



**SRI VENKATESWARA COLLEGE**

**UNIVERSITY OF DELHI**

**ENERGY  
AUDIT REPORT**

**2023-2024**

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Prepared by  
**EHS ALLIANCE**



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# CERTIFICATE



## CERTIFICATE

PRESENTED TO

### SRI VENKATESWARA COLLEGE

Benito Juarez Road, Dhaula Kuan, New Delhi, 110021

That has been assessed by EHS Alliance Services for the comprehensive study of Energy Audit on institutional working framework to fulfill the requirement of

### ENERGY AUDIT

**ACADEMIC YEAR 2023-24**

The energy-saving initiatives carried out by the institution have been verified in the report submitted and were found to be satisfactory.

The efforts taken by management and faculty towards all types of energy used in the institution and sustainability are highly appreciable and noteworthy.

  
SIGNATURE



28.04.2025  
DATE OF AUDIT

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# ACKNOWLEDGEMENT

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EHS Alliance Services would like to thank the management of Sri Venkateswara College for assigning this important work of Energy Audit. We appreciate the co-operation to the teams for completion of assessment.

First of all, we would like to thank **Prof. Vajala Ravi - Principal** for giving us an opportunity to evaluate the environmental performance of the campus.

We would also like to thank **Dr. Perumal Jayaraj - Audit Coordinator**, for his continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

**Prof. K. Chandramani Singh**  
**Dr. S. Krishnakumar**  
**Prof. Vartika Mathur**  
**Dr. Rakhi Narang**  
**Dr. Pamil Tayal**  
**Dr. Pankaj Kumar**  
**Dr. Ashish Kumar Thakur**  
**Dr. Sunitaa Saikia**  
**Dr. Amarjeet**  
**Dr. Rangarajan T. M.**  
**Dr. Shefali Shukla**  
**Dr. Pooja Gokhale Sinha**  
**Dr. Jitendra Veer Kalra**  
**Dr. P. Devaki**  
**Mr. Pawan Kumar Pandey**  
**Mr. M. L. N. Murty**  
**Mr. Kumar Ashish**  
**Mr. URR Narendra**  
**Mr. Naveen Chaudhary**  
**Mr. V. Parthasarathy**

**Vice Principal**  
**Bursar**  
**IQAC Coordinator**  
**IQAC Member**  
**Criteria VII Member**  
**Criteria VII Member**  
**Criteria VII Member**  
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**Criteria VII Member**  
**Criteria VII Member**  
**Criteria VI Member**  
**Eco-Club Convenor**  
**NSS Coordinator**  
**Hostel Warden**  
**Administration**  
**Administration**  
**Administration**  
**Administration**  
**ICT**  
**Garden Assistance**



# DISCLAIMER

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EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for Sri Venkateswara College based on 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 conclusions are arrived following best estimates 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.

If you wish to distribute copies of this report external to your organization, then all pages must be included.

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**Vijay Singh**  
Lead Auditor EMS & Energy

**Dr. Uday Pratap**  
Co-Auditor EMS & Energy



# ABBREVIATION

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<b>A</b>	<b>Amps</b>
<b>AC</b>	<b>Air Conditioner</b>
<b>AC</b>	<b>Alternating Current</b>
<b>AMET</b>	<b>Academy of Maritime Education and Training</b>
<b>CFL</b>	<b>Compact fluorescent lamp</b>
<b>CIP</b>	<b>Comprehensive Inspection Programme</b>
<b>DC</b>	<b>Direct Current</b>
<b>HSD</b>	<b>High Speed Diesel</b>
<b>Hz</b>	<b>Hertz</b>
<b>kg</b>	<b>Kilogram</b>
<b>kVA</b>	<b>kilo-volt-ampere</b>
<b>kW</b>	<b>kilo Watts</b>
<b>kWh</b>	<b>kilowatt hour</b>
<b>kWp</b>	<b>Kilowatt peak</b>
<b>LED</b>	<b>Light Emitting Diode</b>
<b>LPG</b>	<b>Liquefied Petroleum Gas</b>
<b>MMS</b>	<b>Module mounting structure</b>
<b>MPPT</b>	<b>Maximum Power Point Tracker</b>
<b>NAAC</b>	<b>The National Assessment and Accreditation Council</b>
<b>SEC</b>	<b>Specific Energy Consumption</b>
<b>SPV</b>	<b>Solar Photovoltaic</b>
<b>STC</b>	<b>Standard Test Condition</b>
<b>TV</b>	<b>Television</b>
<b>V</b>	<b>Volts</b>
<b>W</b>	<b>Watts</b>
<b>W/m<sup>2</sup></b>	<b>watt per square metre</b>



# OVERVIEW OF THE COLLEGE

---

The desire to share knowledge and the dream to make education accessible to all brought together three visionaries, Smt Durgabai Deshmukh, Shri K. L. Rao and Shri C. Anna Rao in the early decades of India's independence. The aim was to craft a dynamic space for knowledge sharing that would seamlessly blend traditional values, learning with modern outlook and rationale in the heart of our country, Delhi. The dream blossomed into reality with the aid and encouragement rendered by Tirumala Tirupati Devasthanams (TTD) and Sri Venkateswara College made its modest beginnings in Andhra Education Society 1961. The foundation stone of the present day campus in Dhaula Kuan was laid in the same year by eminent Indian philosopher and statesman Dr. Sarvepalli Radhakrishnan. Since then, the Upanishadic principle "Truth through self-education" has been the guiding principle in all endeavors. Thus, began the journey in shaping sensitive, balanced global citizens of tomorrow whose heart is cultured in indigenous values and mind is sharpened in critical thinking.



The College relentlessly pursued the ideals set by founders and taken pride in creating a holistic learning atmosphere for students from diverse backgrounds at a minimum cost in the national capital for more than six decades. Sri Venkateswara college offers a platform for students from diverse backgrounds to excel in academics, research, cultural as well as



social activities and sports. We take pride in the fact that “Venkyites” in today’s world are known for their penchant to excel in all walks of life.

### Mission

Provide a congenial academic learning space, foster social dynamism and spirit of leadership among students

Sustain quality in the education system through collective efforts of stakeholders, i.e students, faculty administration and management

Strive for an ecosystem that promotes innovations in pedagogy and research

Generate new knowledge through academic endeavours to attune to the ever changing needs of the society

Enhance societal consciousness through coordinated outreach programmes and environment friendly ‘Green’ initiatives

Imparting value based holistic education and promoting competitive spirit with mutual respect and trust among the students

### Vision

Sri Venkateswara College envisions “Self-realization through knowledge” emphasizing holistic, inclusive and futuristic education in tune with the college motto "Satyaana Pramadittavyam" (Do not deviate from Truth)

College offers under graduate courses, post graduate courses and professional/vocational courses

UNDERGRADUATE COURSES	POST GRADUATE COURSES	PROFESSIONAL/VOCATIONAL (Self-Financed) Courses
B.A Programme	M.A. English	One year Certificate Course in German Language
B. A (Hons) Economics	M.A. History	One Year Diploma Course in German Language
B. A (Hons) English	M.A. Sanskrit	One year Certificate Course in French Language
B. A (Hons) Hindi	M.A./M.Sc. Mathematics	One year Diploma Course in French Language
B. A (Hons) History	M.A./M.Sc. Statistics	One year Advance Diploma Course in French Language
B. A (Hons) Political Science	M.Sc. Chemistry	One Year Certificate Course in Mandarin (Chinese) Language



B. A (Hons) Sanskrit	M.Sc. Physics	One year Certificate Course in Spanish Language
B. A (Hons) Sociology	M.Sc. Zoology	One year Diploma Course in Spanish Language
B.Com (Hons)	M.Sc. Botany	One Year Certificate Course in Tourism and Travel Management
B.Com Programme	PG Diploma in Bio-Chemical Technology	
B. Sc (Hons) Bio-Chemistry		
B. Sc (Hons) Biological Science		
B. Sc (Hons) Botany		
B. Sc (Hons) Chemistry		
B. Sc (Hons) Electronics		
B. Sc (Hons) Mathematics		
B. Sc (Hons) Physics		
B.Sc (Hons) Statistics		
B. Sc (Hons) Zoology		
B. Sc (Prog.) Life Sciences		

## Facilities in the campus

Amenities at Sri Venkateswara College provide far more than academic and administrative facilities on campus. It is dedicated to provide students with an exceptional infrastructure for learning as well as facilities for simplifying the procurement of fundamental skills.

College has a big and well-equipped library. The college library is a well-stocked library with a collection of more than 1, 45, 891 book titles on different disciplines to cater all educational needs of faculty members, students and staff. The library follows an open access system and maintains Online Public Access Catalogue (OPAC) to provide easy access to the shelves.

College has spacious seminar hall, auditorium, smart class rooms, playground and more for overall development of students.



**Geo Coordinates: 28.5889543, 77.1679907**



# AUDIT PARTICIPANTS

On behalf of the college

Name	Designation
Prof. Vajala Ravi	Principal
Prof. K. Chandramani Singh	Vice Principal
Dr. S. Krishnakumar	Bursar
Prof. Vartika Mathur	IQAC Coordinator
Dr. P. Jayaraj	IQAC Member
Dr. Rakhi Narang	IQAC Member
Dr. Pamil Tayal	Criteria VII Member
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Dr. Pooja Gokhale Sinha	Eco-Club Convenor
Dr. Jitendra Veer Kalra	NSS Coordinator
Dr. P. Devaki	Hostel Warden
Mr. Pawan Kumar Pandey	Administration
Mr. M. L. N. Murty	Administration
Mr. Kumar Ashish	Administration
Mr. URR Narendra	Administration
Mr. Naveen Chaudhary	ICT
Mr. V. Parthasarathy	Garden Assistance

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead Auditor	Ph.D., PDIS, QCI – WASH, Lead Auditor ISO 14001:2015
Ms. Pooja Kaushik	Co-Auditor	M.Sc., Field Expert, QCI – WASH



# EXECUTIVE SUMMARY

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The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the Sri Venkateswara College. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the campus was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the institution on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from Sri Venkateswara College. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the Sri Venkateswara College.

# ENERGY AUDIT - ANALYSIS

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## 1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from July 2023 to June 2024

The details of “**Meter Connection**” at “**Sri Venkateswara College**” are as follows-

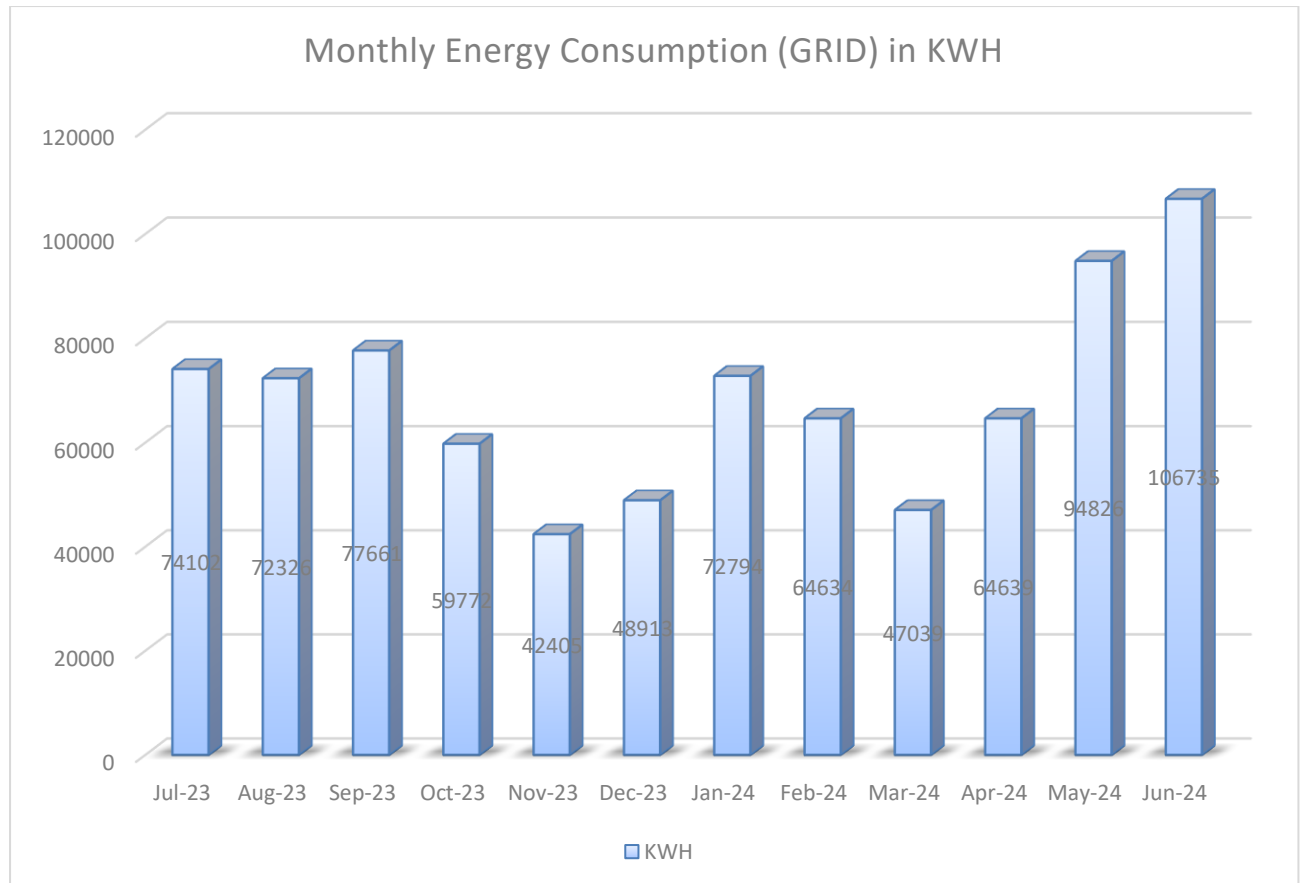
Name	-	Sri Venkateswara College
CA No.	-	100007565
		100005765

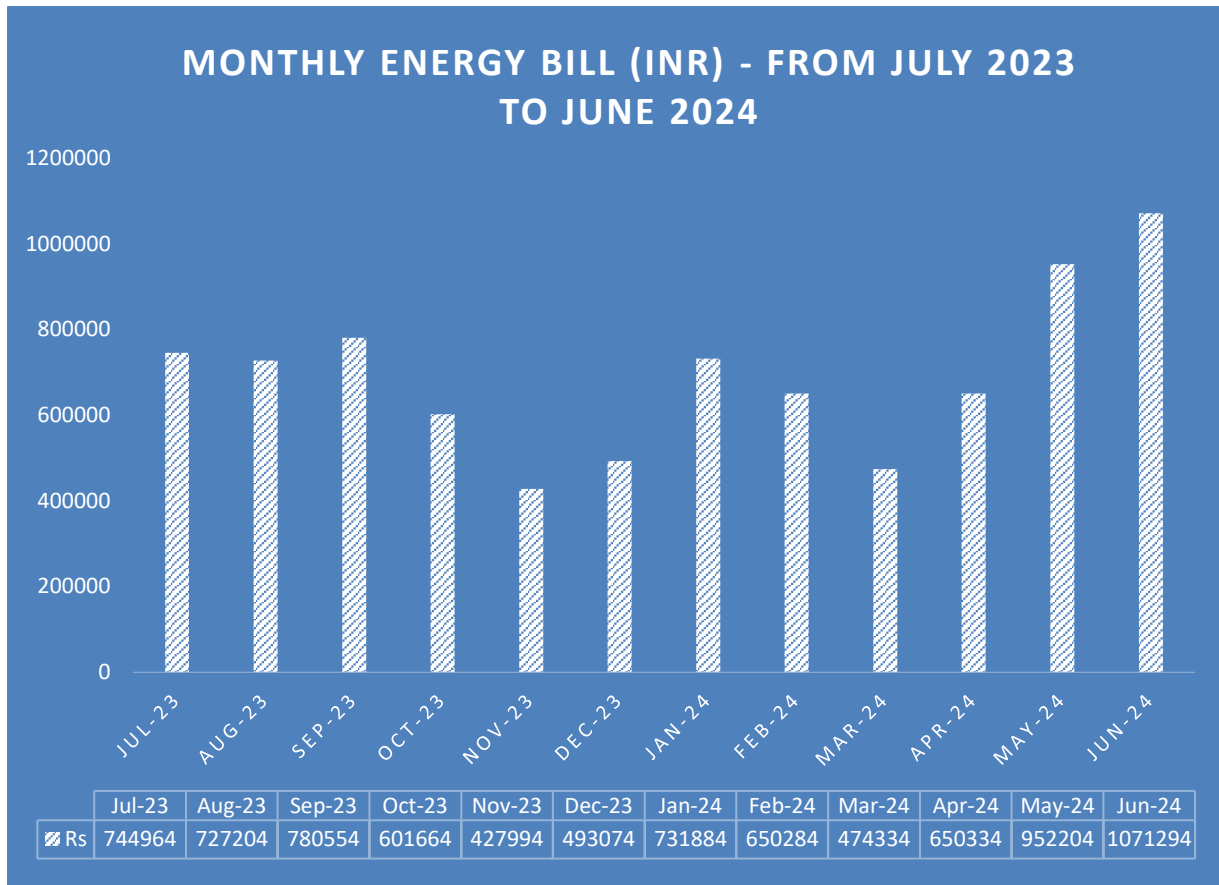


### 1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2023 to June 2024

Month	Grid Electricity Consumption (kWh)	Solar PV	Total	Rate INR	Amount in INR
Jul-23	74,102	14364	88,466	10.00	7,88,421
Aug-23	72,326	16758	89,084	10.00	7,78,561
Sep-23	77,661	17867	95,528	10.00	8,35,571
Oct-23	59,772	17714	77,486	10.00	6,56,176
Nov-23	42,405	14700	57,105	10.00	4,72,560
Dec-23	48,913	13020	61,933	10.00	5,32,096
Jan-24	72,794	9285	82,079	10.00	7,58,581
Feb-24	64,634	13972	78,606	10.00	6,92,448
Mar-24	47,039	15130	62,169	10.00	5,20,319
Apr-24	64,639	26149	90,788	10.00	7,32,682
May-24	94,826	17360	1,12,186	10.00	10,05,548
Jun-24	1,06,735	17911	1,24,646	10.00	11,26,456
<b>Total</b>	<b>8,25,846</b>	<b>1,94,230</b>	<b>10,20,076</b>		<b>88,99,419</b>





## 2. DIESEL CONSUMPTION

Below is the diesel consumption details in liters from July 2023 to June 2024.

Period	Diesel consumption (in litres)
Jul-23	600
Aug-23	0
Sep-23	0
Oct-23	0
Nov-23	0
Dec-23	0
Jan-24	0
Feb-24	0
Mar-24	0
Apr-24	0
May-24	0
Jun-24	0
<b>Total</b>	<b>600</b>

### 3. ANALYSIS OF DG SETS

In the campus, there is only one Diesel Generator (DG) set for its electrical power needs in case of Grid power failure. DG sets capacity is 163 kVA.

DG Set Design Details		
<i>Description</i>	<i>Unit</i>	<i>DG Station -1</i>
Rated capacity	kVA	163
Hz		50
Sl No.		0606P015
Make		Kirloskar
Volts	Volts	240
PF		0.8
Phase		3
RPM		1500
Amps	Amps	200
Mfg.		2015

**Observation and Suggestions: -**

Soundproof silent generators are an efficient tool to keep both noise and vibration at low levels. For the power backup of the institution, the soundproof model is installed in the institution.

We recommend college to initiate stack monitoring of DG set through authorized lab.





## 4. AC SYSTEM

*Energy Efficiency Ratio (EER):* Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller's cooling

Capacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.

There are 53 ACs installed in Sri Venkateswara College in various areas of various capacity which detail is given below: -

SI No.	Location/Identification	Type (Window/ Split)	TR (Tons)	Quantity
1	New Science block 315	Split	1.5	1
2	Room No. 316	Split	1.5	1
3	Room NO. 313	Split	2	6
4	Room No. 312	split	2	2
5	Reading room	Split	1.5	2
6	Room NO. 333	split	1.5	2
7	Principal room	split	2	2
8	PA room	Window	1.5	1
9	Committee room	Split	2	1
10	VP room	Split	2	1
11	MLN (Sys admin)	Split	1.5	1
12	MLN (Sys admin)	Split	2	1
13	Accounts	Split	2	1
14	admin	Split	2	1
15	ICT Server Room	Split	2	2
16	ICT labs	Ductable		
17	Library reading	Split	1.5	4
18	Library	Split	1.5	7
19	Medical	Split	1.5	1
20	Medical	Split	2	1
21	Main staff room	Split	2	3
22	Main staff room	window	1.5	1
23	Room Non. 57	split	1.5	2
24	Api Lab	split	1.5	1
25	Physics Lab	window	1.5	1
26	Canteen	Window	1.5	2
27	Union Bank	split	1.5	3
28	Nescafe cabin	split	1.5	1
29	Sports room	Window	1.5	1



Remarks: - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future you should purchase 5-Star rated inverter based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.

Also, we recommend Sri Venkateswara College to organize periodic maintenance schedule and take corrective actions for insulating of AC's refrigerant lines in order to protect energy losses.





## 5. FANS ANALYSIS

In the Sri Venkateswara College, there are 632 ceiling fans installed (50W). The observation and suggestion are given below.

Sl No.	Building/ Block Name	Location/ Identification	Ceiling Fan-50W	Pedestal Fan 60W
1	Art Block	1	2	
2	Art Block	2	2	
3	Art Block	3	2	
4	Art Block	4	2	
5	Art Block	5	2	
6	Art Block	6	2	
7	Art Block	7	2	
8	Art Block	8	2	
9	Art Block	9	2	
10	Art Block	10	2	2
11	Art Block	11	2	
12	Art Block	12	2	
13	Art Block	13	10	
14	Art Block	14	10	
15	Art Block	15	3	
16	Art Block	16	4	
17	Art Block	101	5	
18	Art Block	102	5	
19	Art Block	103	2	
20	Art Block	104	2	
21	Art Block	105	2	
22	Art Block	106	2	
23	Art Block	107	8	
24	Art Block	108	4	
25	Art Block	109	5	
26	Art Block	110	2	
27	Art Block	111	2	
28	Art Block	112	1	
29	Art Block	201	5	
30	Art Block	202	5	
31	Art Block	203	4	
32	Art Block	204	4	
33	Art Block	205	1	
34	Art Block	208	5	
35	Art Block	209	5	



36	Art Block	211	5	
37	Art Block	212	2	
38	Art Block	213	2	
39	Art Block	214	5	
40	Art Block	215	6	
41	Art Block	216	6	
42	Art Block	217	6	
43	Art Block	218	6	
44	Art Block	219	6	
45	Art Block	220	6	
46	Old Science Block (ground and first)	54	2	
47	Old Science Block (ground and first)	55	1	
48	Old Science Block (ground and first)	57	8	
49	Old Science Block (ground and first)	56	7	
50	Old Science Block (ground and first)	58	6	
51	Old Science Block (ground and first)	59	6	
52	Old Science Block (ground and first)	61	12	
53	Old Science Block (ground and first)	62	19	
54	Old Science Block (ground and first)	63	6	
55	Old Science Block (ground and first)	64	2	
56	Old Science Block (ground and first)	151	8	
57	Old Science Block (ground and first)	153	1	
58	Old Science Block (ground and first)	154	1	
59	Old Science Block (ground and first)	155	2	
60	Old Science Block (ground and first)	156	1	
61	Old Science Block (ground and first)	157	12	
62	Old Science Block (ground and first)	158	7	
63	Old Science Block (ground and first)	159	4	
64	Old Science Block (ground and first)	160	2	
65	Old Science Block (ground and first)	161	17	
66	Old Science Block (ground and first)	162	18	
67	Old Science Block (ground and first)	60	12	
68	Old Science Block (ground and first)	251	4	
69	Old Science Block (ground and first)	253	2	
70	Old Science Block (ground and first)	254	2	
71	Old Science Block (ground and first)	255	2	
72	Old Science Block (ground and first)	256	4	
73	Old Science Block (ground and first)	257	3	
74	Old Science Block (ground and first)	258	4	
75	Old Science Block (ground and first)	259	5	
76	Old Science Block (ground and first)	260	11	
77	Old Science Block (ground and first)	261	11	



78	Old Science Block (ground and first)	262	10	
79	Old Science Block (ground and first)	263	7	
80	Bamboo room	B1	4	
81	Bamboo room	B2	4	
82	Bamboo room	B3	6	
83	Bamboo room	B4	6	
84	Bamboo room	B5	4	
85	Bamboo room	A3	7	
86	Bamboo room	a4	7	
87	Bamboo room	a5	7	
88	Bamboo room	a6	7	
89	Bamboo room	a7	3	
90	New Building	301	6	
91	New Building	302	6	
92	New Building	305	2	
93	New Building	306	2	
94	New Building	307	2	
95	New Building	311	12	
96	New Building	312	4	
97	New Building	313	8	
98	New Building	314	2	
99	New Building	315	2	
100	New Building	316	2	
101	New Building	321	6	
102	New Building	322	6	
103	New Building	323	4	
104	New Building	324	8	
105	New Building	325	2	
106	New Building	326	2	
107	New Building	327	2	
108	New Building	331	6	
109	New Building	332	6	
110	New Building	333	4	
111	New Building	334	8	
112	New Building	335	2	
113	New Building	336	2	
114	New Building	337	2	
115	Library	Library	40	
116	Canteen	Canteen	16	
117	Sports	Sports	10	
118	Foyer	Foyer	14	
	<b>TOTAL</b>		<b>632</b>	<b>2</b>



### Observation and Suggestions: -

In the college, all the ceiling fans are of 50 W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. We recommend to consider purchasing BEE 5 Star rated 30W fans for all future purchases.

**Note:** - Energy saving will increase or decrease if operating hours of machine /equipment will be increased or decreased and payback period will also increase or decrease if cost of investment (Cost of machine/equipment/accessories of machine) will increase or decrease because cost of investment is taken on tentative basis.

## 6. ANALYSIS OF LIGHTING SYSTEM

### 6.1 Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

### 6.2 Inventory of Lighting

Sl. No.	Building/ Block Name	Location/ Identification	12 W LED Round	36W LED	20W LED
1	ART BLOCK	1			2
2	ART BLOCK	2			2
3	ART BLOCK	3			2
4	ART BLOCK	4			2
5	ART BLOCK	5			2
6	ART BLOCK	6			2
7	ART BLOCK	7			2
8	ART BLOCK	8			2
9	ART BLOCK	9			2
10	ART BLOCK	10			2
11	ART BLOCK	11			2
12	ART BLOCK	12			2
13	ART BLOCK	13		12	
14	ART BLOCK	14		12	
15	ART BLOCK	15			6
16	ART BLOCK	16			6
17	ART BLOCK	101			9
18	ART BLOCK	102			8
19	ART BLOCK	103			2
20	ART BLOCK	104			2
21	ART BLOCK	105			2
22	ART BLOCK	106			2
23	ART BLOCK	107		8	
24	ART BLOCK	108			5



25	ART BLOCK	109			
26	ART BLOCK	110		6	
27	ART BLOCK	111			2
28	ART BLOCK	112			2
29	ART BLOCK	201			7
30	ART BLOCK	202			6
31	ART BLOCK	203			4
32	ART BLOCK	204			4
33	ART BLOCK	205			2
34	ART BLOCK	206			2
35	ART BLOCK	207			4
36	ART BLOCK	208			6
37	ART BLOCK	209			8
38	ART BLOCK	210			0
39	ART BLOCK	211			3
40	ART BLOCK	212			6
41	ART BLOCK	213			2
42	ART BLOCK	214			2
43	ART BLOCK	215			6
44	ART BLOCK	216			5
45	ART BLOCK	217			5
46	ART BLOCK	218			5
47	ART BLOCK	219			5
48	ART BLOCK	220			5
49	Old Science Block (ground and first)	54			4
50	Old Science Block (ground and first)	55			2
51	Old Science Block (ground and first)	57			7
52	Old Science Block (ground and first)	56			13
53	Old Science Block (ground and first)	58			0
54	Old Science Block (ground and first)	59			8
55	Old Science Block (ground and first)	61			17
56	Old Science Block (ground and first)	62			1
57	Old Science Block (ground and first)	63			13
58	Old Science Block (ground and first)	64			4
59	Old Science Block (ground and first)	151			12
60	Old Science Block (ground and first)	152			0
61	Old Science Block (ground and first)	153			2
62	Old Science Block (ground and first)	154			2
63	Old Science Block (ground and first)	155			4
64	Old Science Block (ground and first)	156			2
65	Old Science Block (ground and first)	157			9
66	Old Science Block (ground and first)	158			10
67	Old Science Block (ground and first)	159			6
68	Old Science Block (ground and first)	160			4
69	Old Science Block (ground and first)	161			13
70	Old Science Block (ground and first)	162			25
71	Old Science Block (ground and first)	163			0
72	Old Science Block (ground and first)	164			0
73	Old Science Block (ground and first)	60			15
74	Old Science Block (ground and first)	251			2



75	Old Science Block (ground and first)	252			0
76	Old Science Block (ground and first)	253			2
77	Old Science Block (ground and first)	254			2
78	Old Science Block (ground and first)	255			4
79	Old Science Block (ground and first)	256			4
80	Old Science Block (ground and first)	257			5
81	Old Science Block (ground and first)	258			6
82	Old Science Block (ground and first)	259			4
83	Old Science Block (ground and first)	260			10
84	Old Science Block (ground and first)	261			10
85	Old Science Block (ground and first)	262			13
86	Old Science Block (ground and first)	263			10
87	Bamboo room	B1		6	
88	Bamboo room	B2		6	
89	Bamboo room	B3		8	
90	Bamboo room	B4		6	
91	Bamboo room	B5		6	
92	Auditorium	A3		10	
93	Auditorium	a4		10	
94	Auditorium	a5		10	
95	Auditorium	a6		10	
96	Auditorium	a7			7
97	New Building	301			8
98	New Building	302			8
99	New Building	305			2
100	New Building	306			2
101	New Building	307			2
102	New Building	311		24	
103	New Building	312			6
104	New Building	313			8
105	New Building	314			3
106	New Building	315			2
107	New Building	316			2
108	New Building	321			
109	New Building	322			8
110	New Building	323			8
111	New Building	324			6
112	New Building	325			8
113	New Building	326			2
114	New Building	327			2
115	New Building	331			8
116	New Building	332			8
117	New Building	333			6
118	New Building	334			8
119	New Building	335			2
120	New Building	336			2
121	New Building	337			2
122	New Building	Library		12	80
123	New Building	Canteen			22
124	New Building	Sport			10



125	Foyer	Foyer	15		
126	Corridors-arts block	GF			10
127	Corridors-arts block	FF			8
128	Corridors-arts block	SF			8
129	Corridors-arts block	stairs			2
130	Corridors-arts block	stairs			2
131	Corridors-old science block	GF			10
132	Corridors-old science block	FF			8
133	Corridors-old science block	SF			8
134	Corridors-old science block	stairs			2
135	Corridors-old science block	stairs			2
136	Corridors-New science block	GF			14
137	Corridors-New science block	FF			10
138	Corridors-New science block	SF			10
139	Corridors-New science block	TF			10
140	Corridors-New science block	stairs			10
141	Hostel	Common Rooms			160
142	Hostel	Reading rooms			24
143	Hostel	Corridors			6
144	Hostel	satire			32
145	Hostel	Office			8
146	Hostel	Warden office			10
147	Hostel	Bathrooms & toilets			12
148	Hostel	Dining hall			98
149	Hostel	Kitchen			28
150	Hostel	Reception area			6
		<b>TOTAL</b>	<b>15</b>	<b>146</b>	<b>1132</b>

Total no of CFL (36W)	Nos.	146
Total no of Tube Lights (42W)	Nos.	0
Total wattage of 36W Tube Lights	Watt	5256
Total wattage of 42W Tube Lights	Watt	0
Total wattage of Led Tube Lights (20W)	Watt	2920
Total saving in Wattage after replacement	Watt	2336
Operating hours per day	Hours	8
Operating days per annum	Days	180
Energy charges per unit in Rs.	INR	10
Saving in Rs./annum	INR	33638
Investment INR	INR	36200
Payback period	YEARS	1.08



### 6.3 Lux Measurement

Description	Lux	Remark
<b>Class Rooms</b>	120 to 235	Acceptable
<b>Offices</b>	130 to 240	Acceptable
<b>Corridors</b>	35 to 90	Acceptable
<b>Washrooms</b>	45 to 76	Acceptable
<b>Outdoor</b>	36 to 95	Acceptable
<b>Computer Lab</b>	150 to 289	Acceptable
<b>Parking area</b>	45 to 94	Acceptable
<b>Canteen</b>	69 to 185	Acceptable

### Observation

College has initiated LED based lighting solution, but still there are 146 (36W) tube lights. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend to replace the tube lights with LEDs.

Additionally, we recommend to install motion sensor-based lights in common areas such as library, washrooms, corridors, etc.

We also recommend to use solar lights for open areas like parking, ground, street lights, etc. and motion sensor lights for common areas such as library, corridors, washrooms, etc. Table below shows the performance characteristics comparison of all luminaries.

Type of Lamp	Lumens/Watt		Colour Rendering Index	Typical Application	Typical Life
	Range	Avg.			
<b>Incandescent</b>	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
<b>Fluorescent lamps</b>	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
<b>Compact fluorescent Lamps (CFL)</b>	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000



<b>High pressure mercury (HPMV)</b>	44-57	50	Fair (45)	General lighting in factories, garages, car parking, flood lighting	5000
<b>Halogen lamps</b>	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
<b>High pressure sodium (HPSV) SON</b>	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
<b>Low pressure sodium (LPSV) SOX</b>	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
<b>Metal halide lamps</b>	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
<b>LED Lamps</b>	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

## 7. OTHER POWER CONSUMPTION

### 7.1 Inventory of IT Infrastructure

Location/ Identification	Count
Desktop	179
Laptop	146
Printers	39
Scanners	0
Servers	1
TV/Smart TV	8
Projectors	57
CCTV	198
Online UPS 15 KVA	1
Online UPS 10 KVA	5
Online UPS 5 KVA	1
Online UPS 1 KVA	1
Access Points	60

## 7.2 Water pump details

Pump Details	Rated Power of Motor (HP)	Motor Eff. %	Discharge Head m	Suction Head m	Pump Type
Pump No.-1	7.5	0.8	50	100	Submersible
Pump No.-2	7.5	0.8	50	100	Submersible
Pump No.-3	7.5	0.8	50	100	Submersible
Pump No.-4	7.5	0.8	50	65	Monoblock
Pump No.-5	7.5	0.8	50	65	Monoblock
Pump No.-6	5	0.8	50	65	Monoblock
Pump No.-7	1	0.8	25	25	Tulu pump

## 7.3 Other Loads

SI No.	Location/Identification	60W Exhaust Fan	160W Exhaust Fan	Water Cooler-200W	180W-Desert Cooler
1	Class room. Labs and Staff Rooms	20	20	12	5

## ANALYSIS

There should be regular maintenance schedule of equipment like pumps, exhaust fans and IT equipment. Electronics such as computers, printers, scanners, etc. more than 3 year or 5 years (as per their life) should be replaced with new computers/laptops. Ideal Temperature should be maintained for all electronic appliances.

## 8. CAPACITOR BANK

S. No	Capacity in KVAR	Quantity
1	125 kVAR	1



\*\*\*\*\* **END OF THE REPORT** \*\*\*\*\*