



ज्ञानं ज्ञानं धरोहर

VISHAL JUNNAR SEVA MANDAL'S

VISHAL INSTITUTE OF PHARMACEUTICAL EDUCATION & RESEARCH

Dr. S. L. Jadhav
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P.C.I. Inst. Code : PCI-2620 | D.T.E. Inst. Code : 6361 | University I.D. No. : CPHP012670

7.1.6.1

**Report on environment and energy audits
submitted by auditing agency**



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Reports on environment and energy audits submitted by the auditing agency

The institute regularly undertakes energy, green and environmental audits of its facilities and campus through a third party. To ensure adherence to the green policy, the institute undertakes various audits viz: environment, green, and energy audits regularly. The suggestions received by the auditing agency (if any) were implemented accordingly.

The reports submitted by the auditing agency are attached below:

Sr. No	Particulars of document
1	Green Audit
2	Energy Audit
3	Environment Audit




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प्राज्ञानं विद्यया योज्यते

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VISHAL JUNNAR SEVA MANDAL'S VISHAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH [B. PHARM, M. PHARM] ALE, TAL – JUNNAR, DIST – PUNE 412411.

Green Audit Report (2023-24)



Prepared by



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College Campus



Executive Summary




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The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

VISHAL JUNNAR SEVA MANDAL'S VISHAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH [B. PHARM, M. PHARM] ALE, TAL – JUNNAR, DIST – PUNE is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher learning, the college has initiated 'The Green Campus' program that actively promote the various projects for the environment protection and sustainability.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons, data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Waste water management, Rain water harvesting, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student's health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit are based on the identified risks.




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1. Introduction

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth by carrying out Green Audit.

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. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. If self enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self enquiry is a natural and necessary outgrowth of a quality educational institution. 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.

Stages of Green Audit:

Pre-Audit

- Plan the audit
- Select the audit team




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- Schedule the audit facility
- Acquire the background information Visit the site On-site

1.1 About the College

VISHAL JUNNAR SEVA MANDAL'S VISHAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH [B. PHARM, M. PHARM] ALE, TAL – JUNNAR, DIST – PUNE In the year 2006, VJSM ventured into degree course in pharmacy and established Vishal Institute of Pharmaceutical Education and Research (VIPER) at Ale offering B. Pharm. degree course affiliated to the Savitribai Phule Pune University.

COLLEGE AT A GLANCE: From the point of view of our people need VISHAL JUNNAR SEVA MANDAL'S VISHAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH [B. PHARM, M. PHARM] ALE, TAL – JUNNAR, DIST – PUNE. The main objective of our college is to provide education to the students from city as well as Talukas of Nashik District. The Critical purpose of establishing the college is that all the students from nearby village should get quality education as well as they may be so able to stand on their own feet for employment.

VARIOUS FACILITIES & COMMITTEE AVAILABLE IN COLLEGE

The college premises is extremely Environmentally friendly and this leads to overall growth of all the students. The following Committee are available:

Internal Quality Assurance Cell (IQAC) : To ensure that the duties and responsibilities of staff, function of various committee and are followed as per the institution approved guidelines on risk based approach.

Anti- Ragging Committee: To ensure the strict discipline is maintained in the cordial environment of educational environment of the institutes.




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College Research Committee: Responsible to create and maintain atmosphere of research and development in the institute premises.

Cultural Committee: To provide a platform for students to go beyond their academic quest and explore their creative and artistic sensibilities. Increase the interaction between collages/students/staff and their parents/guides & other stake holder of the institution.

Sport Committee: To enhance students' sportsmanship and commitment by developing students' interest in sports and discover their hidden talents. To inculcate the values related to teamwork, working relationship with each other. Also ensure improvement of general health.

Medicinal Garden Committee: To develop and maintain medicinal garden for pharmacogenetic study of Medicinal plant. Ensure interaction between students and medicinal plant and improve plantation skill of students. Maintain of all plants of the Institute

Library Advisory Committee: To collect, organize and disseminate print and electronic information to the academic staff, students and research scholars. Enhance and support the research activity of the institute. Act as a learning resource centre.

Student Development Consultant Committee: To represent the student body in matters pertaining to the improvement of the institute. To foster communication among students, administrators, staff, and the community. To install democratic ideals, provide an outlet for student expression, and a forum for aiding in the solution of institute problems.

Social Justice Committee: To ensure that the institute has a organised system so that no noticeable social injustice is committed in the campus and hostel.




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Quality Policy: We are designed to impart best pharmacy education to the students by providing, excellent learning experience in our Institute so that competent Pharmacist are produce to serve the society.

We create this through academic excellence developed by highly educated, experienced, committed academic team supplemented by modern facilities and infrastructure, with continual improvement, complying all applicable requirements. This results in building quality in to the student.

VISION:

To be in pharmacy education with an ultimate goal to produce high quality leaders in the healthcare professional focused on improving the wellbeing of society.

MISSION:

To impart value-based industry oriented high quality pharmacy education to improve knowledge, skill, competency and leadership qualities.

OBJECTIVES:

- 1.To provide quality technical education that effectively integrates into critical thinking, problem solving and leadership skills.
- 2.To facilitate collaborative studies/experimentations focused on dedication, innovation and commitment.
- 3.To provide and promote opportunities to improve mind and health of the student by conducting social/professional activities.




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4. To conduct yearly programmes wherein students get opportunities to work on ethical/cultural framework leading to improvement of society.

2. Objectives of the Study

The main objective of the green audit is to promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To introduce and make students aware of real concerns of environment and its sustainability.
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections require high cost.
- To bring out a status report on environmental compliance.

3. Methodology

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summaries the present status of environment management in the campus:

- Green area management
- Environment
- Water management
- Energy conservation
- Waste management




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- E-waste management

Green Area of College Campus




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Green Campas

a) Observations

To create- green cover, eco-friendly atmosphere, pure oxygen at the college campus, plantation program is organized every year with involving all students, principal and all departments faculty members.

Campus is located in the vicinity of approximately 128 types (species) of trees. Various tree plantation programs are being organized during the month of July and August at college campus and surrounding villages .This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes plantation of various type of indigenous species of ornamental and medicinal as well as wild plant species. Under the biodiversity and ecological survey, rain water




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harvesting is well maintained. The Institute has a policy of gift a plant to guests in any programme. It is a good thing for environment.

Carbon Credit Report

1 Plant = 20 kg CO₂ Absorbed per year

Total plants in College Campus = 396

396*20=792Kg CO₂ absorbed /Year

For 5 Years the CO₂ absorbed =792*5=9063KgCO₂/Year

b) Appreciation:

- Appreciate that the college conducts various tree plantation programme in various villages.
- Appreciate that college established Green Cell in college for the enactment, enforcement and review of the Environmental Policy.
- Appreciate that college celebrates 5th June as 'Environment Day' every year and plant trees on this day to make the campus Greener.

c) Recommendations

- Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names to the trees.
- Promote environmental awareness as a part of course work in various curricular areas, independent research projects and community service.
- Create awareness of environmental sustainability and take actions to ensure environmental sustainability.

4. Environment:




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a) Air Quality: Air quality in the academic institute is very important for health of the students, faculty and staff of the institute. The air pollution sources in the college campus are wind storm, pollen grains, natural dust, vehicular emissions, generators, fires and laboratory fumes etc.

Observation: All results of Ambient Air monitoring (Near Main Gate) found within limits as per National Ambient Air Quality Standards, 2009.

Test Report

Meteorological Data / Environmental Conditions				
Average Wind Velocity: 3.0 km/h	Wind Direction: E	Relative Humidity (Max./Min.): 73/65 %	Temperature (Max./Min.): 26/18°C	Duration of Survey: 24 h
Parameter	Results	NAAQS 2009	Unit	
Sulphur Dioxide (SO ₂)	18	80	µg/m ³	
Nitrogen Dioxide (NO ₂)	19	80	µg/m ³	
Particulate Matter (size less than 10 µm) or PM ₁₀	48	100	µg/m ³	
Particulate Matter (size less than 2.5µm) or PM _{2.5}	16	60	µg/m ³	
Ozone (O ₃)	<19.6	180	µg/m ³	
Lead (Pb)	<0.02	1	µg/m ³	
Carbon Monoxide (CO)	0.61	4	mg/m ³	
Ammonia (NH ₃)	<4	400	µg/m ³	
Benzene (C ₆ H ₆)	<1	5	µg/m ³	
Benzo (a) Pyrene (BaP)- particulate phase only	<0.2	1	ng/m ³	
Arsenic (As)	<0.3	6	ng/m ³	
Nickel (Ni)	<3	20	ng/m ³	




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High Volume Sampler for ambient Air Monitoring

d) Noise Environment: The noise levels measurements were carried out using Noise level meter. The Noise level survey was carried out at two locations, at outside as well inside the study area campus. The major source of noise identified in the study area has been predominantly the vehicular movement and the transportation activities.




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Noise level monitoring

Noise level monitoring Report

Location	Time	1	2	3	4	5	Noise Level Readings dB (A)
Outside	11.00	54	55	53	50	52	52.8
	11.30	57	53	55	52	54	54.2
Inside	12.30	58	59	60	55	54	57.2
	13.30	55	52	52	53	54	53.2
As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))							
Area Code	Area Type	Limits in dB (A) weighted scale					
		Day (6 a.m. to 10 p.m.)			Night (10 p.m. to 6 a.m.)		
C	Residential	75			45		




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Observation: All results of Noise level monitoring (Inside & Outside) found within limits as per the Noise Pollution (Regulation & Control) Rules, 2000

e) Illumination Study: The Illumination Study were carried out using Lux meter. The Illumination Study was carried out at two locations, in Classroom & Laboratory.



Illumination Monitoring

Sr. No.	Location	Time	Lux Level Reading (LUX)				Average LUX
			1	2	3	4	
1.	Classroom	12:00	320	330	358	315	330.75
2.	Laboratory	12:30	319	310	324	332	321.25




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Observation: All results of Illumination Study (Classroom & Laboratory) found within limits as per MF Rules-Section-35, Schedule B

f.) Ventilation Study: The ventilation study was carried out by using anemometer. The ventilation study was carried out at two locations, in classroom and in laboratory.

Ventilation Monitoring in Classroom

Sr. No.	Name of Location	Temperature (°C)	Relative Humidity (%)	Air velocity (m/s)
1.	Classroom	26.6	26.4	0.7
2.	Laboratory	26	26	0.9

Observation: All results of ventilation study (classroom & laboratory) found within limits as per Factory Act 1948, Rule 22-A.




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5. Observations and Recommendations

4.1. Water Use

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

a) Observations

Water is used for drinking purpose. Water is used for canteen, toilets, laboratory and gardening, etc. During the survey, no loss of water is observed, neither by any leakages nor by over flow of water from overhead tanks. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 9000 L/day, which include 5,000 L/day for domestic purposes 2,000 L/day for gardening and 2,000 L/day for different laboratories.




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The College has a Rainwater harvesting facility for recharging of borewell. Therefore, the surrounding of college area water level is maintained.

The College has Reverse Osmosis process for drinking water in a campus having capacity of 500 liters/hr. and the rejected water from this Reverse Osmosis is used for the plants. From the Canteen, water used for drinking purpose analyzed as per IS 10500:2005 drinking water specification and observed it was potable.

b) Appreciations:

- Water is properly used in the campus and water reusing strategy is followed by the college like reusing R.O. rejected water for watering the plants in the premises.

c) Recommendations:

- Appreciate that Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/ large scale reuse and recycle of water system is necessary.
- The college have waste water treatment for waste water generated from laboratories, canteen, toilets and office rooms.
- Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
- Year wise water consumption report.

Test Report

Sr. No.	Parameters	Results	Acceptable Limit as per IS 10500: 2012	Units
1.	Colour	1	Max. 5	Hazen Units




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2.	Odour	Agreeable	Agreeable	-
3.	pH	7.50	6.5-8.5	-
4.	Turbidity	0.5	Max. 1	N.T.U.
5.	Total Dissolved Solids	148	Max. 500	mg/L
6.	Calcium (as Ca)	27.2	Max. 75	mg/L
7.	Chloride (as Cl)	28	Max. 250	mg/L
8.	Fluoride (as F)	<0.05	Max. 1	mg/L
9.	Iron (as Fe)	<0.06	Max. 0.3	mg/L
10.	Magnesium (as Mg)	11.52	Max. 30	mg/L
11.	Nitrate (as NO ₃)	16.30	Max. 45	mg/L
12.	Sulphate (as SO ₄)	12.90	Max. 200	mg/L
13.	Alkalinity (as CaCO ₃)	28	Max. 200	mg/L
14.	Total Hardness (as CaCO ₃)	68	Max. 200	mg/L
15.	<i>E. coli</i>	Absent	Not Detectable	/100 ml
16.	Total Coliforms	Absent	Not Detectable	/100 ml




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Rain water Harvesting Recharge Tube

Energy Use and Conservation

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

All the departments and common facility centers are equipped with LED & CFL lamps. Approximately 165 LED Lamps, 18 CFLs, 48 fans, 1 water coolers, 4 xerox machines, 23 Exhaust fans, 2 scanners, were counted during survey. Besides this, photovoltaic cells are also installed in the campus as an alternate renewable source of energy. Which is reduced 50% cost of total electricity bill in every bill



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Equipment like Computers are used with power saving mode. Also, campus administration runs switch-off drill on regular basis. In various labs after completion of work, electricity was shut down as one of the practices for energy conservation.

a) Observations

Energy source utilized by all the departments and common facility center is electricity only. Total energy consumption is determined as 1070 KVA/Year(996 KW) by major energy consuming equipment.

Photovoltaic cell




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DG Set



b) Appreciations:

- Appreciate that college has total 64 solar panels of capacity 10 kw/day which helps to reduce the total consumption of electricity and saves the cost and approximately 50% of cost get reduced among the total cost of electricity bill.
- Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.

c) Recommendations:

- This includes evaluation of procurement practices with ISO 50001. This does not exactly mean that you need to buy the most efficient, but you need to buy the most efficient which is financially viable. Example AC with efficiency star ratings, Transformer etc.




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- Centralized controls of lighting, auditorium etc. to avoid any mis-use of electricity.
- Installation of LED lamps instead of CFL is necessary because CFL consumes maximum energy and it is observed that college has maximum CFL lamps.
- Installation of Solar panels, Power Purchase Agreements with Solar Power Plant Owners to buy environmentally friendly energy Source etc.
- Shift to paperless regime wherever not required, example attendance muster replaced by bio metrics, DG logbook replaced by computerized logbook, daily reports converted from paper to paper less, HOD meetings converted to paperless formats, and all such examples.
- Maintenance of solar lamps in the campus is necessary.

Waste Generation

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

a) Observations

The total organic waste collected in the campus is 2 kg/day. Waste generated from canteen is a major solid waste in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and non-Bio-degradable waste. Single sided used papers reused for writing and printing in all departments. Important and confidential reports/papers are sent for recycling after completion of their preservation period. Very less plastic waste (0.4 kg/day) is generated by




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some departments, office, garden etc. but it is neither categorized at point source nor sent for recycling. Metal waste and wooden waste is stored and given to authorized Scrap agents for further processing. Few glass bottles are reused in the laboratories. The food waste from main canteen and mess is sent for anaerobic composting.

The institute has adopted anaerobic composting backside of canteen having dimensions 5.5 x 3 x 3 ft. The main purpose of this is to breakdown & decompose all kind of organic waste into compost within 24 hrs. with a volume reduction of 85-90%. After complete process of composting, it is used as manure in the garden and lawns. Awareness program among farmers is also conducted in the village nearby.




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Composting Unit

Campus is well equipped with Dry and Wet waste segregation facility

b) Appreciations:

- Appreciate that college campus is well equipped with dry and wet waste collection system. Among that green coloured dustbin is used for dry waste.

c) Recommendations

- Reduce the absolute amount of waste that produces from college staff offices.
- Make full use of all recycling facilities provided by local organization and private suppliers, including glass, cans, white coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste with responsibility for recycling clearly allocated.
- Important and confidential papers after their validity to be sent for pulping.

E-Waste Generation

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury and Poly-chlorinated biphenyls (PCBs) that can damage human health and the environment.




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a) Observations:

The E-waste generally includes the tube lights, CFL, LED are stored into the scrap yard of college and stored. E-waste generated in the campus is very less in quantity. The college has total of 67 computers and 4 printers in working condition. The cartridges of laser printers are refilled outside the college campus. Administration conducts the awareness programmes regarding E-waste Management with the help of various departments. The E- waste and defective item from computer laboratory is being stored properly. The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

b) Recommendations:

- Recycle or safely dispose of white goods, computers and electrical appliances.
- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Always purchase recycled resources where these are both suitable and available.

6. Conclusions

Considering the fact that the institution is predominantly Pharmacy college, there is significant environmental awareness both by faculty and students and initiatives taken by them are substantial. The installation of solar panels, rain water harvesting management, reuse of R.O. water, paperless work system and anaerobic composting practices are noteworthy. Besides, environmental awareness programmes initiated by the administration shows how the campus is going to be a green. Few recommendations are added to curb the menace of waste management using ecofriendly and scientific techniques.




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As part of green audit of campus, we carried out the environmental monitoring of campus includes Illumination, Noise level, Ventilation and Indoor Air quality of the class room. It was observed that Illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus well within the limit i.e. below 50 dB at day time. Canteen water also analyzed and found it was potable.

This may lead to the prosperous future in context of Green Campus and thus sustainable environment and community development.

Photo Gallery




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For successful completion of Green cum Environmental Audit of the college for the period FY-2023-24, conducted by Ashwamedh Engineers & Consultants Nashik. This Environmental audit included sectoral in these area ie. Water, Energy, Waste, Environment(Air, Noise, Ventilation, Illumination study)& information, Education & Communication are wellbeing activity and institutional Management.

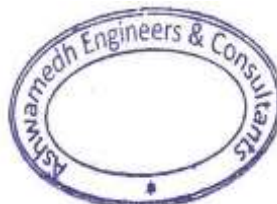
Duration of Audit : September 2023 to August 2024

Date of Issue : 2.10.2023

For Ashwamedh Engineers & Consultants

Khandge

Authorized Signatory




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