SURVEILLANCE QUALITY AUDIT REPORT

ON

WATER AUDIT, ENERGY AUDIT,

WASTE MANAGEMENT AUDIT,

GREEN CAMPUS MANAGEMENT AUDIT

AND ENVIRONMENT AUDIT

OF

INTERNATIONAL SCHOOL OF MANAGEMENT EXCELLENCE (ISME)

SY. NO. 88, CHEMBANAHALLI, NEAR DOMMASANDRA CIRCLE,

SARJAPUR ROAD, BANGALORE 562125

2024– 2025

ISME

ECO ENERGIME ENGINEERS LLP

ENHANCING RESOURCE EFFICIENCY

SURVEILLANCE QUALITY AUDIT REPORT

OF

INTERNATIONAL SCHOOL OF MANAGEMENT EXCELLENCE (ISME)

SARJAPUR ROAD, BANGALORE 562125

2024 – 2025

For More Information

Eco Energime Engineers LLP
14, S-1, 3rd Main, 14th Cross
AECS Layout, B – Block
Singasandra
Bangalore–560 068

Mobile: +91 9449 777 000
+91 8050 387 500
Email: info@eeellp.com
Web: www.eeellp.com

PROJECT TEAM

- Mr. A Govindaraj M.Tech., M.S., - EA 5212
- Mr N S Karthikeyan
- Mr Akhilesh

PROJECT ADVISOR

- Mr. Prabu Das M.Tech
- Ms. Aparna Reddy B.Arch., MBA

ACKNOWLEDGEMENTS

We are thankful to the management of **International School of Management Excellence (ISME), Bangalore** for the support, guidance and, giving us the opportunity to be involved in this very interesting and challenging assignment.

We would be happy to provide any further clarifications, if required, to facilitate the implementation of the recommendations.

We received full co-operation and support from the concerned personnel/ staff members of the college. They took key interest and gave valuable inputs during the course of study. We would like to thank:

Director – International School of Management Excellence (ISME), Bangalore

And other Staff in personnel who have given full co-operation and support. They took a keen interest and gave valuable inputs during the course of study.

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Certificate

This is to certify that M/s. Eco Energime Engineers LLP, Bengaluru has conducted **Surveillance Quality Audit** of "**International School of Management Excellence (ISME), Bangalore**" for the academic year 2024 – 2025. The Audit includes water audit, energy audit, waste management audit, green campus management audit and aspects of environment audit.

The audit involves field visit, measurements and observations, verification of bills, log books, data base, maintenance registers and interview with staffs, and this gives an overview of the existing system. In an opinion and to the best of our information and according to the information given to us, said Quality Audit gives a true and fair view in conformity with auditing principles.

For Eco Energime Engineers LLP

Authorized Signatory

A Govindaraj – EA 5212
Certified Energy Auditor
Eco Energime Engineers LLP
No. 14, S1, 3rd Main, 14th Cross,
AECS Layout, B-Block, Singasandra
Bengaluru – 560 068, Karnataka

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

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For Eco Energime Engineers LLP

Authorized Signatory

A Govindaraj – EA 5212
Certified Energy Auditor
Eco Energime Engineers LLP
No. 14, S1, 3rd Main, 14th Cross,
AECS Layout, B-Block, Singasandra
Bengaluru – 560 068, Karnataka

EEELLP ACKNOWLEDGEMENT

EEELLP team thanks the management of **"International School of Management Excellence (ISME), Bangalore"** for assigning this interesting work to us. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to Director & Team of colleagues for giving us necessary inputs to carry out this very vital exercise. We would like to thank all the head of the departments and staff members who were actively involved while collecting the data and conducting field measurements.

For Eco Energime Engineers LLP

Authorized Signatory

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

DISCLAIMER

The Audit Team has prepared this report for International School of Management Excellence (ISME), Bangalore based on the input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the recommendations are arrived following best judgments and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report

For Eco Energime Engineers LLP

Authorized Signatory

No.14, S-1, 3rd Main, 14th Cross, AECS Layout, B-Block, Singasandra, Bangalore - 560 068, Karnataka
80503 87500 www.eeellp.com info@eeellp.com

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ABBREVIATION AND ACRONYMS

1.	A	:	Amperes
2.	DG	:	Diesel Generators
3.	E-Waste	:	Electronic Waste
4.	etc.	:	Etcetera
5.	FTL	:	Fluorescent Tube Light
6.	GHG	:	Green House Gas
7.	Hz	:	Hertz
8.	HP	:	Horse Power
9.	HT	:	High Tension
10.	I	:	Current
11.	ICT	:	Information and Communications Technology
12.	kL	:	Kilo Liters
13.	kV	:	kilo volt
14.	kVA	:	kilo volt ampere
15.	kW	:	Kilo Watt
16.	kWh	:	kilo Watt hour
17.	kWp	:	kilo Watt peak
18.	LCD	:	Liquid Crystal Display
19.	LED	:	Light Emitting Diode
20.	MoU	:	Memorandum of Understanding
21.	NA	:	Not Applicable
22.	NAAC	:	National Assessment and Accreditation Council
23.	Nos.	:	Numbers
24.	NSS	:	National Service Scheme
25.	Rs.	:	Rupees
26.	RR. No.	:	Revenue Register Number.
27.	S. No.	:	Serial Number
28.	Sq. Ft.	:	Square Feet
29.	Sq.m.	:	Square Meter
30.	SRTPV	:	Solar Roof Top Photo Voltaic
31.	TL	:	Tube Light
32.	TR	:	Ton of Refrigeratio
33.	UG	:	Under Graduate
34.	V	:	Volts
35.	W	:	Watts
36.	Wi-Fi	:	Wireless Fidelity
37.	Wp	:	Watt peak
38.	#	:	Number

EXECUTIVE SUMMARY

Conducting Quality Audit covering areas such as water audit, energy audit, waste management audit, green campus management audit and environment audit (carbon foot print perspective only), in college helps to increase the awareness levels of stakeholders, staffs and students, to understand its advantages towards impact on sustainable future.

The International School of Management Excellence (ISME), Bangalore is very **well maintained, clean and neat**, which emphasis the resource allocation (man power, finance and support) by management and importance given for **clean and hygiene environment for students, staffs and stakeholders**.

The environmental awareness initiatives are **substantial**. The installation of sewage treatment plant (STP) and solar hot water systems is **noteworthy**. Besides, environmental awareness programmes initiated by the management and administration shows how the campus is going green.

As part of Quality Audit of campus, we carried out campus monitoring, including Illumination and Ventilation of the class room. It was observed that Illumination and Ventilation is **adequate** considering natural light and fresh air circulation.

From the Quality Audit study, it was observed the college had taken various initiatives and implemented best practices in conserving natural resources that include:

Institutional Initiatives

- Push type taps for water conservation
- Day light integration in class rooms, staff rooms, hostels and common areas
- Use of LED lights
- Use of heat pumps for hot water generation
- Use of Solar water heater for hot water generation
- Use of LED/ LCD monitors
- Sanitary napkin incinerator
- Bins for waste collection
- Campaign on Plastic free campus
- Green landscaping
- Regular maintenance of greeneries
- Solar Roof Top Photo Voltaic (SRTPV) system for power generation

Quality Audit will be a valuable tool in the management and monitoring of environmental and sustainable development programs of the college.

1. INTRODUCTION

International School of Management Excellence (ISME) is a leading Business School offering world class education through a student focused culture of excellence, international outlook, entrepreneurial thinking, and industry alignment. ISME was founded in 2006 by alumni from Carnegie Mellon University, Purdue University and Wharton Business School, USA. Many ISME faculty have international professional experience or are alumni of top colleges from India and abroad. ISME has graduated over 1900 students who are working in top multi-nationals in India and abroad.

ISME is part of The NVT Group, which is a well-established conglomerate with a diverse portfolio of institutions that have significantly contributed to various technology, defence, education and real estate sectors.

Founders

The group companies have been founded and led by Mr. KG Garg (BE, ME Indian Institute of Technology, Roorkee); Dr. Nitin Garg (B Tech & M Tech IIT Bombay; MBA, Carnegie Mellon University; PhD IIM Lucknow); Vivek Garg (MBA Purdue University; BE NIT Allahabad; (PhD) ISB); Tanuj Garg (MS Carnegie Mellon University; MBA, Wharton Business School, USA)

About NVT Group

The group's journey began in 1994 with the establishment of NVT Quality Certification (NVTQC: nvtquality.com), which has become a reputable and acknowledged name in quality assurance and certification in sectors of Aerospace, Defence, Space and export-oriented industries. In 2004, the group expanded its scope and influence by establishing NVT Quality Educational Trust (NVTQET). Under the umbrella of NVTQET, the International School of Management Excellence (ISME: isme.edu.in) was set up in Bangalore in 2006, emerging as a premier business school in India. In 2017, the NVT Group set up two prominent educational institutions were established – National Public School Whitefield (npswhitefield.com) and National Public School East (npseast.com). In 2022, the third school, National Public School Marathahalli has been established. The educational institutions of NVT Group have over 3500 students. The group also has a real estate vertical focused on large high end luxury villa community developments. NVT Group focusses on providing education to children of migrant labor as part of its CSR initiative.

International School of Management Excellence, Bangalore was established in Bangalore in the year 2006. The institution began its PGDM course in 2006 in Whitefield, Bangalore. In 2013 the institution moved to its current location in Chembanahalli, Sarjapur Road.

ISME is in the IT and start-up hub of India giving the students ample avenues with respect to employment opportunities.

The BBA course affiliated to Bangalore University began in 2017 and the B.Com course began in 2020. The Institution has BBA, BCom and BCA courses affiliated to Bangalore University.

As the undergraduate course at ISME is affiliated to Bangalore University, the institution follows the curriculum prescribed by the University. The institution enriches this curriculum with various practical activities and extracurricular and co-curricular activities. The curriculum is delivered through a closely monitored in-house delivery method. The teaching-learning process uses ICT based teaching methods.

VISION

"To be a business school of international repute"

MISSION

Our Mission is to transform every student to become a Successful business professional with a global outlook through:

- Imparting quality education by outstanding business leaders and academicians
- Providing a culture of excellence, entrepreneurial thinking, social responsibility and industry alignment

Committee and Cells

The following committees and cells are available in the college:

- Governing Body
- Infrastructure and Finance Committee
- Academic and Examination Administration
- Curriculum Development Committee
- Internal Complaints Committee (Anti-Sexual Harassment and Women Grievance Redressal)
- Anti-Ragging
- SC/ST and Minority/OBC Committee
- Internal Quality Assurance Committee (IQAC)
- Admissions Committee
- Research Committee
- Department Student Grievance Redressal Committee

Facilities available for physical wellness

The management has provided playground for sports activities. Pictures of the playground are given in figure 1.1. and indoor games is shown in figure 1.2.

Figure1-1: Playground

Figure 1-2: Indoor games

Overview of Quality Audit:

Quality Audit helps college / facility to:

- Understand the usage of electricity, water and other natural resources
- Identify opportunities to conserve various natural resources
- Identify various technological improvements
- Evaluate the techno-commercial of identified conservative measures
- Create awareness among the students and staff
- Disseminate the commitment of management towards saving nature
- Develop a culture among students, staff and management to be socially responsible

2. PRE – AUDIT PHASE

A pre-audit meeting is a prerequisite for the Audit; it helps to meet and discuss about the schedule and documents required during the audit. During the meeting, introduction of team members, scope and objectives of the audit were discussed.

Management Commitment

The Management of the college has shown significant commitment towards Quality Auditing during the pre-audit meeting. They were ready to encourage all green activities. It is decided to promote all activities that are environment friendly such as awareness programmes on the environment, campus farming, planting more trees on the campus etc., after the Quality Auditing.

College administration is vital to the process of realizing campus sustainability, and college policy is an essential instrument for any substantial change in the campus environment.

Scope and goals of Quality Auditing

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. Quality Auditing is one among them for educational institutions.

Once a baseline is established, the data can serve as a point of departure for further action in campus greening. Existing data will allow the college to compare its programs and operations with those of peer institutions, identify areas in need of improvement, and prioritize the implementation of future projects.

This data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs. This audit initiative focused initially on educating colleges and universities through workshops, guidebooks, fact sheets and ensuring compliance through inspections and self-audits.

3. ON-SITE AUDIT PHASE

3.1. Scope / Target Areas of Quality Auditing

3.1.1. Water Audit

Water Audit addresses water consumption, water sources, appliances and fixtures. Aquifer depletion and water contamination are taking place at unprecedented rates. It is therefore essential that any environmentally responsible institution should examine its water use practices.

3.1.2. Energy Audit

Energy Audit addresses energy consumption, energy sources, energy monitoring, lighting, appliances, and vehicles. Energy use is clearly an important aspect of campus sustainability.

3.1.3. Waste Management Audit

Waste Audit addresses waste production and disposal, plastic waste, paper waste, food waste, and recycling. Municipal solid waste has a number of adverse environmental impacts, most of which are well known and not in need of elaboration.

3.1.4. Green Campus Management Audit

Green campus initiatives are becoming an integral part of modern day's university systems. Green campus Audit helps in maintaining the air and water clean. It regulates the climatic conditions and provides a healthy and comfortable environment for living.

3.1.5. Environment Audit

Environment Audit addresses the usage of fossil fuels (coal, diesel, petrol and gas). The mode of commute to and from college each day has an impact on the environment through the emission of greenhouse gases into the atmosphere by the burning of fossil fuels.

3.2. Audit Methodology and Approach

The methodology and approach adopted for the study involve various steps that include:

- Review of Document and records
- Review of Policies
- Review of MoU
- Review of various measures implemented
- Site Walkthrough
- Data Collection
- Interviews

3.2.1. Review of Document and Records

Electricity bills, equipment register, list of appliances, office registers, internal quality audit document, purchase document, were reviewed and relevant data and inputs required for analysis have been collected.

3.2.2. Review of Policies

College has various policies that include safety policy and Anti-ragging policy.

A. Safety Policy:

An organization's safety policy is a recognized, written statement of its commitment to protect the health and safety of the students and employees, as well as the surrounding community.

All the students, teaching and non-teaching staff, maintenance and house-keeping staff have been given training to use fire extinguishers in emergency situations of fire and explosion. Fire extinguishing cylinders have been installed in each floor and in laboratory areas. The fire extinguishers are shown in figure 3.1. The fire hydrant equipment are shown in figure 3.2.

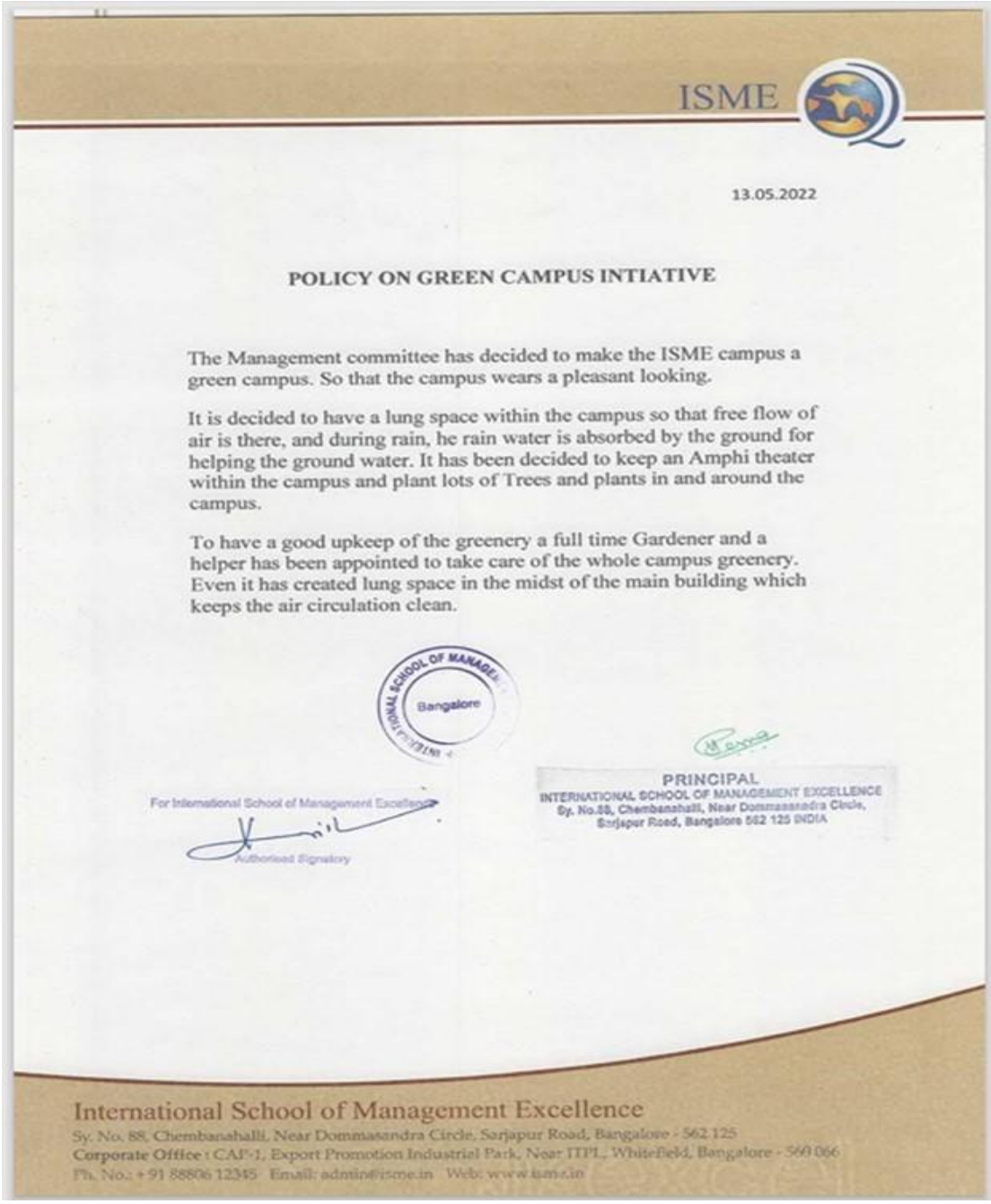
Figure 3-1: Fire Extinguisher installed in the floors

Figure 3-2: Fire hydrant system

B. Green Initiatives Policy:

The management, staffs and students are committed to implement and follow the green initiatives in the college premises.

Moreover, institution is committed to continual improvement and compliance to existing statutory and regulatory requirements. The green policy document available in the college is shown in figure 3-3.



ISME

13.05.2022

POLICY ON GREEN CAMPUS INTIATIVE

The Management committee has decided to make the ISME campus a green campus. So that the campus wears a pleasant looking.

It is decided to have a lung space within the campus so that free flow of air is there, and during rain, he rain water is absorbed by the ground for helping the ground water. It has been decided to keep an Amphi theater within the campus and plant lots of Trees and plants in and around the campus.

To have a good upkeep of the greenery a full time Gardener and a helper has been appointed to take care of the whole campus greenery. Even it has created lung space in the midst of the main building which keeps the air circulation clean.

Bangalore

For International School of Management Excellence

Authorised Signatory

PRINCIPAL
INTERNATIONAL SCHOOL OF MANAGEMENT EXCELLENCE
Sy. No.88, Chembanahalli, Near Dommasandra Circle,
Sarjapur Road, Bangalore 562 125 INDIA

International School of Management Excellence
Sy. No. 88, Chembanahalli, Near Dommasandra Circle, Sarjapur Road, Bangalore - 562 125
Corporate Office : CAP-1, Export Promotion Industrial Park, Near ITPL, Whitefield, Bangalore - 560 066
Ph. No.: +91 88806 12345 Email: admin@isme.in Web: www.isme.in

Figure 3-3: Green Initiatives Policy

3.2.3. Review of various measures implemented

During the Green Audit study, it was observed the college has taken various initiatives in conserving natural resources that include:

- Push type taps for water conservation
- Day light integration in class rooms, staff rooms, hostels and common areas
- Use of LED lights
- Use of heat pumps for hot water generation
- Use of Solar water heater for hot water generation
- Use of LED/ LCD monitors
- Sanitary napkin incinerator
- Bins for waste collection
- Campaign on Plastic free campus
- Green landscaping
- Regular maintenance of greeneries

3.2.4. Site Walk through

Site walk through was conducted with staff members and audit team members. They have shown very keen interest in the data collection process and methods to be followed in field data collection. The staffs have given inputs and suggestions for resource conservation as well.

College Infrastructure

College campus has various blocks and departments. Each floor has state of the art class rooms, staff rooms, laboratories libraries and many more. Details of infrastructure are as follows:

- Sports and Games
- Cafeteria
- Auditorium
- Smart Class room
- Conference Rooms
- Meeting Room
- Transport
- Hostel
- 24/7 Security
- Library
- Staff Room

All the classrooms and staff rooms are well ventilated and the integration of day-light is well utilized. This has helped in optimized usage of electricity for lights and fans during day time.

3.2.5. Interviews

To collect the various data, information and operating patterns, interviews were conducted with college staff (Principal, teaching staff, non-teaching staff) and students. The consolidated information from the interviews is given in the following sub-sections.

4. WATER AUDIT

4.1. Facility description

The water audit study involved carrying out various observations and analysis, to realistically assess usage of water and potential for water conservation.

Borewell and tanker water is the sources of water, for facilitating the water supply requirement of the entire campus. Two number of borewells are available. The location and name of the borewells are given in table 4-1.

S. No.	Location	Name
1	Near STP area	Borewell 2

Table 4-1: Details of Borewell

The image of borewell is shown in figure 4-1.

Figure 4-1: Borewell

The water from borewell and tankers are supplied to the sumps. The details of sump location, name, capacity and source of water is given in table 4-2.

S. No.	Location	Capacity, kL	Source of water
1	Beside Hostel	100	Borwell and Tanker Water
2	Beside Hostel	100	Borewell and Tanker Water

Table 4-2: Details of sumps

Figure 4-2: Sumps in Campus

From the sumps the water is pumped to overhead tanks using electrical motor pump.

The details of list of tanks installed in various blocks with capacity, type of tank and installed location are given in table 4.3.

S. No.	Location	Tank
2	College block	PVC – OHT – 5 kL – 1 No.
3	Girls hostel	PVC – OHT – 5 kL – 1 No.
4	Girls hostel	PVC – OHT – 5 kL – 1 No.
5	Girls hostel	PVC – OHT – 3 kL – 1 No.
6	Boys hostel	PVC – OHT – 5 kL – 1 No.
7	Boys hostel	PVC – OHT – 3 kL – 2 No.

Table 4-3: Details of tanks

The image of the overhead tanks is shown in figure 4-3.

Figure 4-3: PVC Overhead tanks installed at the terrace

Water level controller is installed to control water pumping from sump to overhead tanks. The image of the water level controller is shown in figure 4-4.

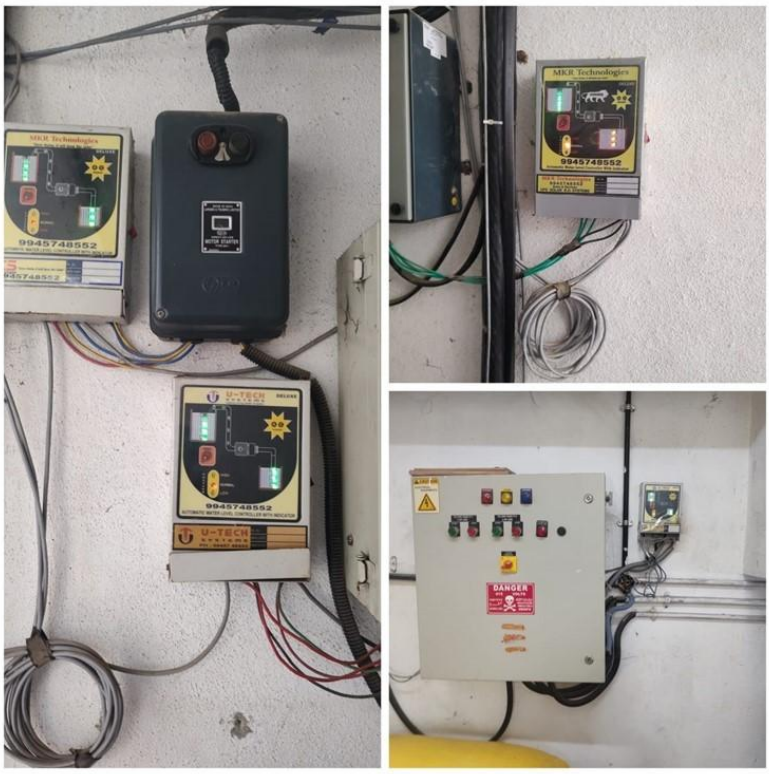


Figure 4-4: Water level controller for Basement to overhead tank water pumping

Based on the source, usage, type and recycling, water is classified as following types in the college campus that include:

- Raw Water
- Drinking Water
- Hot Water
- Sewage Water

Details of the various types of water usages are discussed in detail, in the following sections.

4.1.1. Raw Water System

The raw water is consumed in the following areas:

- Kitchen
- Hostel
- Washrooms
- Cleaning
- Laboratories
- Garden

4.1.2. Drinking Water System

The raw water from the over-head tank in terrace is received to the water purifiers installed in each floor. From these water purifier, the drinking water is supplied.

Water purifier and dispensers are available in all floors to provide drinking water. The drinking water dispenser available in college for drinking purposes is shown in figure 4-5.

Figure 4-5: Drinking water dispenser available in floors

4.1.3. Hot Water System

The hot water is mainly consumed in hostels for bathing purposes. The hot water requirement for bathing is met by solar water heater system and heat pump installed in the hostel terrace.

The pictures of heat pump and solar water heater installed in the hostel are given in figure 4-6.

Figure 4-6: Heat pump and solar water heater installed in the college

4.2. Institutional Initiatives for Water Conservation

4.2.1. Installation of water flow meters

Water is pumped from the borewells and distributed through overhead tanks available in terrace. With the presence of flow meters, it is possible to measure quantity of water used per day. Water flow meter installed in borewell to quantify overall water consumption. The picture of water flow meter installed in the college is shown in figure 4.7.

Figure 4-7: Water flow meter

4.2.2. Sewage Treatment Plant

The procedure for removing contaminants from the wastewater basically from the household sewage is called sewage treatment. It has to undergo the chemical, physical and biological procedure to remove these contaminants and give out an environmentally safe treated effluent. A semi-solid slurry called the sewage sludge is the by-product of the sewage treatment. This sludge is further processed before it is suitable for land application.

The institution has installed STP. The STP is shown in figure 4-8.

Figure 4-8: STP Area

4.2.3. Ground Water Recharge

Rainwater harvesting is the simple process or technology used to conserve rainwater by collecting, conveying, purifying, storing and utilizing. The process of recharging the ground water by utilizing rain water harvested, is practiced by ground water recharge pits.

The picture of ground water recharge pit is shown in figure 4-9.

Figure 4-9: Ground water recharge pit

4.2.4. Low flow taps

Low flow taps perform better with less water usage when compared to regular taps. These taps compensate the water pressure and give defined water flow rate, therefore less water wastage & more savings on water bills. The advantages of low flow taps are as follows:

- Saves water with optimized flow rate
- Reduced water bill
- Different flow patterns (shower/Foam)
- Annual Savings up-to 10,000 litres/Year/tap

Features of Aerator for taps:

- The aerator is a small attachment that either fits onto the end of the tap or can be inserted inside of the existing spout. These water saving devices will control the amount of water that flows through the tap without affecting the water pressure as they mix the water with air which will save water and money.
- The aerators will separate a single flow of water into many tiny streams which introduces the air in to the water flow. Also, as there is less space for the water to flow through, the water flow is reduced, resulting in water savings.
- As the water pressure is maintained, most people don't notice a difference in the amount of water coming out of an aerated faucet yet benefit from the water efficiency
- Tap aerators are of most use to those with older taps which run on average around 15 litres of water per minute. Adding an aerator to an older tap can reduce this to as little as 6 litres of water per minute.
- The biggest water saving benefit is achieved in the bathroom / hand wash / kitchen sinks where we are often turning the taps on and off to wash our hands and for other uses.

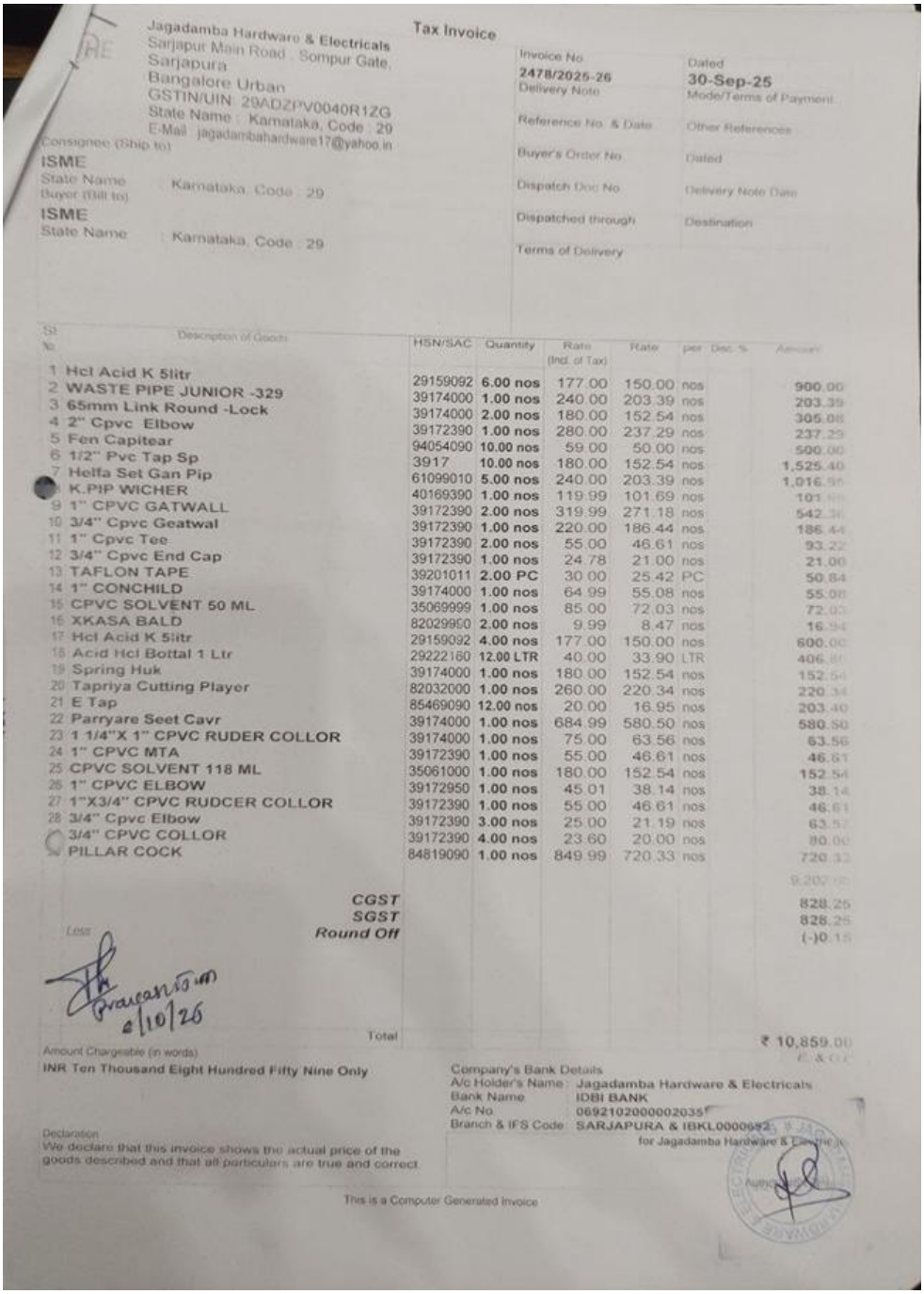
The picture of push type tap used in the college is shown in figure 4-10.

Figure 4-10: Sample photo of push type tap in the wash rooms

4.2.5. Regular maintenance of water distribution system

In order to create awareness regarding water conservation, sign boards / posters indicating save water, conserve water were made available at appropriate locations like handwash area, drinking water tap points.

The sample bill for plumbing material purchase bill is shown in figure 4-11.



Jagadamba Hardware & Electricals
Sarjapur Main Road , Sompur Gate,
Sarjapura
Bangalore Urban
GSTIN/UIN: 29ADZPV0040R1ZG
State Name : Karnataka, Code : 29
E-Mail : jagadambahardware17@yahoo.in

Tax Invoice

Invoice No: 2478/2025-26
Dated: 30-Sep-25
Delivery Note
Mode/Terms of Payment
Reference No. & Date
Other References
Buyer's Order No.
Dated
Dispatch Doc No.
Delivery Note Date
Dispatched through
Destination
Terms of Delivery

Consignee (Ship to)
ISME
State Name : Karnataka, Code : 29

Buyer (Bill to)
ISME
State Name : Karnataka, Code : 29

Sl No	Description of Goods	HSN/SAC	Quantity	Rate (Incl. of Tax)	Rate	per	Disc. %	Amount
1	Hcl Acid K 5litr	29159092	6.00 nos	177.00	150.00	nos		900.00
2	WASTE PIPE JUNIOR -329	39174000	1.00 nos	240.00	203.39	nos		203.39
3	65mm Link Round -Lock	39174000	2.00 nos	180.00	152.54	nos		305.08
4	2" Cpvc Elbow	39172390	1.00 nos	280.00	237.29	nos		237.29
5	Fen Capitear	94054090	10.00 nos	59.00	50.00	nos		500.00
6	1/2" Pvc Tap Sp	3917	10.00 nos	180.00	152.54	nos		1,525.40
7	Helfa Set Gan Pip	61099010	5.00 nos	240.00	203.39	nos		1,016.95
8	K.PIP WICHER	40169390	1.00 nos	119.99	101.69	nos		101.69
9	1" CPVC GATWALL	39172390	2.00 nos	319.99	271.18	nos		542.36
10	3/4" Cpvc Geatwal	39172390	1.00 nos	220.00	186.44	nos		186.44
11	1" Cpvc Tee	39172390	2.00 nos	55.00	46.61	nos		93.22
12	3/4" Cpvc End Cap	39172390	1.00 nos	24.78	21.00	nos		21.00
13	TAFLON TAPE	39201011	2.00 PC	30.00	25.42	PC		50.84
14	1" CONCHILD	39174000	1.00 nos	64.99	55.08	nos		55.08
15	CPVC SOLVENT 50 ML	35069999	1.00 nos	85.00	72.03	nos		72.03
16	XKASA BALD	82029900	2.00 nos	9.99	8.47	nos		16.94
17	Hcl Acid K 5litr	29159092	4.00 nos	177.00	150.00	nos		600.00
18	Acid Hcl Bottal 1 Ltr	29222160	12.00 LTR	40.00	33.90	LTR		406.80
19	Spring Huk	39174000	1.00 nos	180.00	152.54	nos		152.54
20	Tapriya Cutting Player	82032000	1.00 nos	260.00	220.34	nos		220.34
21	E Tap	85469090	12.00 nos	20.00	16.95	nos		203.40
22	Parryare Seet Cavr	39174000	1.00 nos	684.99	580.50	nos		580.50
23	1 1/4"X 1" CPVC RUDER COLLOR	39174000	1.00 nos	75.00	63.56	nos		63.56
24	1" CPVC MTA	39172390	1.00 nos	55.00	46.61	nos		46.61
25	CPVC SOLVENT 118 ML	35061000	1.00 nos	180.00	152.54	nos		152.54
26	1" CPVC ELBOW	39172950	1.00 nos	45.01	38.14	nos		38.14
27	1"X3/4" CPVC RUDCER COLLOR	39172390	1.00 nos	55.00	46.61	nos		46.61
28	3/4" Cpvc Elbow	39172390	3.00 nos	25.00	21.19	nos		63.57
29	3/4" CPVC COLLOR	39172390	4.00 nos	23.60	20.00	nos		80.00
30	PILLAR COCK	84819090	1.00 nos	849.99	720.33	nos		720.33
								9,207.63
	CGST							828.25
	SGST							828.25
	Round Off							(-)0.13
	Total							₹ 10,859.00

Less

Praveen 6/10/25

Amount Chargeable (in words)
INR Ten Thousand Eight Hundred Fifty Nine Only

E. & O.E

Company's Bank Details
A/c Holder's Name : Jagadamba Hardware & Electricals
Bank Name : IDBI BANK
A/c No : 0692102000002035
Branch & IFS Code : SARJAPURA & IBKL0000692

for Jagadamba Hardware & Electricals

Declaration
We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

Authorised Signatory

This is a Computer Generated Invoice

Figure 4-11: Plumbing material Purchase Bill

4.2.6. Awareness posters on water conservation

In order to create awareness regarding water conservation, sign boards / posters indicating save water, conserve water were made available at appropriate locations like handwash area, drinking water tap points.

The sample images of awareness poster regarding water conservation is shown in figure 4-12.

Figure 4-12: Awareness posters on water conservation

5. ENERGY AUDIT

5.1. Facility Description

The college receives power supply from the state electricity board (BESCOM – Bangalore Electricity Supply Company Limited) at HT 11 kV. The 11kV rated HT power supply is stepped down to LT 433V, by one number of 315 kVA rated transformer. The facility has availed power supply, with connection – RR. No ATBHT-132 with HT-2(C)-(i) tariff. Transformer unit installed inside college premises is as shown in the figure 5-1.

Figure 5-1: Transformer Yard

The name plate details of transformer are given in table 5-1.

S. No.	Description	Units	Details
1	Rated Capacity	kVA	315
2	Rated Voltage Prim/Sec	kV	11/0.433
3	Rated Current Prim/Sec	A	5.25/420
4	Type of Cooling	-	ONAN
5	Frequency	Hz	50
6	Impedance	-	4.64%
7	Phase	-	3
8	Make	-	Kiran Power

Table 5-1: Name plate details of transformer

The LT supply from the transformer is taken to the main distribution panel located inside the Electrical panel room via power cables.

Power supply cables from the electrical panel room is distributed to the various distribuition panels placed inside the campus. From the main electrical LT panel room, power supply is catered to individual areas. Electrical panel room is as shown in the figure 5-2.

Figure 5-2: Electrical Panel room

DG Sets:

One numbers of DG (Diesel Generator) set is used for backup power supply, during power failure from BESCOM. The DG sets are operated in manual mode. DG sets installed at the college premises is shown in the figure 5-3.

Figure 5-3: Diesel Generator (DG) sets

The name plate details of the DG sets are shown in the table 5-2.

S. No	Description	Unit	DG #1
1	Rated Capacity	kVA	140
2	AC Volt	V	415
3	AC Amp	A	340
4	Power Factor		0.8
5	Phase		3
6	Ambient	°C	40
7	Frequency	Hz	50
8	RPM		1500
9	Make		Powerica

Table 5-2: DG Set -Specifications

5.1.1. Tariff Structure

The sanctioned contract demand of the campus is 100 kVA at specified voltage of 11 kV. Electricity supply from BESCOM is billed under HT-2(C)-(i) schedule of tariffs. The tariff includes demand charges of Rs. 300 per kVA, and energy charges of Rs.7.5 per kWh.

The kVA demand charges @ Rs. 300/kVA of maximum demand recorded during the month or 85% of the contract demand, whichever is higher

5.1.2. Electricity Consumption Data

Details of electricity consumption for the last one year have been collected and Salient features of electrical energy details are given in table 5-3.

S. No.	Description	Unit	Details
1	Contract Demand	kVA	100
2	Demand Charges	Rs./kVA	300
3	Maximum Demand Recorded during last one year	kVA	90
4	Average Monthly Energy Consumption during last one year	kWh	33000
5	Average System Power Factor		0.9
6	Average Energy Charges considered for savings calculations	Rs./ kWh	7.50

Table 5-3: Electricity Bill Parameters

Figure 5-4 indicates the month wise recorded maximum demand and month wise energy consumption of the college campus for the last one year (January 2024 to September 2025).

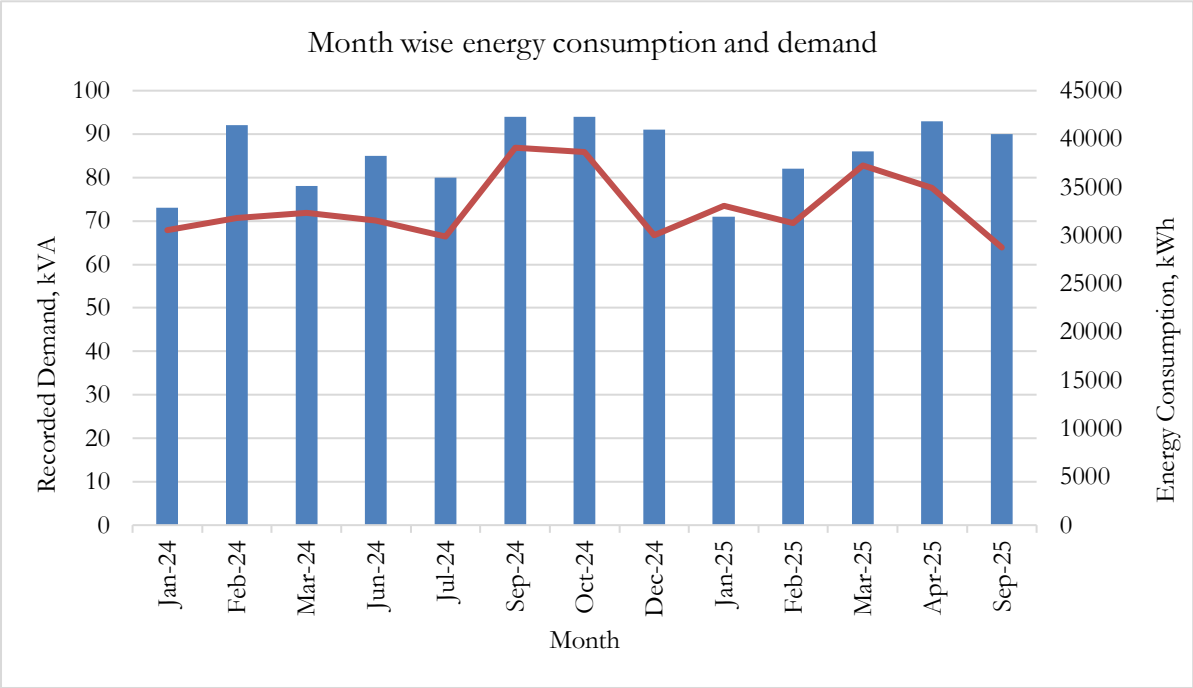


Figure 5-4: Month wise Maximum Demand and Energy Consumption

From the maximum demand curve, it was observed that maximum demand registered during the months of October and September 2024 was found to be 94 kVA and is the peak demand during the last one year of billing period. Average of registered maximum demand during January 2024 to September 2025 is 85 kVA.

From the month wise energy consumption profile, it was observed maximum energy consumption was registered during September 2024. Average monthly energy consumption is 39,100 kWh.

5.1.1. Solar Roof Top Photo Voltaic (SRTPV) System

SRTPV (Solar Roof Top Photo Voltaic) system was installed at the terrace in campus buildings.

The combined capacity of SRTPV installed is of **84.37 kWp** rated.

The SRTPV is on-grid system type. During the audit, photo of SRTPV systems are collected and is shown in Figure 5-5.

Figure 5-5: Solar Roof Top PV System

5.2. Institutional Initiatives for Energy Conservation

During the study, observations were carried out on the usage of the inventories in the college building premises. In the intension of saving electricity, various measures have been adopted in the college. Computers and AC units are used only during the working hours, after completion of class hours – fans, lights, computers and AC units are found to be turned OFF. This practice is followed across the college premises (class rooms, labs, staff rooms, office rooms, library and auditoriums).

5.2.1. Day-light Integration

During the audit phase classrooms, Staff-rooms, computer lab, and library areas were surveyed for illumination levels and fresh air-circulation. It was observed most of the rooms are well ventilated and day-light integrated; sample photos are shown in figure 5-6.

Figure 5-6: Well-ventilated and day-light integrated class room and Library

5.2.2. Installation of SRTPV System

SRTPV (Solar Roof Top Photo Voltaic) system was installed at the terrace.

The capacity of SRTPV installed is **84.37 kWp** rated.

The SRTPV is on-grid system type. During the audit, photo of SRTPV systems are collected and is shown in Figure 5-7.

Figure 5-7: SRTPV Installed at College

Energy generation and cost savings of 84.37 kWp is estimated and the same is given in the Table 5-4.

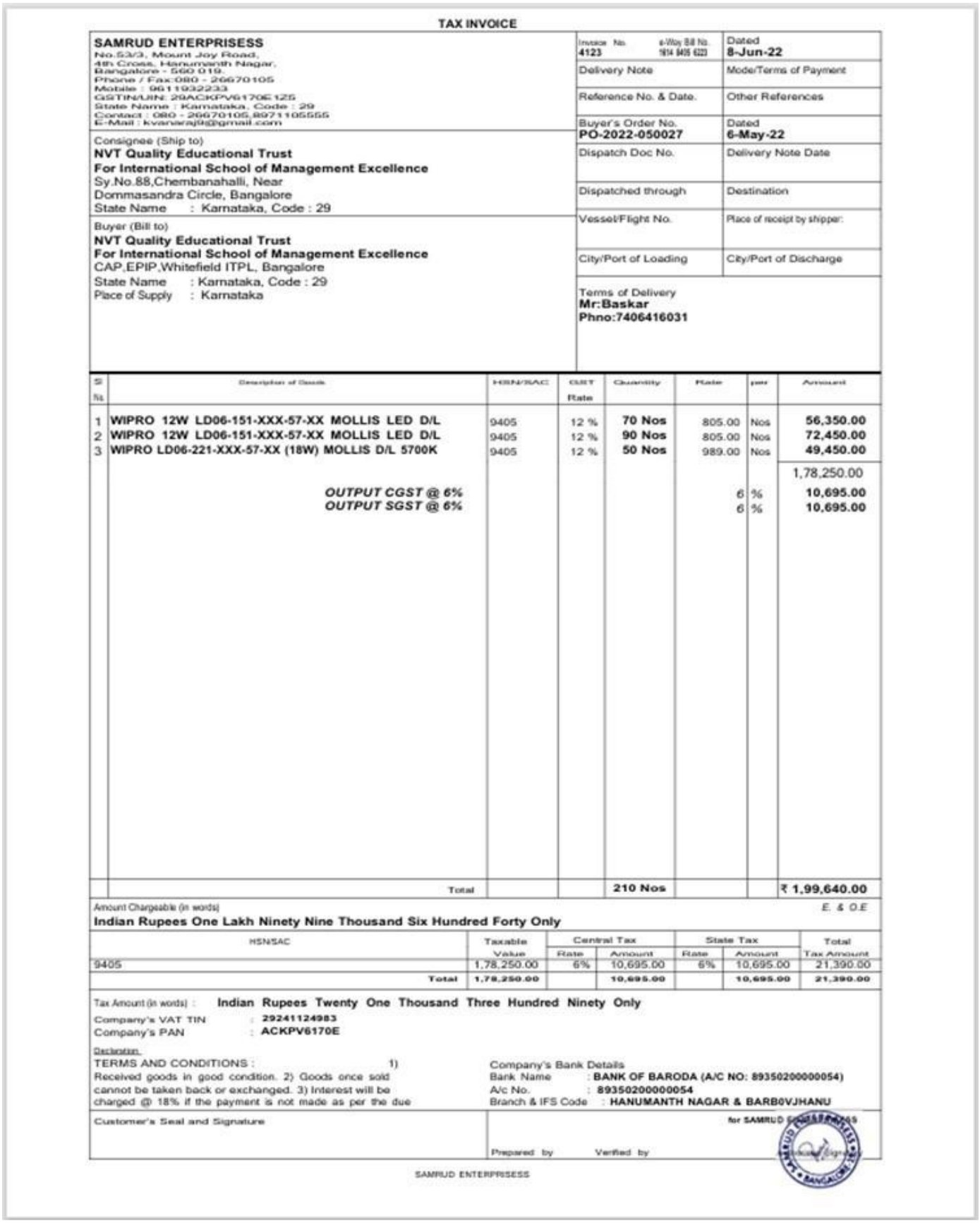
S. No.	Description	Unit	Values
1	Rated Capacity of SRTPV system	kWp	84.37
2	Average units generated per day	kWh/day/kWp	2.5
3	No. of working hours per annum	Days	250
4	Annual energy generation from SRTPV	kWh/ annum	52731
5	Average energy cost	Rs./kWh	7.50
6	Annual cost savings due to installation of SRTPV	Rs. Lakh / annum	52.7

Table 5-4: Cost Savings from SRTPV System

5.2.3. Installation of LED lights

In the campus, LED fixtures are used to conserve energy. LED fixtures are used in the class rooms, staff-rooms, seminar hall corridors, hostel, dining area, etc. Sample photo of LED lamp used in the some of the locations of the college area are shown in figure 5-8 and sample LED purchase bill is shown in figure 5-9.

Figure 5-8: LED lights installed in Campus



TAX INVOICE

SAMRUD ENTERPRISESS
No.53/3, Mount Joy Road,
4th Cross, Hanumanth Nagar,
Bangalore - 560 019.
Phone / Fax:080 - 26670105
Mobile : 9611932233
GSTIN/UIN: 29ACKPV6170E1Z5
State Name : Karnataka, Code : 29
Contact : 080 - 26670105,8971105555
E-Mail : kvanaraj9@gmail.com

Invoice No.	e-Way Bill No.	Dated
4123	1614 9405 6223	8-Jun-22
Delivery Note		Mode/Terms of Payment
Reference No. & Date.		Other References
Buyer's Order No. PO-2022-050027		Dated 6-May-22
Dispatch Doc No.		Delivery Note Date
Dispatched through		Destination
Vessel/Flight No.		Place of receipt by shipper:
City/Port of Loading		City/Port of Discharge

Consignee (Ship to)
NVT Quality Educational Trust
For International School of Management Excellence
Sy.No.88,Chembanahalli, Near
Dommasandra Circle, Bangalore
State Name : Karnataka, Code : 29

Buyer (Bill to)
NVT Quality Educational Trust
For International School of Management Excellence
CAP,EPIP,Whitefield ITPL, Bangalore
State Name : Karnataka, Code : 29
Place of Supply : Karnataka

Terms of Delivery
Mr:Baskar
Phno:7406416031

Sl No.	Description of Goods	HSN/SAC	GST Rate	Quantity	Rate	per	Amount
1	**WIPRO 12W LD06-151-XXX-57-XX MOLLIS LED D/L**	9405	12 %	**70 Nos**	805.00	Nos	**56,350.00**
2	**WIPRO 12W LD06-151-XXX-57-XX MOLLIS LED D/L**	9405	12 %	**90 Nos**	805.00	Nos	**72,450.00**
3	**WIPRO LD06-221-XXX-57-XX (18W) MOLLIS D/L 5700K**	9405	12 %	**50 Nos**	989.00	Nos	**49,450.00**
							1,78,250.00
	OUTPUT CGST @ 6%					6 %	**10,695.00**
	OUTPUT SGST @ 6%					6 %	**10,695.00**
	Total			**210 Nos**			**₹ 1,99,640.00**

Amount Chargeable (in words) E. & O.E
Indian Rupees One Lakh Ninety Nine Thousand Six Hundred Forty Only

HSN/SAC	Taxable Value	Central Tax Rate	Central Tax Amount	State Tax Rate	State Tax Amount	Total Tax Amount
9405	1,78,250.00	6%	10,695.00	6%	10,695.00	21,390.00
Total	**1,78,250.00**		**10,695.00**		**10,695.00**	**21,390.00**

Tax Amount (in words) : **Indian Rupees Twenty One Thousand Three Hundred Ninety Only**
Company's VAT TIN : **29241124983**
Company's PAN : **ACKPV6170E**

Declaration
TERMS AND CONDITIONS : 1) Received goods in good condition. 2) Goods once sold cannot be taken back or exchanged. 3) Interest will be charged @ 18% if the payment is not made as per the due

Company's Bank Details
Bank Name : **BANK OF BARODA (A/C NO: 89350200000054)**
A/c No. : **89350200000054**
Branch & IFS Code : **HANUMANTH NAGAR & BARB0VJHANU**

Customer's Seal and Signature

for SAMRUD ENTERPRISESS

Prepared by Verified by

SAMRUD ENTERPRISESS

Figure 5-9: LED lights purchase bill

5.2.4. Installation of Heat Pump

Heat pump technology has been used for the hot water purpose in hostel and is integrated with the solar water heater. The integrated hot water system is shown in figure 5-10.

Figure 5-10: Integrated recirculation type -Hot water system

5.2.5. Installation of Solar Water Heater

Solar water heaters are installed in hostel terrace for generating hot water. It is integrated with heat pump system. Sample photo of solar water heater used in the campus are shown in figure 5-11.

Figure 5-11: Use of Solar Water Heater

The cost savings by installation of solar water heater are given in table 5-5.

S. No.	Description	Unit	Values
1	Solar water heater installed	L	3000
2	Total amount of heat produced	kCal/hr	90000
3	Electricity equivalent	kWh	104.7
4	No. of working days per year	days	250.0
5	Annual electricity savings	kWh	26162.8
6	Average electricity cost	Rs./kWh	8.25
7	Annual cost savings achieved per year	Rs. lakh/year	2.2
8	CO2 mitigations per year	Tons/year	22.2

Table 5-5: Annual cost savings by installation of Solar Water Heater

5.2.6. Installation of UPS for power backup

UPS (Un-interrupted Power Supply) system is installed in the college premises for power backup. Six numbers of UPS (3 kVA, 5 kVA, 10 kVA, 11 kVA, 20 kVA and 25 kVA rated each one number), have been installed to provide backup power supply, during power failure from grid. The picture of UPS and battery installed in the college is shown in figure 5-12.

Figure 5-12: UPS and batteries

5.2.7. Procurement of LED/LCD monitors

LED/LCD monitors are used for all the desktop computers in staff rooms and in computer labs. Sample photos of the computer labs are as shown in figure 5-13.

Figure 5-13: Use of LED monitors in the computer labs

5.2.8. Use of Electrical Safety Mats

Electrical safety mats were used placed near each electrical panel to avoid electrical shock risk. The image of the electrical safety mats used is shown in figure 5-14.

Figure 5-14: Electrical safety mats near electrical panel

5.2.9. Awareness posters on Energy conservation

Sign boards on energy conservation are kept in the campus to create awareness among the staff and students to conserve electricity. Posters stating - 'Save Energy', 'Switch off light and fan when not in use' were placed at the college.

The sample images of awareness poster on energy conservation is shown in figure 5-15.

Figure 5-15: Awareness posters on Energy conservation

6. WASTE MANAGEMENT AUDIT

6.1. Facility Description

The study involved carrying out various analyses to realistically assess waste generation.

There are different types of waste generated in the college and explained below.

S. No.	Description	Yes / No	Details
1	E-Waste	Yes	External Agency
2	Hazardous / Chemical Waste	No	NA
3	Solid Waste	Yes	External Agency
4	Dry Leaves	Yes	Municipal Collection
5	Food Waste	Yes	Municipal Collection
6	Waste Water	Yes	STP
7	Glass Waste	No	NA
8	Unused Materials	No	NA
10	Plastic Waste	Yes	Municipal Collection

Table 6-1: Types of Waste Generated in the College

6.1.1. Types of Waste

Wet Waste: Wet waste is all the kitchen waste that we produce. These are the waste which is collected on a daily basis in the canteen, cafeteria etc.

Example: fruit peels, vegetable peels, used tea leaves etc.

Dry Waste: Dry Waste refers to all waste items that are not considered wet/soiled items.

These are the wastes which are found in classrooms, stationery store etc.

Example: Papers, plastic, bottles etc.

Example: Sanitary dispenser, incinerator etc.

Chemical Waste: A chemical waste is any solid, liquid, or gaseous waste material that, if improperly managed or disposed of, may pose substantial hazards to human health and the environment.

Example: phenol, acids, Dettol which is used for cleaning.

Waste Water: Waste water is defined as that water which has lost its potential to be used for domestic purpose.

Example: Grey water and back water which generated from washrooms and kitchens.

Hazardous Waste: It is a waste which has potential threat to students and teacher's health in the campus.

Example: Chemistry lab i.e., the concentrated chemicals.

E-Waste: It is a generic term used to describe all types of old, end-of-life or discarded electrical and electronic equipment.

Example: Used keyboards, monitors, batteries, damaged bulbs etc.

Scrap Waste: Scrap consists of recyclable materials, usually metals, left over from product manufacturing and consumption.

Example: Cardboards, newspaper, aluminum roofing sheets, and other metallic things etc.

6.1.2. Dry Waste Management

Separate bins are used across the campus for waste collection. Each room (Staff, class rooms, corridors, office, restrooms, and library) is provided with the separate dustbin to segregate waste.

6.1.3. Wet Waste Management

To manage the wet waste produced in the college, which is produced from kitchens of canteens in the campus, from the remains of the tiffin boxes brought by the students, teachers, & staff of the college, separate bins were placed. These wet wastes are collected and disposed through municipal collection agency.

6.1.4. Bio- Waste Management

As part of maintaining hygienic environment for the girl's, the management has provided the sanitary napkin dispenser and sanitary napkin incinerator in the girl's toilet.

6.2. Institutional Initiatives for Waste management

6.2.1. Dust Collection Bins

Dust collection bins are placed at the college premises. The dust collection bins are used to make the segregation easier.

The sample image of dust collection bins is shown in figure 6-1.

Figure 6-1: Dust collection bins

6.2.2. Regular cleaning of campus

Regular cleaning of campus is done to maintain overall hygiene. Cleaning activities are carried out using water and floor cleaning chemicals in bucket and mop. Mopping is done every day.

The sample image of cleaning activity using bucket and mop is shown in figure 6-2.

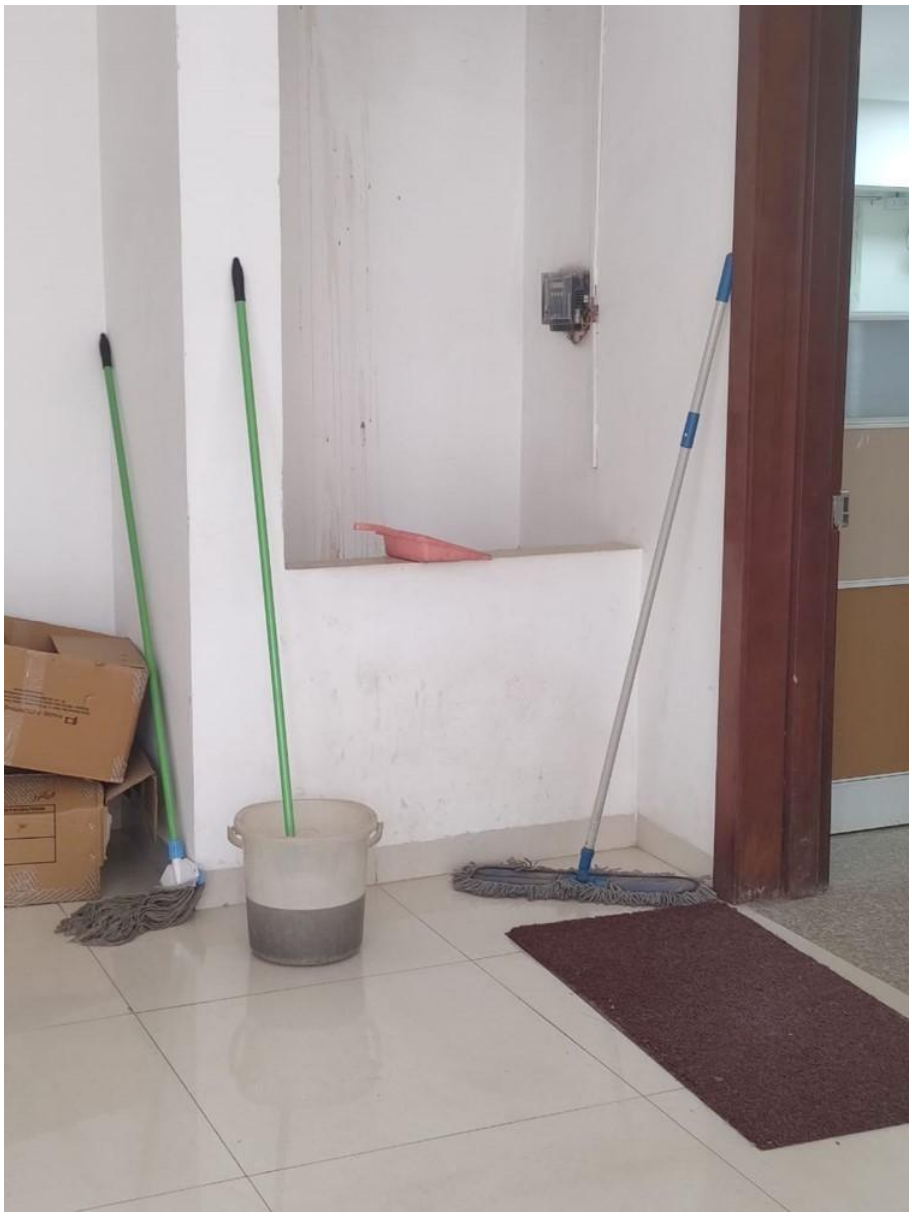
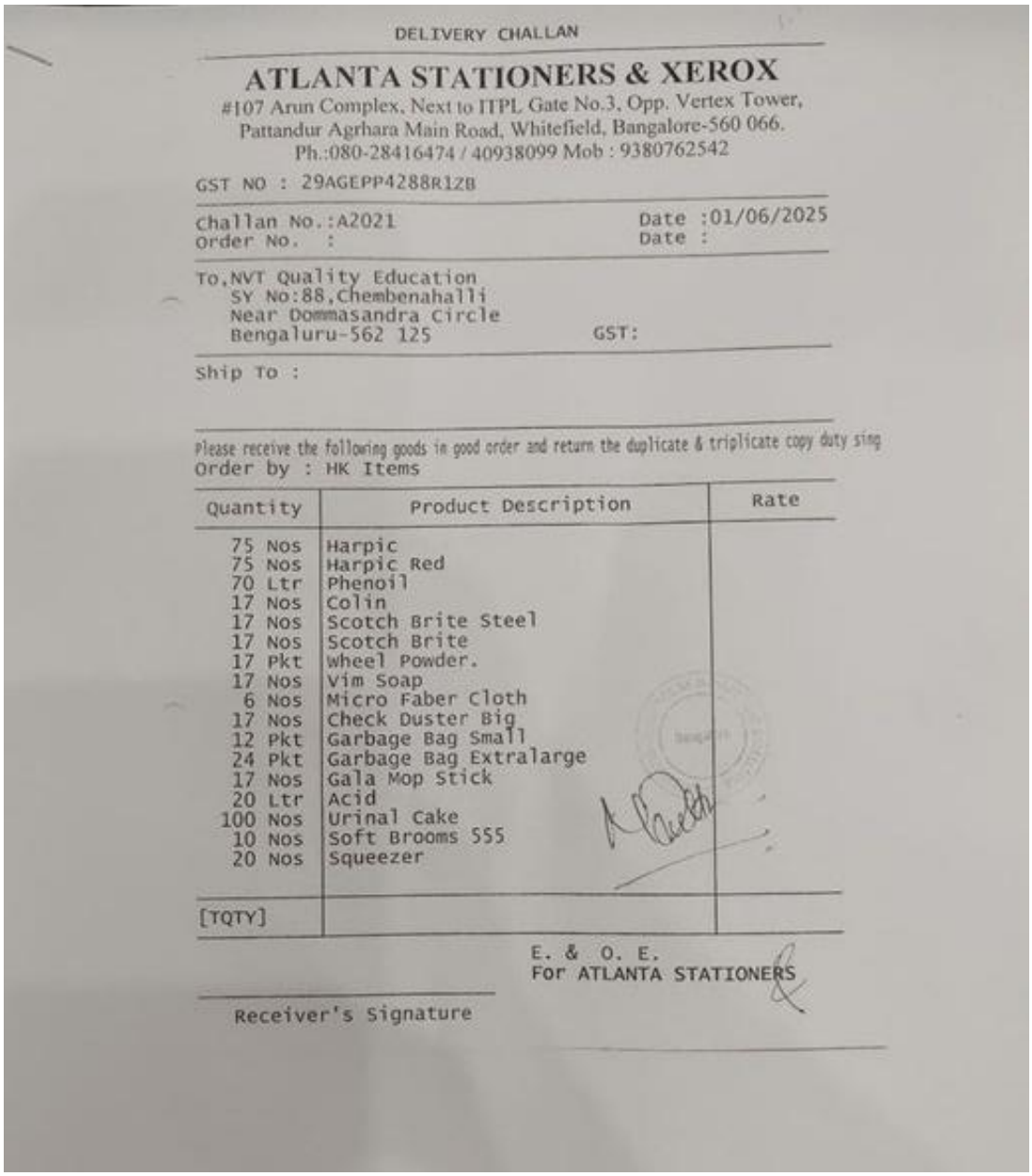


Figure 6-2: Cleaning of floors

6.2.3. Purchase of housekeeping materials

To keep the college campus clean and hygiene, the housekeeping materials like scrub, all-purpose cleaner spray, phenyls, acids, mops, garbage bags, chemical disinfectants, broom sticks, and waste bins are purchased regularly.

The purchased housekeeping materials are distributed to housekeeping staffs to carry out the cleaning activity. The sample image of purchase bill for housekeeping materials is shown in figure 6-3.



DELIVERY CHALLAN

ATLANTA STATIONERS & XEROX

#107 Arun Complex, Next to ITPL Gate No.3, Opp. Vertex Tower,
Pattandur Agrhara Main Road, Whitefield, Bangalore-560 066.
Ph.:080-28416474 / 40938099 Mob : 9380762542

GST NO : 29AGEPP4288R1ZB

Challan No.:A2021 Date :01/06/2025
Order No. : Date :

To,NVT Quality Education
SY No:88,Chembenahalli
Near Dommasandra Circle
Bengaluru-562 125 GST:

Ship To :

Please receive the following goods in good order and return the duplicate & triplicate copy duty sing
Order by : HK Items

Quantity	Product Description	Rate
75 Nos	Harpic	
75 Nos	Harpic Red	
70 Ltr	Phenoil	
17 Nos	Colin	
17 Nos	Scotch Brite Steel	
17 Nos	Scotch Brite	
17 Pkt	wheel Powder.	
17 Nos	Vim Soap	
6 Nos	Micro Faber Cloth	
17 Nos	Check Duster Big	
12 Pkt	Garbage Bag Small	
24 Pkt	Garbage Bag Extralarge	
17 Nos	Gala Mop Stick	
20 Ltr	Acid	
100 Nos	Urinal Cake	
10 Nos	Soft Brooms 555	
20 Nos	Squeezer	
[TQTY]		

E. & O. E.
For ATLANTA STATIONERS

Receiver's Signature

Figure 6-3: Purchase bills for housekeeping materials

6.2.4. Bio- Waste Management

As part of maintaining hygienic environment for the girl's, the management has provided the sanitary napkin dispenser and sanitary napkin incinerator in the girl's toilet. The pictures of the same are given in figure 6-4.

Figure 6-4: Sanitary napkin incinerator installed in girls rest room

7. GREEN CAMPUS MANAGEMENT AUDIT

7.1. Facility Description

The institute is a green campus, lavish, serene atmosphere with variety of plants and trees. The students and faculty are encouraged to adopt cleanliness, making the campus garbage and plastic free zone. Tree plantation programs help in encouraging eco-friendly environment, which provides pure oxygen within the institute.

The maintenance team takes care of the up-keeping of the environment and ensures to keep the surroundings clean. They maintain all the plantations by employing the cleanliness and watering regularly.

There are more variety of trees and well-maintained landscaping of lawns. It was observed different types of herbs, shrubs, species of vegetables & fruits and also, some medicinal plantations in the garden area.

7.1.1. Landscaping with Trees and Plants

Landscaping of the college is worth seeing and reflects aesthetic sense. The institute has a canopy of trees and plants to make the environment pollution free to safeguard the health of all the inmates. The trees provide shade and beautiful ambience. Utmost care is taken to develop and maintain green landscaping by trained gardeners and supervisor. The construction and maintenance team constituted in the college looks after the development and maintenance of the greenery in the campus. Photos taken during the audit are shown in figures 7-1 to 7-4.

Figure 7-1: Trees in the college campus




Figure 7-2: Plants in the college campus

Figure 7-3: Lawn area

Figure 7-4: Plantation near ladies hostel

7.2. Institutional Initiatives for Green Campus Management

The maintenance staff members do periodic checks and maintain records for the same. Many initiatives are taken by the management to inculcate the eco-friendly culture among the student community. The green campus provides the facilities such as rain water harvesting, well grown plantations and lawn all around the campus.

- Plastic free campus
- Green landscaping with trees, plants like vegetable, fruits and medicinal plants; lawns
- Paperless office: All communication regarding academics and administration are sent as e-mails and messages to faculty members and students that contributes paperless communication

7.2.1. Regular maintenance of greeneries

The greeneries within the campus are maintained properly with dedicated garden maintenance staff. They proper maintenance like weeding, lawn care and watering etc., The sample image of garden maintenance tools is shown in figure 7-5.

Figure 7-5: Garden Maintenance Tools

7.2.2. Posters on Plastic Ban / Zero Plastic

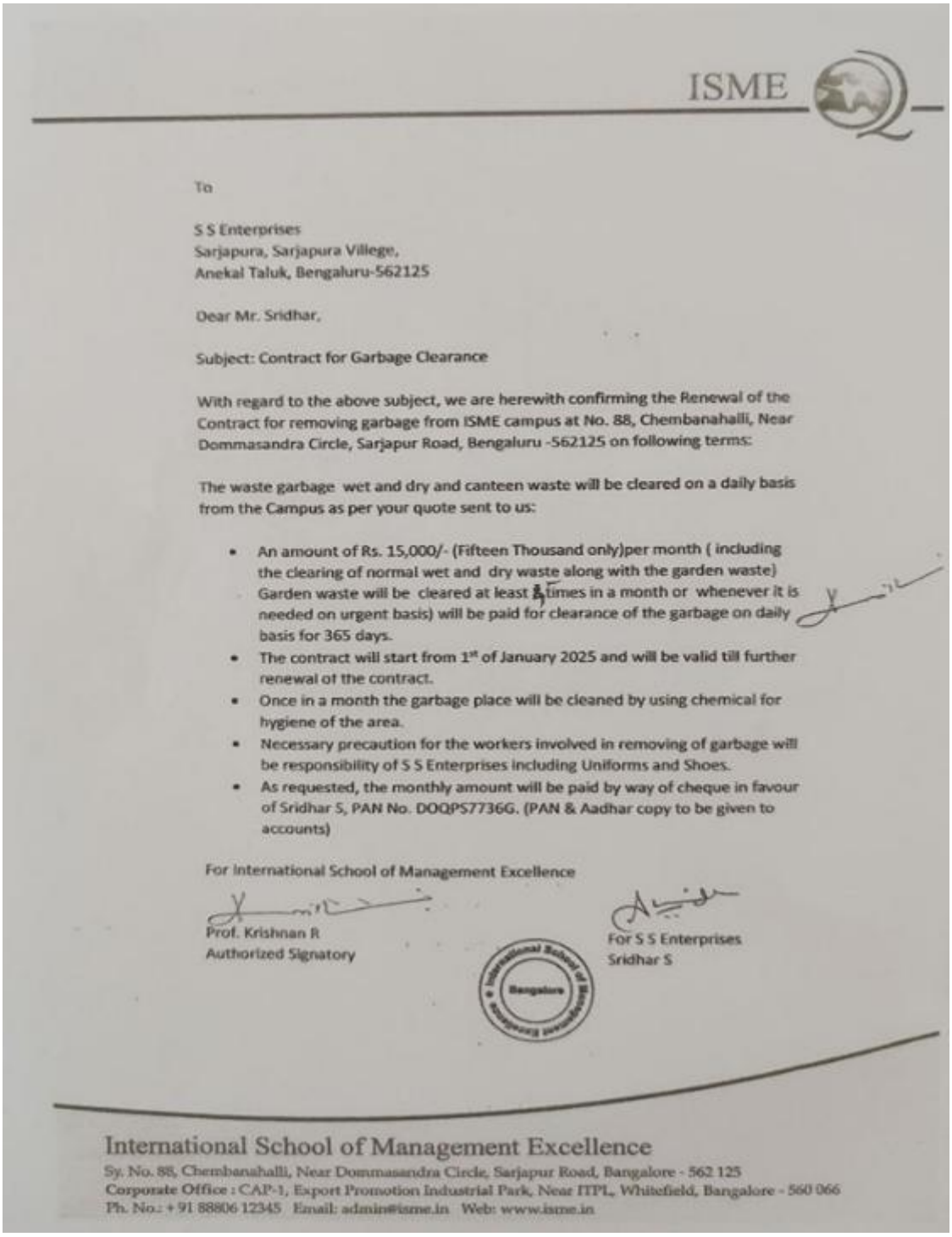
Different posters on 'Plastic Ban/Zero Plastic/Reduce, Reuse & Recycle' were placed in the campus to make students, staff and trespassers aware, the college is Plastic Free zone.

The sample images awareness posters are shown in figure 7-6.

Figure 7-6: Awareness poster

7.2.1. Garbage Clearance

The garbage collected in the college campus is stored in the garbage area. The stored garbage is disposed through third party agency. The college management has made an contract agreement with the third party agency for collection of garbage on daily basis. The copy of the contract is shown in figure 7-7.



ISME

To

S S Enterprises
Sarjapura, Sarjapura Village,
Anekal Taluk, Bengaluru-562125

Dear Mr. Sridhar,

Subject: Contract for Garbage Clearance

With regard to the above subject, we are herewith confirming the Renewal of the Contract for removing garbage from ISME campus at No. 88, Chembanahalli, Near Dommasandra Circle, Sarjapur Road, Bengaluru -562125 on following terms:

The waste garbage wet and dry and canteen waste will be cleared on a daily basis from the Campus as per your quote sent to us:

- An amount of Rs. 15,000/- (Fifteen Thousand only)per month (including the clearing of normal wet and dry waste along with the garden waste) Garden waste will be cleared at least 3 times in a month or whenever it is needed on urgent basis) will be paid for clearance of the garbage on daily basis for 365 days.
- The contract will start from 1st of January 2025 and will be valid till further renewal of the contract.
- Once in a month the garbage place will be cleaned by using chemical for hygiene of the area.
- Necessary precaution for the workers involved in removing of garbage will be responsibility of S S Enterprises including Uniforms and Shoes.
- As requested, the monthly amount will be paid by way of cheque in favour of Sridhar S, PAN No. DOQPS7736G. (PAN & Aadhar copy to be given to accounts)

For International School of Management Excellence

Prof. Krishnan R
Authorized Signatory

For S S Enterprises
Sridhar S

International School of Management Excellence
Sy. No. 88, Chembanahalli, Near Dommasandra Circle, Sarjapur Road, Bangalore - 562 125
Corporate Office : CAP-1, Export Promotion Industrial Park, Near ITPL, Whitefield, Bangalore - 560 066
Ph. No.: + 91 88806 12345 Email: admin@isme.in Web: www.isme.in

Figure 7-7: MoU for garbage clearance

8. ENVIRONMENT AUDIT (CARBON FOOTPRINT ANALYSIS)

8.1. Facility Description

The carbon footprint is "the total amount of greenhouse gas (GHG) emissions caused by an organization, event or product". Global warming and climate change are the foremost environmental challenges facing the world today. It is our responsibility to minimize the consumption of energy and hence reduce the emissions of greenhouse gases.

8.2. Institutional Initiatives for Environment Conservation

8.2.1. Awareness campaign on environment conservation

Management has taken steps to create awareness among students and staff regarding:

- Creating awareness campaigns on Environment Conservation
- Awareness campaigns on avoiding use of plastics

Environment awareness drawing competition is been conducted for the students.

8.2.2. Workshop on trees in Bangalore

The management has conducted various workshop and expert talks to create the awareness among the students in environment conservation and sustainability activities. The picture of expert talk on types of trees available in Bangalore and the benefits is shown in figure 8-1.

Figure 8-1: Expert talk on types of trees available in Bangalore

8.2.3. Installation of SRTPV System

SRTPV (Solar Roof Top Photo Voltaic) system is installed at the terrace in campus building.

The rated capacity of installed SRTPV system is of **84.37 kWp**.

The SRTPV is on-grid system type. During the audit, photo of SRTPV systems are collected and are shown in Figure 8.2.

Figure 8-2: SRTPV Installed at College

8.2.4. Ramp for barrier friendly movement

Wheelchair ramps enable differently-abled as well as elderly people to enjoy complete freedom, as they allow users to move in and around the campus safely. The ramp facility available in college is shown in figure 8-3.

Figure 8-3: Ramp facility at college

8.2.5. Wheel chairs and Washrooms for differently abled persons

Wheelchair ramps, wheel chair and wash room are available for differently abled as well as elderly people. The ramp facility available in college is shown in figure 8-4.

Figure 8-4: Wheelchair and wash room for differently abled

8.2.6. Transport facility for students

The college provides safe and reliable transportation to students. The college operates a fleet of buses which are well connected with the city and provide students, faculty, and staff with the best transportation facilities. Students are picked up and dropped off by the buses on different routes throughout the city.

To ensure the safety and security of all commuters, buses are regularly inspected, checked, and cleaned.

The sample image of transport facility is shown in figure 8-5.

Figure 8-5: Transport facility for students

8.2.7. Day-light Integration

During the audit phase classrooms, Staff-rooms, computer lab, UPS & batteries room and library areas were surveyed for illumination levels and fresh air-circulation. It was observed most of the rooms are well ventilated and day-light integrated; sample photos are shown in figure 8-6.

Figure 8-6: Well-ventilated and day-light integrated class room and Library

8.2.8. Installation of LED lights

In the campus, LED fixtures are used to conserve energy. LED fixtures are used in the class rooms, staff-rooms, seminar hall corridors, hostel, dining area, etc. Sample photo of LED lamp used in the some of the locations of the college area are shown in figure 5-8 and sample LED purchase bill is shown in figure 8-7.

Figure 8-7: LED lights installed in Campus

8.2.9. Installation of Solar Water Heater

Solar water heaters are installed in hostel for generating hot water. Sample photo of solar water heater used in the campus are shown in figure 8-8.

Figure 8-8: Solar Water Heater

The cost savings by installation of solar water heater are given in table 8-1.

S. No.	Description	Unit	Values
1	Solar water heater installed	L	3000
2	Total amount of heat produced	kCal/hr	90000
3	Electricity equivalent	kWh	104.7
4	No. of working days per year	days	250.0
5	Annual electricity savings	kWh	26162.8
6	Average electricity cost	Rs./kWh	8.25
7	Annual cost savings achieved per year	Rs. lakh/year	2.2
8	CO2 mitigations per year	Tons/year	22.2

Table 8-1: Annual cost savings by installation of Solar Water Heater

9. ANNEXURES

9.1. Data Collection Questionnaire

A questionnaire is a checklist used as the primary tool for the collection of data / information in a systematic manner that enables to perform the audit.

9.1.1. General information of the college:

General information of the college needs to be collected to get an overview of the campus for the walk-through purpose. It includes a set of questionnaires as given below.

1. Previous NAAC Grading's:

Previous NAAC Grading's of the college was collected from table 9-1.

S. No.	Phase	Grade	CGPA/Percentage	Year of Acc.	Acc. Period
1	I				
2	II				
3	III				

Table 9-1: NAAC grading's Table

2. Internal Quality Audit Team : 2020 – 2021

Table 9-2 depicts the format for the collection of Internal Quality Audit team.

S. No.	Name	Designation	Role
1			
2			
3			

Table 9-2: Internal Quality Audit team

3. General Information of the college

General information of the college includes an address of college and head office, contact person details, year of establishment etc., as given in table 9-3.

S. No.	Description	Details
1.	Name of the College and address:	

S. No.	Description	Details	
1.a	Head office address:		
2.	Telephone/Fax No		
3.	Co-ordinating officer:	Name:	
		Mob:	
		Email:	
4.	Year of Establishment:		
5.	Hostel (Available/Not Available)		
6.	No. of Working days/year		
7.	Brief description of Campus		

Table 9-3: General information of the college

4. College Infrastructure

Infrastructure details of the college were gathered from table 9-4.

S. No.	Description	Details
1	Block Name	Class rooms
		Labs
		Staff rooms
		Wash rooms
2		
3		

Table 9-4: Detail Infrastructure of the college

5. Details of Student clubs
6. Details of cells that support students
7. Tentative Schedule of a working day:

a. No. of working days per year:

b. List of holidays:

8. Total area of the campus

9. Details of List of Departments and Courses (Faculty wise)

The total number of department, laboratories, conference hall, Libraries, Auditorium, and Cafeteria are obtained from table 9-5.

S. No.	Description	Details
1	Department	
2	Laboratories	
3	Conference Hall	
4	Libraries	
5	Auditorium	
6	Cafeteria	

Table 9-5: Details of the departments

10. Number of staff

Teaching, non-teaching, supporting staff with a male and female breakup is obtained from table 9-6

S. No.	Teaching Staff		Non-teaching Staff		Support Staff (Security, House Keeping)	
	Male	Female	Male	Female	Male	Female

Table 9-6: Details of the Staff

11. Number of Students

Number of students is collected from table 9-7.

S. No.	Boys	Girls
1		

Table 9-7: Details of the Students

12. Additional infrastructure details have been collected from table 9-8.

S. No.	Description	Details	
1.	Number of blocks available for boys hostel	Nos.	
2.	Number of rooms available for boys hostel	Nos.	
3.	Number of blocks available for girls hostel	Nos.	
4.	Number of rooms available for girls hostel	Nos.	
5.	Whether Laundry is available in the hostel	Yes / No	
6.	If Yes List the Electrical Equipment in Laundry Section of the hostel (like Washing machine, Dry Cleaning Machine, Iron)		
7.	Whether gym/ indoor sports hall is available in hostel	Yes / No	
8.	Whether Solar PV based Power Generation is available in campus (academic or hostel block)	Yes / No	
9.	Whether lifts available in academic block	Yes / No	
10.	Whether Kitchen is available in the academic block	Yes / No	
11.	Whether any food counter (outside caterers) available in academic block	Yes / No	
12.	Whether any commercial shops available in academic block	Yes / No	
13.	Any more information or additional details of academic block you would like to share – kindly elaborate here		

Table 9-8: Details of the departments

9.1.2. Water Audit details:

1. General information

General information required for water management analysis is collected from table 9-9.

S. No.	Description	Details
1	Source of water	
2	Types of water	

S. No.	Description	Details
3	No of Wells	
4	No of motors used	
5	No of bore wells	
6	Rating of the motors in HP	
7	Depth of each bore-well	
8	Water level of bore well	
9	Number of water tanks (overhead & underground tanks)	
10	Capacity of overhead tank	
11	Capacity of underground tank	
12	Quantity of water pumped every day	
13	Any water wastage of water /why?	
14	Water usage for gardening	
15	Waste water sources	
16	Use of waste water	
17	Faith of waste water from labs	
18	Whether waste water from labs mixed with ground water?	
19	Any treatment method available for lab water?	
20	Whether any green chemistry method practiced in labs?	
21	Total number of water coolers	
22	Whether Rain water harvesting system available?	
23	Whether Sewage Treatment Plant (STP) is available?	
24	List of equipment installed in STP (If S.No.23 is Yes)	
25	Whether Solar Hot Water System is available in the campus	
26	Number of units and amount of water harvested	
27	Any leaky taps in the campus	
28	Amount of water lost per day	
29	Any water management plan used?	
30	Any water-saving techniques followed?	
31	Are there any signs reminding peoples to turn off the water?	
32	No. of water flow meters available	

S. No.	Description	Details
33	Method of water consumption monitoring	
34	Breakup of daily water consumption	
35	Attach Month wise water bill for last 2 years	
36	Please attach recent water quality test reports for Bore well water, Drinking Water and STP processed water.	
37	What are the sources of hot water	
38	What are the usage areas of hot water	

Table 9-9: Water management details

2. STP information

STP details are collected from table 9-10

S. No.	Description	Details
1.	Number of STP plants installed	
2.	Capacity of STP	
3.	Technology of STP	
4.	Year of Installation	
5.	Schematic / Layout of STP	
6.	Water flow meters installed	
7.	Quantity of Sludge	
8.	Disposal of Sludge	

Table 9-10: Details of STP

3. RO Plant information

RO Plant details are obtained from table 9-11.

S. No.	Location	Quantity	Capacity
1.			
2.			
3.			

Table 9-11: Details of RO Plant

9.1.3. Energy consumption details:

1. Energy consumption details:

The energy consumption details required for the audit is collected, the brief format of the same is given in table 9-12.

S. No.	Type	Units		Value	Cost in Rs.
1	Electricity	kWh	2019		
			2020		
2	LPG	Cylinders			
3	Diesel	Litres (Month wise consumption for the last two years)			
4	Others resources (Please specify)				
5	Total connected load	kW			
6	Contract demand	kVA			
7	Maximum demand recorded	kVA			
8	Average power factor				
9	Energy charges	Rs./kWh			
10	Demand charges	Rs./kVA			
	*** Attach Electricity Bill Copy of last 2 years**				

Table 9-12: Details of Energy consumption

2. Solar Energy details:

The solar energy details required are collected from table 9-13.

S. No.	Building No./ Name	Solar water Heater			Solar PV System		
		Capacity	Working / Not working	Year of Installation	Capacity	Working / Not working	Year of Installation

Table 9-13: Details of Solar Energy

3. Solar Street lights details:

a. Quantity -

b. Capacity -
c. Year of Installation –

4. Electrical Equipment details:

Electrical Equipment like transformers DGs UPS Capacitor Bank, AC, Computers, water coolers, fans, exhaust fans are obtained from the table 9-14.

S. No.	Description	Details	
1.	Number of Transformers Installed	Nos.	
2.	Number of Electrical Panels / Electrical Panel Rooms	Nos.	
3.	Whether Diesel Generator Set Backup Power is Available	Yes / No	
4..	How many number of DG Sets available in the campus (If S.No.3 is Yes)	Nos.	
5.	Whether UPS is available for labs, computers and/or any equipment	Yes / No	
6.	Number of UPS installed with location and capacity (If S.No.5 is Yes)	Nos.	
7.	Whether Capacitor Banks is installed in the electrical panel rooms	Yes / No	
8..	Whether Air Conditioning Units have been installed in the campus	Yes / No	
9.	Type of AC units (split, cassette or packaged) available, capacity and installed location (If S.No.8 is Yes)	Nos.	
10.	Total number of computers available in the campus	Nos.	
11.	Type of computer monitors available (CRT, LCD, LED)	Nos.	
12.	Whether water coolers are installed in the academic blocks	Yes/No	
13.	Type of lamps (Fluorescent Tube Light, CFL, LED, Incandescent, Sodium / Mercury lamps, etc.,) installed in the campus	Nos.	
14.	Type of fans (ceiling, wall mount, standing, exhaust, etc.,) installed in the campus	Nos.	
15.	Whether exhaust fans are installed in hostel / kitchen.(If Yes, share the quantity and installed location)	Yes /No	
16.	Any other electrical equipment's in college buildings.		

Table 9-14: Details of Electrical Equipment

5. List of energy saving initiatives implemented
6. List of energy saving initiatives in plan for future

9.1.4. Waste management details:

Waste management includes the activities and actions required to manage waste from its inception to its final disposal. The various data/ information required for the assessment of waste management is as collected from the following set of questionnaires.

1. Basic information

Basic information for waste management is collected from table 9-15.

S. No.	Description	Yes/ No
1	Whether wet and dry garbage segregation is done inside the campus?	
2	Whether garbage is given to external agencies / municipal agencies?	

Table 9-15: Basic details of waste management

2. Types of Waste generated

Types of waste generated in the college are obtained from table 9-16.

S. No.	Description	Yes / No	Remarks
1	E-Waste (Computers, electrical and electronic parts)		
2	Hazardous / Chemical Waste		
3	Solid Waste (Damaged furniture, paper waste, paper plates)		
4	Dry Leaves		
5	Food Waste		
6	Waste Water (Washing, urinals, bathrooms)		
7	Glass Waste (Broken glass wares from the labs)		
8	Unused Materials		
9	Plastic Waste (Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc.)		

Table 9-16: Types of waste generated

3. Segregation of waste

Segregation of waste information at different locations with quantity is gathered from table 9-17.

S. No.	Location	Bio-degradable	Non-Biodegradable	E-waste	Quantity, kgs/month
1	Office				
2	Labs				
3	Cafeteria / Kitchen				
4	College				

Table 9-17: Segregation of waste

4. Waste generation management

Waste generation management of the college was collected from table 9-18

S. No.	Description	Yes / No	Remarks
1	Composting / Vermicomposting		
2	Recycling		
3	Reusing		
4	Other ways		

Table 9-18: Waste Disposal methods

9.1.5. Green campus management details:

1. Total number of plants and trees

The total number of plantations, garden area, and many more are collected as per the set of questionnaires given in table 9-19

S. No	Description	Details
1	Total number of plant species identified	
2	Total number of plants on the campus	
3	Total number of Trees on the campus	
4	Garden area inside the college –	
5	Total number of medicinal plants /trees on the campus	

6	Total number of vegetables and fruits plantation in the campus	
7	Whether display boards are given to plants and trees for identification	
8	Does Institute celebrate World environment day?	
9	Does Institute celebrate World water day?	
10	Does Institute celebrate World ozone day?	
11	Does Institute celebrate World Earth day?	
12	Total number of aquatic water plants	

Table 9-19: List of plantation details

2. List of plants/ trees

List of plants/ trees with their scientific names obtained from table 9-20.

S. No.	Common/Local Name	Scientific name	No. of Trees/Plants

Table 9-20: List of plants/trees in campus

9.1.6. Carbon footprint management details:

The carbon emission from various activities such as transport, diesel generator usage, LPG consumption, and electricity consumption were collected, as per table 9-21.

S. No	Description	Details
1	Whether college provides transport facility for staff and students (Yes/No)	
2	Number (or Percentage) of staff using transport services provided by college	
3	Number (or Percentage) of students using transport services provided by college	
4	Number (or Percentage) of Staff using public transport	
5	Number (or Percentage) of Staff using Bike	
6	Number (or Percentage) of Staff using Car	
7	Number (or Percentage) of students using Public transport	
8	Number (or Percentage) of students using Car	
9	Number (or Percentage) of students using Bike	
10	Number (or Percentage) of students using Bicycles	
11	Average consumption of diesel per month	
12	Average electricity consumption per month	
13	Average LPG consumption per month	

Table 9-21: Details of Carbon footprint management

9.1.7. Photos required for Audit:

1. General Photos

In various sections, different types of photos are required to validate the existence of things, and hence they are collected from table 9-22.

S. No	Description	Details
1	Photos of student's NSS activities	
2	Photos of Safety policy	
3	Photos of the training program on the use of fire extinguishers	
4	Photos of environmental policies adopted by college	
5	Photos of MoUs for Waste management	

6	Photos of any other policies adopted by college		
7	Photos of water test report	Drinking Water	
		STP processed water	
		Bore-well water	
		Other water Sources (Like Tanker water and any other)	
8	Photos of use of Energy efficient devices like fan, bulbs etc.		
9	Photos of LCD/LED monitors used in Labs		
10	Photos of dry and wet waste collection bins		
11	Photos of celebrating World Environment Day		
12	Photos of celebrating World Water Day		
13	Photos of celebrating World Earth Day		
14	Photos of celebrating World Ozone Day		

Table 9-22: List of photos