DAULAT RAM COLLEGE

ENERGY AUDIT REPORT

2022-2023

PREPARED BY
EHS ALLIANCE SERVICES

Contents

CERTIFICATE

EHS alliance

CERTIFICATE

PRESENTED TO

DAULAT RAM COLLEGE

4, Patel Marg, Daulat Ram College, Maurice Nagar, Roop Nagar, Delhi, 110007

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 2022-23

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 appreciated and noteworthy.

SIGNATURE

EHS ALLIANCE SERVICES GURGAON

23.01.2024
DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
WWW.EHSALL.IN | BUSINESS@EHSALL.IN | EHSALLIANCE@GMAIL.COM

ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Daulat Ram College, University of Delhi for assigning this important work of Energy Audit. We appreciate the co-operation to the teams for completion of assessment.

We would like to thank ***Prof. (Dr.) Sarita Nanda - Vice Principal, Audit Coordinator***, for her 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

Ms. Rajni sahni	***Convener, IQAC***
Ms. Shristy Kasana	***Co-Convener, NSS Team***
Dr. Anju Jain	***Convener, Eco Club***

Last but not the least, we would like to thank ***Prof. (Dr.) Savita Roy - Principal***, for giving us an opportunity to evaluate the environmental performance of the campus.

DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for Daulat Ram 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.

EHS Alliance, its staff and agents shall keep confidential all information relating to your organization and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

EHS ALLIANCE SERVICES GURGAON

Vijay Singh
Lead Auditor EMS & Energy

Dr. Uday Pratap
Co-Auditor EMS & Energy

ABBREVIATION

A	**Amps**
AC	**Air Conditioner**
AC	**Alternating Current**
AMET	**Academy of Maritime Education and Training**
CFL	**Compact fluorescent lamp**
CIP	**Comprehensive Inspection Programme**
DC	**Direct Current**
HSD	**High Speed Diesel**
Hz	**Hertz**
kg	**Kilogram**
kVA	**kilo-volt-ampere**
kW	**kilo Watts**
kWh	**kilowatt hour**
kWp	**Kilowatt peak**
LED	**Light Emitting Diode**
LPG	**Liquefied Petroleum Gas**
MMS	**Module mounting structure**
MPPT	**Maximum Power Point Tracker**
NAAC	**The National Assessment and Accreditation Council**
SEC	**Specific Energy Consumption**
SPV	**Solar Photovoltaic**
STC	**Standard Test Condition**
TV	**Television**
V	**Volts**
W	**Watts**
W/m2	**watt per square metre**

OVERVIEW OF THE COLLEGE

Daulat Ram College is a premier educational institution in Delhi founded by an educationist late Shri Daulat Ram Gupta in 1960. It is a prestigious women's college engaged in imparting liberal education to women. The college, a large constituent college of the University of Delhi, originally started as "Pramila College" at 22, Tilak Marg with thirteen members of teaching and two non-teaching staff with about 350 students. In 1964, the college shifted to its present premises in North Delhi University campus and was renamed as Daulat Ram College. The institution has since grown into a full-fledged extended college of University of Delhi. The college has acquired a strong identity and has evolved into a prestigious women's college with its own distinct culture and traditions. It imparts education towards degrees at the bachelor's level in arts, commerce and science and Masters level in arts.

The courses in science were introduced in 1968 which led to the construction of the science block and well-equipped science laboratories. The commerce and M.A. courses in many subjects, as well as new courses in B.A. (H) and B.A. (Pass) were added subsequently. Further expansion of the college took place with the introduction of B.Sc. (H) in Biochemistry, Chemistry and

Mathematics, addition of Nutrition and health Education (NHE) and Office Management and secretarial practice (OMSP) and subjects in B.A. (Pass). The college building which was constructed in the 1960s was further expanded to cater to the growing needs of the students. A new block of tutorial rooms, a modern seminar hall, new class rooms and science laboratories for Physics, NHE and Biochemistry were added. Subsequently, a computer lab open to all students with an internet facility was added. Currently the college has add-on courses in foreign languages. At present there are 19 departments with about 4200 students

on rolls, about 180 teaching staff and 75 non-teaching staff. The college has a well-equipped computerized library, facility for gymnastics, table tennis, athletics and other games and holds leading positions both in academics and sports. Recently a well equipped Conference Hall with a capacity of 200 students has been built. The college holds a leading position both in academics as well as in co-curricular activities such as dramatics, music, debates and sports. Students can participate in various societies, N.S.S., Sports and N.C.C. To help the students to cope with the new environment of the college and many other contemporary issues & problems, the Psychology Department runs a Counseling Centre. The In-House Skill Development Programmes being offered by the college equip the students to deal with daily challenges and create an identity for themselves. The highly qualified and experienced teaching faculty of the college is not just limited to classroom teaching but also in taking up various prestigious research projects from organizations like DRDO, ICSSR, UGC, University of Delhi, etc. where the students also get an opportunity to work. The college student's hostel capacity of nearly 204 students is one of the best maintained in the University of Delhi. The college boasts of a modern auditorium named Sadbhavana Bhawan is ideally suited for theatre activities with a large cast. All-in-all, the college provides a holistic experience to its students, by working on their intellectual, emotional and spiritual development.

MISSION | VISION

MISSION

The Daulat Ram College is enshrined in its motto "Salvation through knowledge" i.e to disseminate knowledge in science, commerce and liberal arts among girls to make them empowered and to enriched women capable of bringing social change.

VISION

The goals and objectives are to educate, implement, engage, inculcate and instill in them right values with modern education which will develop their personality and interpersonal skills.

Geo Location
Geo Coordinates from Google maps:
28.6881755, 77.2052532

AUDIT PARTICIPANTS

On behalf of College

Name	Designation
Prof. (Dr.) Savita Roy	*Principal*
Prof. (Dr.) Sarita Nanda	*Vice Principal & Audit Coordinator*
Ms. Rajni sahni	*Convener, IQAC*
Mr. Devendra Kumar	*Member, IQAC*
Ms. Shristy Kasana	*Co-Convener, NSS Team*
Dr. Asmita Gupta	*Member, NSS, Botany and Garden Committee*
Dr. Sunita George	*Member, Garden Committee*
Prof. Priti Malhotra	*Chemistry Department*
Ms. Suranjita Roy	*Member, IQAC*
Dr. Anju Jain	*Convener, Eco Club*
Ms. Radhika Gupta	*Member, Eco Club & EVS*
Mr. S. Devan	*Caretaker*

On behalf of EHS Alliance Services

Name	Position	Qualifications
Mr. Vijay Singh	Lead Auditor	*M.Sc. M. Tech (Environment Science & Engineering), Energy Auditor, Post Diploma in Industrial Safety Management*
Dr. Uday Pratap	Co-Auditor	*Ph.D., EMS: Lead Auditor ISO14001:2015, QCI–WASH*

EXECUTIVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the Daulat Ram 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 Daulat Ram College. The report provides a list of possible actions to preserve and

efficiently access the available source, and 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 Daulat Ram College.

ENERGY AUDIT - ANALYSIS

1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and to analyze the average monthly consumption we have collected electricity energy bills from July 2022 to June 2023

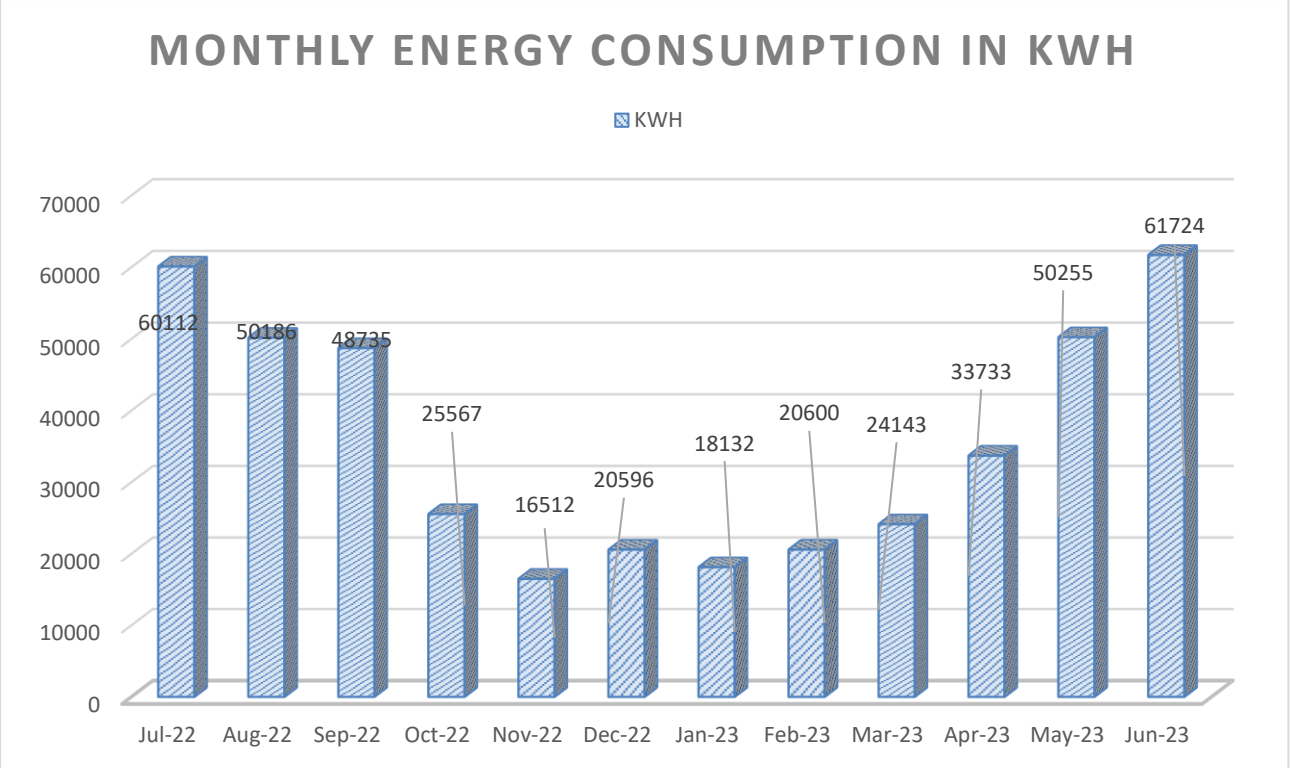
The details of **"Meter Connection"** at **"Daulat Ram College"** are as follows-

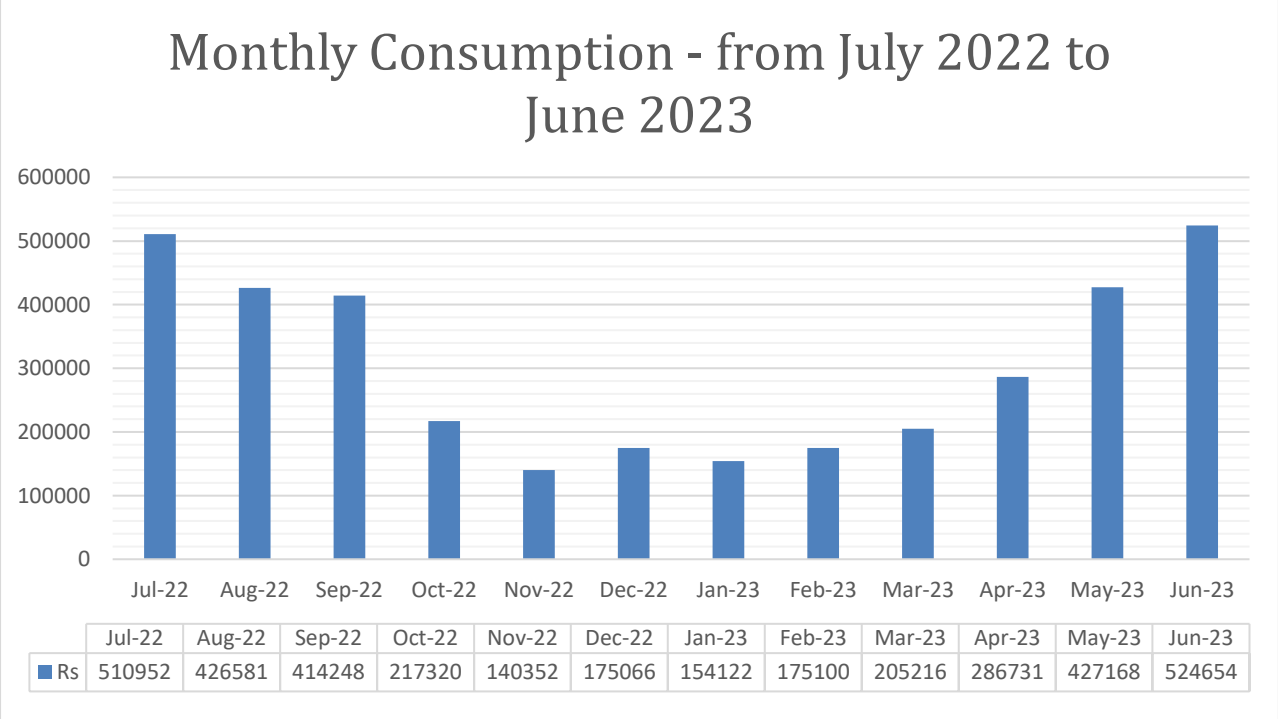
Name	-	Daulat Ram College, Delhi
CA No.	-	60000138333

1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and to develop the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2022 to June 2023

Month	Grid Billing	Solar PV	Total Readings	Rate INR	Amount in INR
Jul-22	60112	8.50	0	60112	510952
Aug-22	50186	8.50	0	50186	426581
Sep-22	48735	8.50	0	48735	414248
Oct-22	25567	8.50	0	25567	217320
Nov-22	16512	8.50	0	16512	140352
Dec-22	20596	8.50	0	20596	175066
Jan-23	18132	8.50	0	18132	154122
Feb-23	20600	8.50	0	20600	175100
Mar-23	24143	8.50	0	24143	205216
Apr-23	33733	8.50	0	33733	286731
May-23	50255	8.50	0	50255	427168
Jun-23	61724	8.50	0	61724	524654
SUM	430295		0	430295	3657508



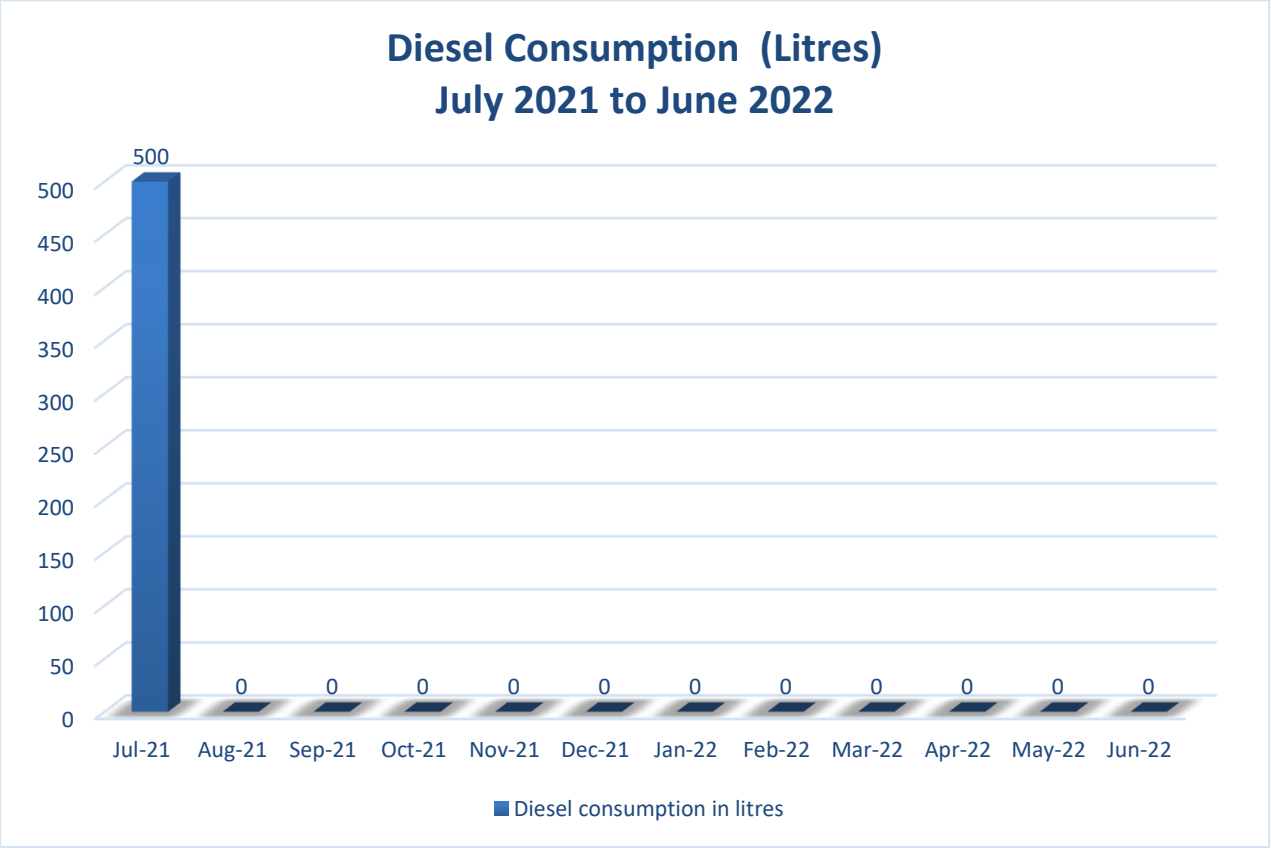


	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Rs	510952	426581	414248	217320	140352	175066	154122	175100	205216	286731	427168	524654

2. DIESEL CONSUMPTION

Below is the diesel consumption details in liters from July 2022 to June 2023.

Period	Diesel consumption (in litres)
Jul-22	500
Aug-22	
Sep-22	
Oct-22	
Nov-22	
Dec-22	
Jan-23	
Feb-23	
Mar-23	
Apr-23	
May-23	
Jun-23	
Total	**500**



3. ANALYSIS OF DG SETS

Not available

4. AC SYSTEM

Energy Efficiency Ratio (EER): The 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 Split and windows ACs installed in Daulat Ram College in various areas of various capacity which detail is given below:-

SL. No.	Location/Identification	Type(Window/Split)	Qty.	T R.	Room Temp. (°C)	AC-Tout (°C)	AC-Tin (°C)	Room-RH (%)	Area (m2)	Air velocity (m/s)	Enthalpy Hout	Enthalpy Hin	Heat Load in TR	KW supplied	(Eff.)Power per Ton (KW/TON)	EER
1	Biochemistry Department	w	6	1.5	24	11	20	52	0.03	2.2	22	38	0.37	0.66	1.79	1.97
2	Biochemistry Department	w	1	2	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
3	Biochemistry Department	w	1	1	23	12	22	53	0.03	2.2	24	42	0.41	0.72	1.75	2
4	Biochemistry Department	s	6	1.5	23	12	20	53	0.03	2.6	25	38	0.35	0.67	1.9	1.85
5	Botany Department	w	6	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.63	1.65	2.14
6	Botany Department	s	7	1.5	24	12	20	53	0.03	2.3	24	39	0.36	0.64	1.79	1.96
7	Chemistry Department	w	1	1.5	23	12	22	53	0.03	2.3	24	42	0.43	0.71	1.63	2.15
8	Chemistry Department	s	3	1.5	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
9	Library	w	7	1.5	24	11	20	52	0.03	2.2	22	38	0.37	0.66	1.79	1.97
10	Library	w	8	1	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
11	Library	s	8	2	23	12	22	53	0.03	2.2	24	42	0.41	0.72	1.75	2
12	NHE	w	1	1.5	24	12	21	52	0.03	2.2	24	39	0.34	0.66	1.92	1.83
13	NHE	s	1	2	24	11	20	52	0.03	2.3	22	38	0.38	0.63	1.65	2.14
14	Physical Education	s	17	2	24	12	21	52	0.03	2.2	24	39	0.34	0.66	1.92	1.83
15	Physical Education	w	1	1.5	23	12	20	53	0.03	2.6	25	38	0.35	0.67	1.9	1.85
16	Physics Department	s	4	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.63	1.65	2.14
17	Physics Department	s	2	2	24	12	21	52	0.03	2.2	24	39	0.34	0.66	1.92	1.83
18	Physics Department	w	11	1.5	23	12	22	53	0.03	2.3	24	42	0.43	0.71	1.63	2.15
19	S.B Auditorium	s	2	2	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11

20	S.B Auditorium	w	3	1.5	24	11	20	52	0.03	2.2	22	38	0.37	0.66	1.79	1.97
21	Zoology Department	s	1	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
22	Maths Lab	s	1	2	23	12	22	53	0.03	2.2	24	42	0.41	0.72	1.75	2
23	Commerce Lab	s	2	2	23	12	20	53	0.03	2.6	25	38	0.35	0.67	1.9	1.85
24	Commerce Lab	w	11	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.63	1.65	2.14
25	Office(Admin)	s	2	2	24	12	20	53	0.03	2.3	24	39	0.36	0.64	1.79	1.96
26	Account	s	4	2	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
27	Bursar Room	s	1	2	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
28	Committee Room	s	1	2	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
29	P.A to Principal	s	1	2	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
30	Principal Office	s	2	2	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
31	Staff Room	w	5	1.5	24	12	20	53	0.03	2.3	24	39	0.36	0.64	1.79	1.96
32	Conference Hall	s	4	2	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
33	Seminar Hall	s	4	1.5	24	12	20	53	0.03	2.3	24	39	0.36	0.64	1.79	1.96
34	Medical Room	s	1	1.5	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
35	Music Department	s	1	2	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
	TOTAL		137													

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

Also, we recommend Daulat Ram College to organize a periodic maintenance schedule and take corrective actions for insulating AC's refrigerant lines to protect energy losses. Also, we recommend replacing old ACs with new dual-inverter-based star-rated Acs that are more energy-efficient than existing ones.

5. FANS ANALYSIS

In the Daulat Ram College, there are 407 fans installed. The observations and suggestions are given below.

Sl. No.	Location/Identification	Ceiling Fan 50W	Ceiling Fan 60W	Ceiling Fan 70W	Pedestal Fan	Bracket Fan 45W
1	Biochemistry Department		25	3		
2	Botany Department	25				5
3	Chemistry Department	16		6		5
4	Library			14		52
5	NHE	3				1
6	Physical Education					40
7	Physics Department	15	4		3	
8	S.B Auditorium	45			10	23
9	Zoology Department	11	20			
10	Maths Lab	5				
11	Commerce Lab	7				
12	Office Admin	6				2
13	Account	2				2
14	Bursar Room	1				
15	Committee Room	4				
16	P.A to Principal	2				
17	Principal Office	6				
18	Staff Room	8				8
19	conference Hall					
20	Seminar Hall	11				
21	Medical Room	1				
22	Music Department	2				
23	Canteen	8				
24	Recycle Unit	6				
	TOTAL	184	49	23	13	138

Observation and Suggestions: -

Total no of Ceiling Fans (60W)	Nos.	49
Total no of Ceiling Fans (70W)	Nos.	23
Total no of Ceiling Fans (Other W)	Nos.	0
Total wattage of 60W Ceiling Fans	Watt	2940
Total wattage of 70W Ceiling Fans	Watt	1610
Total wattage of Other W Ceiling Fans	Watt	0
Total wattage of BEE 5 Star rated Fans (30W)	Watt	2160

Total saving in Wattage after replacement	Watt	2390
Operating hours per day	Hours	6
Operating days per annum	Days	180
Energy charges per unit in Rs.	INR	10
Saving in Rs./annum	INR	25812
Investment INR	INR	180000
Payback period: - Months	YEARS	6.97

30W Ceiling Fans are present in the market, still we do not recommend replacing BEE 5 Star rated 30W fans, as the buyback period is approx. 7 years. So, we recommend the college to consider purchasing BEE 5-star fans for all future purchases.

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

6. ANALYSIS OF LIGHTING SYSTEM

6.1 Brief description of the existing system

For assessing the energy efficiency of the lighting system, an 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 the working level has been done.

6.2 Inventory of Lighting

Sl. No.	Location/Identification	60W LED	60W LED Outdoor	12W LED Round	36W LED	32W LED	39W LED	18W LED Flood	36W LED Flood	17W LED	20W LED	20W LED FOB Aly Side	10W LED Glow Shine
1	Biochemistry Department				22				11				
2	Botany Department						52						13
3	Chemistry Department			3							44		
4	Library			88	86					52			
5	NHE				6						4		

6	Physical Education			167	27								
7	Physics Department								30			13	
8	S.B Auditorium	12		4	9			1			48		
9	Zoology Department								36		36		
10	Maths Lab										12		
11	Commerce Lab										4		
12	S.B Auditorium	12		4							48		8
13	Office Admin								9		2		
14	Account								16		2		
15	Bursar Room										2		
16	Committee Room								12		1		
17	P.A to Principal										6		
18	Principal Office				6				s		2		
19	Staff Room										18		
20	conference Room										21		
21	Seminar Hall								2		5		
22	Medical Room										2		
23	Music Department										2		
24	College Canteen				10						2		
25	Recycle Unit					3					8		
26	Street Light		18										
27	Street Light / Soler							42					
	TOTAL	24	18	266	166	3	52	43	116	52	269	13	21

6.3 Lux Measurement

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

Observation

The college has initiated an LED-based lighting solution, but still, there are some 36W tube lights. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend replacing the tube lights with LEDs.

Additionally, we recommend to

- Install motion sensor-based lights in common areas such as library, washrooms, corridors, etc.
- Install solar lights for open areas like parking, ground, street lights, etc. Table below shows the performance characteristics comparison of all luminaries.

Table - Luminous Performance Characteristics of Commonly Used Luminaries

Type of Lamp	Lumens/Watt		Colour Rendering Index	Typical Application	Typical Life
	Range	Avg.			
Incandescent	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
Fluorescent lamps	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
Compact fluorescent Lamps (CFL)	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
High pressure mercury (HPMV)	44-57	50	Fair (45)	General lighting in factories, garages, car parking. flood lighting	5000
Halogen lamps	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
High pressure sodium (HPSV) SON	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
Low pressure sodium (LPSV) SOX	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
Metal halide lamps	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
LED Lamps	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

Sl. NO.	Department	No. of Desktop	No. of Printer	No. of laptop	No. access point	No. of projector	No. of smart Board projector
1	Principal Office	3	4	1	1	-	-
2	CFL	2	2	1	-	-	-
3	Admin	9	9	-	-	-	-
4	Accounts	9	9	-	-	-	-
5	Caretaker Room	1	1	2	1	-	-
6	Commerce Lab	50	1	-	1	-	1
7	Math lab	25	2	-	-	1	-
8	Physics Lab	-	2	50	1	2	-
9	Psychology Lab	11	3	4	1	3	2
10	Botany Lab	10	5	30	2	5	-
11	Chemistry	4	5	-	2	2	1
12	NHE Lab	1	1	-	-	-	-
13	Bio-Chemistry	7	2	2	2	3	-
14	Zoology Lab	1	1	-	1	3	-
15	Library	24	6	-	1	1	-
16	Conferences Hall	-	-	-	1	1	-
17	Conference Hall Sadbhavna Bhwan	-	-	-	-	1	-
18	Seminar Hall	-	-	-	-	-	-
19	Room no. 104	-	-	-	-	-	1
20	Room No. 106	-	-	-	-	1	-

21	Room no.105	-	-	-	-	1	-
22	Room no. 107	-	-	-	-	1	-
23	Z5	-	-	-	-	1	-
24	CLT	-	-	-	-	1	-
25	BLT	-	-	-	-	1	-
26	ZLT	-	-	-	-	1	-
27	Teachers Staff Room	-	-	-	1	-	-
	TOTAL	157	53	90	15	29	5

7.2 Water pump details

Description	Rated Power of Motor	Motor Eff %	Discharge Hed	Suction Head	Pump Type
Pump No 1	0.75/1 HP	80%	65	18-45	Submersible
Pump No 2	0.75/1 HP	80%	65	18-45	Submersible
Pump No 3	0.75/1 HP	80%	65	18-45	Submersible
Pump No 4	1.5/2 HP	80%	65	80	Monoblock
Pump No 5	1.5/2 HP	80%	65	80	Monoblock
Pump No 6	1.5/2 HP	80%	65	80	Monoblock
Pump No 7	1.5/2 HP	80%	65	80	Monoblock
Pump No 8	1.5/2 HP	80%	65	80	Monoblock
Pump No 9	1.5/2 HP	80%	65	80	Monoblock

7.3 Exhaust fan details

Sl. No.	Location/ Identification	60W Exhaust Fan	160W Exhaust Fan	Water Cooler-200W	180W Desert Cooler	180W Circulating Fan	R.O
1	Biochemistry Department	3	3		1		4
2	Botany Department	7					
3	Chemistry Department	3	3				2
4	Library	3					
5	NHE	1					
6	Physical Education	8					
7	Physics Department	1					1
8	S.B Auditorium	12	4		3		

9	Zoology Department	3					
10	Math Lab						
11	Commerce Lab						
12	Office Admin						
13	Account					4	
14	Bursar Room						
15	Committee Room						
16	P.A to Principal						R.O-1
17	Principal Office						
18	Staff Room						R.O-1
19	Conference Hall Outside			1			
20	First Floor Corridor			1			
21	Ground Floor Corridor			1			
22	Medical Room						R.O-1

ANALYSIS

There should be a regular maintenance schedule of equipment like pumps, exhaust fans, and IT equipment. Electronics such as computers, printers, scanners, etc. more than 3 years 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

Not available

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