

“ENERGY AUDIT REPORT”

B.J. Vanijya Mahavidyalaya

Vallbh Vidyanagar - 388120

APRIL 2020-MARCH 2021



**CONDUCTED
BY**



BHAILALBHAI & BHIKHABHAI INSTITUTE OF TECHNOLOGY

FORWARD

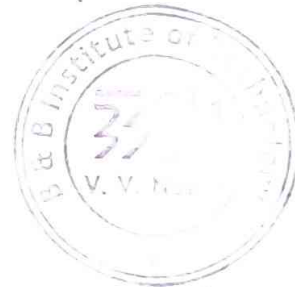
It is now a firmly established fact that in today's highly competitive market, the best way to survive for any industry is to sustain the industrial activity in the cost-effective way. The role of Energy Audit in the industries has been firmly identified to greatly supplement the efforts to remain cost effective, especially in the light of every rising cost of energy and its availability criteria. The cost of electrical energy is rising every year. Optimization of use of energy and conservation is necessitated due to appreciable rise in the cost of fuel, the basic energy input. The other alternatives like power trading is being restricted temporarily by Government may be the reason that in the State of Gujarat power generation is more than adequate to cater the needs of public.

M/s B & B Institute of technology, entrusted the work of Energy Audit to with the objective of optimizing their institute in energy consumption by evolving appropriate conservation measures in energy utilization practices.

Scope of the Energy Audit work was as per the following broad framework:

1. Study of Electrical Utility systems
2. Electrical Load Management
3. Electrical Energy Application Areas
4. Energy conservation Opportunities
5. Estimated Costs and Payback for Expenditure

The report, prepared after extensive studies, comprises of Executive Summary, Study of Energy consumption in certain areas of the industry, findings for efficient use of energy, recommendations for implementation, co-benefits, etc. It is felt that with the implementation of the recommendations made in the report, the B. J. Vanij Vidhyalaya will set an example in this vital area of Energy Conservation.



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TABLE - 1 DETAILS OF CONSUMER

Sr. No	Specifications	Details
1	Name of the customer	B.J.Vanijya Mahavidyalaya
2	Name of the customer (as per Electric Bill)	PRIN BJVM COM COLLEGE
3	Customer No.	01202/01014/8
4	Name of contact person	Dr. Ketaki Sheth
5	Address	Bhikhabhai Jivabhai Vanijya Mahavidyalaya, Opp. Shastri Ground, Nana Bazar, Vallabh Vidyanagar -388120 Dist: Anand, State: Gujarat, INDIA
6	Phone No.	02692- 230145
7	Fax No.	
8	Email Address	bjvm_vvnagar@yahoo.com
9	Contract Demand	32.0 HP
10	Purpose of Consumer	Educational Institute
11	Name of Supplier	MGVCL
12	Period of Audit	APRIL2020-MARCH 2021
13	Proposed energy saving in terms of –	
	a) Rupees per annum.	30096021.90
	b) Units per annum	4505392.50
14	Proposed investment in Rupees	356200.00

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

The Energy Audit Team of BBIT sincerely thanks to Principal, Dr Dr. Ketaki Sheth of, B.J.Vanijya Mahavidyalaya Vallabh Vidyanagar for giving us this opportunity to carry out the energy audit in their premises. We are very much thankful to Mrs. Rupal N. Vora Associate Professor, in English for cooperation and guidance. We also place our thanks to all faculties of the college, administrative staff and technical personnel for their excellent co-operation extended to the audit team during the period of audit.

An Energy Audit has been conducted by the following team members.

1. Dr. K. M. Makwana
(Principal BBIT & Energy Auditor authorized BEE)
2. Mrs. Shweta Y. Prajapati, Electrical Engineering Department



Principal
B. & B. Institute of Technology
V. V. Nagar



EXECUTIVE SUMMARY

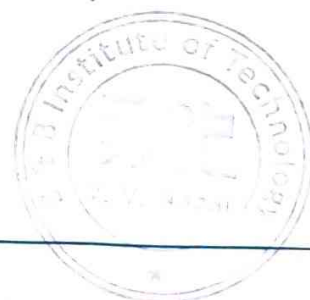
The following table shows an executive summary for an energy audit of B. J. Vanijya Mahavidyalaya, Vallabh Vidyahagar for the year of 2020-2021, which gives an idea about opportunities of energy savings in different load.

Executive Summary

Sr . No	Particulars	Saving Points	Savings in Kwh	Savings in Rs	Investment Rs	Payback Period, Months
1	Lightings	40 W FTL can be converted in to 20 W LED	4495392.00	30029218.56	17200.00	0.006873
2	FAN	100 W Fans can be Replace by 50 W Efficient Fans	10000.50	66803.34	339000.00	60.90
3	Total		4505392.50	30096021.90	356200.00	60.90

General Suggestions:

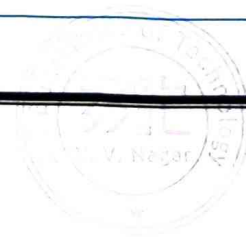
- The above savings will vary with respect to running time of load.
- In the class room and cabins practice should be followed by students or faculties or peon to switch off the light and fans.
- It has been recommended to paste posters of "**SAVE ENERGY**" or "**ENERGY IS LIFE**" or "**SAVE WATER**" at the switchboards in the class room, faculty's cabins and respective locations for awareness. So people can remember to switch off lights.
- It is suggested to make single feeder of street light and install 20W LED, which can give good illumination level from 10 to 50 lux.
- For an energy audit following load has been considered which is regularly used on daily basis and there are scopes of energy saving.
- **It is strongly suggested to install 20 W LED from a good manufacturer in all staff cabins and 9 W LED lamps in specific locations of all the corridors.**
- **Replace old fan with latest energy efficient fan**
- **Use sensor in wash room areas.**





The following table shows the summary of total contract demand, Kw in building premises, Unit consumption and amount paid per year.

Sr.No	Parameter	Unit	APR-MAY 20	JUN-JULY 20	AUG-SEP 20	OCTO-NOV 20	DEC 20- JAN 21	FEB-MARCH 21
1	Total Contract Demand	Kw	23.8	23.8	23.8	23.8	23.8	23.8
2	Unit Consumption	Kwh	5047	4422	4634	2497	2357	3111
3	Net Payment	Rs	33431	29696	31614	16431	15638	20589
4	Unit Rate	Rs/Kwh	6.62	6.72	6.82	6.58	6.63	6.62
5	Total Consumption	Kwh/Yr	22068.00					
6	Total Payment	Rs/Yr	147399.00					
7	Avg. Unit Rate	Rs/Kwh	6.68					



CHAPTER 1 – GENERAL INFORMATION

➤ NEED FOR ENERGY CONSERVATION:

India is the 6th largest consumer of energy in World. Rapid industrialization of the country and prevailing boom in the economy has resulted in the power demand outstripping the current total generation capacity by 10%. To overcome this shortage and for meeting the ever-rising electricity demand in the coming years, the nation has proposed capacity expansion by 39920 MW and 60896MW in the 10th and 11th Five Year Plans respectively. However these capacity additions will come at a mammoth cost of nearly Rs. 900000 cr. Hence the message on the wall is clear - there is an urgent need for energy efficiency practices and energy conservation measures for a sustainable development.

Future projections, assuming a business-as-usual scenario under a GDP growth rate of 5%, show that the commercial energy demand for India for the year 2009-10 is projected to be 600 Mtoe (million tones of oil equivalent) compared to the 1990 consumption level of 200 Mtoe. Conservation of energy assumes great significance in lieu of economic constraints prevailing in our country. Realizing the importance of energy conservation at the national level the Indian government has enacted the energy Conservation Act 2001. The primary objective of the energy Conservation Act, 2001, is to reduce energy intensity (energy per unit GDP) in the Indian economy

Energy Conservation measures leads to reduced energy inputs of the same output and certainly do not mean switching off the loads and reducing the output or quality or comfort. The main objective is to manage the energy use efficiently for an optimum utilization with reduced specific energy consumption for a maximum profitability without the environmental degradation.

➤ WHAT IS ENERGY AUDIT?

Energy Audit is the key to a systematic approach for decision-making in the area of energy management. It attempts to balance the total energy management. It attempts to balance the total energy inputs with its use, and serves to identify all the streams in a facility. It attempts to balance the total energy inputs with its use, and serves to identify the entire stream in a facility. It quantifies energy usage according to its discrete functions. Industrial energy audit is an effective tool in defining and pursuing comprehensive energy management program.

As per the Energy Conservation Act, 2001, Energy Audit is defined as “the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption”.

➤ NEED FOR AUDIT:

In any industry, the three top operating expenses are often found to be energy (both electrical and thermal), labor and materials. If one were to relate to the manageability of the cost or potential cost savings in each of the above components, energy would invariably emerge as a top ranker, and thus energy management function constitutes a strategic area for cost reduction. Energy Audit will help to understand more about the ways energy and fuel are used in any industry, and help in identifying the areas where waste can occur and where scope for improvement exists.

The Energy Audit gives a positive orientation to the energy cost reduction, preventive maintenance and quality control programs which are vital for production and utility activities. Such an audit program helps to keep focus on variation which occurs in the energy costs, availability and reliability to supply of energy, decide on appropriate energy mix, identify energy conservation technologies, retrofit for energy conservation equipment etc.

In general, energy Audit is the translation of conservation ideas into realities by lending technically feasible solutions with economic and other organizational consideration within a specified time frame.

The primary objective of Energy Audit is to determine ways to reduce energy consumption per unit of product output or to lower operating costs. Energy Audit provides a "benchmark" (Reference point) for managing energy in the organization and also provides the basis for planning a more effective use of energy throughout the organization.

➤ ENERGY AUDIT METHODOLOGY:

Energy Audit Study was divided in following four steps

1. Historical Data Analysis:

The historical data collection and analysis involves establishment of energy consumption pattern to locate base line of energy consumption and its variation with change in production volumes. This step involves finding out existing Avg. Specific Energy Consumption.

2. Actual Data Analysis:

This step involves actual site measurement and field trails. Tally of the energy consumption pattern against actual measurements through ABC analysis. Electrical Parameters for all electrical loads are measured with electrical online load Manger. The parameters measured are actual kW, actual Pf, actual Ampere and Voltage. It also involves Input to output analysis to establish actual operating equipment efficiency and finding out losses in the system.

Efficiency of Equipment (%) = $(\text{Use of Output} / \text{Input Electrical Energy}) \times 100$

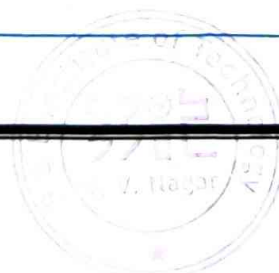
Losses in the system = Input Electrical System - Useful Output

3. Evaluation of Energy Conservation Opportunities:

This step involves evaluation of energy conservation opportunity. It gives potential of energy saving and investment required to get expected modification with payback period. All recommendations given for reducing losses in the system with its cost benefit analysis.

4. Monitoring and Control:

Energy accounting followed by energy monitoring and control is the first step of serious Energy Management Program. Due to the absence of electricity sub metering, many organizations still have only their electricity bills and captive power generation log books as their only information on electricity consumption. However with increasing energy prices, many organizations incorporated sub-metering system in their plants. Sub metering is essential for monitoring, establishing energy consumption patter, detailed engineering and energy saving after implementation of energy conservation projects



INSTRUMENTS USED FOR THE DATA COLLECTION:

The instruments used by the audit team have been depicted below in the table.

Table - 3 List of Instruments used for Energy Audit

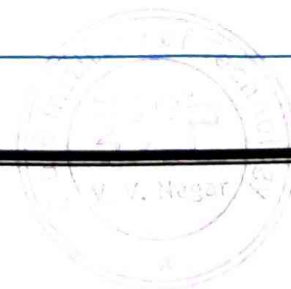
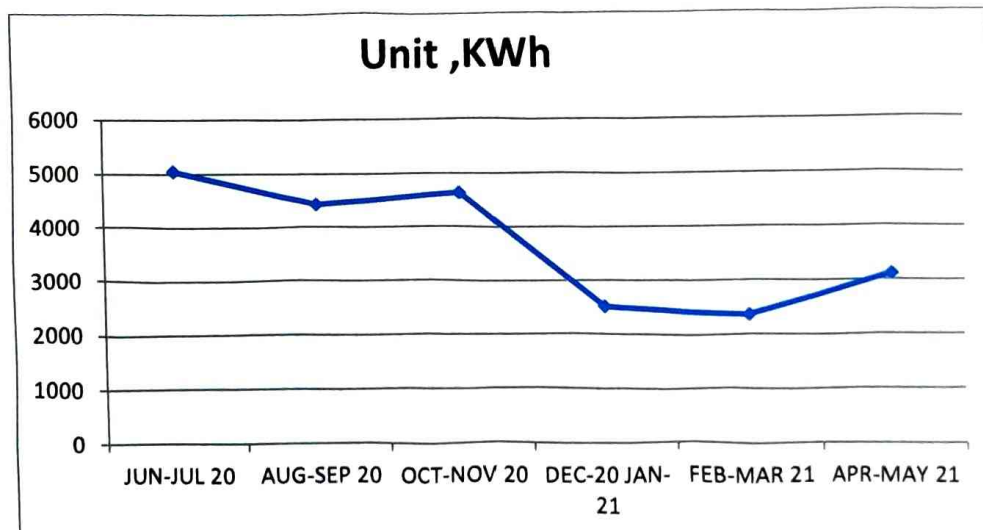
Sr. No.	Instrument Name	Specification
1	Demand Analyzer	Suitable for 1 ϕ , 3 ϕ .
		156 electrical parameters like voltage, current, frequency, harmonics, active & reactive power, power factor etc.
2	Clamp-on Power Meter	0 - 1200 kW
		0 - 2000 A, Current, AC / DC
3	Lux Meter	0 - 50,000 lux level
		Non-Contact Type
4	Digital Thermo Anemometer	0 - 45 m / sec. \pm 3%
5	Relative Humidity and Temperature Indicator	RH - 10% to 95%
		Temp. - 0 - 100 $^{\circ}$ C
		Handheld unit

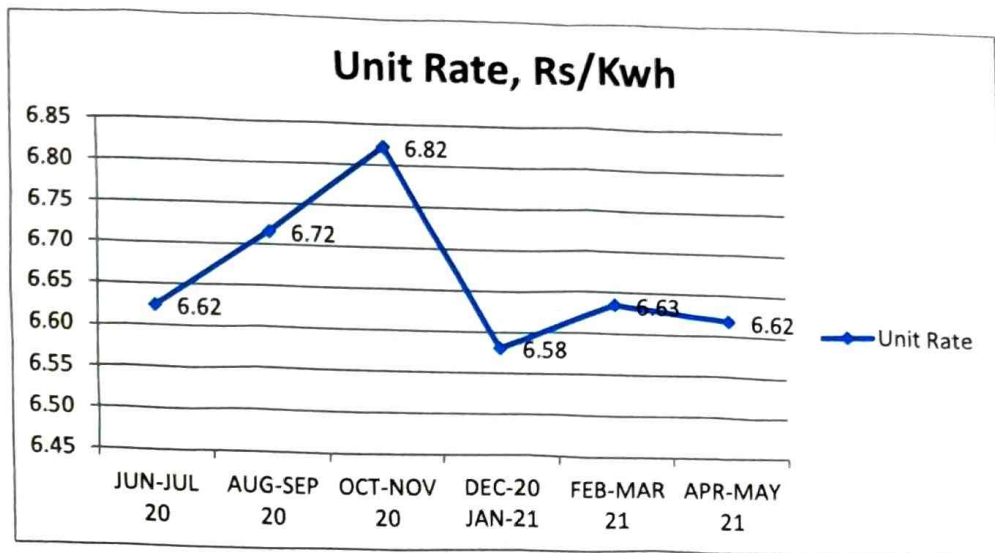


CHAPTER 2 : BILL ANALYSIS

Meter : 1 Location:

Contract Demand:- 23.8 KW/ 32 HP



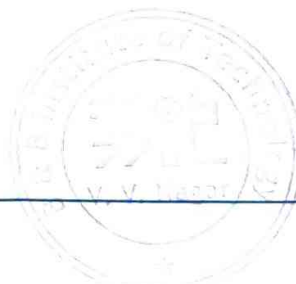


CHAPTER 3: LIGHTING SYSTEM PERFORMANCE

Lighting illumination level has been checked by lux meter. Lux level found is average. Natural lights are available which is good. Most of the lightings are florescent lights and it requires replacement by LEDs. Which helps in increase lux level and also reduction in power consumption? The following table shows the general guide lines for saving opportunities in lighting system.

Best Practices Guideline for Energy Conservations in Lighting System

Sr.No	Suggestion
1	Use as much natural day light as possible by use of translucent roofing sheets
2	Use day lighting effectively by locating work stations requiring good luminance near the windows.
3	Minimize luminance in non- task areas by reducing the wattage of lamps or number of fittings
4	Avoid use of incandescent/tungsten filament lamps. The power consumed by these lamps is 80% more than the fluorescent lamps (discharge) for same lumen output.
5	Use electronic ballasts in place of conventional ballast for fluorescent lamps.
6	Task lighting saves energy, utilize it whenever possible.
7	All surfaces absorb light to some degree and lower their reflectance. Light colored surfaces are more efficient and need to be regularly painted or washed in order to ensure economical use of light.
8	Maintenance is very important factor. Evaluate present lighting maintenance program and revise it as necessary to provide the most efficient use of lighting system.
9	Clean luminaries, ceilings, walls, lamps etc. on a regular basis.
10	Controls are very effective for reducing lighting cost. Provide separate controls for large ratings.
11	Install switching or dimmer controls to provide flexibility when spaces are used for multiple purposes and require different amounts of illumination for various activities.
12	Switching arrangements should permit luminaries or rows of luminaries near natural light sources like windows or roof lights to be controlled separately.
13	Separate lighting feeder and maintain the feeder at permissible voltages by using transformers.
14	Install occupancy sensors for indoor cabin light controls



The following table shows the details of lux measured. The lux level found satisfactory and need replacement of existing 60 W FTL light by efficient lights as LED of 20 W Ef

Sr. No.	BLOCK	LOCATION	TYPE	WATT	FIXTURE	NOS. OF LUMINATION		
						FTL	PL	CFL
	GROUND FLOOR							
1	1	SEMINAR HALL	FTL	60		18		
2	2 & 3	STORE ROOM	FTL	60		5		
3								
4	4	M.COM OFFICE & ALUMNI	FTL	60		6		
5	5	NCC /WOMEN CELL/NSS/SPORTS	FTL	60		5		
6	6	IQAC/CERTIFICATE COURSES	FTL	60		11		
7	7	PRINCIPAL OFFICE	FTL	60		9		
8	8	COMMITTEE ROOM	FTL	60		4		
9	9	LADIES COMMON ROOM	FTL	60				
10	10A	RECORD ROOM	FTL	60		3		
11	10B	AEDMINISTRATIVE OFFICE	FTL	60		7		
12	11	ANTI RAGGING CELL	FTL	60		2		
13	12	LIBRARY	FTL	60		24		
14	13	FACULTY LOUNGE	FTL	60		11		
15		STAFF WASHROOM	FTL	60		3		
16		LADIES WASHROOM	FTL	60		3		
17		BOYS WASHROOM	FTL	60		3		
18		CORRIDOR	FTL	60		5		
19		FIRST FLOOR						
20	14	EXAMINATION STRONG ROOM	FTL	60		2		
21	15A	READING ROOM	FTL	60		10		
22	15B	RESEARCH CORNER	FTL	60		2		
23	16	COMPUTER LAB	FTL	60		12		
24	17	PLACEMENT CELL	FTL	60		2		
25	18	T.Y.B.COM.'C'	FTL	60		10		
26	19	M.COM (FINAL)	FTL	60		4		
27	20	EXAMINATION CONTROL ROOM	FTL	60		4		
28	21	T.Y.BBA	FTL	60		6		
29	22	S.Y.BBA	FTL	60		4		
30	23	F.YBBA	FTL	60		6		
31	24	M.COM (PREVIOUS)	FTL	60		4		

32	25	COMMUNICATION SKILL LAB	FTL	60	6		
33	26	T.Y.B.COM A	FTL	60	10		
34	27	F.Y.BCOM A	FTL	60	10		
35		BOYS WASHROOM	FTL	60	3		
36		LADIES WASHROOM	FTL	60	1		
37		CORRIEDOOR	FTL	60	5		
38		SECOND FLOOR	FTL	60			
39	28	T.Y.BCOM B	FTL	60	8		
40	29	F.Y.BCOM B	FTL	60	6		
41	30	OPTIONAL SUBJECT CLASSROOM	FTL	60	4		
42	31	F.Y.BCOM C	FTL	60	10		
43	32	OPTIONAL SUBJECT CLASSROOM	FTL	60	4		
44	33	S.Y.BCOM D	FTL	60	10		
45	34	OPTIONAL SUBJECT CLASSROOM	FTL	60	4		
46	35	STORE ROOM	FTL	60	2		
46	36	F.Y.BCOM D	FTL	60	6		
47	37	SSIP & INNOVATION CLUB	FTL	60	2		
48	38	S.Y.BCOM A	FTL	60	6		
49	39	S.Y.BCOM B	FTL	60	6		
50	40	S.Y.BCOM C	FTL	60	6		
51		BOYS WASHROOM	FTL	60	3		
52		LADIES WASHROOM	FTL	60	1		
53		CORRIDOR	FTL	60	5		
		LADDER	FTL	60	1		
54		CANTEEN	FTL	60	2		
					86		5160



The following table shows the saving summary in lighting system with replacement of 60 W FTL by 20 W LED.

Sr.No	particulars	value
Existing lighting data		
1	Total No of FTL	86
2	total KW	5160
3	Working Hrs/ Day	6
4	Working Hrs/Yr @220 Days	242
5	Total Units	7492320
Proposed Savings by 20 W LED		
6	Total No of LED	86
7	Total KW	2064
8	Working Hrs/ Day	6
9	Working Hrs/Yr @220 Days	242
10	Total Units	2996928
11	Savings in Unit	4495392
12	Unit Rate @ 6.68 Rs	6.68
13	Savings in Rs	30029219
14	Investment	17200
15	Payback Period, Month	0.0068733



The following table shows the savings in street light.

Sr.No	Particulars	Unit	70 W	150 W
1	Existing Lighting System			
2	Existing Lights	Nos	10	8
3	Rated Watts	Watts	70	150
4	Working Hrs/Day	Hrs/Day	10	10
5	Working Day/Yr	Day/Yr	300	300
6	Unit Consumption	Kwh	2100	3600
7	Savings by Proposed 20 W LED			
8	LED	Nos	10	8
9	Rated Watts	Watts	24	24
10	Unit Consumption	Kwh	720	576
11	Savings in Unit	Kwh	1380	3024
12	Unit Rate	Rs	6.68	6.68
13	Savings in Rs/Year		9219	20201
14	Investment	Rs/Fixture	1500	1500
15	Total Investment	Rs.	15000	12000
16	Payback Period	Year	0.13	0.04

CHAPTER 4 : Cooling Load

1. Fan

➤ About Fan:

The fans in the campus are of 100 W (Old) But out of this the following table shows the details of existing fans and replacement of 100w fan by energy efficient fan of 50 w.

The following table shows the savings in fan by replacement of existing fan with efficient fan of 50 W.

Sr.No	Particulars	Unit	Value
1	Existing System		
3	Total KW	kw	22.6
4	Working Hrs/Day	Hrs/Day	5
5	Working Day/Yr	Day/Yr	177
6	Unit Consumption	Kwh	20001
7			
8	proposed efficient fan @50 W	watt	11300
9	Rated Watts	Kw	11.3
10	Unit Consumption	Kwh	10000.5
11	Savings in Unit	Kwh	10000.5
12	Unit Rate	Rs	6.68
13	Savings in Rs/Year		66803.34
14	Investment	Rs/Fixture	1500
15	Total Investment	Rs.	339000
16	Payback Period	Year	60.90

2. Air Conditioning System

➤ About Air Conditioning System:

The following are the suggestion for the AC system

1. Install temperature controller for the ACs.
2. Replacement is required from window AC to split AC.
3. When replacement is required replace it with 3 stars or 5 stars rated efficient ACs.
4. From the following performance and calculation there is a requirement of ACs but the use of AC is limited in a year (530 hrs/ Year) if it is replaced the payback period will very long. So when requirement of replacement is there the replace it by efficient ACs.

It has been not suggested to replace existing AC with efficient AC because working hours of AC is less. If it will replace the payback period will more than 3 years, which is not liable. But it has been suggested to replace AC one by one in 5 stars rated AC.

The following method has been to find out the performance of ACs. The ACs are working in good condition, but need maintenance.

Sr.No	Location	T.R.	Air Density	Actual KW	Suction					Supply				T.R.
					Velocity (m/s)	Area(Sq. mtrs.)	DBT	WBT	Enthalpy (kJ/kg)	Velocity(m/s)	DBT	WBT	Enthalpy (kJ/kg)	
1	SEMINAR HALL-1	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
2	SEMINAR HALL-2	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
3	SEMINAR HALL-3	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
4	SEMINAR HALL-4	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
5	PRINCIPAL OFFICE	2	1.2	1.88	1.52	0.18	20.5	19	12.5	4.49	14	11.9	8.4	1.6
6	COMPUTER LAB-1	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
7	COMPUTER LAB-2	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
8	COMPUTER LAB-3	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
9	COMPUTER LAB-4	1.5	1.2	1.88	1.52	0.14	24	19	13.88	4.49	17.5	15	10.77	0.92
10	ALUMNI OFFICE	1	1.2	1.77	1.52	0.1	24	19	13.2	4.49	15.5	12	8.37	1.05
11	QAC/CERTIFICATE COURSES 1 window ac	1	1.2	1.77	1.52	0.1	24	19	13.2	4.49	15.5	12	8.37	1.05
12	QAC/CERTIFICATE COURSES 2 window ac	1	1.2	1.77	1.52	0.1	24	19	13.2	4.49	15.5	12	8.37	1.05



Annexure 1: Working Days/ Year

Assumption of seasonal wise working days, hours and load.

Working Hours

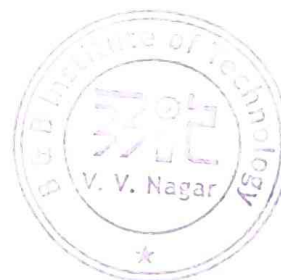
Sr.No	Approx. Days	Days
1	Year	1
2	Days	365
3	Summer Vacation	30
4	Winter Vacation	15
5	Total Vacation Days	45
6	Govt. Holidays	30
7	Sundays	48
8	Total Holidays	123
9	Working Days	242
10	Summer Working Days	117
11	Winter Working Days	65
12	Monsoon Working Days	60
13	Lighting Load	
14	Summer Avg. Working Hrs/Day	6
15	Winter Avg. Working Hrs/Day	6
16	Monsoon Avg. Working Hrs/Day	6
17	Fan Load	
18	Summer Avg. Working Hrs/Day	5
19	Winter Avg. Working Hrs/Day	0
20	Monsoon Avg. Working Hrs/Day	5
21	AC Load	
22	Summer Avg. Working Hrs/Day	6
23	Winter Avg. Working Hrs/Day	0
24	Monsoon Avg. Working Hrs/Day	6

Working Days/Year Consider for Savings

Sr.No	Load	Summer	Winter	Monsoon	Total
1	Lighting	117	65	60	242
2	Fan	117	0	60	177
3	AC	117	65	0	182

Working Hours/Year Consider for Savings

Sr.No	Load	Summer	Winter	Monsoon	Total
1	Lighting	702	390	360	1452
2	Fan	585	0	300	885
3	AC	702	0	0	702



Annexure 2: Bill Analysis from Jun 2020 to May 2021.

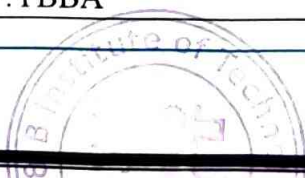
Meter

Sr. No	Parameters	Unit	JUN-JUL 20	AUG-SEP 20	OCT-NOV 20	DEC-20 JAN-21	FEB-MAR 21	APR-MAY 21	MIN	MAX	AVG
1	Consumer Type		GLP	GLP	GLP	GLP	GLP	GLP	GLP	GLP	GLP
	Contract demand	kw	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
3	Unit	kwh	5047	4422	4634	2497	2357	3111	2357	5047	3678
4	Fix Charge	Rs	280	280	280	280	280	280	280	280	280
5	Meter charge	Rs	0	0	0	0	0	0	0	0	0
6	Net Payment	Rs	33431	29696	31614	16431	15638	20589	15638.00	33431.00	24566.50
7	Unit Rate	Rs/Kwh	6.62	6.72	6.82	6.58	6.63	6.62	6.58	6.82	6.67

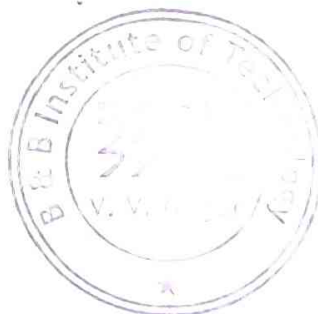


Appendix 3: Details of Lighting Load

Sr.No	BLOCK	LOCATION	TYPE	WATT	FIXTURE	NOS. OF LUMINATION		
						FTL	PL	CFL
		GROUND FLOOR						
1	1	SEMINAR HALL	FTL	60		18		
2	2 & 3	STORE ROOM	FTL	60		5		
3								
4	4	M.COM OFFICE & ALUMNI	FTL	60		6		
5	5	NCC /WOMEN CELL/NSS/SPORTS	FTL	60		5		
6	6	IQAC/CERTIFICATE COURSES	FTL	60		11		
7	7	PRINCIPAL OFFICE	FTL	60		9		
8	8	COMMITTEE ROOM	FTL	60		4		
9	9	LADIES COMMON ROOM	FTL	60				
10	10A	RECORD ROOM	FTL	60		3		
11	10B	ADMINISTRATIVE OFFICE	FTL	60		7		
12	11	ANTI RAGGING CELL	FTL	60		2		
13	12	LIBRARY	FTL	60		24		
14	13	FACULTY LOUNGE	FTL	60		11		
15		STAFF WASHROOM	FTL	60		3		
16		LADIES WASHROOM	FTL	60		3		
17		BOYS WASHROOM	FTL	60		3		
18		CORRIDOR	FTL	60		5		
19		FIRST FLOOR						
20	14	EXAMINATION STRONG ROOM	FTL	60		2		
21	15A	READING ROOM	FTL	60		10		
22	15B	RESEARCH CORNER	FTL	60		2		
23	16	COMPUTER LAB	FTL	60		12		
24	17	PLACEMENT CELL	FTL	60		2		
25	18	T.Y.B.COM.'C'	FTL	60		10		
26	19	M.COM (FINAL)	FTL	60		4		
27	20	EXAMINATION CONTROL ROOM	FTL	60		4		
28	21	T.Y.BBA	FTL	60		6		
29	22	S.Y.BBA	FTL	60		4		
30	23	F.YBBA	FTL	60		6		

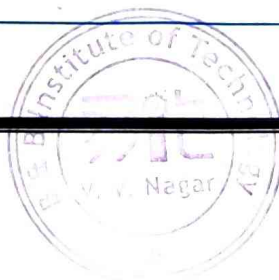


31	24	M.COM (PREVIOUS)	FTL	60	4
32	25	COMMUNICATION SKILL LAB	FTL	60	6
33	26	T.Y.B.COM A	FTL	60	10
34	27	F.Y.BCOM A	FTL	60	10
35		BOYS WASHROOM	FTL	60	3
36		LADIES WASHROOM	FTL	60	1
37		CORRIDOR	FTL	60	5
38		SECOND FLOOR	FTL	60	
39	28	T,Y,BCOM B	FTL	60	8
40	29	F.Y.BCOM B	FTL	60	6
41	30	OPTIONAL SUBJECT CLASSROOM	FTL	60	4
42	31	F.Y.BCOM C	FTL	60	10
43	32	OPTIONAL SUBJECT CLASSROOM	FTL	60	4
44	33	S.Y.BCOM D	FTL	60	10
45	34	OPTIONAL SUBJECT CLASSROOM	FTL	60	4
46	35	STORE ROOM	FTL	60	2
46	36	F.Y.BCOM D	FTL	60	6
47	37	SSIP & INNOVATION CLUB	FTL	60	2
48	38	S.Y.BCOM A	FTL	60	6
49	39	S.Y.BCOM B	FTL	60	6
50	40	S.Y.BCOM C	FTL	60	6
51		BOYS WASHROOM	FTL	60	3
52		LADIES WASHROOM	FTL	60	1
53		CORRIDOR	FTL	60	5
		LADDER	FTL	60	1
54		CANTEEN	FTL	60	2

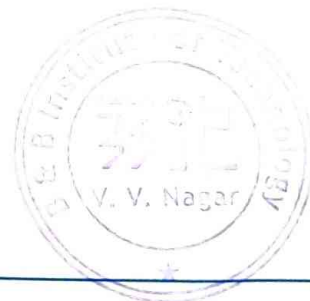


Appendix 4: Details Fan Load.

Sr.No	BLOCK	LOCATION GROUND FLOOR	No. of Fan	Watts	Total Kw
1	1	SEMINAR HALL	10	100	1000
3	2 & 3	STORE ROOM	3	100	300
4	4	M.COM OFFICE & ALUMNI	2	100	200
5	5	NCC /WOMEN CELL/NSS/SPORTS	6	100	600
6	6	IQAC/CERTIFICATE COURSES		100	0
7	7	PRINCIPAL OFFICE	3	100	300
8	8	COMMITTEE ROOM	4	100	400
9	9	LADIES COMMON ROOM		100	0
10	10A	RECORD ROOM	4	100	400
11	10B	ADMINISTRATIVE OFFICE	5	100	500
12	11	ANTI RAGGING CELL	1	100	100
13	12	LIBRARY	25	100	2500
14	13	FACULTY LOUNGE	10	100	1000
		FIRST FLOOR			
15	14	EXAMINATION STRONG ROOM	2	100	200
16	15A	READING ROOM	15	100	1500
17	15B	RESEARCH CORNER	2	100	200
18	16	COMPUTER LAB	6	100	600
19	17	PLACEMENT CELL	2	100	200
20	18	T.Y.B.COM.'C'	7	100	700
21	19	M.COM (FINAL)	3	100	300
22	20	EXAMINATION CONTROL ROOM	4	100	400
23	21	T.Y.BBA	5	100	500
24	22	S.Y.BBA	3	100	300
25	23	F.YBBA	5	100	500
26	24	M.COM (PREVIOUS)	3	100	300
27	25	COMMUNICATION SKILL LEB	5	100	500
28	26	T.Y.B.COM A	9	100	900
29	27	F.Y.BCOM A	9	100	900
		SECOND FLOOR			
30	28	T,Y,BCOM B	7	100	700
31	29	F.Y.BCOM B	7	100	700
32	30	OPTIONAL SUBJECT CLASSROOM	3	100	300



35	33	S.Y.BCOM D	9	100	900
36	34	OPTIONAL SUBJECT CLASSROOM	4	100	400
37	35	STORE ROOM	2	100	200
38	36	F.Y.BCOM D	5	100	500
39	37	SSIP & INNOVATION CLUB	1	100	100
40	38	S.Y.BCOM A	7	100	700
41	39	S.Y.BCOM B	7	100	700
42	40	S.Y.BCOM C	7	100	700
		CANTEEN	1	100	100



Annexure 5: Details of AC.

Sr.No	BLOCK	Location	No of ACs	Make	Ton
1	1	SEMINAR HALL	4- Spilt	AMSTRAD	1.5X 4
	4	ALUMNI OFFICE	1-window	VOLTAS	1.5X 1
2	6	IQAC/CERTIFICATE COURSES	2-window	VOLTAS	1.5X 2
3	7	PRINCIPAL OFFICE	1-Spilt	AMSTRAD	1.5X 1
4	16	COMPUTER LAB	4-Split	AMSTRAD	1.5X 4



Annexure 6: Details of No of Computer.

Sr. No.	Block	Location	Number of PC
GROUND FLOOR			
1	5	NSS/WOMEN CELL/NCC SPORTS	3
2	6	IQAC/CERTIFICATE COURSES	5
3	7	PRINCIPAL OFFICE	1
4	10	ADMINISTRIVE OFFICE	9
5	12	LIBRARY	9
6	13	FACULTY LOUNGE	1
7	10	ADMINISTRIVE OFFICE	9
FIRST FLOOR			
8	16	COMPUTER LAB	52
9	15	READING ROOM	12



Annexure 7: Additional Load.

Sr.No	Load Name	Rated Kw	LOCATION
1	WATER COOLER		2nd floor
2	Exhaust fan	65	1st floor
3	Exhaust fan	65	2nd floor
4	Exhaust fan	40	Ground floor girls wash room
5	Exhaust fan	40	1st floor girls wash room
6	Exhaust fan	40	2nd floor girls wash room
8	3 no. Printer		principal office , admin office, computer lab
10	STABILIZER		COMPUTER LAB



33	26	T.Y.B.COM A	120	
34	27	F.Y.BCOM A	120	
35		BOYS WASHROOM	90	
36		LADIES WASHROOM	90	
37		CORRIDOR		
38	SECOND FLOOR			
39	28	T,Y,BCOM B	120	
40	29	F.Y.BCOM B	120	
41	30	OPTIONAL SUBJECT CLASSROOM	120	
42	31	F.Y.BCOM C	120	
43	32	OPTIONAL SUBJECT CLASSROOM	120	
44	33	S.Y.BCOM D	120	
45	34	OPTIONAL SUBJECT CLASSROOM	120	
46	35	STORE ROOM	180	
46	36	F.Y.BCOM D	120	
47	37	SSIP & INNOVATION CLUB	90	
48	38	S.Y.BCOM A	120	
49	39	S.Y.BCOM B	120	
50	40	S.Y.BCOM C	120	
51		BOYS WASHROOM	90	
52		LADIES WASHROOM	90	
53		CORRIDOR		
		LADDER	90	

