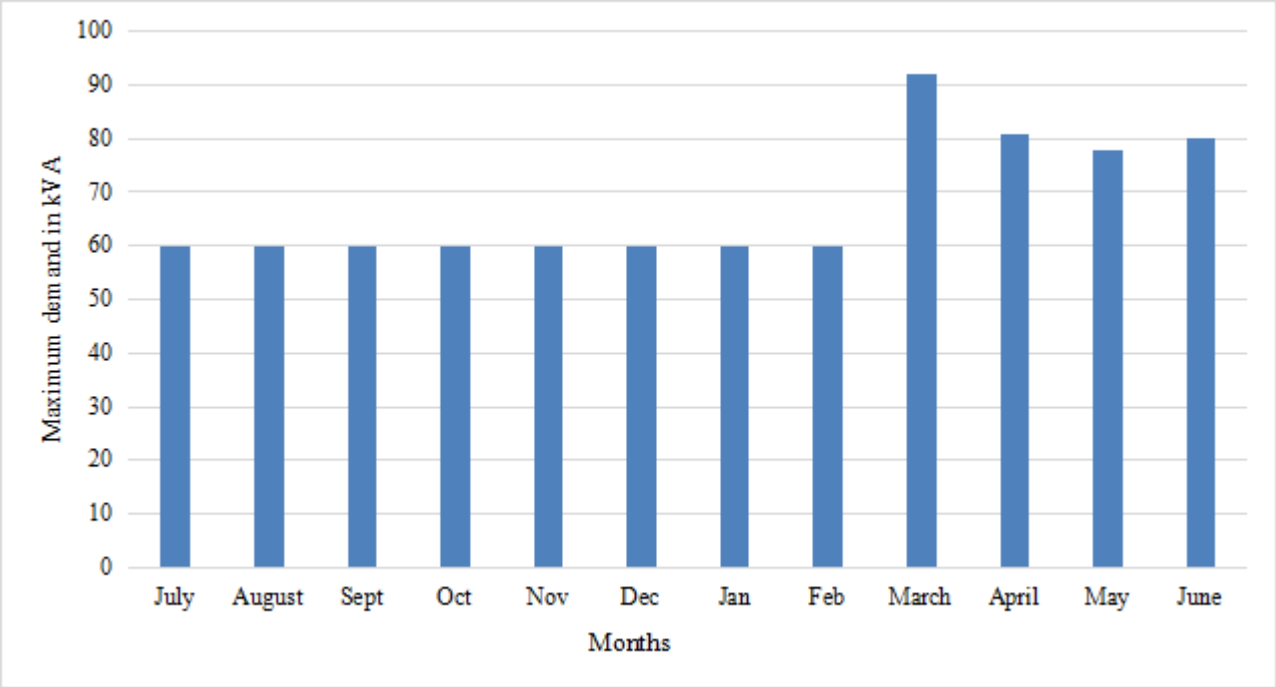
8.2. GREENING THE CAMPUS

8.	**Is there a garden in your institute?**	**Yes, about 7.23 Acre is the Green Area.**	
9.	Do students spend time in the garden?	1-2 Hours during winters	
10.	Total number of Plants in Campus	Plant type	Approx. number
		Trees	More than 300
		Shrubs	More than 1200
		Grass Cover	1.7 Acre
11.	Suggest plants for your campus. (Trees, vegetables, herbs, etc.)	Ashoka, Ficus Religeosa, Boganvellia, Alovera, Azadirachta indica , and many more as per geographical regime.	
12.	Is the College campus have any Horticulture Department	NO	
	Number of Staff working in Horticulture Department	Not Applicable	
13.	Number of Tree Plantation Drives organized by College per annum. (If Any)	Yes, Two Tree Plantation Drives are Organized Annually. 50+ trees and 100+ shrubs planted in this financial year.	
14.	Number of Trees Planted in Last FY.	80	
	Survival Rate	95%	
15	Plant Ownership Program	No	

8.3. ENERGY

16.	List few ways that you use energy in your institute. (Electricity, LPG, firewood, others).Using this list, try to think of ways that you could use less energy every day.	Electricity is saved by use of LED bulbs forillumination, LPG is saved by use of Pressure cookers for cooking food. Alternate source of energy i.e. Solar Panel Installed.
17.	Are there any energy saving methods employed in your institute? If yes, please specify. If no, suggest some	Yes, Renewable source of energy through solar plant (80 KW) in commissioning phase. 320 Watt is operational. Messages will be displayed at various locations to aware the People about Energy Savings. Use of Natural Lights and Natural Ventilation are promoted.
18.	How many CFL/LED bulbs has your institute installed?	95 % of Total Conventional bulbs are replaced by LED Lights.
19.	Are any alternative energy sources employed / installed in your institute? (photovoltaic cells for solar energy, windmill, energy efficient stoves, etc.,) Specify.	Yes, photovoltaic cells for solar energy, energy efficient stoves
20.	Do you run "switch off" drills at institute?	No, Switch Off boards are situated at place.
21.	Are your computers and other equipment's put on power-saving mode?	Yes, In Practice
22.	Does your machinery (TV, AC, Computer, weighing balance, printers, etc.) run on standby modes most of the time? If yes, how many hours?	No

Graph shows the power consumption details of last year



8.4. WATER CONSERVATION

23.	List uses of water in your institute	Basic usage of water in campus are; Drinking, Gardening, Kitchen & Toilets,and Others. And total consumption is 405.51 KL/month
24.	How does your institute store water? Are there any water saving techniques followedin your institute?	6 Underground Water tanks and 14 Over head water tanks are installed forstorage of water. To avoid overflow of water, controlled valves are provided in water supply system. 3 RO plants are installed for treatment of water before adding the water to storage tanks.
25.	If there is water wastage, specify why and How can the wastage be prevented / stopped?	No

26.	Locate the point of entry of water and point of exit of waste water in your institute.	Entry- Water comes from underground water table and Municipal corporation water supply connection at campus. Exit- From Water Drainage System to the back gate of campus
27.	Write down few ways that could reduce the amount of water used in your institute	By Following ways: 1. RWH, Close the taps after usage 2. Maintenance and monitoring of valves in supply system to avoid overflow, leakage and spillage 3. Water Conservation awareness for new students
28.	Record water use from the institute water meter for six months (record at the same time of each day). At the end of the period, compile a table to show how many litres of water have been used.	N.A., Total water bill is included in the annual Municipal Corporation tax.
29.	Does your institute harvest rain water?	14 number of Modern rain water harvesting systems are available.
30.	Is there any water recycling System.	Yes, waste water (grey water) coming out from Boys Hostel is treated in the anaerobic tank located in the boys hostel, and treated water is used in gardening purposes.

8.5. CLEAN AIR

31.	**Are the Rooms in Campus are Well Ventilated?**	**Yes**				
32.	Window Floor ratio of the Rooms	**Very Good**				
33.	Provide details of Institute -owned motorized vehicles?	Buses	Cars	Vans	Other	Total
	No. of vehicles	--	--	--	--	--
	No. of vehicles more than five years old	--	--	--	--	--
	No. of Air conditioned vehicles	--	--	--	--	--
	PUC done	--	--	--	--	--
34.	Air Quality Monitoring Program (If any)	Yes, 1 station to check air quality under National Ambient Air quality Monitoring Programme is being done.				
35.	Students suffer from respiratory ailments? (If Any)	No				
36.	Details of Genset	Yes, 2 Numbers of Genset - model, "Powerol" by Mahindra Company (125 kVA), "Powerica" by Cummins Company (82.5 kVA).				

8.6. ANIMAL WELFARE

37.	List the animals (wild and domestic) found on the campus (dogs, cats, squirrels, birds, insects, etc.)	More than 50 Squirrels are found in the campus, Approx. 12 dogs and others including butterflies, insects, bees, earthworms, etc. are there in campus.
38.	How many dogs in your area have undergone Animal Birth Control - Anti Rabies (ABC - AR)?	Not required
39.	Does your institute have a Biodiversity Programme or a KARUNA CLUB?	No

8.7. ENVIRONMENTAL LEGISLATIVE COMPLIANCE

40.	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
41.	Does your institute have any rules to protect the environment? List possible rules you could include.	Institute prepared 3 years policy under which single use plastic is to be banned. Institute environmental policy includes awareness, and environmental conservation efforts through NCC. All under graduates are studying the paper of Environmental Sciences, prescribed by UGC.
42.	Does Environmental Ambient Air Quality Monitoring conducted by the Institute?	Yes
43.	Does Water and Wastewater Quality monitoring conducted by the Institute?	Yes
44.	Does stack monitoring of DG sets conducted by the Institute?	N.A.
45.	Is any warning notice, letter issued by state government bodies?	No
46.	Does any Hazardous waste generated by the Institute?	No
47.	Does any Bio medical waste generated by the Institute? If yes explain its category and disposal method	No

8.8. GENERAL PRACTICES

48.	Are you aware of any environmental Laws pertaining to different aspects of environmental management?	Yes
49.	Does your institute have any rules to protect the environment? List possible rules you could include.	Yes, Institute is having Environmental Policy which includes awareness and environmental conservation.
50.	Does housekeeping schedule in your campus?	Yes, Swatch Bharat movement
51.	Are students and faculties aware of environmental cleanliness ways? If YesExplain	Yes, Periodically pollution reduction,plantation, energy conservation awareness campaigns carried out by institute
52.	Does Important Days Like World Environment Day, Earth Day, and Ozone Day etc., eminent in Campus?	Yes
53.	Does Institute participated in National and Local Environmental Protection Movement?	Yes, Swatch Bharat Abhiyan by students at campus.
54.	Does Institute has any Recognition/certification for environment friendliness?	No
55.	Does Institute using renewable energy?	Yes, Solar Energy, Recycling of wastewater, vermicomposting plants to convert garbage to manure, etc.
56.	Does Institution conducts a green/environmental audit of its campus?	Yes
57.	Has the institution been audited / accredited by any other agency such as NABL, NABET, TQPM, NAAC etc.?	Yes, NAAC grade A

9. BEST PRACTICES/INITIATIVES FOR ENVIRONMENT

A	Renewable Energy **Solar panel installed at WIT, Solapur.** **A clean source of energy is utilized at campus.Efforts towards** Carbon Neutrality **The capacity of 80 KW Solar plant on building roofsis commissioned and operational since year 2013. 50% of total power is used directly in campus.** **Institute is also installed Solar Heaters in the Boys Hostel and Girls Hostel. One Solar heater system of 100 lpd can replace an electric geyser of 2 KW.**	 
B	**Biodiversity Conservation** Flora and fauna conservation • Institute have lush green campus which provides habitat to various species.	
C	**Tree Plantation Drives** Two Drives Annually. • Yes, periodically the plantation drivesby students and staff of campus.	
D	**Ground Water Recharge** 14 units of Rain Water Harvesting System. • Yes, 100% recharge of the rain water	

E	**Pollution Reduction** Heavy vehicles are not allowed at campus. Reduction in Air Pollution through vehicular emission.	
F	**E Waste Management** Collection of e-waste by staff	E waste is sent to the authorized recyclers for adequate disposal
G	**Solid Waste Management** Treatment of garbage using treatment. • Yes, vermicomposting method is used to treat garbage. Refuse is transferred to Municipal Corporation using Ghantagadi mechanism.	
H	**Adoption of Village/society**	No, but the General Environmental awareness campaigns like Beat the Plastic initiated by campus.
I	**Water Conservation** • Yes, water saving push taps fitted in thedrinking water zone and the toilets to avoid the wastage. They are re-using treated grey water for gardening purposes.	

10. RECOMENDATIONS

- Formation of Environment detailed Policy and communicated to all faculties and other staff members.
- Undergraduate projects are needed focusing on Sustainability and technological changes to be adopted in the Institute.
- Reduction in use of paper work by go digital system.
- Water Meter should be installed at institute for monitoring of water consumption forlandscape.
- Increase in Environmental promotional activities for spreading awareness at campus.
- As practically feasible avoid use of personal vehicles inside the campus.

11. CONCLUSION

This audit involved extensive consultation with all the campus team, interactions with key personnel on wide range of issues related to Environmental aspects. The Walchand College of Arts and Science, Solapur is having Honors in Sustainability in Academic Curriculum of science departments, which has focus for sustainable use of resources. Overall 60% of university campus is for landscaping. The audit has identified several observations for making the campus premise more environmental friendly.

The audit team opines that the overall site is maintained well from environmental perspective. There is no major observations but few things are important to initiate urgently are waste management records by monthly inventory of e-waste, development of innovative refuse treatment methodologies, and periodic inspection of buildings housekeeping and environment policy.

12. REFERENCE

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle
- Rules:1989 (Amended in 2005)
- Energy Conservation Act 2010.
- The Water [Prevention & Control Of Pollution] Act – 1974 (Amended 1988) & the Water(Prevention & Control of Pollution) Rules – 1975
- The Air [Prevention & Control Of Pollution] Act – 1981 (Amended 1987) The Air(Prevention & Control of Pollution) Rules – 1982
- The Gas Cylinders Rules – 2016 (Replaces the Gas Cylinder Rules – 1981
- E-waste management rules 2016
- Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices
- Internal Records of the Campus

13. ANNEXURE – PHOTOGRAPHS OF ENVIRONMENT CONSCIOUSNESS

Cleanliness drive during Swachh Bharat week on 2nd October 2021.organized by the students of NSS.

Environmental awareness campaign in Musti Village, Solapur by Institute Faculty.

Certificates of various competitions organized by the Institute on World Environment Day 2022.

Landscaping in the Institute

TRANSPARENCY OF GREEN AUDIT REPORT

Green audit report is one of the useful means of demonstrating an organization/Institution's commitment to openness and transparency. If an college believes it has nothing to hide from its stakeholders, then it should feel confident enough to make its green audit reports freely available to those who request them. As a basic rule, green audit reports should be made available to all stakeholders.

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