Green Audit Report

2022-2023

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY

ODISHA, BURLA-768018, INDIA

www.vssut.ac.in

Vice-Chancellor
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From the Desk of Chairperson, IQAC

Veer Surendra Sai University of Technology, Burla, Odisha is conducting the green audit for the year 2022-2023, with the aim of fostering a sustainable future for the campus. The audit process included initial interviews with the management to gain clarity on policies, activities, records, and the involvement of staff and students in implementing mitigation measures. Subsequently, staff and student interviews were conducted, along with data collection through questionnaires, a review of records, observation of practices, and assessment of observable outcomes. Notably, the approach ensured active participation from both management and staff in the university's green audit process. The findings presented in this report indicate that the University demonstrates commendable performance in addressing sustainability issues, successfully implementing rectifications based on previous audit recommendations within a year. The University exhibits a conscientious effort to consider the environmental impacts of its actions and consistently strives to act in an environmentally responsible manner. While the University performs reasonably well in its sustainability endeavors, the recommendations outlined in this report underscore several areas where the institution can enhance its efforts to become a more sustainable university.

Summary

The rapid pace of industrialization and urbanization has given rise to numerous environmental challenges, potentially leading to an ecological crisis. Recognizing this, it becomes imperative to integrate sustainable practices into our daily activities. VSSUT Burla shares this commitment and endeavors to address environmental issues proactively.

The green audit conducted by the university aims to ensure that the campus practices align with the institution's adopted green policy. The methodology involves the completion of questionnaires, physical inspections of the campus, observations, documentation reviews, data analysis, measurements, and subsequent recommendations. The audit focuses on various aspects such as water conservation, tree plantation, waste management, and the utilization of alternative energy sources. Its primary objective is to assess the extent to which the University adheres to the established green policy.

1. About the University

The Veer Surendra Sai University of Technology (VSSUT) Odisha was formed vide Orissa Act 9 of 2009 by converting University College of Engineering (UCE), Burla to a non-affiliating unitary University and came into force vide notification of the Industries Department, Government of Odisha in 1st July 2009 (Vide memo No.IV/TTI-33/2009-8553 and 8564 dtd. 10th June 2009). The statutes of VSSUT, Burla 2010 has been approved by the Odisha Government vide Industry Department notification No.V-FE-II-01/2010/8697 dated 21st June 2010. This state government University is also recognized by University Grants Commission (UGC), New Delhi vide UGC letter No. F.9-36/2009(CPP-I) dated 5th Jan 2010. The University is empowered to award degrees as specified by the UGC under section 22 of the UGC Act. The University has been declared eligible to receive central assistance under Section 12B of the UGC Act vide letter F.No. 9-36/2009(CPP-I/PU) dated 8th November 2012.

1.1. Vision of the University

To emerge as an internationally acclaimed technical University to impart futuristic technical education and creation of vibrant research enterprise to create quality engineers and researchers, truly world-class leader and unleashes technological innovations to serve the global society and improve the quality of life.

1.2. Mission of the University

The Veer Surendra Sai University of Technology, Odisha, Burla strives to create values and ethics in its products by inculcating depth and intensity in its education standards and need-based research through

- Participative learning in a cross-cultural environment that promotes the learning beyond the classroom.
- Collaborative partnership with industries and academia within and outside the country in learning and research.
- Encouraging innovative research and consultancy through the active participation and involvement of all faculty members.

- Facilitating technology transfer, innovation and economic development to flow as natural results of research where ever appropriate.
- Expanding curricula to cater broader perspectives.
- Creation of service opportunities for uplift ment of the society at large.

1.3. University Administration

Chancellor	:	His Excellency Prof. Ganeshi Lal, Governor of Odisha
Vice-Chancellor	:	Prof. Banshidhar Majhi
Registrar	:	Shri Pradeep Dang, OAS (S)
Comptroller of Finance	:	Sri Tularam Kalet, OFS-1 (SB)S
Director, IQAC	:	Prof. Amar Nath Nayak
PIC Civil Maintenanance	:	Dr. Debabrata Giri
Maintenance Engineer	:	Dr. Ramkrishna Dandapat

1.4. Members of the Board of Management

- Prof. Banshidhar Majhi, Vice-Chancellor, VSSUT, Burla (Ex-officio)
- Principal Secretary to Government of Odisha, Skilled Development & Technical Education Department, Bhubaneswar (Ex-officio)
- The Director, Technical Education & Training, Odisha, (Ex-officio)
- Additional Secretary to Govt. (ES-II) Finance Dept., Govt. of Odisha, BBSR. (Ex-officio)
- Hon'ble Vice-Chancellor, Biju Pattnaik Univ. of Tech., Odisha, Rourkela (Ex-officio)
- Dr. Damodar Acharya, Ex-Director, IIT Kharagpur (AICTE Nominee)
- Prof. Chintamani Mahapatra, Jawaharlal Nehru University, New Delhi (UGC Nominee)
- Prof. Debadutta Mishra , Professor in Prod. Engg., VSSUT, Burla.
- Prof. Prakash Chandra Swain, Professor in Civil Engineering VSSUT, Burla
- Prof. Sidharth Panda, Professor of Electrical Engg. VSSUT, Burla
- Prof. Sanjay Kumar Patro, Professor of Civil Engg. VSSUT, Burla

- Prof. S Karmalkar, Director, IIT, Bhubaneswar (Chancellor's Nominee)
- Er. Ashesh Padhy, VP & Head-Project, JSW Paradip Steel Project (Alumni)
- Prof. Sukumar Mishra, Professor in Electrical Engg., IIT, Delhi (Alumni)
- Shri Debesh Acharya, M.L.A., Bargarh
- Registrar, VSSUT, Burla, Convener-cum-Secretary

2. Overview of the University:

Veer Surendra Sai University of Technology (VSSUT), Burla was established in the year 1956 as UCE, Burla - the first engineering college of the state. It is located at Burla only 10 Km away from the city center of Sambalpur Municipality, and well connected to rest of India through national highway, railway and airway. With excellent connectivity through national highways, railways, and airways, it enjoys proximity to various educational institutions like Sambalpur University, VSS Medical College, IIM Sambalpur, GM University, and Odisha State Open University. Additionally, it is surrounded by numerous public and private sector industries, including MCL, OHPC, HINDALCO, NALCO, NTPC, OPTCL, Vedanta Aluminium Ltd, and Bhusan Steel Plant.

VSSUT, Burla has emerged over the years as one of the premier technical institutes in India, attracting aspiring engineers. Offering a range of programs such as B.Tech., M.Tech., M.Sc., MCA, and doctoral research, the university boasts a strong track record, producing over 25,000 graduate engineers and 5,000 postgraduate engineers, including doctorates. Its alumni hold esteemed positions in public offices across India, as well as in educational, industrial, and research organizations worldwide.

The university is fully residential, equipped with modern amenities and resources, including administrative and academic buildings, an auditorium, library, central internet and computing facilities, workshop, e-learning center, innovation cum incubation center, gymkhana, halls of residence, guesthouse, and faculty accommodations. Additional facilities like a dispensary, bank, post office, park, playground, canteen, and cafeteria cater to the needs of residents, while new state-of-the-art facilities such as a computer center, gymkhana, and swimming pool are recently constructed.

Adhering to the philosophy of "learning in the lap of nature," more than 60% of the campus is dedicated to green spaces, featuring lush landscapes with a variety of flowering plants and perennial trees. The university places emphasis on reducing, reusing, and recycling waste to minimize environmental impact and preserve natural resources. Encouraging students and staff to adopt a sustainable framework, the university strives to minimize carbon footprints.

2.1. Key infrastructures:

Sl. No.	Description	Details	Area/Plinth Area
Land In Use			
1	University		36.5 Acres
2	Hall of Residences		28.0 Acres
3	Staff Quarters		69.1 Acres
4	Free Land		266.77Acres
5	Govt. Land Available for Extension		102.00 Acres
		Grand Total	502.37 Acres
Construction details			
1	University Building	Main building of plinth area	1,22,715 sft
2		Workshop plinth area	27858 sft
3		Workshop office	3100 sft
4		High voltage Laboratory	1200 sft
5		Cycle shed	4600 sft
6		Garage	1660 sft
7		Guest House	3120 sft
8		Robotic Club	2700 sft
9		Auditorium	14850 sft
10		N.C.C. Building	6000 sft
11		Gymnasium	3300 sft
12		Athletic Building	1730 sft
13		Maintenance office	3200 sft
14		Dispensary	2560 sft
15		Computer Science & Engg. Building	19010 sft
16		Workshop Extension	2610 sft
17		Hydraulics Laboratory	1140 sft

		extension	
18		Cycle sheds	2120 sft
19		Library Building	14050 sft
20		Administrative Building	8530 sft
21		Extension of Electrical & ELTCE Building	2880 sft
22		Innovation and Incubation centre	15629 sft
23		Community centre	2700 sft
		Total	**267262 sft.**
23	Halls of Residence	Atri Hall (Boys)	47260 sft
24		Kratu Hall (Boys)	47260 sft
25		Vasistha Hall (Boys)	47260 sft
26		Marichi Hall (Boys)	47260 sft
27		Pulastya Hall (Boys)	47260 sft.
28		Pulaha Hall (Boys)	363620 sft.
28		Angira Hall (Girls)	24160 sft.
29		Arundhati Hall (Girls)	58100 sft
30		Anuradha Hall (Girls)	35000 sft.
31		Visakha Hall (Girls)	35000 sft.
32		Rohini Hall (For Girls)	35000 sft.
		Total	**787180 sft**
Details of Staff Quarters			
33	A-1 Bungalow	1 No.	4725 sft
34	C	4 Nos.	12352 sft
35	D/TD	11 Nos.	15400 sft
36	E	18 Nos	20880 sft
37	F	100 Nos.	88000 sft
38	G	29 Nos.	13050 sft
39	RS	7 Nos.	3805 sft
40	4R	5 Nos.	9750 sft
41	F4R	4 Nos.	7320 sft
42	M4R	4 Nos.	7200 sft
43	5R	6 Nos.	11220 sft

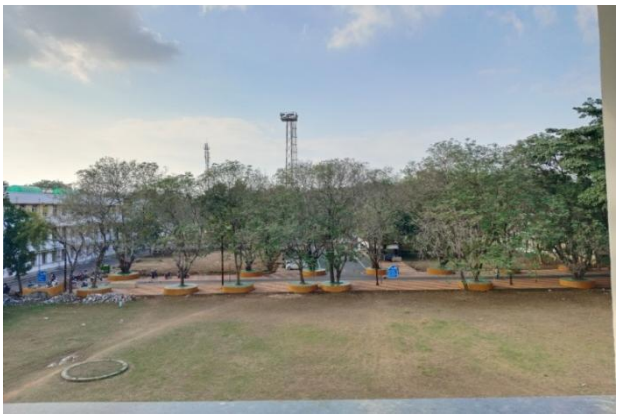
44	3R	27 Nos.	29750 sft
45	F 3R	8 Nos.	8448 sft
46	Modified E	4 Nos.	3280 sft
47	E(New)	4 Nos.	2640 sft
48	B.F	2 Nos.	1720 sft
49	B.F	14 Nos.	10640 sft
50	G.E	10 Nos.	4000 sft
		Total	2,54,180 sft

2.2. Selected Photographs:

Academic campus

Main entrance of Academic campus

Academic Block



Birds eye view of academic block

Library building

Biju Patnaik e-learning center

Entrance gate of a hostel

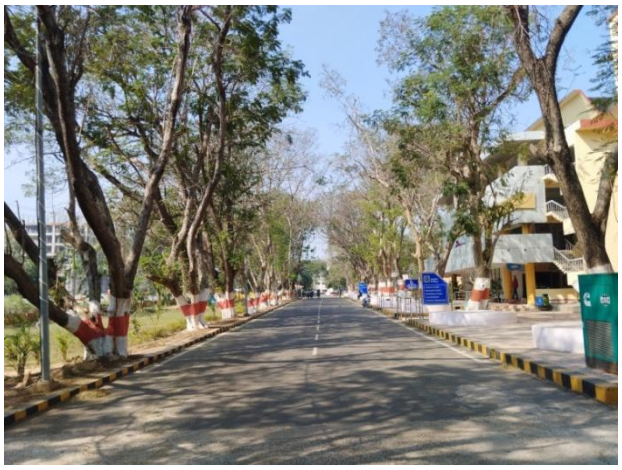
Central park at hostel

Low cost rammed earth building for coffee center

Landscaping near auditorium

Guest House

Faculty Quarters



Road though academic block

Garden

3. Objectives of the Green Audit:

The purpose of the green audit is to encourage environmental management and conservation within the University campus and its vicinity. Additionally, the audit seeks to identify, quantify, describe, and prioritize the framework for environmental sustainability, ensuring alignment with relevant regulations, policies, and standards. The main objectives of carrying out Green Audit are:

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

3.1. Methodology

The audit was carried out by questionnaire, physical inspection, observation and review of documentation, interviewing key persons. The major topics focused in the audits report are the management of Water, Waste, and Greeneries in, and around the University campus.

4. Outcomes

4.1. Water audit

The water audit is an onsite survey and assessment to determine the current usage of water and future need, and to improve the efficiency in its use. The water audit included the water supply, consumption, and appliances and fixtures.

4.1.1. Observations

The University obtains a daily water supply of 2,50,000 liters from the Sambalpur Municipal Corporation through the Public Health Department, serving various purposes such as laboratory activities, lavatories, gardening, and drinking. A well-maintained treatment plant is situated at the water supply source. Additionally, multiple water purification filters are suitably placed throughout the University campus to ensure the availability of safe drinking water. The survey revealed no water loss due to leakage or overflow from overhead tanks. The collected data from all departments have been thoroughly examined and verified.

The University's overall water consumption averages 2,50,000 liters per day, with 120,000 liters allocated for domestic use, 50,000 liters for gardening, and 80,000 liters for various laboratories. The water designated for drinking purposes complies with IS 10500:2012 - drinking water specifications and is deemed potable.

Wastewater generated in laboratories undergoes storage and treatment before disposal, while domestic wastewater is treated in septic tanks and soak pits.

4.1.2. Drinking water analysis report

A. Organoleptic and Physical Parameters

Sl.	Parameter	Result	Acceptable Limit as per IS 10500:2012
1	Colour (Cobalt Scale) (part 4 of IS 3025)	2 - 3 Unit	5 units
2	Odour (part 5 of IS 3025)	agreeable	agreeable
3	pH Value (part 11 of IS 3025)	6.9 – 7.4	6.5 - 8.5
4	Turbidity	0.2 – 0.7 NTU	1 NTU
5	Total Dissolved Solids(mg/l)	104 - 122 mg/l	500 mg/l
6	Calcium (as Ca) (mg/l)	10 - 14 mg/l	75 mg/l
7	Chloride (as Cl) (mg/l)	10 - 17 mg/l	250 mg/l
8	Fluoride (as F) (mg/l)	0.2 – 0.3 mg/l	1.0 mg/l
9	Iron (as Fe) (mg/l)	0.05 – 0.1 mg/l	0.3 mg/l
10	Magnesium (as Mg) (mg/l)	7 - 10 mg/l	30 mg/l
11	Nitrate (as NO3) (mg/l)	1.0 – 2.4 mg/l	45 mg/l
12	Sulphate (as SO4) (mg/l)	9 - 18 mg/l	200 mg/l
13	Total Alkalinity	50 - 70 mg/l	200 mg/l
14	Total Hardness (mg/l of $CaCO_3$)	32 - 36 mg/l	200 mg/l

B. Bacteriological Analysis

Sl.	Parameter	Result	Acceptable Limit as per IS 10500: 2012
15	*E.coli*	nil	nil
16	Total Coliforms	nil	nil

4.1.3. Recommendations

- Dependency on Municipal Corporation should be reduced. It can be achieved by minimizing the dependency for toilets and gardening.
- Dependency on rainwater harvesting need to be increased.
- Drip/sprinkler irrigation system should be used in gardens for minimizing the water consumption.
- In campus small scale/medium scale/ large scale reuse and recycle of the water system is necessary

4.2. Waste generation and treatment

The generation and management of solid waste pose a critical concern, and the improper handling of such waste can pose threats to all. Hence, this audit is conducted to address the production and disposal of various types of waste, including paper, food, plastic, biodegradable

waste, glass, dust, etc., and to explore recycling methods. Additionally, solid waste often contains valuable material resources that could be more effectively utilized through recycling, repair, and reuse. The survey specifically concentrates on the volume, types, and current practices of solid waste management. Solid waste generation and management is a burning issue.

4.2.1. Observations

The total solid waste collected on the campus amounts to approximately 250 kg per day. The predominant sources of solid waste in the campus are the waste generated from the canteen and tree droppings. To address this, the waste is segregated at its source through the provision of separate dustbins for biodegradable and non-biodegradable waste.

Biodegradable waste, originating from the mess kitchen, canteen, and plant litters, is collected and utilized for composting. Paper waste, particularly cardboard, is typically sold to recyclers. In an effort to reduce paper consumption and waste generation, the University adopts double-sided printing for official purposes. Chemical waste generated in laboratories is also subject to segregation.

Single-sided used papers find a second purpose for writing and printing across all departments. Important and confidential reports/papers are sent for recycling to authorized recycling departments once their preservation period concludes. In adherence to government regulations, the use of plastic has been prohibited. Metal and wooden waste are stored and provided to authorized scrap agents for further processing. Glass bottles generated in laboratories are reused, and food waste from the canteen and tree droppings is directed to vermin compost. All laboratories are equipped with fire extinguishers for emergency situations.

4.3. E-waste Generation

E-waste refers to consumer and business electronic equipment that is either nearing or at the end of its useful life. Despite constituting approximately 5% of all municipal solid waste globally, e-waste is considered significantly more hazardous than other types of waste. This heightened risk is attributed to the presence of substances such as cadmium, lead, mercury, and Poly-Chlorinated Biphenyls (PCBs) within electronic components. These elements pose substantial threats to both human health and the environment.

4.3.1. Observations

The generation of e-waste within the campus is minimal. The campus currently operates with a total of 1050 computers and laptops, 107 printers, 19 Xerox machines, and 32 scanners that are in working condition. To promote sustainability, the cartridges of printers are refilled and reused. The administration actively conducts awareness programs on e-waste management in collaboration with various departments.

Efforts are made to handle e-waste and defective items from the computer laboratory responsibly. Materials such as computers, computer peripherals, printers, scanners, etc., that can be safely reused or recycled are handed over to needy organizations or departments. For the remaining e-waste, the institution has chosen to engage with a disposal facility that adheres to approved e-waste management practices, ensuring the scientific disposal of such waste.

4.3.2. Recommendations

- As far as possible electronics instruments from reputed companies, and with a better life span should be purchased.
- E-waste generated at the University should be sent to recycle and reuse.

Solar cell in the University campus

4.4. Land Use and Green area

This includes the available area under construction and open space available for plantation to ensure that the buildings conform to green standards. This helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programmes.

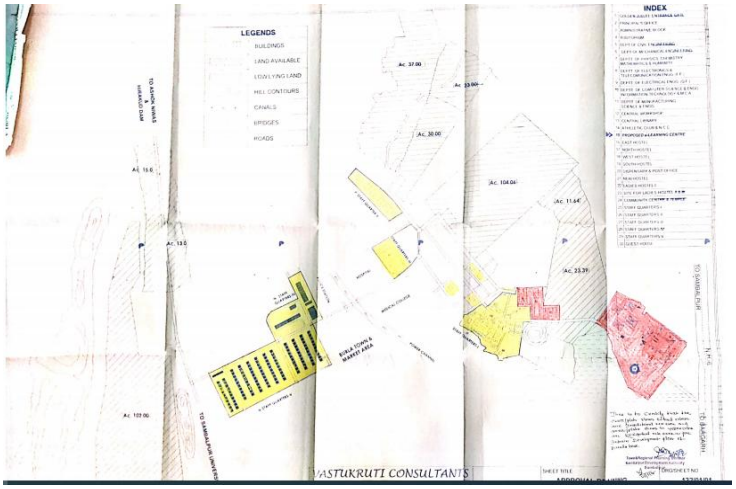
4.4.1. Chart showing Available area and area under construction

Facility	Rooms	Carpet area Sqm.
Large Class Rooms	12	700
Small ClassRooms	69	5824
Laboratories for UG and PG Programs	49	9500
Computer Lab	3	360
Library	1	1265
Workshop	1	1675
Administrative Block	20	3,771
Seminar Hall	6	639

4.4.2. Campus & Built-up Area

- Location : Urban area
- Campus area : 166.48 Acres
- Built-up area in sq.mts : 1,39,964 Sqm.

4.4.3. University Master Plan



4.4.4. Greenery

The University attempts to maintain eco-friendly atmosphere on the campus; the number and variety of plant species help to maintain an eco-friendly ambience. Further, to create eco-friendly awareness among the students, the University arranges special programmes through where the students get clear idea and importance of trees in life. There are several perennial plant species in the campus. University has undertaken various activities like plantation and beautification of campus through various drives.

4.4.5. List of Plants

Sl.No.	Name of the Plant	Habit	Family
1	Terminalia chebula	Tree	Combretaceae
2	Terminalia belerica	Tree	Combretaceae
3	Madhuca longifolia	Tree	Sapotaceae
4	Acacia auriculiformis	Tree	Mimosaceae
5	Anthocephalus Cadamba	Tree	Rubiaceae
6	Alstonia scholaris	Tree	Apocynaceae
7	Hamelia Patens	Shrubs	Rubiaceae
8	Bougainvillea spectabilis	Climbers	Nyctaginaceae
9	Ocimum sanctum	Herb	Lamiaceae
10	Carica papaya	Herb	Caricaceae
11	Cymbopogon citratus	Herb	Poaceae
12	Azadirachta indica	tree	Meliaceae
13	Tectona grandis	tree	Lamiaceae
14	Mangifera indica	tree	Anacardiaceae
15	Ficus benghalensis	tree	Moraceae
16	Millettia pinnata	tree	Fabaceae
17	Syzygium cumini	tree	Myrtaceae
18	Aegle marmelos	tree	Rutaceae
19	Caesalpinia pulcherrima	tree	Fabaceae
20	Peltophorum pterocarpum	tree	Fabaceae

4.4.6. Selected Photographs of plantation and beautification and cleaning drive





4.4.7. Recommendation

The University has ample green area and has utilized the available space generously in this regards. However, the University could make an understanding with local bodies to contribute to greening the spaces available with the local bodies.

4.5. Environmental Audit

This includes the assessment and monitoring of air quality, and noise levels in around the University.

4.5.1. Air Monitoring

Air quality in the academic institute is very important for the health of the students, faculty and staff of the institute. The air pollution sources in the University campus are wind, pollen grains, natural dust, vehicular emissions, and laboratory and AC fumes etc. All the pollutants were measured using standard air monitoring methods. The air pollutants monitored on regular basis are sulphur dioxide (SO_2), nitrogen oxide (NO_2), Suspended Particulate Matter (SPM), and Repairable Suspended Particulate Matter (RSPM) etc. Other relevant parameters such as temperature, humidity, pressure, and rainfall are also monitored.

Air quality near the main gate

A. Meteorological Data / Environmental Conditions

- Average wind velocity : 1.02 km/h
- Prominent wind direction : W-E
- Relative Humidity (Max./Min.) : 80/21 %

B. Air quality Report

Parameter	Result	NAAQS #2019
Sulphur Dioxide (SO_2)	2.5 – 3.4 µg/nm^3	20 µg/m3 24-hour mean
Nitrogen Dioxide (NO_2)	1.8 – 2.4 µg/nm^3	40 µg/m3 annual mean
Particulate Matter(PM10)	5.4 – 8.5 µg/nm^3	20 µg/m3 annual mean
Particulate Matter (PM2.5)	3.6 – 5.8 µg/nm^3	10 µg/m3 annual mean
Ozone (O_3)	Negligible	100 µg/m3 8-hour mean
Lead	nil	0.50 µg/m3 annual mean
Carbon Monoxide (CO)	negligible	2 µg/m3 8-hour mean
Ammonia (NH3)	negligible	100 µg/m3 annual mean

4.6. Noise Environment

The noise level measurements were carried out using the Noise Level Meter. The noise level survey was carried out at seven locations, both circulation area as well as the study area. The University is 15 kms away from the District Headquarters and 2 kms away from the National Highway and train line. The noise levels monitored in the University campus as well as inside the classroom and found the noise level within the permissible limit.

Sl. No.	Location	Minimum Reading In dB	Maximum Reading In dB	Limits
1	Near Main Gate	25	45	75
2	Near back Gate	20	43	75
3	Inside Class room	28	46	75
4	Outside Class room	28	45	75
5	Inside Library	18	21	75
6	Inside Chemistry lab	22	27	75
7	Inside Computer Centre	24	28	75

4.6.1. Recommendation

- Stand of tall trees should be planted along the front boundary wall to reduce noise and air pollution from the roadside.
- Use proper acoustic in rooms installed with heavy machines. Improve damping for machine vibration and sound.
- A continuous air monitoring system should be procured for measurement of air pollution.

4.7. Rain Water Harvesting

Rainwater harvesting (RWH) involves collecting and storing rainwater for later use. It is an eco-friendly and sustainable method that can be implemented on various scales, from individual households to large institutions like universities. The university has implemented rainwater

harvesting systems on some portion of the buildings in the first phase. Gutters and downspouts are used to direct rainwater from the collection surfaces to storage facilities. Rainwater is stored in storage. The size of the storage facility is sufficient considering the intensity of rainfall. Rainwater undergoes filtration to remove debris and contaminants before storage. Harvested rainwater is used for irrigation. The detailed design aspects are given below.

Main building roof area	84650 sft
Computer Science & Engg. Building roof area	13000 sft
Library Building roof area	9700 sft
Administrative Building roof area	6000 sft
Extension of Electrical & ELTCE Building roof area	2000 sft
Total roof area of University Building where RWH can be implemented =	**115350 sft.**
Total roof area of University Building where RWH is implemented in first phase =	**18000 sft.**
% of rainwater collected =	**15.6%**

The RWH is done in (i) Administrative Building and (ii) B-block (Main building) in First Phase.

Avg Rainfall considered = 100 mm for 3 days. Runoff coefficient considered = 0.8 for roofed area

1. Area of Administrative Building = 6000 sqft =558 m^2

Volume of water will be received is = 558 × 100mm × 0.8 = 44.640 m^3

Adopting a further loss over the time period of 3 days is 40%. So a water storage over a period of 3 days will be= =44.640X0.6= 26.784 m^3

Where as the tank is designed for 44.64 m^3.

Height of tank = 2.85 m ∴ (2.60m + 0.15m is freeboard)

Area of the base = 44.640 / 2.85 = 15.66 m^2= 16 m^2

Overall Dimension = (2.85m × 8m × 2m) ∴ (height × length × width)

2. Area of B Block = 12000 sqft = 1115 m^2

Volume of water will be received is = 1115 × 100 × 0.8 = 89.200 m^3

Water storage over a period of 3 days will be of 40% loss. Which will be = 89.2X 0,6= 53.52 m3

Height of tank = 2.85 m ∴ (2.60m + 0.15m is freeboard)

Area of the base = 89.200 / 2.85 = 31.30 m^2= 31 m^2

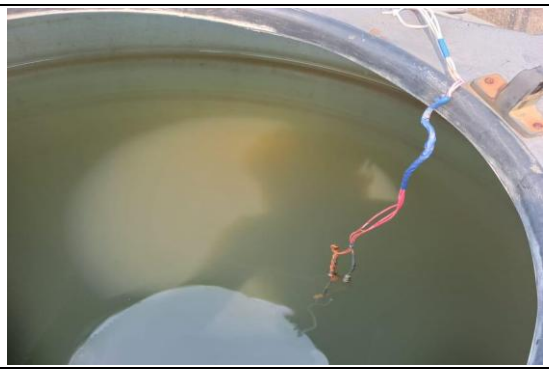
Overall Dimension = (2.85m × 8m × 4m) ∴ (height × length × width)

The expenditure for the same is Rs. 4,99,770/-.

4.8. Water Conservation

A sensor-based water level detector is implemented in Rohini Hall of Residence as shown in figure below. It has the following advantages:

1. The overflow from overhead tank reduced.
2. Unnecessary wastage of water due to tap left open after end of storage and filling is minimized.
3. Due to saving of overflow or misuse the filling time of tank has reduced. The energy used for pumping of water to overhead tank is reduced.
4. Manpower for operation of valves and checking of filling of tanks is minimized.



Sensor inside the overhead tank

Control Circuit in the pump house

Expenditure: Total expenditure is Rs. 22,684.

Single Phase Pump Sensor: Rs. 6,990

14/38 Four Core Wire: Rs. 10,384

Single Phase 25a Electrical Contractor: Rs. 2,360

Installation: Rs. 2,950

The campus community, including faculty, staff, and students, exhibits a noteworthy level of environmental awareness, and their proactive initiatives make a substantial impact. Implementations such as the installation of solar panels, the adoption of a paperless work system, and composting, along with the introduction of an environmental awareness course by the administration, reflect the campus's progression towards becoming a Green Campus. Several recommendations are also suggested to address waste management issues using eco-friendly and scientific techniques.

As part of the green audit, a comprehensive evaluation of water usage, waste management, e-waste handling, greenery, ventilation, illumination, air quality, and noise levels both within and around the campus has been conducted. It was observed that lighting and ventilation are adequate, taking advantage of natural light and air. The noise level on the campus is well within acceptable limits.

The green audit report serves as a valuable tool to showcase the organization's commitment to transparency and openness. To encourage continuous improvement, it is recommended to conduct the next green audit during the year 2023-24. This will further contribute to the ongoing efforts towards sustainability and environmental responsibility on the campus.

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Maintenance Engineer

(Prof. P R Mohapatra)
Professor in Chemistry

(Prof. R R Dash)
Professor in Civil Engg.

(Dr. D Giri)
PIC, Civil Maintenance

Maintenance Engineer
Civil Mainten... ...ction
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External Member
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Prof. P. K. Behera
Professor in Chemistry
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