

**REPORT ON
ENERGY, ENVIRONMENT AND GREEN
AUDIT**



**SULTAN-UL-ULOOM COLLEGE OF PHARMACY
MOUNT PLEASANT, 8-2-249 TO 267, ROAD NO.3, BANJARA
HILLS, HYDERABAD- 500 034, TELANGANA**

AUDIT CONDUCTED AND REPORT PREPARED BY



**NIN ENERGY INDIA PRIVATE LIMITED
JUSA COMPLEX, NEW NO 47, OLD NO 21/2
PONNIAMMAN KOIL STREET, KOTTUR,
CHENNAI-600085
TAMILNADU, INDIA.**

MAY 2023

ACKNOWLEDGEMENT

We thank management of **SULTAN-UL-ULOOM COLLEGE OF PHARMACY** for awarding the Energy, Environment and Green Audit study at their facility at Mount Pleasant, 8-2-249 To 267, Road No.3, Banjara Hills, Hyderabad- 500 034, Telangana to NIN Energy India Private Limited. This report is the result of Energy Audit conducted at **SULTAN-UL-ULOOM COLLEGE OF PHARMACY** from 15/05/2023 to 16/05/2023.

We wish to thank the management of **SULTAN-UL-ULOOM COLLEGE OF PHARMACY** for the support during the audit and for successful completion of the audit.

For NIN ENERGY INDIA PRIVATE LIMITED



(B. SENTHILKUMAR)

ACCREDITED ENERGY AUDITOR (AEA 023)

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ABBREVIATIONS

EE	Energy Efficiency
Dept	Department
EER	Energy Efficiency Ratio
INR	Indian Rupees
KL	Kilo Litre
kWh	Kilo Watt Hour
LED	Light Emitting Diode
LPG	Liquified Petroleum Gas
t CO₂	Tonne Of Co ₂
FTL	Fluorescent Tube Light
TR	Ton of refrigeration
BLDC	Brushless direct current motor

1.0 INTRODUCTION ABOUT GREEN AUDIT

Green Audit is the process of assessing the environmental impact of an organization, process, project, product, etc.

Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation.

2.0 OBJECTIVES

In recent time, the Green Audit of an institution has been becoming a paramount important for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems.

The college has been putting efforts to keep our environment clean since its inception. Therefore, the purpose of the present green audit is to identify, quantify, describe, and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies, and standards.

The main objectives of carrying out Green Audit are:

- To map the Geographical Location of the college
- To document the floral and faunal diversity of the college
- To record the meteorological parameter of college
- To document the ambient environmental condition of weather, air, water, and noise of the college
- To document the waste disposal system
- To estimate the Energy requirements of the college
- To report the expenditure on green initiatives during the last five years

3.0 ABOUT THE COLLEGE

Sultan-ul-Uloom College of Pharmacy was established in 1997 under the aegis of Sultan-ul-Uloom Education Society. Approved by the Pharmacy Council of India (PCI), the All-India Council of Technical Education (AICTE), and affiliated with Jawaharlal Nehru Technological University, Hyderabad (JNTUH). The B. Pharm. programme is accredited by the National Board of Accreditation (NBA) and recognised by the University Grants Commission (UGC) under sections 2(f) and 12(B) of the UGC Act, 1956. The focus has been on quality education and continuous improvement. The institution has continued to exhibit strong academic performance through the efforts of qualified faculty, trained supporting staff, need-based capital investment in sophisticated lab equipment, and above all, the unflinching support of the management of Sultan-ul-Uloom Education Society. The multidimensional efforts provide strong momentum for a secure future in the competitive educational sector. The teaching and non-teaching associates have demonstrated teamwork in carrying out innovations to upgrade the standard of quality improvement in the areas of pharmacy education.

4.0 ABOUT NIN ENERGY INDIA PRIVATE LIMITED

NIN Energy India Private Limited is providing Energy Related services like Energy Audit, Power Quality Audit, Infrared Thermography, Thermal Audit, PAT Monitoring and Verification Audit, PAT Consultancy, Green Building Commissioning, Electrical Safety Audit, Internet of Things, Carbon Foot Printing, etc. We have experienced team and helping the customers to manage and reduce their energy consumption.

We are providing complete Energy Services under one roof at a competitive price. Our team members are having more than 10 years of experience in Energy, Renewable Energy and Environmental Engineering with good Academic background.

Our Team Strength

- Accredited Energy Auditor by Bureau of Energy Efficiency, Government of India
- Certified Energy Auditors by Bureau of Energy Efficiency, Ministry of power
- Certified Measurement and Verification Professionals (CMVP) by EVO
- Certified Level II Thermographer
- Enlisted with Tamil Nādu Energy Development Agency (TEDA) as a system Integrator for Solar PV systems.
- Lead Auditors for ISO 50001 (Energy Management System)
- Lead Auditors for ISO 14064 (Green House Gas inventory and verification)
- Lead Auditors for ISO14000 (Environmental Management System)

4.1 AUDIT TEAM

The NIN Energy India private Limited team did the green audit assessment in the college. Team details are as follows.

Name	Designation
Mr. B SENTHIL KUMAR	<ul style="list-style-type: none">Accredited Energy Auditor by Bureau of Energy EfficiencyISO 50001:2018 Lead AuditorISO 14064 Lead AuditorISO 14001 Lead Auditor
Mr. T. KARTHIKEYAN	Certified Energy Auditor by Bureau of Energy Efficiency
Mr. S HARISHRAGAVENDHAR	Sr. Engineer
Mr. M. ABILASH	Sr. Engineer

4.2 INSTRUMENTS USED FOR THE AUDIT

Instruments used in the Green Audit are as follows.

S. No	Name of the instrument
1	Air quality meter
2	Noise meter
3	Lux meter
4	Thermal Imager
5	Clamp meter
6	Power analyser- Hioki

5.0 LOCATION OF THE INSTITUTION

The college is located in Banjara Hills, Hyderabad, Telangana- 500 034

Latitude: 17.4279° N

Longitude: 78.4436° E

6.0 ENVIRONMENTAL AUDIT

Carbon footprint is the total sum of greenhouse gases (GHG) emission caused by an organization, event, product, or person. As we are aware, the increasing concentration of GHGs in the atmosphere can accelerate climate change and global warming, it is very necessary to measure these emissions from our day-to-day activities. The first step towards managing GHG emissions is to measure them. There are some standards and guidelines to measure GHG emissions like GHG protocol, ISO 14064, the more comprehensive one Life Cycle Assessment (LCA), and market-based mechanisms. Out of them, ISO 14064 is an offset protocol and independent, voluntary GHG project accounting standard helps to quantify GHG emission of the organization, event, product, or person.

Our day-to-day activities are dependent on electricity which is mostly coming from coal-based power plants, Diesel and Petrol for our vehicles and LPG for cooking in our kitchen. All the energy we use is derived from these fossil fuels which are GHG intensive. The following methodology helps you to calculate your carbon footprint resulting from the use of Electricity, Petrol, Diesel, and LPG.

Floristic status of the institution:

The Current situation of planted trees are as follows:

S.NO	TYPE OF TREES	TOTAL NO OF TREES
1	No of matured trees (Age more than 10 years)	80
2	No of Semi matured trees (Age below 10 years)	100
3	No of plants/herbs/Shrubs	1000
4	No of medicinal plants	50
5	Other plants details	15

Carbon absorption by flora in the Institution

Carbon absorption capacity of one matured tree = 6.8 kg of CO₂. Carbon absorption capacity of one full grown tree = 3.4 kg of CO₂. In bushes it absorbs an average of 200 g of CO₂. The carbon absorption capacity of a 10-sq.ft. area of lawn is 1 g CO₂.

1. Therefore, the carbon absorption capacity of 80 matured trees in the campus of the Institution ($80 \times 6.8 \text{ kg CO}_2/\text{Annum}$) = 544 kg of CO₂/Annum.
2. The carbon absorption capacity of 100 semi-grown trees in campus of ($100 \times 3.4 \text{ kg CO}_2/\text{Annum}$) = 340 kg of CO₂/Annum.
3. There are 1000 bushes of various species being raised in the gardens of the Institution, total carbon absorption was calculated to be ($1000 \times 200 \text{ g CO}_2/\text{Annum}$) = 200 kg of CO₂/Annum

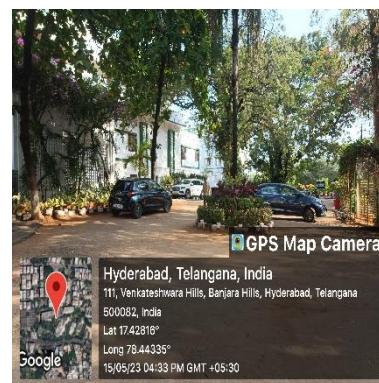
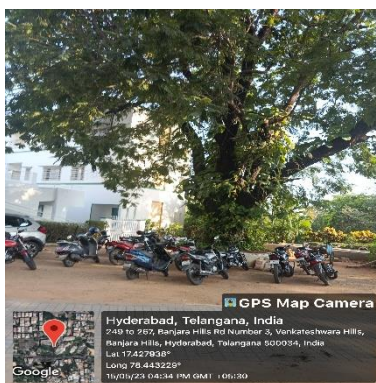
The grand total of carbon absorption by the flora in the campus is 1084 kg per year.

Description	Unit	Values
Annual Emissions from Electricity, tCO2	tCO2 /year	123
TOTAL EMISSIONS FROM FACILITY	tCO2 /year	123
Carbon absorption by mature trees, semi mature trees, bushes, and lawns	tCO2 /year	-1.08
Net carbon emission of the campus	tCO2 /year	121
Carbon reduction opportunities by energy saving projects	tCO2 /year	34
Estimated Carbon Emissions after implementing the Energy Saving Projects	tCO2 /year	88

7.0 TRANSPORTATION AT COLLEGE

Sultan-UI-Uloom College of Pharmacy staff and students commute in their own vehicles. The college provides its students and staff with all the comfort and convenience they need to arrive at work and class on time. The students are encouraged to use bicycles, which have two wheels rather than four, which leads to fuel savings and reduces the contribution of pollutants to the atmosphere. Student and staff vehicles are parked in the parking area earmarked for the front and back sides of the college.

S. No	Description	Details
1	No of Four wheelers used by students	0
2	No of Four wheelers used by staff	7
3	No of Two wheelers used by students	50
4	No of Two wheelers used by staff	30
5	No of people using public transport (Staff)	15
6	No of people using public transport (Students)	500



8.0 GREEN AUDIT

8.1 LAND USE ANALYSIS

GENERAL OVERVIEW OF THE CONCEPT OF LANDUSE

Land use refers to man’s activities and the various uses which are carried on and derived from land. Viewing the earth from space, it is now very crucial in man’s activities on natural resource. In situations of rapid changes in land use, observations of the Earth from space give the information of human activities and utilization of the landscape. Remote sensing and GIS techniques are now providing new tools for advanced land use mapping and planning. The collection of remotely sensed data facilitates the synoptic analyses of earth system, functions, patterning, and change in the local, regional as well as at global scales over time. Satellite imagery particularly is a valuable tool for generating land use map.

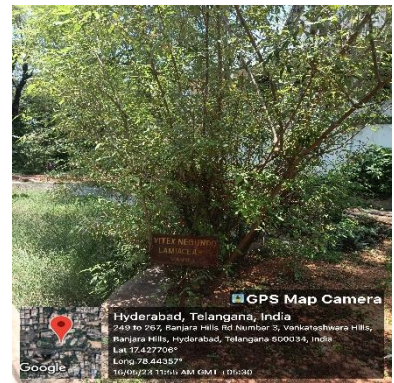
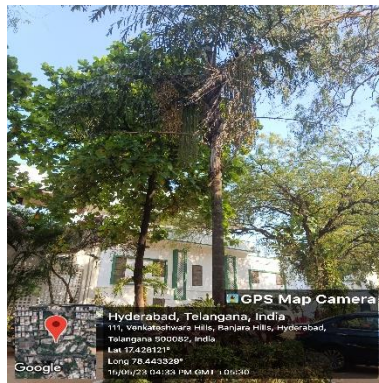
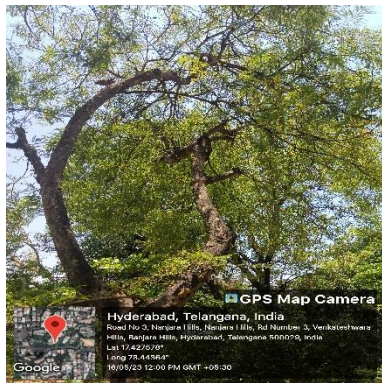
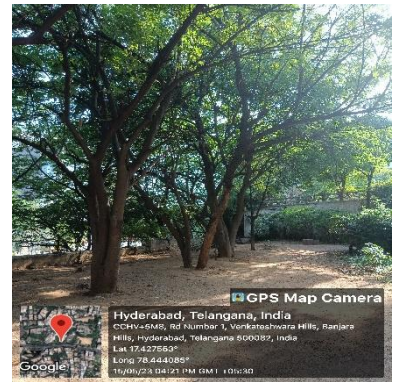
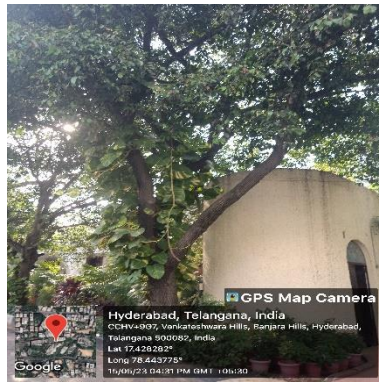
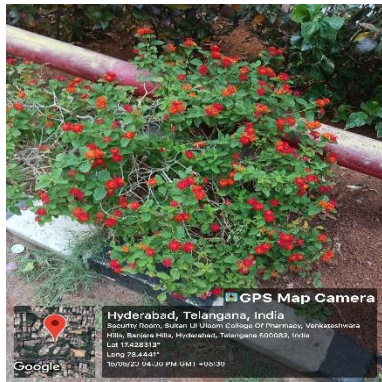
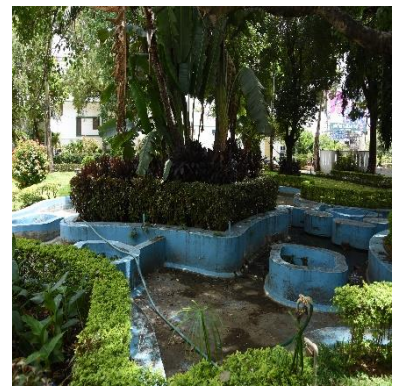
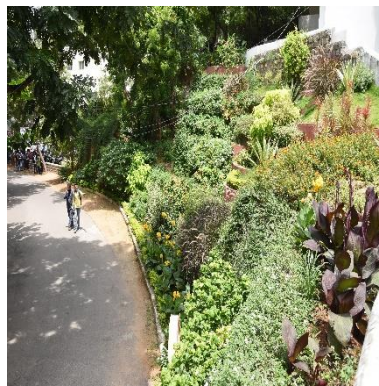
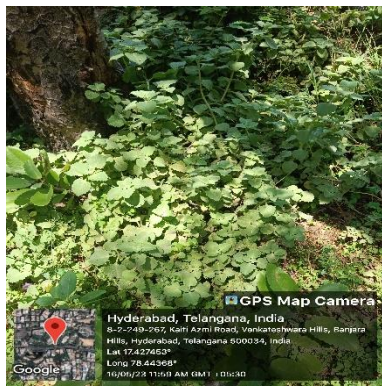


9.0 LAND USE (BUILT UP AREA) ANALYSIS


S. No	Name of the Building	Year of Construction	No of Rooms	No. of Labs	Total Constructed Area (in Sq. Ft.)
1	Pharmacy Block 1	1945	38	15	5486
2	Pharmacy Block 2	2017	7	-	468
3	Pharmacy Block 3	2019	10	2	845
Total Area of Building, m2					631.5






10.0 THE INSTITUTIONAL INITIATIVES FOR GREENING THE CAMPUS ARE AS FOLLOWS



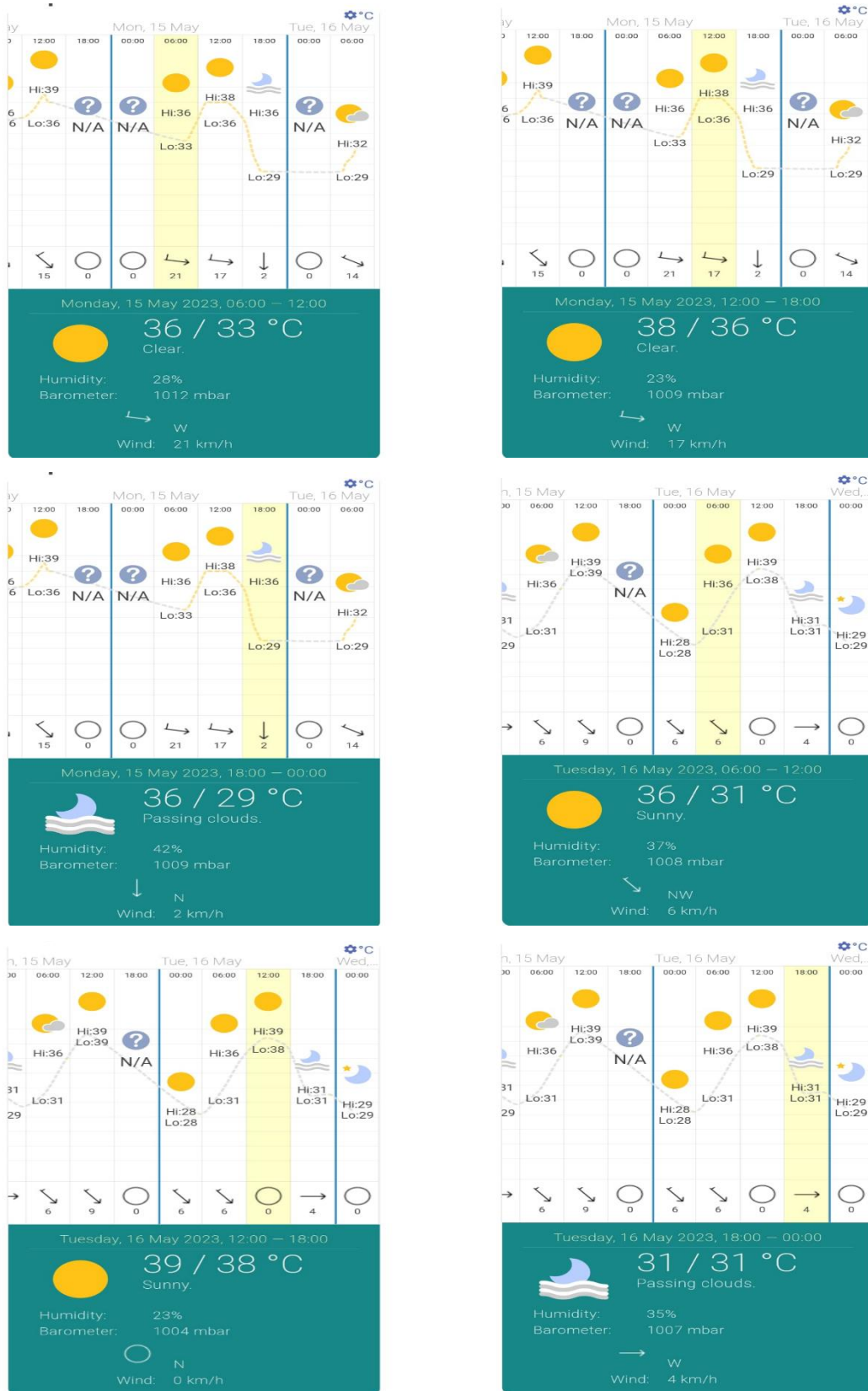
11.0 FAUNAL DIVERSITY IN COLLEGE

S. NO	COMMON NAME	SCIENTIFIC NAME	IMAGES
1.	Pigeon	Columbidae Livia	
2.	white rat	Rattus norvegicus	
3.	Grey Crow	Corvus Tristis	
4.	Green Parrot	Psittacula Eupatria	

S. NO	COMMON NAME	SCIENTIFIC NAME	IMAGES
5.	yellow-billed babbler	Turdoides affinis	
6.	squirrel	Sciuridae	
7.	Myna	Acridotheres tristis	

12.0 WEATHER DATA OF THE COLLEGE

Weather data during the Green Audit period is as follows. (15th May 2023 to 16th May 2023).

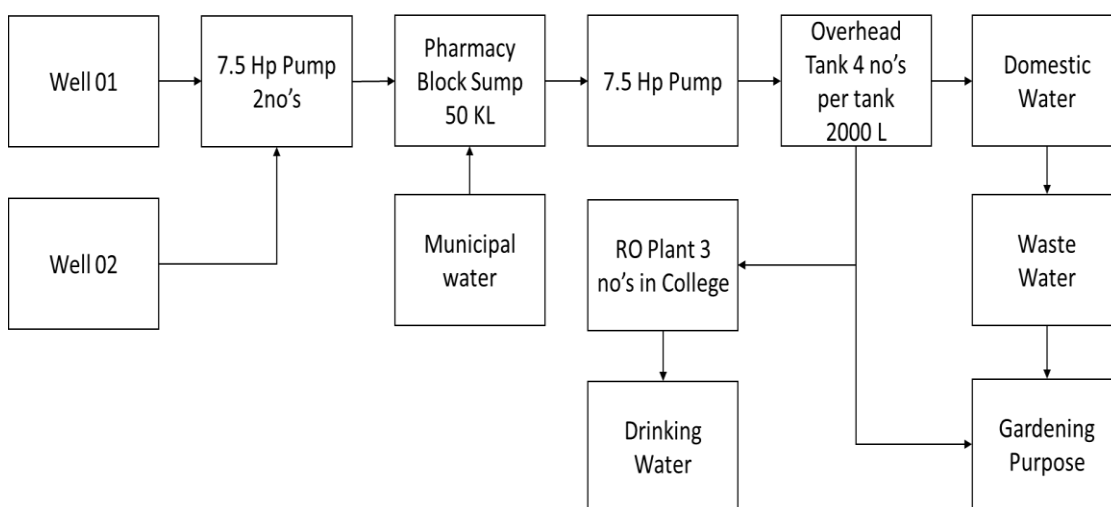


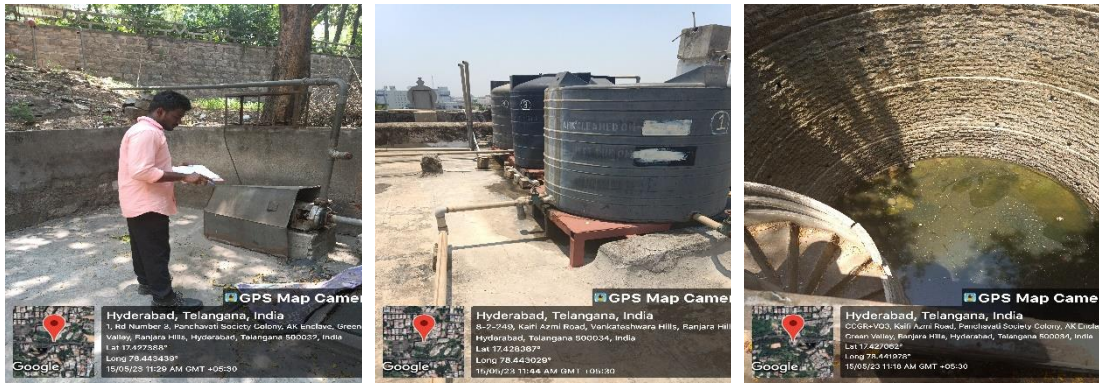
13.0 WATER AUDIT

S. No	Parameters	Response
1	Source of water	Municipal and Wells
2	No of Wells	2
3	No of motors used	3
4	Overall average water consumption in the institution per day (in liters)	6300
5	Average drinking water consumption in the hostel per day (in liters)	No Hostel
6	Average drinking water consumption in the college per day (in liters)	800
7	Average Water consumption for washroom per day (in liters)	4000
8	Average Water consumption for gardening per day (in liters)	1500
9	Any water wastage	No
10	Faith of wastewater from labs	Treated and Circulated to Garden
11	Rainwater harvest available If yes, Mention number of units	5
12	No of Ro plant installed in campus	3

13.1 DIFFERENT SOURCES OF WATER AND QUANTITY RECEIVED ON MONTHLY BASIS AND AREAS OF UTILIZATION

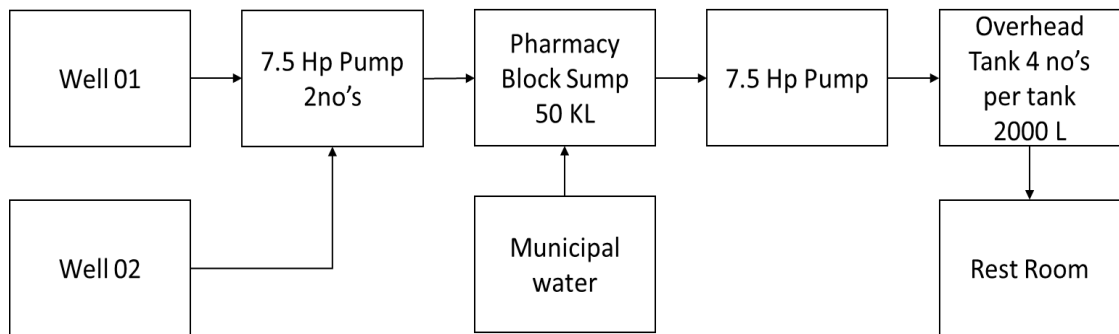
The daily water requirement of the college is provided by a municipal water and two well. water come to the sump, is pumped to the over tank, and is distributed throughout the college.





REST ROOM (TOILETS)

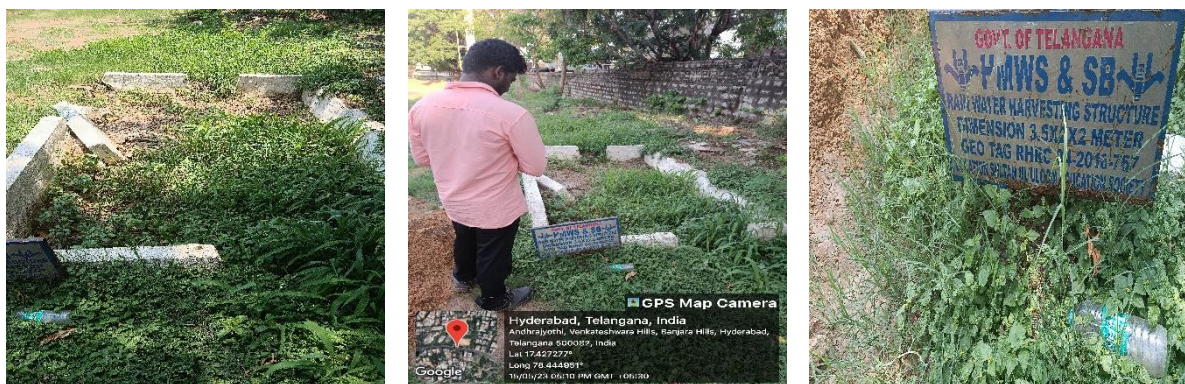
S. No	Description	Details
1	No of rest rooms available in the campus	40
2	Availability of lighting and ventilation facilities	Yes
3	Frequency of cleaning the rest rooms per day / week	Daily Twice
4	Average Water consumption for washroom per day (in liters)	4000



13.2 WATER CONSERVATION FACILITIES AVAILABLE IN THE INSTITUTION

13.2.1 Rainwater harvesting

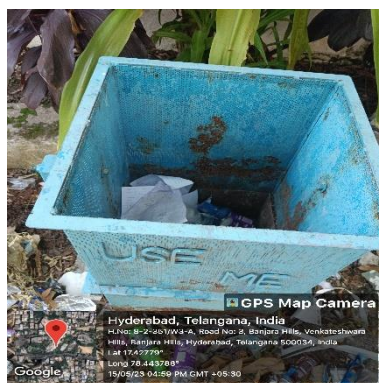
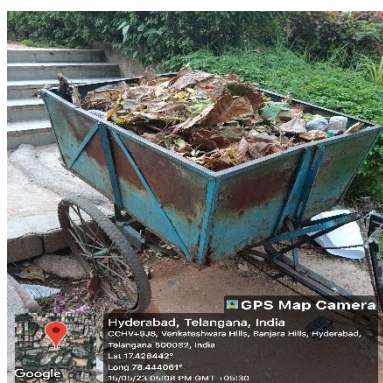
The campus has installed 5 rain harvesting pits. All 5 pits are rechargeable pits.



14.0 WASTE DISPOSAL OF COLLEGE

S. No	Description	Details
1	Waste disposal methods adopted and followed in the campus	Yes
2	Way of disposing normal dry waste in the campus	Dry leaves turn into compost
3	Any steps taken by college for separation of waste	Yes, Dustbin

The college is maintaining dust bins for garbage. Segregated dust bins are placed at different locations throughout the college campus. Also, garbage from different locations is collected on a daily basis in the morning. This garbage is then taken away by the municipal corporation.



14.1 RECYCLING WASTE

Recyclable waste such as newspapers, books, and mixed paper glass bottles, etc. It is stored in labs. Four months once taken away by an approved vendor.



Memorandum of Understanding

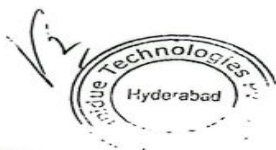
This Memorandum of Understanding is made and executed on 26th of April 2022.

BY AND BETWEEN

- 1) **Rapidue Technologies Pvt. Ltd.** A company registered under companies Act 2013 having its registered office at Flat no. 401, Janardhan Plaza, Lumbini Enclave, Gachibowli Hyderabad - 500032, Telangana, INDIA (hereinafter referred to as **Recykal** which expression shall, unless repugnant to or inconsistent with the context or meaning thereof, be deemed to include its successors and permitted assigns); of the one part.

AND

- 2) **Sultan-ul-Uloom College of Pharmacy**, with address at "Mount Pleasant" 8-2-249 to 267, Road no 3, Banjara Hills, Hyderabad – 500034; which shall,



[Signature]
 HONY. SECRETARY
 Sultan-ul-Uloom Education Society
 "Mount Pleasant", 8-2-249 TO 267, Road No.3,
 Banjara Hills, Hyderabad-500 034.
 T.S. India.

15.0 AIR QUALITY OF THE COLLEGE

The Air (Prevention and Control of Pollution) Act 1981 was enacted by the Central Government with the objective of arresting the deterioration of air quality. The Air (Prevention and Control of Pollution) Act 1981 describes the main functions of the Central Pollution Control Board (CPCB) as follows:

- To Advise the Central Government on any matter concerning the improvement of the quality the air and the prevention, control, and abatement of air pollution.
- To plan and cause to be executed a nation-wide programme for the prevention, control and abatement of air pollution.
- To provide technical assistance and guidance to the State Pollution Control Board.
- To carry out and sponsor investigations and research related to prevention, control and abatement of air pollution.
- To collect, compile and publish technical and statistical data related to air pollution; and
- To lay down and annul standards for the quality of air.

Particulate Matter (PM10 & PM2.5)

A mixture of particles with liquid droplets in the air forms particulate matter. PM 10 are particles that have a size of less than or equal to 10 microns whereas PM2.5 are ultra-fine particles having a size of less than or equal to 2.5 microns.

Sources:

Particulate Matter is released from constructions, smoking, cleanings, renovations, demolitions, constructions, natural hazards such as earthquakes, volcanic eruptions, and emissions from industries such as brick kilns, paper & pulp, etc.

Related effects:

These particles, when inhaled, can penetrate deeper into the respiratory system, and cause respiratory ailments such as asthma, coughing, sneezing, irritation in the airways, eyes, nose, throat irritation, etc.

S. No	LOCATION	Air Quality level		
		PM 1.0	PM 2.5	PM 10
1	Principal Office	17	25	26
2	Principal Room	17	25	25
3	Room No. P1103	20	28	31
4	Computer Lab	17	25	25
5	Room No. P1104	19	21	21
6	Exam Control Office_ Room No. P1105	24	28	29
7	Faculty Room_ No. P1106	23	27	28
8	Society Office	17	24	24
9	Tutorial Room_ No. P1106	19	27	27
10	Seminar Classroom_ Room No. P1108	15	19	21
11	Classroom_ Room No. P1109	15	24	28
12	Classroom_ Room No. P1110	18	25	24
13	PharmD_ First Year.	17	24	25
14	PharmD_ Fourth Year.	18	26	24
15	PharmD_ PB First Year.	17	26	24
16	Seminar Hall.	17	20	24
17	Classroom_ Room No. P2201	21	31	31
18	Classroom_ Room No. P2202	15	21	23
19	Animal House.	19	26	27
20	Ground Floor_ Pharma logy	19	28	28
21	PG Classroom_ Room No. P1204	13	15	21
22	PG Classroom_ Room No. P1203	20	30	30
23	PG Classroom_ Room No. P1205	20	26	27
24	PharmD_ Second Year.	18	28	32
25	PharmD_ Second Year.	19	28	30
26	Pharmacognosy Lab Room No. P1003	28	42	53
27	Pharmaceutics	19	28	30
28	M/C Room No. P1010.	21	34	40
29	Room No. P1004	23	34	40
30	Pharmaceutical Chemical Lab-1	22	35	40
31	Pharmaceutical Chemical Lab-2	20	31	31



16.0 NOISE LEVEL IN THE SURROUNDING OF COLLEGE

THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000

The Principal Rules were published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986.

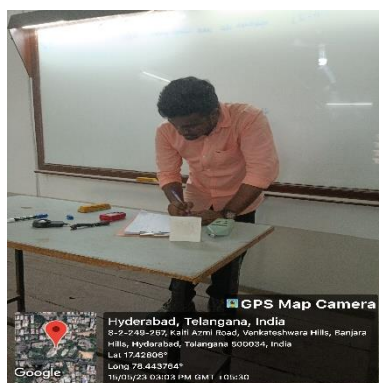
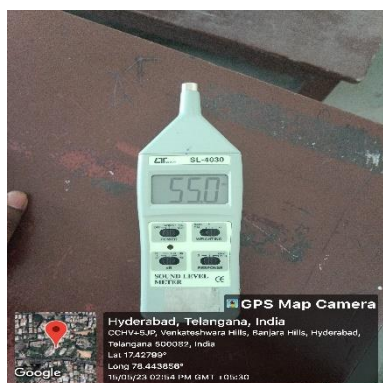
Ambient Air Quality Standards in respect of Noise

Area Code	Category Of Area/Zone	Limits In dB(A) Leq*	
		Day Time	Night-time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note: -

1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night-time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places, or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.
5. * dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
6. A "decibel" is a unit in which noise is measured.
7. "A", in dB(A) Leq, denotes the frequency weighting in the measurement of
8. noise and corresponds to frequency response characteristics of the human ear.

S. No	LOCATION	Noise Level dB
1	Principal Office	59.7
2	Principal Room	60.3
3	Room No. P1103	63.1
4	Computer Lab	57.6
5	Room No. P1104	83.3
6	Exam Control Office_ Room No. P1105	83.1
7	Faculty Room_ No. P1106	82.7
8	Society Office	69.4
9	Tutorial Room_ No. P1106	66.2
10	Seminar Classroom_ Room No. P1108	69.2
11	Classroom_ Room No. P1109	70.6
12	Classroom_ Room No. P1110	56.8
13	PharmD_ First Year.	55.1
14	PharmD_ Fourth Year.	59.8
15	PharmD_ PB First Year.	64.1
16	Seminar Hall.	64.8
17	Classroom_ Room No. P2201	66.9
18	Classroom_ Room No. P2202	66.7
19	Animal House.	59.2
20	Ground Floor_ Pharma logy	59.7
21	PG Classroom_ Room No. P1204	53.6
22	PG Classroom_ Room No. P1203	53.5
23	PG Classroom_ Room No. P1205	62.7
24	PharmD_ Second Year.	67.9
25	PharmD_ Second Year.	51.3
26	Pharmacognosy Lab Room No. P1003	67.8
27	Pharmaceutics	55.8
28	M/C Room No. P1010.	63.1
29	Room No. P1004	69.4
30	Pharmaceutical Chemical Lab-1	64.7
31	Pharmaceutical Chemical Lab-2	75.4



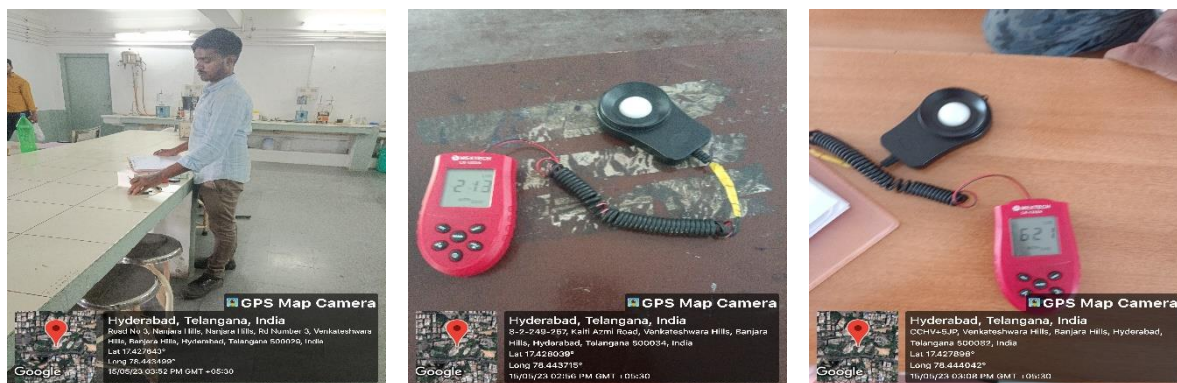
17.0 LUX LEVEL

The lux level survey is carried out in various location of campus by using lux meter and details are as follows.

S. NO	LOCATION	LUX AVERAGE
1	Principal Office	120
2	Principal Room	379
3	Room No. P1103	167
4	Computer Lab	325
5	Room No. P1104	129
6	Exam Control Office_ Room No. P1105	138
7	Faculty Room_ No. P1106	139
8	Society Office	156
9	Tutorial Room_ No. P1106	237
10	Seminar Classroom_ Room No. P1108	229
11	Classroom_ Room No. P1109	202
12	Classroom_ Room No. P1110	199
13	PharmD_ First Year.	361
14	PharmD_ Fourth Year.	599
15	PharmD_ PB First Year.	316
16	Seminar Hall.	178
17	Classroom_ Room No. P2201	397
18	Classroom_ Room No. P2202	540
19	Animal House.	391
20	Ground Floor_ Pharma logy	129
21	PG Classroom_ Room No. P1204	444
22	PG Classroom_ Room No. P1203	52
23	PG Classroom_ Room No. P1205	134
24	PharmD_ Second Year.	655
25	PharmD_ Second Year.	419
26	Pharmacognosy Lab Room No. P1003	186
27	Pharmaceutics	247
28	M/C Room No. P1010.	161
29	Room No. P1004	161
30	Pharmaceutical Chemical Lab-1	146
31	Pharmaceutical Chemical Lab-2	125

Remarks:

In some places lux level is low as per BEE standards. It is recommended to increase the light intensity.



18.0 ENERGY AUDIT

18.1 PRESENT ELECTRICAL ENERGY SYSTEM AND ELECTRICAL BILL ANALYSIS

- The University receives HT EB supply from TSSPDCL.
- Sultan ulu loom of pharmacy receives supply from university.
- The college has paid EB bill yearly once to university.
- Assumed that approximately 25% Bill from university.

Source Of Power Supply	:	TSSPDCL
Electric Power Supply is received from TANGEDCO	:	HT supply
Service number	:	108122140502
Sectional load	:	350
Annual Electricity Consumption of sultan ul uloom of pharmacy, kWh (Approx. 25% from university EB Bill)	:	151310
Avg. Annual Power factor	:	1.00
Unit charges, INR/kWh	:	8.65

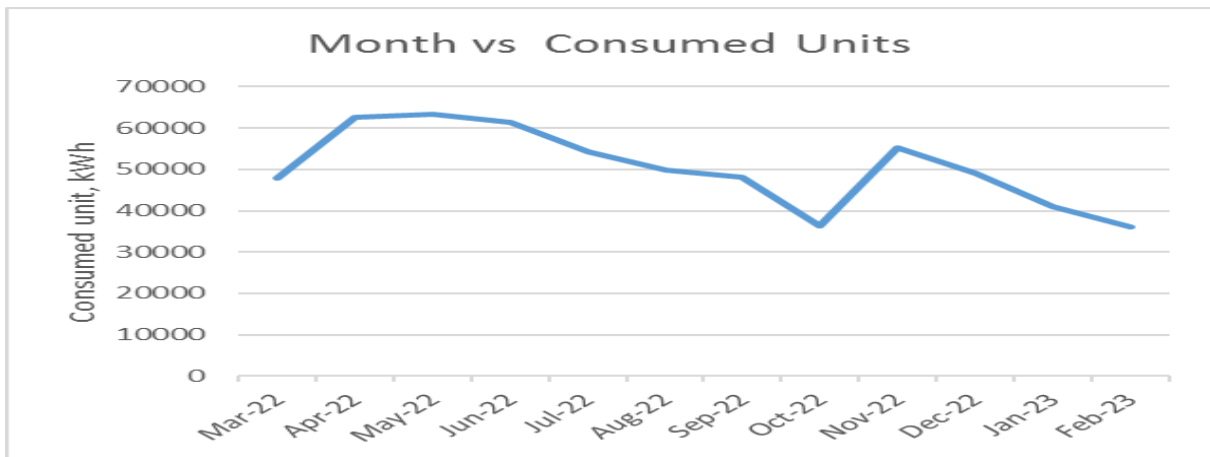
The one-year Electricity Bills for 2022-23 bill has been analysed and details as follows.

Month	Maximum Demand, kW	Excess Demand Penalty	% of Demand Utilization	Power Factor	Consumed Units, kWh	Unit charges, INR/kWh	Current Consumption Charges, INR	Total bill, INR
Mar-22	309	0	88	1.00	47848	7.82	374212	506207
Apr-22	383	28172	109	0.99	62677	8.25	517264	661415
May-22	399	46710	114	0.99	63359	8.86	561510	788190
Jun-22	382	30936	109	0.99	61276	8.86	542916	754427
Jul-22	372	21798	106	0.99	54283	8.88	482028	684846
Aug-22	312	0	89	1.00	49782	8.82	439076	598187
Sep-22	336	0	96	1.00	48188	8.82	425101	595577
Oct-22	286	0	82	1.00	36407	8.82	321059	466474
Nov-22	312	0	89	1.00	55251	8.83	487625	649488
Dec-22	350	0	100	1.00	48996	8.82	432344	609970
Jan-23	280	0	80	1.00	41102	8.45	347292	489378
Feb-23	280	0	80	0.99	36070	8.59	309883	450666

Remarks:

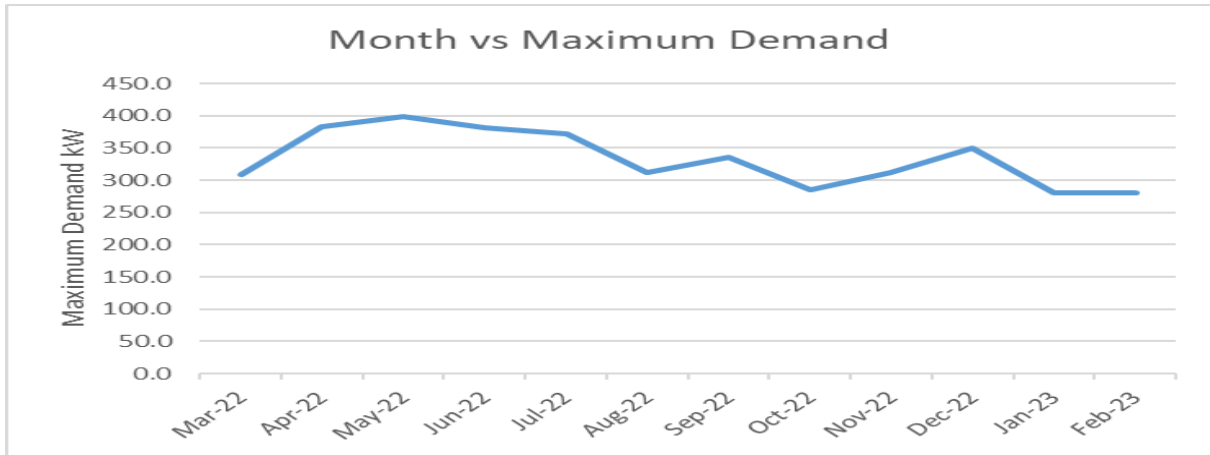
- The university has paid penalties for April, May, June, and July months.
- The average percentage of demand utilization is 97. Maximum demand utilized by the month of May 2022.
- The average power factor maintained by campus is 0.99 which is good.

The units, kWh consumed over the period of one year is shown below.



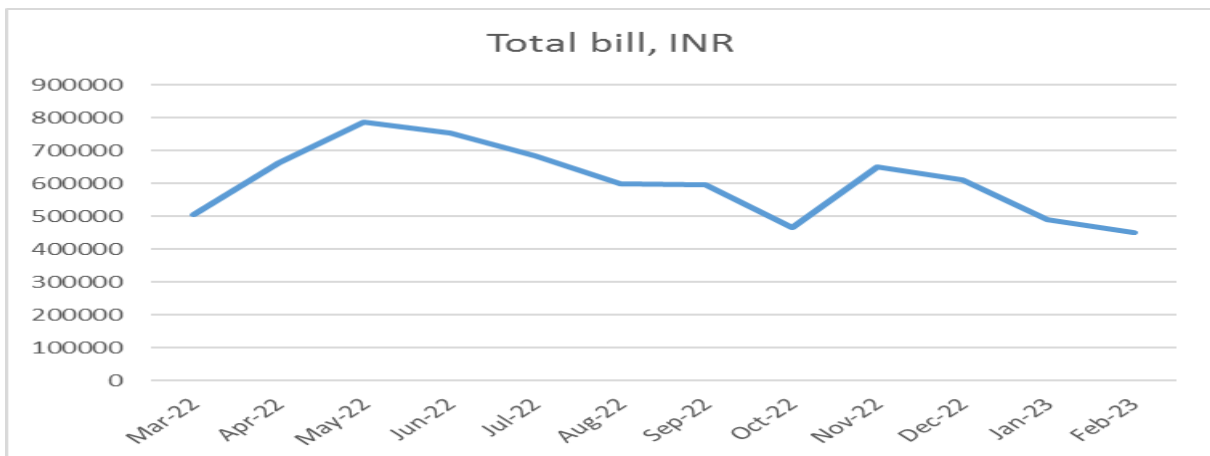
The maximum unit is consumed in the month of May 2022 and minimum unit is consumed in the month of February 2023.

The recorded demand over the period of one year is shown below.



The recorded demand is maximum in the month of May 2022 and minimum in the month of February 2023.

The bill details over the period of one year is shown below.



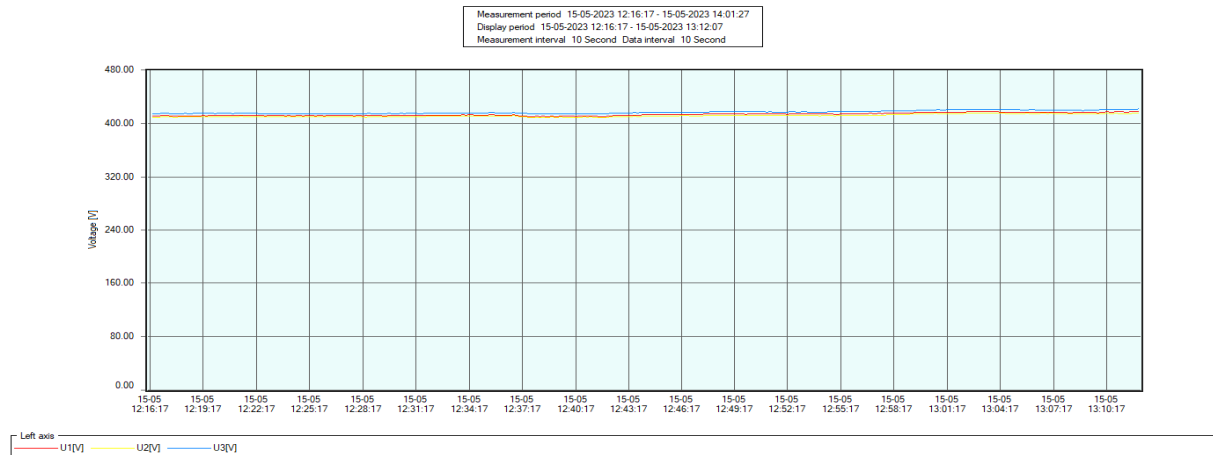
The maximum bill is paid in the month of May 2022 and minimum unit is consumed in the month of February 2023.

18.2 POWER QUALITY STUDY

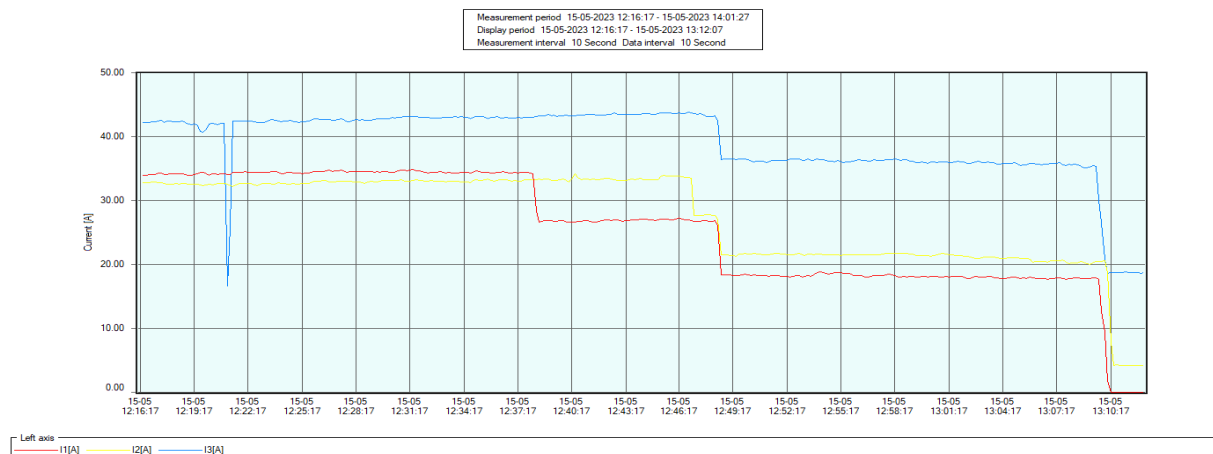
The power quality study has been carried out at the main incomer panel using Hioki power analyser.

The following details are as follows:

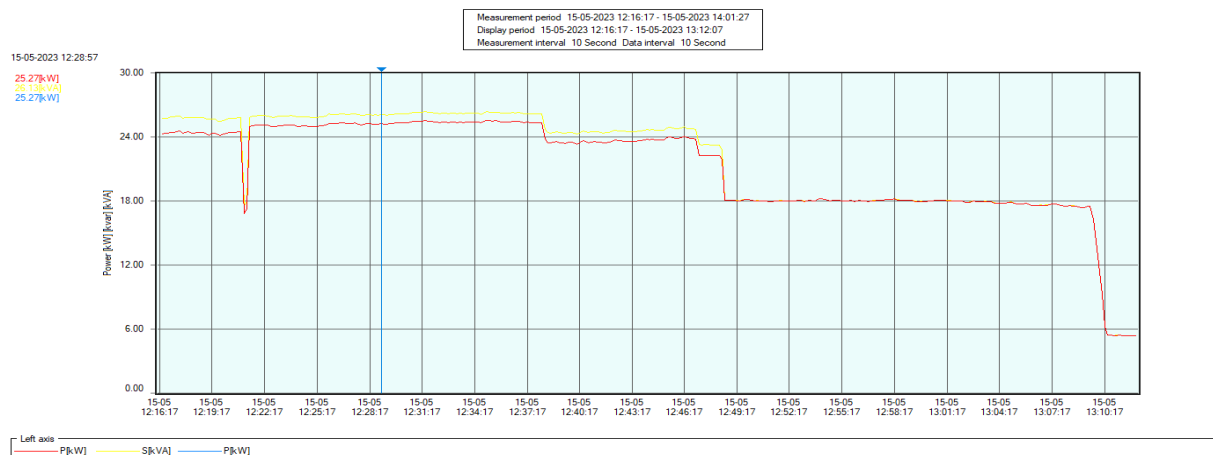
Voltage profile



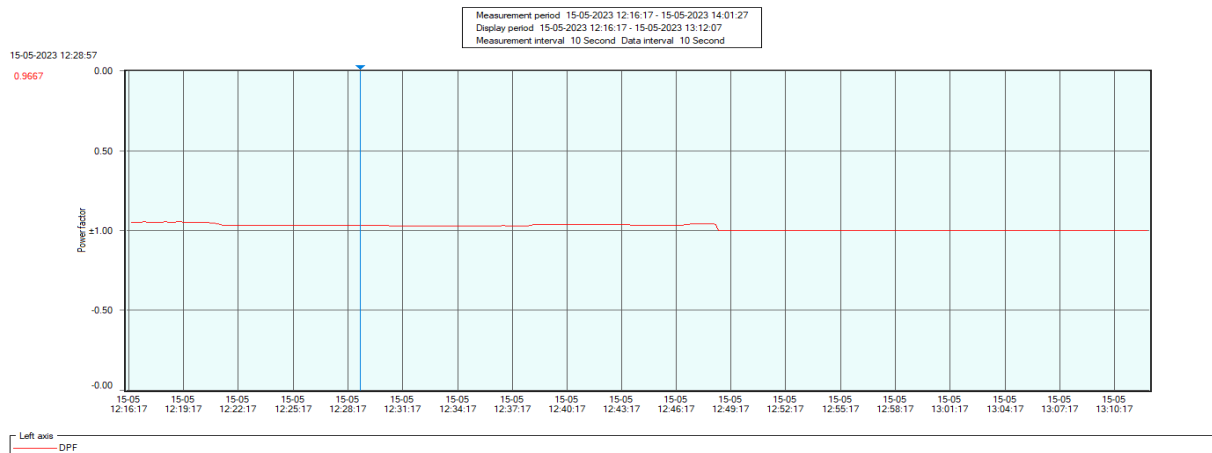
Current profile



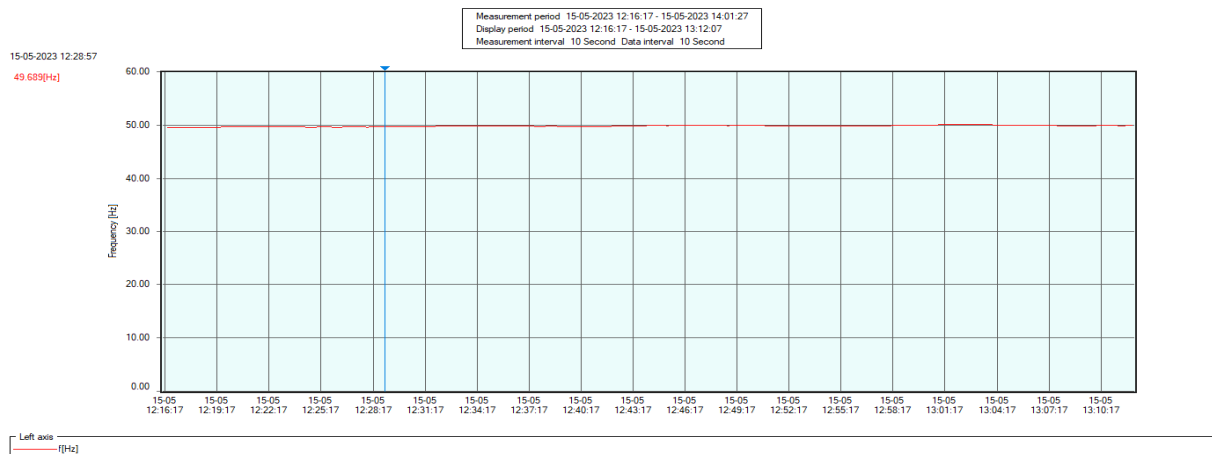
Load Profile



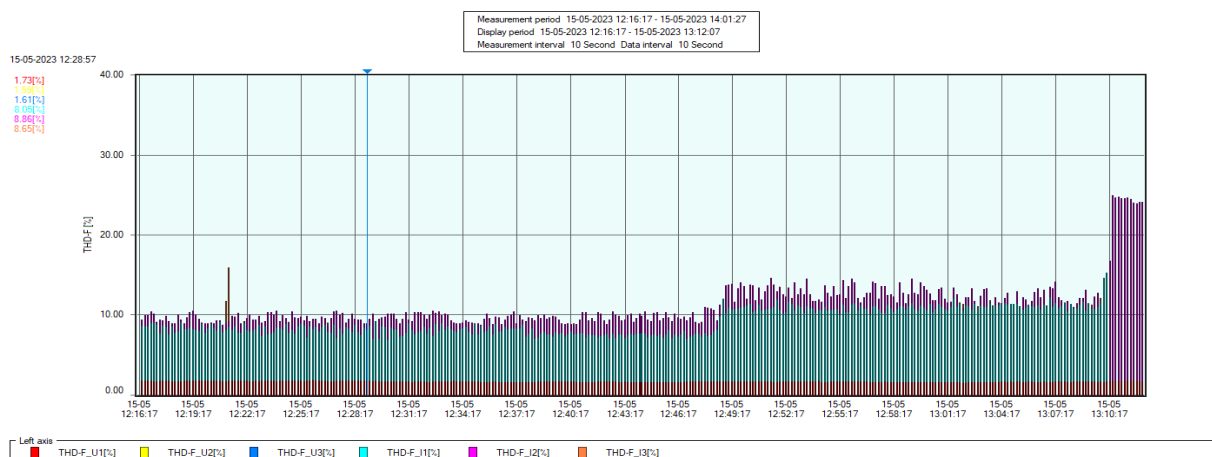
Power Factor Profile



Frequency



Total Harmonic Distortion



Individual Harmonics

Individual Harmonics							
As per IEEE-519, 2014, permissible % of individual voltage harmonics is 3 % Current harmonics for <11 order is 5%	Order of Harmonics	Voltage			Current		
		R	Y	B	R	Y	B
	3	0.62	0.35	0.45	1.53	2.35	2.05
	5	2.12	1.85	2.15	1.69	1.37	1.47
	7	2.17	1.90	2.11	0.54	0.55	0.41
	9	0.18	0.29	0.39	0.13	0.15	0.06
	11	1.80	1.52	1.17	0.26	0.12	0.05

S. No	Description	Remarks	
1	Location	MAIN INCOMER PHARMACY	
2	Voltage	Incoming voltage is varying from 408V to 422V.	
3	Load Current, A	Varying from 4.11A to 43.86A.	
4	Power, kW	Varying from 5.35kW to 25.57kW.	
5	Power, kVA	Varying from 5.35kVA to 26.39kVA.	
6	THD Voltage (%)	R	1.73
		Y	1.59
		B	1.61
7	THD current (%)	R	8.05
		Y	8.86
		B	8.65
8	Power Factor	Varying from -0.99 to 0.96	
9	Frequency, Hz	Varying from 49.6 to 50.1 Hz.	
10	Any Interruption observed. if yes details	No	
11	Voltage Sags	No	
12	Over voltage	No	
13	Voltage unbalance, %	Varying from 0.6 % to 0.9 %.	
14	Current unbalance, %	Varying from 9.6 % to 56.4 %.	

Remarks:

- Current THD is slightly higher than acceptable level.
- Current Unbalance is higher than acceptable level. It is recommended to distribute the loads equally.

18.3 LIGHT DETAILS

The campus has use lights for illumination purposes. The lights detail as follows.

S. NO	NAME OF THE BLOCK	FLOOR	LOCATION	TYPE OF LIGHT	NO OF LIGHTS	TOTAL POWER, kW
1	P1	1st Floor	P1101	FTL	4	0.14
2	P1	1st Floor	P1102	FTL	5	0.18
3	P1	1st Floor	P1103	FTL	20	0.72
4	P1	1st Floor	P1104	FTL	5	0.18
5	P1	1st Floor	P1105	FTL	5	0.18
6	P1	1st Floor	P1106	FTL	3	0.11
7	P1	1st Floor	P1115	FTL	12	0.43
8	P1	1st Floor	P1112	FTL	3	0.11
9	P1	1st Floor	P1111	FTL	18	0.65
10	P1	Ground Floor	P1031	FTL	54	1.94
11	P1	Ground Floor	P1030	FTL	20	0.72
12	P1	Ground Floor	P1029	FTL	20	0.72
13	P1	Ground Floor	Colony	FTL	23	0.83
14	P1	Ground Floor	P1004	FTL	41	1.48
15	P1	Ground Floor	P11003	FTL	32	1.15
16	P1	Ground Floor	P1021	FTL	18	0.65
17	P1	Ground Floor	P1035	FTL	5	0.18
18	P1	Ground Floor	P1020	FTL	3	0.11
19	P1	Ground Floor	P1001	FTL	2	0.07
20	P1	Ground Floor	P1012	FTL	3	0.11
21	P1	Ground Floor	P1013	FTL	2	0.07
22	P1	Ground Floor	P1036	FTL	1	0.04
23	P1	1st Floor	P1202	FTL	3	0.11
24	P1	1st Floor	P1112	FTL	3	0.11
25	P1	Ground Floor	P1033	FTL	1	0.04
26	P1	Ground Floor	P1028	FTL	2	0.07
27	P1	Ground Floor	P1029	FTL	2	0.07

S. NO	NAME OF THE BLOCK	FLOOR	LOCATION	TYPE OF LIGHT	NO OF LIGHTS	TOTAL POWER, kW
28	P1	Ground Floor	P1026	FTL	2	0.07
29	P1	1st Floor	P1107	FTL	3	0.11
30	P1	1st Floor	P1108	FTL	8	0.29
31	P1	1st Floor	P1109	FTL	6	0.22
32	P1	1st Floor	P1110	FTL	8	0.29
33	P2	2nd Floor	P2201	FTL	5	0.18
34	P1	2nd Floor	P1202	FTL	7	0.25
35	P1	1st Floor	P1023	FTL	9	0.32
36	P1	1st Floor	P1203	FTL	2	0.07
37	P1	1st Floor	P1204	FTL	3	0.11
38	P1	1st Floor	P1205	FTL	3	0.11
39	P1	1st Floor	P1206	FTL	5	0.18
40	P1	2nd Floor	GIRLS COMMON ROOM	FTL	2	0.07
41	P2	1st Floor	P2101	FTL	5	0.18
42	P2	Ground Floor	P2001	FTL	5	0.18
43	P3	2nd Floor	PHARM D 1ST YEAR	FTL	4	0.14
44	P3	2nd Floor	PHARM D 2nd YEAR	FTL	6	0.22
45	P3	3rd Floor	PHARM D 4th YEAR	FTL	8	0.29
46	P3	2nd Floor	Pharm D 3rd year	FTL	4	0.14
47	P3	2nd Floor	Pharm 5th year	FTL	6	0.22
48	P3	2nd Floor	PB 1st year	FTL	6	0.22
49	P3	2nd Floor	B Pharm 4th year	FTL	8	0.29
50	P3	4th Floor	Library	FTL	12	0.43
TOTAL POWER, kW						15.73

Remarks:

FTL lights consumes high power than LED Lights. It is recommended to replace those FTL lights with LED lights for better lumens and to lower the power consumption.

18.4 CONVENTIONAL FAN DETAILS

The campus has use conventional fan for ventilation purpose. Details of the conventional fan are as follows.

S. NO	NAME OF THE BLOCK	FLOOR	LOCATION	NO OF FANS	TOTAL POWER, kW
1	P1	1st Floor	P1101	1	0.07
2	P1	1st Floor	P1102	3	0.21
3	P1	1st Floor	P1103	4	0.28
4	P1	1st Floor	P1104	2	0.14
5	P1	1st Floor	P1105	1	0.07
6	P1	1st Floor	P1106	3	0.21
7	P1	1st Floor	P1115	3	0.21
8	P1	1st Floor	P1112	3	0.21
9	P1	1st Floor	P1111	6	0.42
10	P1	Ground Floor	P1031	12	0.84
11	P1	Ground Floor	P1030	11	0.77
12	P1	Ground Floor	P1029	1	0.07
13	P1	Ground Floor	Colony	12	0.84
14	P1	Ground Floor	P1004	16	1.12
15	P1	Ground Floor	P1103	6	0.42
16	P1	Ground Floor	P1021	9	0.63
17	P1	Ground Floor	P1035	2	0.14
18	P1	Ground Floor	P1020	2	0.14
19	P1	Ground Floor	P1001	2	0.14
20	P1	Ground Floor	P1012	1	0.07
21	P1	Ground Floor	P1013	1	0.07
22	P1	Ground Floor	P1036	1	0.07
23	P1	1st Floor	P1202	2	0.14
24	P1	1st Floor	P1112	3	0.21
25	P1	Ground Floor	P1033	1	0.07
26	P1	Ground Floor	P1028	1	0.07
27	P1	Ground Floor	P1029	1	0.07
28	P1	Ground Floor	P1026	1	0.07
29	P1	1st Floor	P1107	4	0.28
30	P1	1st Floor	P1108	7	0.49
31	P1	1st Floor	P1109	4	0.28
32	P1	1st Floor	P1110	6	0.42
33	P2	2nd Floor	P2201	6	0.42
34	P1	2nd Floor	P1202	6	0.42
35	P1	1st Floor	P1023	3	0.21
36	P1	1st Floor	P1203	2	0.14
37	P1	1st Floor	P1204	1	0.07
38	P1	1st Floor	P1205	1	0.07

S. NO	NAME OF THE BLOCK	FLOOR	LOCATION	NO OF FANS	TOTAL POWER, kW
39	P1	1st Floor	P1206	2	0.14
40	P1	2nd Floor	GIRLS COMMON ROOM	2	0.14
41	P2	1st Floor	P2101	8	0.56
42	P2	Ground Floor	P2001	8	0.56
43	P3	1st Floor	PHARM D 1ST YEAR	3	0.21
44	P3	1st Floor	PHARM D 2nd YEAR	4	0.28
45	P3	1st Floor	PHARM D 4th YEAR	6	0.42
46	P3	2nd Floor	Pharm D 3rd year	4	0.28
47	P3	2nd Floor	Pharm 5th year	6	0.42
48	P3	2nd Floor	PB 1st year	6	0.42
49	P3	2nd Floor	B. Pharm 4th year	6	0.42
50	P3	4th Floor	Library	20	1.40
TOTAL POWER, kW					15.82

Remarks:

Conventional fans consume more power consumption than BLDC fan. It is recommended to replace the conventional to energy efficient BLDC fans.

18.5 AIR CONDITIONER DETAILS

The campus has used Air conditioner for room cooling purpose. The air conditioner details are as follows.

S. NO.	NAME OF THE BLOCK	FLOOR	LOCATION	MAKE	MODEL (SPLIT / WINDOW)	TR	STAR RATING	NO. OF AC'S	TOTAL POWER, KW
1	P1	1st Floor	P1101	Daikin	Split AC	1.5	1	1	1.65
2	P1	1st Floor	P1102	Daikin	Split AC	1.5	1	1	1.65
3	P1	1st Floor	P1103	Daikin	Split AC	1.5	1	3	4.95
4	P1	1st Floor	P1104	Godrej	Split AC	1.5	3	3	4.22
5	P1	1st Floor	P1105	Llyod	Split AC	1.5	3	1	1.41
6	P1	1st Floor	P1105	LG	Split AC	1.5	3	1	1.41
7	P1	1st Floor	P1115	LG	Split AC	1.5	3	1	1.41
8	P1	Ground Floor	P1030	Daikin	Split AC	1.5	3	1	1.41
9	P1	Ground Floor	P1031	LG	Split AC	1.5	3	1	1.41
10	P2	1st Floor	P2102	LG	Split AC	1.5	3	1	1.41
11	P3	4th Floor	Library	Daikin	Split AC	1.5	1	6	9.91
TOTAL POWER, kW									30.83

Remarks:

The campus has use three-star ACs. It will consume more power consumption than five-star inverter AC. It recommended to three-star AC to five-star inverter AC.

18.6 EXHAUST FAN DETAILS

The exhaust fan details of the campus are as follows.

S. NO	NAME OF THE BLOCK	FLOOR	LOCATION	NO OF FANS	POWER, W	TOTAL POWER, kW
1	P1	1st Floor	P1004	2	70	0.14
2	P1	1st Floor	P1111	2	70	0.14
3	P1	1st Floor	P1115	1	70	0.07
4	P1	Ground Floor	P1021	5	70	0.35
5	P1	1st Floor	P1103	2	70	0.14
6	P1	Ground Floor	P1030	1	70	0.07
7	P1	2nd Floor	P1207A	7	70	0.49
8	P3	Ground Floor	P3003	14	70	0.98
TOTAL POWER, kW						2.38

18.7 DG DETAILS

DG used for only emergency times.

MAKE	DPK Engineers Pvt Ltd
GENSET MODEL kVA	KG1625WS/3PH
PRODUCT CODE	PS3A0620000201
MFG.DATE/SR.NO	14/11/26 /T4.3903/1401632
NOISE LIMIT	≤75 Db(A)AT 1 MTR

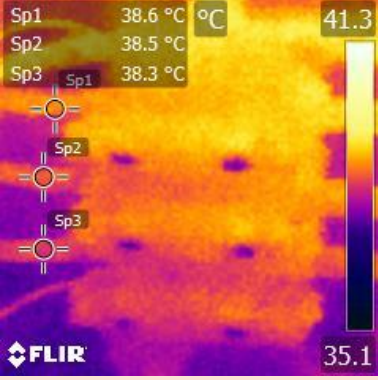

18.8 THERMOGRAPHY STUDY

Thermography study is carried out for electrical panels college campus by using Infrared Thermal Imager and details are as follows.

S.NO	LOCATION	THERMAL IMAGE	VISUAL IMAGE	REMARK
1	Generator Room_ Main Incomer_Panel-1_ MCCB.			No issues observed. OK
2	Generator Room_ Panel2_ Pharmacy Office.			No issues observed. OK
3	Panel Room_ Main Incomer_ Panel-2_ MCCB			No issues observed. OK
4	Panel Room_ Computer Lab & Faculty room.			No issues observed. OK

S.NO	LOCATION	THERMAL IMAGE	VISUAL IMAGE	REMARK
5	Panel Room_ Exam Control Office.			No issues observed. OK
6	Panel Room_ Tutorial Room.			No issues observed. OK
7	Panel Room_ Classroom.			No issues observed. OK
8	Panel room_ PharmD.			No issues observed. OK

S.NO	LOCATION	THERMAL IMAGE	VISUAL IMAGE	REMARK
9	Panel room_ Pharmaceutics Lap-2.			No issues observed. OK
10	Panel room_ Pharma Chemical Labs.			No issues observed. OK
11	Panel room_ Motors			No issues observed. OK
12	Panel room_ PG Classrooms			No issues observed. OK

S.NO	LOCATION	THERMAL IMAGE	VISUAL IMAGE	REMARK
13	Panel room_ PG Classrooms			No issues observed. OK

19.0 EXECUTIVE SUMMARY

S. No	Energy Efficiency Measures	Estimate annual Energy Savings, kWh/Annum	Estimated Investment, INR	Monetary Savings, INR	payback Period, Years	Emission Reduction, t CO2/Annum
1	Replace 437 no's FTL to LED lights	13984	349600	120993	3	11
2	Replace 226 no's existing Conventional fan to BLDC Fan	12656	723200	109503	7	10
3	Replace existing 11 no's 1.5 TR 1- Star Split AC to 1.5 TR 5 - Star Invertor Split AC	9900	495000	85657	6	8
4	Replace existing 9 no's 1.5 TR 3- Star Split AC to 1.5 TR 5 - Star Invertor Split AC	5400	405000	46722	9	4
		41940	1972800	362875	5	34

Annual Electrical Energy consumption, kWh/Annum	1,51,310
Annual Electrical Energy Savings, kWh/Annum	41940
Electrical Energy Savings, %	27.7

20.0 ENERGY CONSERVATIVE MEASURES

20.1 Replace 437 No's FTL to Energy efficient LED lights.

Observation:

During audit, it was observed that few FTL lights were used for illumination purpose. FTL lights consumes high power than LED Lights.

Recommendation:

It is recommended to replace those FTL lights to energy efficient LED lights for better lumens and to lower the power consumption. The lumens of FTL light are 63 per watt whereas the lumens of LED light are 120 per watt.

Estimated Savings:

Replace FTL to LED lights		
Description	Units	Values
Quantity of existing FTL light	Nos	437
Average Wattage Consumption of FTL	W	36
Present operating hours	Hours/Annum	2,000
Average unit cost	INR/kWh	8.65
Energy Consumption by existing FTL Lights	kWh/Annum	31,464
Wattage of LED	W	20
Energy Consumption by LED	kWh/Annum	17,480
Cost of one LED	INR	800
Energy savings	kWh/Annum	13,984
Cost Savings	INR/Annum	1,20,993
Investment	INR	3,49,600
Payback Period	Years	3

20.2 Replace 226 No's Existing Conventional Fan to Energy efficient BLDC Fan

Observation:

During audit it was observed that conventional ceiling fans were used for ventilation purposes.

Recommendation:

It is recommended to replace those conventional ceiling fans with Energy efficient BLDC fans to observe the following energy savings.

Estimated Savings:

Replace existing Conventional fan to BLDC Fan		
Description	Units	Values
Quantity of Existing Conventional fan	Nos	226
Wattage of Conventional fan	W	60
Present operating hours	Hours/Annum	2,000
Average unit cost	INR/kWh	8.65
Energy Consumption by existing Conventional fan	kWh/Annum	27,120
Wattage of BLDC Fan	W	32
Energy Consumption by BLDC Fan	kWh/Annum	14,464
Cost of one BLDC Fan	INR	3,200
Energy savings	kWh/Annum	12,656
Cost Savings	INR/Annum	1,09,503
Investment	INR	7,23,200
Payback Period	Years	7

20.3 Replace Existing 11 No's 1.5 TR 1- Star Split AC To 1.5 TR 5 - Star Invertor Split AC

Observation:

During audit it was observed 1-star Air Conditioners that were used for ventilation purposes.

Recommendation:

It is recommended to replace those Air Conditioners with energy efficient Air Conditioners to observe the following energy savings.

Estimated Savings:

Replace existing 1.5 TR 1- Star Split AC to 1.5 TR 5 - Star Invertor Split AC		
Description	Units	Values
Total Number of 1- Star Split AC	Nos	11
Wattage of 1- Star Split AC	W	1600
Running hours	hours/day	6
Total working days (Approx)	days/Annum	250
Average unit cost	INR/kWh	8.65
Energy Consumption by existing 1- Star Split AC	kWh/Annum	26,400
Wattage of 5 - star Invertor AC	W	1,000
Energy Consumption by 5 - star Invertor AC	kWh/Annum	16,500
Cost of one 5 - star Invertor AC	INR	45,000
Energy savings	kWh/Annum	9,900
Cost Savings	INR/Annum	85,657
Investment	INR	495,000
Payback Period	Years	6

20.4 Replace Existing 9 No's 1.5 TR 3- Star Split AC To 1.5 TR 5 - Star Invertor Split AC

Observation:

During audit it was observed 3-star Air Conditioners that were used for ventilation purposes.

Recommendation:

It is recommended to replace those Air Conditioners with energy efficient Air Conditioners to observe the following energy savings.

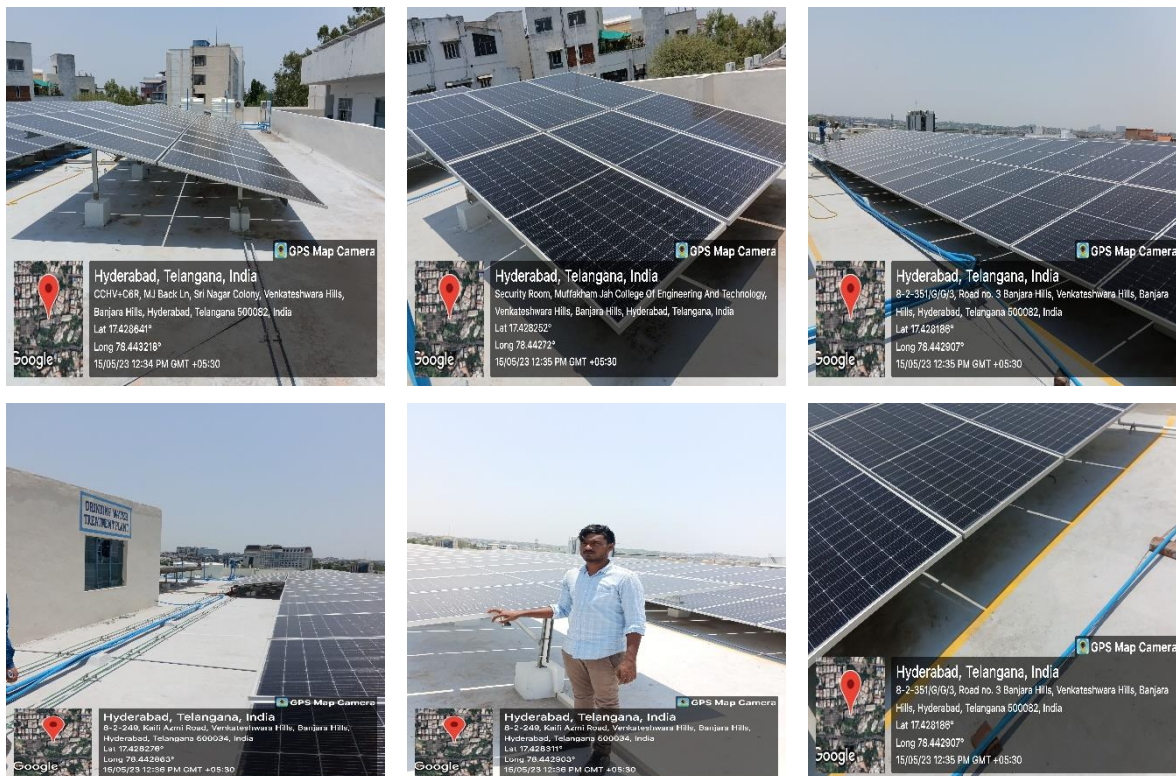
Estimated Savings:

Replace existing 1.5 TR 3- Star Split AC to 1.5 TR 5 - Star Invertor Split AC		
Description	Units	Values
Total Number of 3- Star Split AC	Nos	9
Wattage of 3- Star Split AC	W	1400
Running hours	hours/day	6
Total working days (Approx)	days/Annum	250
Average unit cost	INR/kWh	8.65
Energy Consumption by existing 3- Star Split AC	kWh/Annum	18,900
Wattage of 5 - star Invertor AC	W	1,000
Energy Consumption by 5 - star Invertor AC	kWh/Annum	13,500
Cost of one 5 - star Invertor AC	INR	45,000
Energy savings	kWh/Annum	5,400
Cost Savings	INR/Annum	46,722
Investment	INR	405,000
Payback Period	years	9


21.0 ALTERNATE SOURCES OF ENERGY AND ENERGY CONSERVATION MEASURES

21.1 SOLAR ENERGY

- The university has installed solar capacity of 183.12 kW.
- Sultan ul uloom college of pharmacy receives solar from university.
- The campus has not maintained details of solar consumption details.




22.0 ACCREDITED ENERGY AUDITOR CERTIFICATES

 **BUREAU OF ENERGY EFFICIENCY**

Examination Registration No. : EA-3201

Accreditation Registration No. : AEA-0023



Certificate of Accreditation

This is to certify that Mr./Ms..... **B. Senthilkumar** having its trade/registered office at **Chennai** has been given accreditation as accredited energy auditor. The certificate shall be effective from **26th** day of **February 2013**


The certificate is subject to the provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

This certificate shall be valid until it is cancelled under regulation 9 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010

On cancellation, the certificate of accreditation shall be surrendered to the Bureau within fifteen days from the date of receipt of order of cancellation.

Your name has been entered at AEA No...**0023**... in the register of list of accredited energy auditors. Your name shall be liable to be struck out on the grounds specified in regulation 8 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

Given under the seal of the Bureau of Energy Efficiency, Ministry of Power, this **26th** day of **May 2014**


Secretary,
Bureau of Energy Efficiency
New Delhi



In association with



THIS IS TO CERTIFY THAT

B. Senthil Kumar

has successfully completed a course approved by the
Institute of Environmental Management & Assessment in

ADVANCED EMS AUDITOR
(ISO 14001:2004)
(achieving an overall mark of 75%)

13th to 17th October 2008

iqms
Business & Innovation Centre
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Swiso India Private Limited
507 Pragati Tower • 26 Rajendra Place
New Delhi • 110 008 • (India)
Tel: +91-11-41539720
Fax: +91-11-41539721
email: info@swisoindia.com
Web: www.swisoindia.com

A handwritten signature in blue ink that reads 'Geoff Hill'.

Signed for iqms

A handwritten signature in blue ink, appearing to be 'Rajendra'.

Signed for Swiso India Private Limited

IQ – EMS42357

CERTIFICATE NUMBER

iqms Course No: IQM/EMS4/07308/UK approved by IEMA



CERTIFICATE

SGS Taiwan GHG Group

This to certify that

B SENTHIL KUMAR

has successfully passed the course assessment and examination for

ISO14064:2006 GHG Inventory and Verification

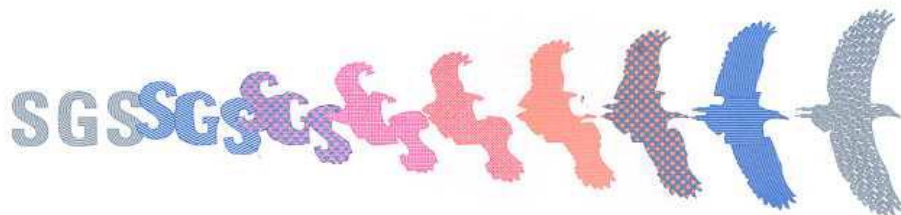
Held on: 2nd-4th March 2009

Location: Gurgaon, India


Richard Huang
Technical Manager
SGS Taiwan GHG Group

TW-I-0082

Certificate Number



SGS United Kingdom Limited
Climate Change Programme

graphic design: atkins; paper: fibrel; printed by: sarsil; bound: security printing; 100% recycled paper



ऊर्जा दक्षता ब्यूरो

(भारत सरकार, विद्युत मंत्रालय)

BUREAU OF ENERGY EFFICIENCY

(Government of India, Ministry of Power)



स्पीड
SPEED POST

F.No.09/06/07/IMPL/ECBC/5977-6028

August 21, 2019

Shri Praveen Kumar Yadav
Environmental Design Solution Pvt Ltd
A-4/3, Basement, Vasant Vihar,
New Delhi - 110057

Subject: Empanelment of ECBC Expert Professional

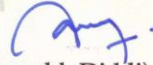
Dear Shri Praveen,

This has reference to your application for empanelment of ECBC Expert Professional for implementing the Energy Conservation Building Code (ECBC). We are pleased to inform that you have been shortlisted to act as the ECBC Expert professional for helping in building technical capacity, compliance with code and effective implementation of it. The validity of the empanelment is for two years or till the creation of a pool of Certified Energy Auditors (Buildings), whichever is earlier. A brief on roles and responsibilities of professionals will be as per the prevailing ECBC Rules, 2018, is enclosed herewith.

It may be further noted that "the professional working with ECBC Cell in States/UTs shall not work on the projects for the same State/UT during their tenure as a part of ECBC cells and after one year from the last date of their incumbent in the ECBC cell. Such professionals may provide technical assistance in other State/UT for other projects."

With best regards.

Yours sincerely,


(Saurabh Diddi)
Director

Encl: As above



Certificate of Compliance

This is to certify that

NIN Energy India Private Limited

JUSA Complex, New No 47, Old No 21/2, Ponnamman Koil Street, Kottur,
Chennai - 600085 (Tamil Nadu), India.

has been assessed by RSI and found to comply with the requirements of

ISO/IEC 17020:2012

Operation of various types of bodies performing inspection - Requirements

for the following activities:

Mandatory Energy Audit, Environment Audit, Green Audit, PAT Measurement and Verification (M&V), Power Quality Audit, Infrared Thermography, Electrical Safety Audit, Energy Management Training, Energy Management System, Measurement & Verification, Green Building Services, Renewable Energy Services, Carbon Foot Printing and Water Audit

Certificaat Nummer / Certificate No. : IE-BV-2207-5410

Datum Van Publicatie / Date of Issue : 27/07/2022
Vervaldatum / Date of Expiry : 26/07/2025
1st Annual surveillance audit due on : 26/06/2023
IInd Annual surveillance audit due on : 26/06/2024

Royal Stancert B.V.

Feitelijke Beoordelingen - Wereldwijde Beoordelingen
Certificaat Nummer / Certificate No. : Q-xx-xxxx-xxxx

Regd. Office - Joop Geesinkweg 701, 1114 AB Amsterdam, The Netherlands.
(KvK-Nummer 71431802 / RSIN 858713159 - Rechtsvorm - Besloten Vennootschap).

This certificate remains the property of Royal Stancert B.V. and must be returned whenever demanded.
The validity of this certificate can be verified at <http://www.royalstancert.org>. Royal Stancert B.V. is an independent system, product and personal assessment body accredited by Global Euro Accreditation Centre, Georgia. (GCIN - 654). Email: info@royalstancert.org

Director (Certification)



PAC-GEAC-1506-299