



Kirori Mal College

UNIVERSITY OF DELHI

NAAC Accredited A + grade with 3.54 CGPA



ENERGY AUDIT REPORT



Prepared by
EHS ALLIANCE SERVICES



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CERTIFICATE



CERTIFICATE

PRESENTED TO

M/S KIRORI MAL COLLEGE

North Campus, University of Delhi, University Enclave, 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

The energy-saving initiatives carried out by the College 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 College and sustainability are highly appreciated and noteworthy.

SIGNATURE



05.10.2021

DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001
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ACKNOWLEDGEMENT

EHS Alliance Services Audit Team thanks the management of Kirori Mal College for assigning this important work of Energy Audit of the college. We appreciate the co-operation to our team for completion of study.

Our special thanks are due to

- **Prof. Vibha Singh Chauhan** – Principal
- **Prof. Shiv Kumar Kaushik** – Vice Principal
- **Prof. Anita Kamra Verma** – Professor – Department of Zoology
- **Dr. M. Ramananda Singh** - Associate Professor, Coordinator - IQAC
- **Mr. Ram Sunil Kumar Lalji** – Asst. Professor, Member - IQAC
- **Mr. Shri Krishan** – Caretaker

We are also thankful to the staff members for giving us the necessary inputs to carry out this very vital exercise of Environment Audit, who were actively involved while collecting the data and conducting field measurements.





DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for Kirori Mal 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.

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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.

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 Program
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



INTRODUCTION OF COLLEGE

The beginnings of Kirori Mal College are deeply connected with the becoming of India as a nation. Its roots go back to 1951 when it was established as Nirmala College by the American Jesuits. Coming into existence so close to the partition of the country, the college represented in many ways, the anguish as well as the hopes of the times. It was situated in an evacuee building in the crowded, commercial area of Qutub Road in Old Delhi. In July 1954, the college with the name Kirori Mal College was established and was allotted land on the fringes of the University Enclave better known as the North Campus. The first President of the Indian Republic, Dr Rajendra Prasad, laid the foundation stone of the present college building in the summer of 1955, thus certifying the priority the Government of India accorded to the establishment and the flowering of this institution. With generous funds from both the Government of India (ensured by the then Education Minister Mr Humayun Kabir) and the Seth Kirori Mal Charitable Trust along with the tireless strivings of the famous architect duo Anand Apte and Jhabwala, a wild, stinking, hitherto uninhabitable tract of land was transformed into an impressive and imposing premises of a new, modern, secular institution of higher learning within the span of one year.





Kirori Mal College today stands at the cusp between the past and the future. While it retains inspiring facets of its proud history, with an equally sharp gaze it looks ahead, assimilating the exciting world of new knowledge as it unfolds in front of it, holding the promise an experience seeped with exhilarating learning and holistic growth for all those who enter its portals.

This college believes in providing the students an environment rich in knowledge and supportive of their extracurricular interests. The college encourages a quest for knowledge that is rooted in an ethical understanding of the world that we inhabit and this enthusiasm for learning along with a desire to evolve into socially responsible beings is reflected not only in the academic atmosphere but also visible in the field of extra-curricular activity. Their tradition of excellence in theatre, art and music only adds to the richness of the academic fabric of the college. You will encounter the unique combination of social activism, creativity and learning in every discipline and every corner of this institution.



Over the years, the college has built up an impressive array of academic facilities such as a fully computerized library, a state of the art computer center and an active placement cell. Their endeavor is to make individuals more mature, responsible and socially aware.



Kirori Mal College imparts education to Undergraduates in the following programs:

Arts	B.A. Programs	Commerce	Science
<ul style="list-style-type: none"> •B.A. (Programme) •B.A. (Programme) with Bengali •B.A. (H) Economics •B.A. (H) English •B.A. (H) Geography •B.A. (H) Hindi •B.A. (H) History •B.A. (H) Political Science •B.A. (H) Sanskrit •B.A. (H) Urdu 	<ul style="list-style-type: none"> •Political Science and History •Economics and Political Science •Political Science and Philosophy •History and Economics •Philosophy and History •Economics and Philosophy •Bengali Disc. and Political Science •Bengali Disc. and History •English Disc. and Political Science •Hindi Disc and Political Science 	<ul style="list-style-type: none"> •B.Com. (Hons.) •B.Com 	<ul style="list-style-type: none"> •B.Sc. Physical Sciences •B.Sc. Physical Sciences with Computer Science Option •B.Sc. Life Science •B.Sc. Applied Physical Sciences (Analytical Chemistry) •B.Sc. (H) Botany •B.Sc. (H) Chemistry •B.Sc. (H) Physics •B.Sc. (H) Mathematics •B.Sc. (H) Statistics •B.Sc. (H) Zoology





Vision

The college aims to have an impact on society through constant innovation in education, research, creative solutions, and entrepreneurship and to develop excellent leadership through hard work and creativity. College also wants to create an outstanding educational experience for students focused on profound disciplinary knowledge; problem solving; leadership, communication, and interpersonal skills; and physical and mental well-being.

Mission

Their mission is to enhance performance and effectiveness of the institution and to build capacity through effective linkages with Institutions of Higher Education. The institution needs infrastructural strengthening and technological support for creating research environment. They also need to apply holistic quality standards for teaching learning and research. Student-teachers should be provided opportunities for self-learning, reflection, assimilation and articulation of new ideas.

Core Values

Excellence: The College aims to provide an outstanding setting to their faculty, staff, and students to flourish. Innovative solution is as the application of better solutions that meet new requirements, unarticulated needs, or existing needs in our society.

Respect: Research should be intended for at solutions aimed best for people, communities and the environment.

Inclusiveness: They aim to create a research environment that supports, represents, embraces and engages members of diverse community and background and gender.

Integrity: Integrity is critical for the institutional effectiveness. College aims to pursue the utmost level of personal, intellectual, academic, financial and operational integrity in the community.



Geo Location
Geo Coordinates from Google maps:
28.6830334, 77.2077194





Audit Participants

On behalf of College

Name	Position/Department
Prof. Vibha Singh Chauhan	Principal, Kirori Mal College
Prof. Shiv Kumar Kaushik	Vice Principal, Kirori Mal College
Prof. Anita Kamra Verma	Professor – Department of Zoology
Dr. M. Ramananda Singh	Associate Professor, coordinator - IQAC
Mr. Ram Sunil Kumar Lalji	Asst. Professor, Member - IQAC
Mr. Shri Krishan	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 Kirori Mal 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 college was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the college 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 Kirori Mal 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 Kirori Mal College.





ENERGY AUDIT ANALYSIS

1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from Oct 2020 to Sep 2021

The details of “**Meter Connection**” at “**Kirori Mal College**” are as follows-

Name - Kirori Mal College (Building) and Kirori Mal College (Hostel)
CA No. - 60000008668 and 60016577235

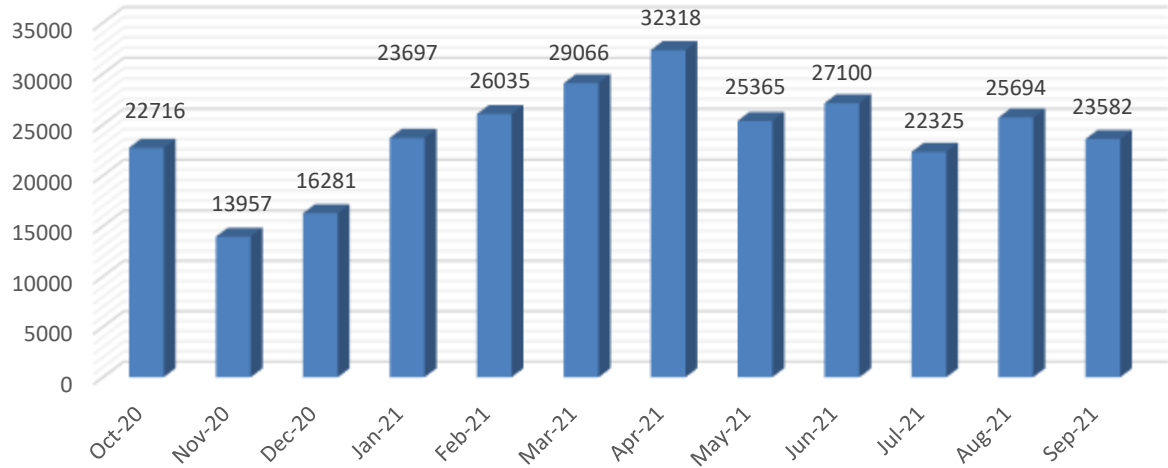
1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

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 Oct 2020 to Sep 2021

Month	GRID kWh	Solar kWh	Units (KWH)	Amount (INR)
Oct-20	22716	0	22716	193,086.00
Nov-20	3160	10797	13957	64,649.50
Dec-20	24	16658	16682	58,507.00
Jan-21	7440	16257	23697	120,139.50
Feb-21	0	26035	26035	91,122.50
Mar-21	0	29066	29066	101,731.00
Apr-21	0	32318	32318	113,113.00
May-21	0	25365	25365	88,777.50
Jun-21	0	27100	27100	94,850.00
Jul-21	0	22325	22325	78,137.50
Aug-21	0	25694	25694	89,929.00
Sep-21	887	22695	23582	86,972.00
Total	34227	254310	288537	1181014.5



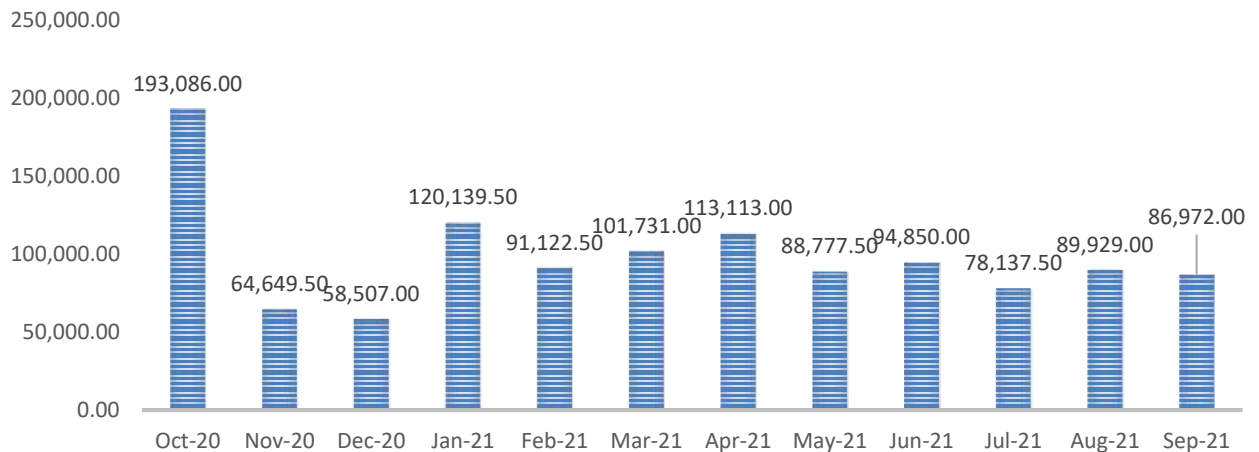
Monthly Energy Consumption in KWH



	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
■ KWH	22716	13957	16281	23697	26035	29066	32318	25365	27100	22325	25694	23582

■ KWH

MONTHLY ENERGY CHARGES - OCT 2020 TO SEP 2021



	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
■ Rs	193,086.	64,649.5	58,507.0	120,139.	91,122.5	101,731.	113,113.	88,777.5	94,850.0	78,137.5	89,929.0	86,972.0



2. DIESEL CONSUMPTION

Below is the diesel consumption details in litre from October 2020 to September 2021.

Period	Diesel consumption (in litres)
Oct-20	0
Nov-20	0
Dec-20	180
Jan-21	0
Feb-21	0
Mar-21	0
Apr-21	0
May-21	0
Jun-21	0
Jul-21	0
Aug-21	0
Sep-21	0
Total	180

3. ANALYSIS OF DG SETS

In the college, there is one Diesel Generator (DG) sets for its electrical power needs in case of Grid power failure. Total installed 1DG set and capacity is 400 kVA.

DG Set Design Details		
Description	Unit	DG at Station
Rated capacity	kVA	400 KVA
Hz		50
Sl No.		JC/WC/400/SIL4200K
Make		Kirloskar
Volts	Volts	415 Volts
PF		0.8
Phase		3 Phase
RPM		1200
Amps	Amps	445.2
Mfg.		12 Sept, 2011

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	62.57
Energy Generation	kWh	40.43
Load	KVA	80.3
Fuel consumption during testing	Litre	10
Specific energy generation	kWh/litre	3.34

Observation and Suggestions:- As per the trial taken during the energy audit the percentage loading of DG set is 62.57% which is ok and specific energy consumption of DG Sets 3.34 KWH/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/litre and above.

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 Split ACs installed in Kirori Mal College in various areas of various capacity which detail is given below:-



SI No.	Location/Identification	Type (Window/Split) - W/S	0.75 TR(Qty.)	1.5 TR (Qty.)	2 TR (Qty.)	5000 W	4500 W	1500 W - 2000 W	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	IQAC Room	S	-	1	-	-	-	-	23	11	19	52	0.03	2	22	37	0.33	0.58	1.74	2.02
2	Prayas Room No. 03	S	-	1	1	-	-	-	23	13	20	52	0.03	2.3	26	38	0.31	0.53	1.74	2.02
3	Prayas Room No. 03	W	1	-	-	-	-	-	23	12	20	52	0.03	2.2	25	38	0.32	0.55	1.74	2.03
4	Room No. 19 (Academic Auditorium)	C	-	-	-	8	-	-	23	12	19	52	0.03	2.3	24	37	0.33	0.58	1.74	2.02
5	Principal Office	S	-	1	-	-	2	-	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
6	Vice Principal	W	-	1	-	-	-	-	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
7	Staff Room	W	-	7	-	-	-	2	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
8	Girls Room	S	-	-	-	-	-	2	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
9	Medical Room	S	-	-	-	-	-	1	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
10	Administrative Office	W	-	-	-	-	-	1	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
11	Bursar Room	S	-	1	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
12	Warden Office	S	-	-	-	-	-	1	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
13	Reading Room	W	-	-	-	-	-	1	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
14	Seminar Room (Near Library)	C	-	-	-	-	-	3	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
15	Computer Room	W	-	-	-	-	-	1	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
16	Raedingh Hall 2	W	-	-	-	-	-	3	22	11.5	22	52	0.03	2.1	23	43	0.44	0.77	1.77	1.99
17	Chemistry Deptt. (Staff Room)	W	-	2	-	-	-	-	22	10	19	52	0.03	2.2	20	37	0.39	0.78	1.99	1.77
18	Research Lab.	W	-	1	-	-	-	-	23	11	21	53	0.03	2.5	24	40	0.42	0.74	1.77	1.99
19	Techer Staff Room No. 1	W	-	1	-	-	-	-	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
20	Phy. Lab 3	S	-	2	-	-	-	-	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
21	Teacher incharge room	W	-	1	-	-	-	-	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
22	2nd Floor 212 room no.	W	-	3	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
23	2nd Floor 213 room no.	S	-	3	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
24	GYM	S	-	6	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
25	Gallery Office GYM	S	-	1	-	-	-	-	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
26	Pramod Sir Office	W	-	1	-	-	-	-	22	11.5	22	52	0.03	2.1	23	43	0.44	0.77	1.77	1.99



27	Botany Lab 2	S	-	4	-	-	-	-	23	11	21	52	0.03	2.4	24	40	0.4	0.72	1.8	1.95
28	Botany Lab 1	S	-	3	-	-	-	-	23	11	21	53	0.03	2.5	24	40	0.42	0.74	1.77	1.99
29	Zoology Lab 2	S	-	2	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
30	Zoology Lab 1	S	-	2	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
31	Commerce Deptt.	W	-	3	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
32	Room No, 212	W	-	3	-	-	-	-	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
33	Statistics Deptt. 1st Flr	W	-	4	-	-	-	-	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
34	Room No, 103	W	-	1	-	-	-	-	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
35	Computer Lab 1	S	-	-	-	2	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
36	Computer Lab 4	S	-	-	-	-	2	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
37	Account Room	S	-	2	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
38	Room No. 109	W	-	1	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
39	Lab. 3	W	-	3	-	-	-	-	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
40	Porta Cabin	S	-	1	-	-	-	-	22	11.5	22	52	0.03	2.1	23	43	0.44	0.77	1.77	1.99
41	Sr. Technical Assistant	W	-	3	-	-	-	-	23	11	21	52	0.03	2.4	24	40	0.4	0.72	1.8	1.95
42	Room No. 109	W	-	1	-	-	-	-	23	11	21	53	0.03	2.5	24	40	0.42	0.74	1.77	1.99
43	Computer Lab 2 Room No. 25	S	-	2	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
44	Deptt. Computer Science Labs	W	-	2	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
45	Deptt. Computer Science Lab 3	W	-	3	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
46	Sr. Technical Assistant (Computer /Sarver Room)	W	-	2	-	-	-	-	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
47	Porta Cabin	W	-	1	-	-	-	-	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
48	Account Deptt.	S	-	2	-	-	-	-	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
49	Admin. Office	S	-	4	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
50	Statistics Deptt. Lab.	W	-	4	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
51	Chem. Teacher in charge room	W	-	1	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
52	Micro Biology Lab 5	W	-	1	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
53	LSTL 2	S	-	1	-	-	-	-	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
54	Zoology Staff Room	S	-	1	-	-	-	-	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
55	Animal T. Culture Lab	W	-	2	-	-	-	-	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
56	Biotechnology Lab 4	S	-	3	-	-	-	-	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
57	Botany Staff Room	S	-	1	-	-	-	-	22	11.5	22	52	0.03	2.1	23	43	0.44	0.77	1.77	1.99
58	CEC	S	-	0	0	4	-	-	23	11	21	52	0.03	2.4	24	40	0.4	0.72	1.8	1.95



Remarks: - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future we recommend KMC to 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.

5. CEILING FANS ANALYSIS

In the KMC College, 855 Ceiling Fans are installed, out of which 52 are of 240 W, 802 fans are of 70W and 1 fan is of 40W. The observation and suggestion are given below.

Fan Type	Fan Count
Ceiling Fan - 240W	52
Ceiling Fan - 70W	802
Ceiling Fan - 40W	1
TOTAL	855

Observation and Suggestions:-

In the college, majority of ceiling fans are of 70W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. Therefore we suggest to replace existing fans with BEE 5 Star rated fans of 30W. On priority basis, the college should replace 52 fans (240 watts) immediately with BEE 5 star fans (30 watts).

ECRM-1-Energy saving by replacing 70/240 W fans with energy-efficient 30W ceiling fans

Total no of Ceiling Fans (70W)	=	802	Nos.
Total no of Ceiling Fans (240W)	=	52	Nos.
Total wattage of 70W Ceiling Fans	=	56140	Watt
Total wattage of 240W Ceiling Fans	=	12480	Watt
Total wattage of BEE 5 Star rated Fans (30W)	=	25620	Watt
Total saving in Wattage after replacement	=	44508	Watt
Operating hours per day	=	8	Hours
Operating days per annum	=	200	Days
Energy charges per unit in Rs.	=	8.5	INR
Saving in Rs./annum	=	605308.80	INR
Investment INR	=	2562000.00	INR
Payback period:- Months	=	4.23	YEARS



Note:- Energy saving will increase or decrease if operating hours of machine /equipment will be increase or decrease 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.	Location/Identification	200W-LED High Mast	190W-LED High Mast	60W LED	50W - 60W LED Outdoor	18W LED Light	150W LED	18W LED Flood	38W LED Flood	20W LED	100W-RGP Light	20W LED-FOB Aly Side	20W LED Glow Shine	100W LED-Shine Board	40W – Tube Lights	22 W LED-	15 W LED-	9 W	28 W
1	IQAC Room	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
2	Deptt. Of Eco. Room No. 02	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
3	Prayas Room No. 03	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-
4	Deptt. Of Urdu Room No. 04	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-
5	Room No. 05	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-	-	-
6	Room No. 06	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
7	Room No. 07	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-
8	Room No. 07 A	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-	-	-	-
9	Room No. 08	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
10	Room No. 09	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-



11	Room No. 10	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
12	Room No. 11	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-
13	Room No. 12	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
14	Room No. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
15	Deptt. English Room No. 14	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
16	Room No. 16	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
17	Room No. 15	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
18	Room No. 20	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-
19	Room No. 19 (Academic Auditorium)	1 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-
20	Room No. 20 (Gallery)	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-
21	Gents toilet (Administrative block)	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
22	Lift	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	6	-	-
23	Room No. 17 (Deptt. Of Hindi)	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
24	Back Side Room No. 16	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Principal Office	1 1	-	-	-	-	-	-	1	-	-	-	6	-	-	-	-	-	-
26	Vice Principal	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
27	Staff Room	-	-	-	-	-	-	-	-	-	-	-	33	-	14	-	-	-	-
28	Girls Room	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-
29	Medical Room	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
30	Administrative Office	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
31	Information Desk	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-
32	Bursar Room	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
33	Store Room	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
34	Principal Porch	4	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
35	Student Union Room	4	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
36	Boys Common Room	1 0	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
37	Main Building (Ashaka Park Side Car Parking)	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
38	Gate 1 (Guard Room)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-



39	Multi Purpose Hall	10	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
40	Guard Room	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
41	Warden Office	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
42	Room No. 01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	9	-
43	Room No. 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
44	Room No. 03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
45	Room No. 04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
46	Room No. 05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
47	Room No. 06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
48	Room No. 07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
49	Room No. 08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
50	Room No. 09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
51	Room No. 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
52	Room No. 11	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
53	Room No. 12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
54	Room No. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
55	Room No. 14	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
56	Room No. 15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
57	Room No. 16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
58	Room No. 17	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
59	Room No. 18	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
60	Room No. 19	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
61	Room No. 20	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-
62	Room No. 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
63	Room No. 22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
64	Room No. 23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
65	Room No. 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
66	Room No. 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
67	Room No. 26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
68	Room No. 27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
69	Room No. 28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
70	Room No. 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
71	Room No. 30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
72	Room No. 31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
73	Room No. 32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
74	Room No. 33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
75	Room No. 34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
76	Room No. 35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-



77	Room No. 36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
78	Room No. 37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
79	Room No. 38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
80	Room No. 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
81	Room No. 40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
82	Room No. 41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
83	Room No. 42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
84	Room No. 43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
85	Room No. 44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
86	Room No. 45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
87	Room No. 46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
88	Room No. 47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
89	Room No. 48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
90	Room No. 49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
91	Room No. 50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
92	Room No. 51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
93	Room No. 52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
94	Room No. 53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
95	Room No. 54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
96	Room No. 55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
97	Room No. 56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
98	Room No. 57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
99	Room No. 58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
100	Room No. 59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
101	Room No. 60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
102	Room No. 61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
103	Room No. 62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
104	Room No. 63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
105	Room No. 64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
106	Room No. 65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
107	Room No. 66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
108	Room No. 67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
109	Room No. 68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
110	Room No. 69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
111	Room No. 70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
112	Room No. 71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
113	Room No. 72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
114	Room No. 73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
115	Room No. 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-



116	Room No. 75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
117	Room No. 76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
118	Room No. 77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
119	Room No. 78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
120	Room No. 79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
121	Room No. 80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
122	Room No. 81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
123	Room No. 82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
124	Room No. 83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
125	Room No. 84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
126	Room No. 85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
127	Room No. 86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
128	Room No. 87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
129	Room No. 88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
130	Room No. 89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
131	Room No. 90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-
132	Room No. 01 to Room No. 08 (Gallery)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
133	Room No. 09 to Room No. 16 (Gallery)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
134	Block B (Ground)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
135	Block A, B, C, D (Ground)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-
136	Block C (Gallery)	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
137	Block D (Gallery)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
138	Room No. Wash Room	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
139	Drinking Water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
140	Wash Room	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141	Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
142	Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
143	Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
144	Gallery from 77 to 87	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-
145	Reading Room	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-
146	Dining Hall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	8
147	Store	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	-	-
148	Dining Hall Back Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
149	Hostel S.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	4	-	-	-



150	Canteen	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
151	Seminar Room (Near Library)	-	-	2	-	0	-	-	-	-	-	-	-	-	-	1	-	-	-
152	N. S. Library Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
153	Computer Room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
154	Stack Hall 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-
155	Library Hall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
156	Reading Hall 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
157	Library S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
158	Chemistry Deptt. (Staff Room)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
159	Research Lab.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
160	Gents Toilet (Chemistry)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
161	Teacher Staff Room No. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
162	Specially Abled (Chemistry)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
163	Chemistry Lecture Theatre1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-
164	Chemistry Lab. 1 (Staff Room)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
165	CLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
166	Chemistry Lab. 2 (Just Side)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
167	CLT 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
168	PLT 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
169	PLT 1 (Store Room)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
170	PLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
171	Chemical Store	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
172	Kbrestor store	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
173	Physics (PLT 3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
174	Physics Staff Room	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
175	Phy. Lab 3	-	-	2	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-
176	Phy. Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-
177	Store Room (Near Lab 5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
178	Phy. Staff Room 2	-	-	4	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
179	Phy. Lab 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-
180	PLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-



181	Teacher incharge room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
182	PLT 1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	8	-	-	-
183	Ladies Toilet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
184	Second Floor (Science)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-
185	2nd Floor Room No. 201 to 2017 & Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11 4	-	-	-
186	2 nd Floor Stairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
187	Gents Toilet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
188	Ladies Toilet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
189	Ashoka Lawn	-	-	-	1 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190	Herbal Garden	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	Student Parking	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
192	Main Building (Front Side)	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
193	Main Gate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
194	GYM & Kitchen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	-	5	-
195	Gallery Office GYM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-
196	Boys Common Room GYM & Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
197	Girls Common Room GYM & Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
198	Reception	-	-	-	1 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
199	Pramod Sir Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
200	GYM Out side Lobby	-	5	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-
201	GYM back Side	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
202	Basket ball court	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	Cricket pitch back side	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
204	Main Ground	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
205	Girls Toilet 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
206	LSLT 3 (2nd floor)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	15	-	-
207	PH. St. Toilet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
208	Botany Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-



209	Botany Lab 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	-	-
210	Zoology Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	4	-	-
211	Zoology Lab 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
212	Geography Deptt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-
213	Commerce Block 1st floor (Gents Toilet)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
214	Commerce Block 1st floor (Female Toilet)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
215	Room No. 106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
216	Room No. 108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
217	Mathematics Deptt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
218	Lobby 1st floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-
219	Commerce Deptt.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	-	-	-
220	Room No, 212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	-	-
221	Room No, 211 History Deptt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
222	Room No, 210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
223	Room No, 209	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
224	Room No, 214 A , 207, 206,205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-
225	PH. St. Toilet 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
226	Ladies Toilet 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
227	Gents Toilet 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
228	Room No. 204, 203, 215, 217, 201, 202, 2016, 215 A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-
229	2nd floor Lobby	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-	-	-
230	Statistics Deptt. 1st floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-
231	Room No. 108, 107, 106, 111, 116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-
232	Room No. 119, 102, 104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-
233	Gallery	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-



234	Room No. 118, 105, 103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-
235	Computer Lab Room No. 25	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-
236	Computer Lab 1	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-
237	Computer Lab 4	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-
238	Gallery	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-
239	Gents Toilet	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-
240	Canteen	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	-	-	-
241	Outside bank college side	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
242	Guard Room	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
243	Account Room	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-
244	Room No. 109	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
245	Room No. 112	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
246	Lab. 3	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	-	-	-
247	Sr. Technical Assistant (Computer)	1	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-
248	Gallery	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
249	porta Cabin	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-
250	Room No. 103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
251	Room No. 104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
252	Room No. 105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
253	Room No. 106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
254	Room No. 107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
255	Room No. 108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
256	Room No. 109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
257	Room No. 111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
258	Room No. 112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
259	Room No. 116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
260	Room No. 118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
261	Room No. 119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-
262	Room No. 120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
263	Gallery	-	-	-	-	-	-	7	-	-	-	-	-	-	-	6	-	-	-
264	Gents Washroom	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-
265	Ladies Washroom	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-



266	Computer Lab 1 Room No. 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
267	Computer Lab 2 Room No. 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-
268	Deptt. Computer Science Lab 1 & 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-
269	Deptt. Computer Science Lab 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-
270	Sr. Technical Assistant (Computer /Sarver Room)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	10	-
271	Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
272	Porta cabin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
273	Account Deptt.	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-
274	Gallery	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
275	Admin. Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
276	Admin. Office Back Side Gallery	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
277	History Deptt. (Near Admin Office)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
278	Statistics Deptt. Lab.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-
279	Deptt. Of Statistics Staff Room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
280	Gallery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
281	Guard Room	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
282	Deptt. Of Geography Lab. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-
283	Canteen	-	-	-	-	-	-	3 6	-	-	-	-	-	-	-	-	-	-	-
284	Canteen ka uper (Boys Common Room)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
285	Canteen ka uper (D. Room)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
286	Canteen ka uper (Fine arts)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-
287	Chemistry Lab 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-
288	Instrument Lab 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
289	Chemistry Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-



290	Instrument Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
291	CLT 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
292	Chemistry Lab 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-
293	Chem. Teacher in charge Room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
294	CLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-
295	PLT 1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	7	-	-	-
296	PLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
297	Multi Purpose Hall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-
298	Chemistry Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-
299	Instrument Lab 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-
300	Chemistry Lab 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-
301	Botany Museum 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-
302	Gents Toilet 2nd floor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
303	Micro Biology Lab 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
304	Zoology Store	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2	-	-
305	Zoology Lab 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	5	-	-
306	Botany Staff Room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
307	Bio Technology Lab 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-
308	LSLT 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-
309	LSLT 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
310	Botany Store	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
311	Zoology Safe Room	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	-	-
312	Biotechnology Lab 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	4	-	-
313	CLT 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-
314	CEC	1 2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	-



Summary of the lighting inventory

Light Type	Count
36/40 W – Tube lights	150
200W-LED High Mast	63
190W-LED High Mast	26
60W LED	40
50W - 60W LED Outdoor	32
18W LED Light	3
150W LED	2
18W LED Flood	55
38W LED Flood	1
20W LED	12
100W-RGP Light	8
20W LED-FOB Aly Side	149
20W LED Glow Shine	115
100W LED-Shine Board	7
40W LED	75
22 W LED	1375
15 W LED	122
9 W	210
28 W	8
TOTAL	2303

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

College has initiated LED based lighting solution. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend KMC to replace 150 tube lights (40W) with LED lights to save more energy.

KMC has done some pilot project with smart and sensor bases lighting system and it was quite successful. We recommend to use sensor based lights for common areas like corridor, library, conference rooms, washrooms, etc. We also recommend 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

Details	Count
Exhaust Fan - 50 W	7
Exhaust Fan - 160 W	4
Exhaust Fan - 1500 W	4
Wall Fan - 48W	109
Table Fan - 35 W	3
Exhaust Fan - W	46
150 W type of fan	29
220-230 W type of fan	7
Water Cooler-200W	1
Water Cooler - 1300 W	1
180W-Desert Cooler	0
CCTV - 5 W	3
CCTV - 15 W	45
CCTV - 100-150 W	6
Speaker - 200-250 W	8
Speaker - 1000 W	6
180W-Circulating Fan	0
Projector - 50 W	34
Projector - 585 W	1
Projector - 200 W	1
Computer - 100 W	4
Computer - 200 W	167
Computer - 400 W	108
W - Printer	165
Printer - 136 W	2
Scanner	1
Barcode Printer	1
LED TV - 38 W	2
Geyser 2000 W	6
Microwave 70-900 W	5
Wifi - 15 - 30 W	15
Water purifier - 2000 - 2500 W	9
RO	6
5 hp Pump	1
3 hp pump	1
2 hp pump	1



ANALYSIS

There should be regular maintenance schedule of equipment like geyser, water coolers, pumps, etc. College should install solar water heater instead of electric geysers. Solar geysers are convenient to use and cost effective as well as environment friendly. Computers, more than 3 year or 5 years (as per their life) should be replaced with new computers/laptops.

8. CAPACITOR BANK

Sl. No.	Identification	Capacity in KVAR
1	Sub station	190 KVAR

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