

BJB AUTONOMOUS COLLEGE

ENERGY AUDIT REPORT

2022-23



AT

BJB AUTONOMOUS COLLEGE
LEWIS ROAD, BHUBANESWAR-14

IQAC
31/5/2023

Energy Audit Committee:

CONVENOR: Sri. Raj Mohan Mohanty, H.O.D., Dept. of Physics

MEMBERS (Internal)

- 1) Smt. Mandakini Baral: Asst. Prof. of Physics
- 2) Sri. Srikant Behera: Asst. Prof. of Physics
- 3) Sri. Goutam Behera: Demonstrator, Dept. Of Physics
- 4) Sri. Prabeen Mohapatra: Mechanic, Dept. Of Physics
- 5) Sri. Uttareswar Mishra: Lab. Asst., Department of B.Ed. (SF)
- 6) Sri. Bikash Jyoti Basantray: Demonstrator, Dept. Of ETC (SF)

BJB AUTONOMOUS COLLEGE



LEWIS ROAD, BHUBANESWAR-14

CERTIFICATE

This is to certify that an Energy Audit BJB Autonomous College, Lewis Road, Bhubaneswar-14 has been conducted in May-June of 2023 to assess energy load, costs and consumption reliability to supply of energy, energy conservation and steps to be taken to reduce energy consumption.

Rajmohan Mohanty
31.05.23

Mr. Rajmohan Mohanty
Convenor

M. Baral
31.05.23

Mandakini Baral
Member

Srikant Behera
31.05.23

Srikant Behera
Member

Dr. Dipak Ranjan Swain
31/05/23

Member (External)

Dr. Dipak Ranjan Swain, Asst. Prof.

Dept. of Electrical Engineering, CET, Odisha University of Technology & Research, (OUTR)
Bhubaneswar

Bhubaneswar
Date: 31.05.2023

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Introduction

Buxi Jagabandhu Bidyadhar Autonomous College started functioning in 1957. It became an autonomous college in 1999 and was accredited with “A” level by NAAC. It Provides Co-education and Multi-faculty teaching facilities in Arts, Commerce and Science streams. It provides **23** regular undergraduate and Post Graduate courses. It Provide **6** integrated courses, **2**-UG courses, **5**-PG courses. by self-financing mode. It has Science Block, Administrative block, S.F. Block and Arts Block. In order to provide /Supply electricity a separate transformer is installed in the campus. There is huge electricity consumption in the class rooms, labs, corridor, offices staff rooms, auditorium and uses of equipment’s in different blocks of the college. In broad sense energy efficiency means managing energy consumption in a more economical way otherwise it may increase the energy consumption cost and will be a financial burden for the institution. It includes improving the efficiency of energy extraction, transmission and increasing the productivity energy use.

Energy Audit

As per the energy conservation Act. 2001, energy audit is defined as the verification, monitoring, analysis and use of energy including submission of technical report containing recommendation for improving energy efficiency with cost benefit and an action plan to reduce energy consumption.

The energy audit includes following stages:

A team headed by **Mandakini Baral**, Asst. Prof Physics with supporting staffs to collect data in Arts Block. A team headed by **Rajmohan Mohanty** Asst. Prof. in Physics with supporting staffs to collect data from Science Block. A team headed by **Srikant Behera** Asst. Prof. Physics with supporting staff to collect data from administrative & S.F. block.

In preliminary data collection phase, exhaustive data collection was performed using different tools. Different teams went to each block, departments, offices, library, auditorium etc. and collected the general information of each appliances and the power consumption of each appliance was recorded.

Detail analysis of data collected include calculation of energy consumption, analysis of latest electricity bill of the institute, understanding the tariff plan provided by TPCODL. On the basis of results of data analysis and observation & some steps for reducing power were recommended.

Data Collection

The audit team visited different blocks of BJB Autonomous college and data of each electrical appliances with wattage or load of each block are collected. All the data were put in the table for each blocks with load in kW for easier understanding.

ELECTRIC LOAD, ARTS BLOCK

ROOM NO.-	INCANDESCENT LAMP/TUBE LIGHT/CFL/LED IN WATT	PLUG POINT	PLUG POINT 15AMP IN WATT	WATER PURIFIER	AC IN WATT	TABLE FAN/WALL FAN IN WATT	CEILING FAN IN WATT	TV IN WATT	LAPTOP/DESKTOP/PRINTER IN WATT	APPARATUS IN WATT	SMART BOARD IN WATT	PROJECTOR/BIMETRICS IN WATT	Total Load in Watt.
GROUND FLOOR													
N-01	112	160	60	0	0	60	70	0	440	0	0	360	1262
N-02	112	160	60	0	0	60	70	0	440	0	0	60	962
N-03 CENTRAL COMPUTER LAB	560	3340	60	0	8000	0	840	0	11000	18000	0	0	41800
N-04 (BANK)													0
N-05	168	320	60	0	0	0	420	0	0	0	0	0	968
GIRLS TOILET	392	280	0	0	0	60	0	0	0	0	0	0	732
N-06	224	40	60	0	0	0	420	150	1100	0	0	0	1954
N-07	196	280	60	0	0	120	300	150	1100	0	0	0	2206
N-08	168	280	120	0	0	180	0	0	0	0	0	0	748
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-09	364	680	60	0	0	0	420	0	0	0	0	0	1524
N-10	364	480	240	0	0	0	420	0	0	0	0	0	1504
N-11	196	40	0	0	0	0	0	0	0	0	0	0	236
N-12	168	180	60	0	0	0	0	0	0	0	0	0	408
N-13	224	40	0	0	0	0	210	300	0	0	0	0	774
N-14	196	280	120	0	0	0	210	0	0	0	0	0	806
N-15	224	280	180	0	0	0	210	0	0	0	0	0	894
N-16	140	80	0	0	0	60	70	0	0	0	0	0	270
N-17	0	0	0	0	0	0	0	0	0	0	0	0	0

LIFT	0	0	0	0	0	0	0	0	0	2000(LI FT)	0	0	2000
FIRST FLOOR													
N-101 HINDI	112	16 0	60	0	0	120	70	150	440	0	0	360	1472
N-102	112	16 0	60	0	0	60	70	0	440	0	0	360	1262
N-103	112	16 0	60	0	0	60	70	0	440	0	0	360	1262
N-104 GEOGRAPHY	336	48 0	180	0	2000	0	840	150	220	0	0	0	4206
N-105-	196	40 0	120	0	0	0	560	0	0	0	0	0	1276
GIRLS TOILET	392	28 0	0	0	0	60	0	0	0	0	0	0	732
N-106	308	0	60	0	0	0	420	150	1100	0	0	0	2038
N-107	196	28 0	60	0	0	120	420	150	1100	0	0	0	2326
N-108	168	28 0	120	0	0	120	0	0	0	0	0	0	688
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-109	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-110	364	48 0	240	0	0	0	420	0	0	0	0	0	1504
N-111	0	0	0	0	0	0	0	0	0	0	0	0	0
N-112	0	0	0	0	0	0	0	0	0	0	0	0	0
N-113 (ANTHROPOLO GY)	224	40	0	0	0	0	210	300	0	0	0	0	774
N-114 (SOCIOLOGY)	196	28 0	120	0	0	60	210	150	220	0	0	360	1596
N-115	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-116	140	0	0	0	0	60	70	0	0	0	0	0	270
N-117	0	0	0	0	0	0	0	0	0	0	0	0	0
2ND FLOOR													
201- HISTORY	112	16 0	60	0	0	120	70	150	440	0	0	360	1472
202- PSYCHOLOGY	112	16 0	60	0	0	60	70	0	440	0	0	360	1262

203-GIRLS COMMON ROOM	364	16 0	60	0	0	60	840	0	0	0	0	0	1484
204-	336	48 0	180	0	2000	0	840	150	220	0	0	0	4206
205-	196	40 0	120	0	0	0	560	0	0	0	0	0	1276
GIRLS TOILET	392	28 0	0	0	0	60	0	0	0	0	0	0	732
206	308	0	60	0	0	0	420	150	1100	0	0	0	2038
N-207	196	28 0	60	0	0	120	420	150	1100	0	0	0	2326
N-208	168	28 0	120	0	0	120	0	0	0	0	0	0	688
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-209 ECONOMICS	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-210	364	28 0	240	0	0	0	420	0	0	0	0	0	1304
N-211	0	0	0	0	0	0	0	0	0	0	0	0	0
N-212	0	0	0	0	0	0	0	0	0	0	0	0	0
N-213	224	40	0	0	0	0	210	300	0	0	0	0	774
N-214	196	28 0	120	0	0	60	210	150	220	0	0	360	1596
N-215 (SANSKRIT)	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-216	140	0	0	0	0	60	70	0	0	0	0	0	270
N-217	0	0	0	0	0	0	0	0	0	0	0	0	0
3RD FLOOR													
N-301- POL.SC	112	16 0	60	0	0	120	70	150	220	0	0	0	892
N-302	112	16 0	60	0	0	60	70	0	0	0	0	0	462
N-303	364	16 0	60	0	0	60	840	0	0	0	0	0	1484
N-304- VIRTUAL CLASS ROOM	196	12 0	120	0	0	0	560	0	220	0	150	360	1726

N-306	308	0	60	0	0	0	420	150	1100	0	0	0	2038
N-307	196	28 0	60	0	0	120	420	150	1100	0	0	0	2326
N-308 MUSIC PRCTICAL CLASS ROOM	168	28 0	120	0	0	120	0	0	0	0	0	0	688
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-309	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-310	364	48 0	240	0	0	0	420	0	0	0	0	0	1504
N-311	0	0	0	0	0	0	0	0	0	0	0	0	0
N-312	0	0	0	0	0	0	0	0	0	0	0	0	0
N-313	224	40	0	0	0	0	210	300	0	0	0	0	774
N-314	196	28 0	120	0	0	60	210	150	220	0	0	360	1596
N-315 MSW	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-316 MUSIC	140	0	0	0	0	60	70	0	0	0	0	0	270
N-317	0	0	0	0	0	0	0	0	0	0	0	0	0

FOURTH FLOOR

N-401	112	16 0	60	0	0	120	70	150	220	0	0	0	892
N-402	112	16 0	60	0	0	60	70	0	0	0	0	0	462
N-403	260	16 0	60	0	0	60	840	0	0	0	0	0	1380
N-404	196	12 0	120	0	0	0	560	0	220	0	150	360	1726
N-405	196	12 0	120	0	0	0	560	0	220	0	150	360	1726
GIRLS TOILET	308	28 0	0	0	0	60	0	0	0	0	0	0	648
N-406	308	0	60	0	0	0	420	150	1100	0	0	0	2038
N-407	196	28 0	60	0	0	120	420	150	1100	0	0	0	2326
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-408	168	28 0	120	0	0	180	0	0	0	0	0	0	748
N-409	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-410	364	48 0	240	0	0	0	420	0	0	0	0	0	1504

N-411	0	0	0	0	0	0	0	0	0	0	0	0	0
N-412	0	0	0	0	0	0	0	0	0	0	0	0	0
N-413	224	40	0	0	0	0	210	300	0	0	0	0	774
N-414	196	28 0	120	0	0	60	210	150	220	0	0	360	1596
N-415	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-416	140	0	0	0	0	60	70	0	0	0	0	0	270
N-417	0	0	0	0	0	0	0	0	0	0	0	0	0

FIFTH FLOOR

N-501	112	16 0	60	0	0	120	70	150	220	0	0	0	892
N-502	112	16 0	60	0	0	60	70	0	0	0	0	0	462
EXAM HALL	1540	30 0	480	0	0	420	3430	0	0	0	0	0	6170
GIRLS TOILET	393	28 0	0	0	0	60	0	0	0	0	0	0	733
N-503	308	0	60	0	0	0	420	150	1120	0	0	0	2058
N-504	196	28 0	60	0	0	120	420	150	1120	0	0	0	2346
BOYS TOILET	224	0	0	30	0	240	0	0	0	0	0	0	494
N-508	1344	28 0	120	0	0	180	0	0	0	0	0	0	1924
N-509	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-510	364	48 0	240	0	0	0	420	0	0	0	0	0	1504
N-511	0	0	0	0	0	0	0	0	0	0	0	0	0
N-512	0	0	0	0	0	0	0	0	0	0	0	0	0
N-513	224	80	0	0	0	0	210	300	0	0	0	0	814
N-514	196	28 0	120	0	0	60	210	150	220	0	0	360	1596
N-515	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-516	140	0	0	0	0	60	70	0	0	0	0	0	270
N-517	0	0	0	0	0	0	0	0	0	0	0	0	0

SIXTH FLOOR

N-601	112	16 0	60	0	0	120	70	0	0	0	0	0	522
N-602	112	16 0	60	0	0	60	70	0	0	0	0	0	462

N-603	364	16 0	60	0	0	60	840	0	0	0	0	0	1484
N-604	196	12 0	120	0	0	0	560	0	0	0	0	0	996
N-605	196	12 0	120	0	0	0	560	0	0	0	0	0	996
GIRLS TOILET	280	28 0	0	0	0	60	0	0	0	0	0	0	620
N-606	308	0	60	0	0	0	420	0	0	0	0	0	788
N-607	196	28 0	60	0	0	120	420	0	0	0	0	0	1076
BOYS TOILET	224	0	0	0	0	240	0	0	0	0	0	0	464
N-608	168	28 0	120	0	0	180	0	0	0	0	0	0	748
N-609	364	68 0	60	0	0	0	420	0	0	0	0	0	1524
N-610	364	48 0	240	0	0	0	420	0	0	0	0	0	1504
N-611	0	0	0	0	0	0	0	0	0	0	0	0	0
N-612	0	0	0	0	0	0	0	0	0	0	0	0	0
N-613	224	40	0	0	0	0	210	0	0	0	0	0	474
N-614	196	28 0	120	0	0	60	210	0	0	0	0	0	866
N-615	224	28 0	180	0	0	0	210	0	0	0	0	0	894
N-616	140	0	0	0	0	60	70	0	0	0	0	0	270
N-617	0	0	0	0	0	0	0	0	0	0	0	0	0
6TH FLOOR SC	308	60	0	0	0	0	0	0	0	0	0	0	368

ELECTRIC LOAD, ADMINISTRATIVE & S.F. BLOCK

ROOM NO.-	INCANDESCENT LAMP/TUBE LIGHT/CFL/LED IN WATT	PLUG POINT	PLUG POINT 15AMP IN WATT	WATER PURIFIER	AC IN WATT	TABLE FAN/WALL FAN IN WATT	CEILING FAN IN WATT	TV IN WATT	LAPTOP/DESKTOP/PRINTER IN WATT	APPARATUS IN WATT	SMART BOARD IN WATT	PROJECTOR/BIOMETRICS IN WATT	
ROOM NO-1	488	340	0	2000	4500	140	125	440	FRIDGE, Xerox	2402	0	0	10435
ROOM NO-2	540	2780	0	8000	360	700	125	1320	Printer, Xerox	995	0	0	14820
ROOM NO-3	254	280	0	2000	1500	0	0	220	Printer, PC	440	0	0	4694
ROOM NO-4	90	340	0	0	3000	140	0	0	Xerox	115	0	0	3685
ROOM NO-5	72	420	0	0	0	210	250	0		0	0	0	952
ROOM NO-6	126	240	0	0	0	140	0	0		0	0	0	506
ROOM NO-7	162	80	0	2000	0	70	0	440	Printer, Xerox	335	0	0	3087
ROOM NO-8	72	260	0	0	0	140	0	0		0	0	0	472
ROOM NO-9	126	140	0	0	0	210	0	0		0	0	0	476
ROOM NO-10	54	100	0	0	60	140	0	0		0	0	0	354
ROOM NO-11	448	420	0	2000	240	0	0	220		0	0	0	3328
ROOM NO-12	72	80	0	0	0	350	0	0		0	0	0	502
ROOM NO-13 & 14	180	580	30	2000	0	280	0	1760		660	0	0	5490
ROOM NO-15	54	80	0	0	0	140	0	0		0	0	0	274
ROOM NO-16	144	260	0	0	0	280			FRIDGE, waterbath, Autoclave, hot oven, s meter, centrifuge, coffee machine	2675	0	0	3359
ROOM NO-17	36	340	0	0	60	70	0	0	Coffee machine, Fridge, Oven, xerox	2115	0	0	2621
ROOM NO-18	234	500	0	1000	120	0	0	660	Xerox	115	0	0	2629
ROOM NO-19	1080	20		6000		420	0	880	PAS (AHUJA)	40	0	360	8800

ROOM NO-20	144	40	0	0	0	490	0	0		0	0	0	674
ROOM NO-21	108	380	0	2000	0	70	0	220	Printer, Distilled water plant	3200	0	0	5978
ROOM NO-21 (A)	270	240	0	0	120	70			xerox, incubator, cooling cartridge, fridge, L_air flow	1690	0	0	2390
ROOM NO-22	72	180	30	0	0	140	0	0		0	0	0	422
ROOM NO-23	72	220	0	0	0	140	0	220	Fridge	125	0	0	777
ROOM NO-24	108	100	0	0	0	350	0	0		0	0	0	558
ROOM NO-25	18	20	0	0	0	0	0	0		0	0	0	38
ROOM NO-26	36	580	0	0	0	140	0	0		0	0	0	756
ROOM NO-27	54	60	30	0	0	140	0	0		0	0	0	284
ROOM NO-28	54	280	0	0	0	140	125	440	printer, xerox, fridge	680	0	0	1719
ROOM NO-29	72	20	0	0	0	140	0	0		0	0	0	232
ROOM NO-30	918	760	0	2000	300	560	125	0	FRIDGE, Incubator water bath, oven, laminator	3100	0	0	7763
LIBRARY													
ROOM NO-31 (A)	252	440	0	0	0	1330	0	0		0	0	0	2022
ROOM NO-31 (B)	126	780	0	0	0	490	0	660	Inverter, Xerox, UPS	4115	0	0	6171
ROOM NO-31 (C)	61	440	0	0	60	630	0	440	PRINTER	220	0	0	1851
ROOM NO-31 (D)	216	220	750	0	0	210	0	220	PRINTER	220	0	0	1836
ROOM NO-31 (E)	396	260	0	0	420	840	0	0		0	0	0	1916
ROOM NO-31 (F)	360	160	0	0	0	280	0	0	PC-11, 5 LAPTOP, 1 PRINTER, 1 24 PORT SWITCH	0	0	0	3345
ROOM NO-101	144	40	30	2000	0	280	0	0		0	0	0	2494
ROOM NO-102	1390	240	0	44000	0	1260	0	0		0	0	0	46890
ROOM NO-103	72	20	0	0	0	140	0	0		0	0	0	232
ROOM NO-104	54	100	30	0	0	210	0	220	Printer	220	0	0	834
ROOM NO-105	360	1700	0	8000	6000	0	0	220	printer, UPS	10220	0	0	26520
ROOM NO-106	90	40	0	0	0	280	0	0		0	0	0	410
ROOM NO-107	144	40	0	0	0	420	0	0		0	0	0	604

ROOM NO-108	90	40	0	0	0	140	125	660	Fridge	125	0	0	1180
ROOM NO-109	306	140	0	0	0	140	0	0		0	0	0	586
ROOM NO-110	18	20	0	0	0	140	0	0		0	0	0	178
ROOM NO-111	162	340	0	4000	0	140	0	3080	online UPS	2000	0	0	9722
ROOM NO-112	54	60	0	0	0	140	0	0		0	0	0	254
ROOM NO-113	162	620	0	2000	60	0	0	220	Printer	220	0	0	3282
ROOM NO-114	232	1120	0	0	60	70	0	0		0	0	0	1482
ROOM NO-115	72	200	0	0	0	140	125	0		0	0	0	537
ROOM NO-116	272	120	0	0	0	350	0	0		0	0	0	742
ROOM NO-117	218	60	0	0	0	70	0	0		0	0	0	348
ROOM NO-118	126	120	0	2000	0	140	0	220	Fridge	125	0	0	2731
ROOM NO-119	272	20	0	0	0	140	0	0		0	0	0	432
ROOM NO-120	126	100	0	0	0	140	0	0		0	0	0	366
ROOM NO-121	72	140	30	0	60	0	0	0		0	0	0	302
ROOM NO-122	162	20	0	0	0	140	0	0		0	0	0	322
ROOM NO-123	162	140	0	2000	60	140	0	0		0	0	0	2502
ROOM NO-124	162	420	0	4000	120	70	0	1100	Inverter, printer	1730	0	0	7602
ROOM NO-125	126	160	0	2000	60	140	0	0		0	0	0	2486
ROOM NO-126	126	120	0	2000	60	140	0	0		0	0	0	2446
ROOM NO-127	288	380	0	2000	60	140	125	240	Xerox	115	0	0	3348
ROOM NO-128	900	660	0	0	300	630	0	0	Fridge, Oven	2375	0	0	4865
ROOM NO-129	1304	480	0	10000	540	0	0	0	PAS AMPLIFIER, MICRPHONE,MUL TIMEDIA,OHP	2865	0	0	15189
ROOM NO-130	180	120	0	0	0	630	0	0		0	0	0	930
ROOM NO-131	198	120	0	0	0	560	0	0		0	0	0	878
SELF- FINANCING EXT. BUILDING													
STAFF ROOM	54	260	0	4000	0	210	0	220	PRINTER	220	0	0	4964
LIBRARY	162	200	0	0	60	210	0	220		0	0	0	852
121-A	90	20	0	0	120	280	0	0		0	0	0	510
121-B (COMP. LAB)	180	1400	0	4000	0	420	0	7700		0	0	0	13700

122-A	126	40	0	0	0	280	0	0	0	0	0	446
122-B	216	40	0	0	0	420	0	0	0	0	0	676
CORRIDER												
CORRIDER (S.F.) BUILDING	54	0	0	0	0	70	0	0	0	0	0	124
EXAM SECTION (INSIDE)	126	200	0	0	60	70	0	0	XEROX, INVERTER	815	0	1271
INFRONT OF CONF. ROOM	72	0	0	0	0	0	0	0	0	0	0	72
COMMERCE DEPT.	36	0	0	0	0	0	0	0	0	0	0	36
MATH DEPT.	54	0	0	0	0	0	0	0	0	0	0	54
ROOM NO.-102	18	0	0	0	0	0	0	0	0	0	0	18
ROOM NO-3,4,5	54	0	0	0	0	0	0	0	0	0	0	54
ROOM NO-2 (OFFICE)	126	80	750	0	0	140	0	0	0	0	0	1096
STATISTIC DEPT.	270	0	0	0	0	0	0	0	0	0	0	270
R. NO-17-TO-24	90	0	0	0	60	0	0	0	LIFT	250	0	400
FRONT OF LIBRARY	144	0	0	0	0	0	0	0	0	0	0	144

SCIENCE BLOCK

ROOM	INCANDESCENT LAMP/TUBE LIGHT/CFL/LED IN WATT	PLUG POINT IN WATT	PLUG POINT (15 AMP)	WATER PURIFIER IN WATT	AC IN WATT	TABLE FAN/WALL FAN IN WATT	CEILING FAN IN WATT	TV IN WATT	LAPTOP/E	APPARTUS IN WATT	SMART BOARD IN WATT	PROJEC	Total Load in Watt.	
1ST FLOOR														
ROOM NO-136	576	60	0	0	2000	120	140	60	880		0	0	0	3836
ROOM NO-137	288	40	0	0	0	0	140	0	0		0	0	0	468
ROOM NO-134	54	40	0	0	0	0	140	0	0		0	0	0	234
ROOM NO-132	324	80	0	0	0	0	1050	0	0		0	0	0	1454
ROOM NO-135	324	180	0	0	0	0	1050	0	0		0	0	0	1554
ROOM NO-138	720	440	0	40	0	0	700	0	0	INVERTER	800	0	0	2660
ROOM NO-133	180	580	0	0	0	0	140	0	0		0	0	0	900
ROOM NO-139	828	700	0	40	0	60	910	0	0	FRIDGE, INDUCTION	500	0	0	2998
ROOM NO-142	378	160	0	0	0	0	0	0	220	FRIDGE, PRINTER	300	0	0	1058
ROOM NO-141	342	900	0	0	2000	0	140	0	1760	XEROX , WIFI SWITCH, HOT CHAMBER, 11 Nos. of PC & 1 Printer added	2150	0	0	11862
ROOM NO-147	45	12	0	0	0	60	140	125	840	XEROX, PRINTER	300	0	360	1882
CORRIDER	0	1500	0	0	0	0	0	0	0		0	0	0	1500
GROUND FLOOR														
ROOM NO-42	172	20	0	0	0	0	70	0	0	FRIDGE	265	0	0	527
ROOM NO-39	0	700	0	0	2000	360	0	0	0		0	0	0	3060
ROOM NO-43	172	20	0	0	0	0	70	0	0		0	0	0	262
ROOM NO-44	172	20	0	0	0	0	70	0	0		0	0	0	262
ROOM NO-45	172	20	0	0	0	0	70	0	0	GENERATOR SET	3000	0	0	3262
ROOM NO-38	144	120	0	30	2000	360	0	125	0		0	0	0	2749
ROOM NO-37	72	120	0	0	2000	240	0	0	220	XEROX	115	0	0	2767
ROOM NO-40	648	1100	0	0	0	240	210	0	0		0	0	0	2198
ROOM NO-41	630	220	0	30	0	240	210	0	0		0	0	0	1300
ROOM NO-33	180	80	0	0	0	0	700	0	0		0	0	0	960

ROOM NO-34	378	80	0	0	0	0	1050	0	0	0	0	0	1508
ROOM NO-35	324	80	0	0	0	0	280	0	0	0	0	0	684
BOYS TOILET	72	0	0	0	0	0	140	0	0	0	0	0	212
GIRLS TOILET	36	40	0	0	0	0	280	0	0	0	0	0	356
CORRIDER	216	40	0	0	0	0	280	0	0	0	0	0	536
LIFT	0	0	0	0	0	0	0	0	0	LIFT	500	0	500
2ND FLOOR													
ROOM NO-140 (PHYSICS STORE)	136	160	60	0	0	0	140	0	0	0	0	0	436
ETC DEPT. OFFICE	140	120	180	0	0	120	0	0	0	0	0	0	560
ETC. LAB.	420	1200	240	0	6000	0	0	0	220	0	0	0	8080
ETC DEPT. STORE	432	360	300	0	0	0	840	0	0	0	0	0	1932
ROOM NO-36	72	120	0	0	2000	120	0	0	0	PRINTER	150	0	2462
OLD ZOOLOGY LAB	432	360	300	0	0	0	840	0	0	0	0	0	1932
CORRIDER	36	120	0	0	0	0	140	0	0	0	0	0	296

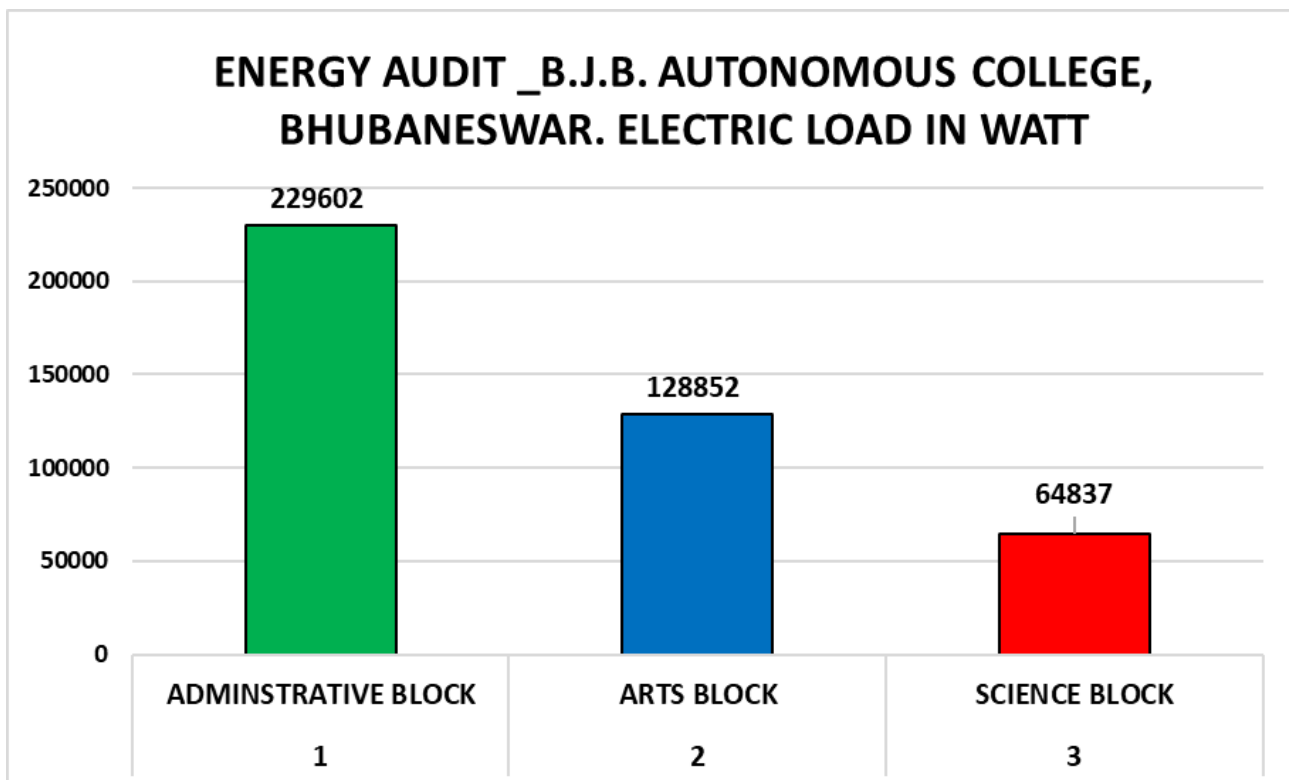
Data Analysis

The collected data were then quantified according to the following criteria.

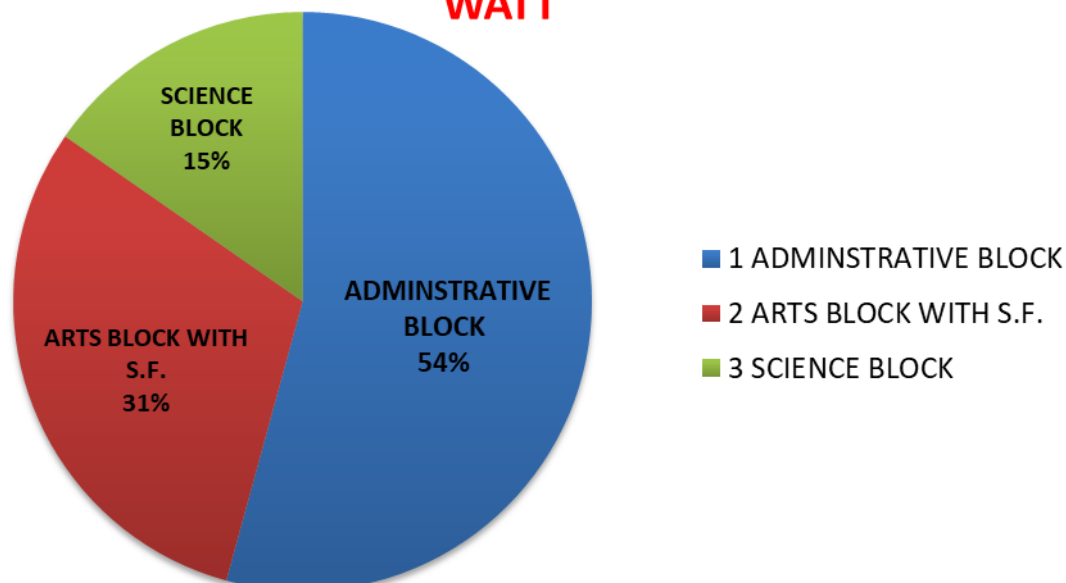
- Energy load of each appliance.
- Energy load in each block.
- Energy load in the college.

The quantified data were put in a tabular form and with suitable diagram for easy reference and understanding of the energy consumption.

ENERGY AUDIT		
B.J.B. AUTONOMOUS COLLEGE, BHUBANESWAR.		
SL.NO.	NAME OF THE BLOCK	ELECTRIC LOAD IN WATT
1	ADMINISTRATIVE BLOCK	229602
2	ARTS BLOCK	128852
3	SCIENCE BLOCK	64837
TOTAL LOAD		423291



**ENERGY AUDIT_B.J.B. AUTONOMOUS
COLLEGE, BHUBANESWAR. ELECTRIC LOAD IN
WATT**

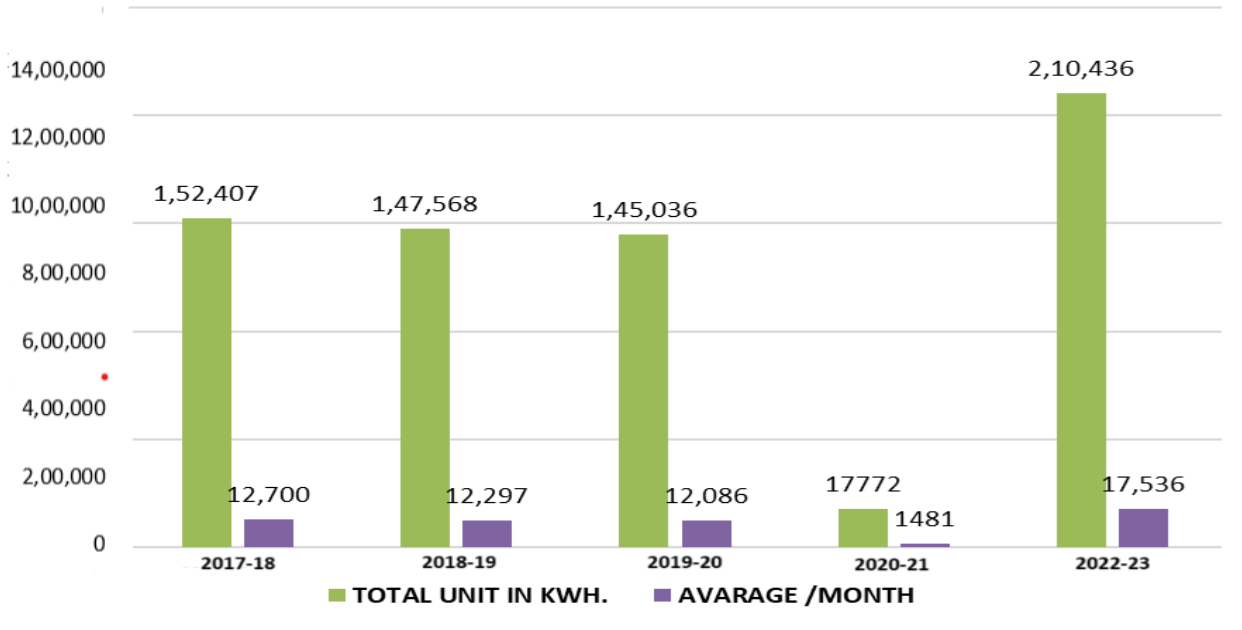


Energy Consumption Bill.

The energy consumption bills were collected from office for different years and months. It is then put in the tabular form and suitable diagram for easy reference and better understanding.

ENERGY CONSUMPTION REPORT PER ANNUM					
B.J.B. AUTONOMOUS COLLEGE, BHUBANESWAR.					
SL.NO.	ENERGY BILL OF THE YEAR	AMOUNT IN Rs./ YEAR	COST/UNIT @ IN Rs.	TOTAL UNIT IN KWH.	AVARAGE /MONTH
1	2017-18	6,85,835	4.50	1,52,407	12,700
2	2018-19	7,08,330	4.80	1,47,568	12,297
3	2019-20	6,96,175	4.80	1,45,036	12,086
4	2020-21(COVID)	98,634	5.55	17772	1481
5	2022-23	1,304,706	6.20	2,10,436	17,536

Energy Consumption Per Annum Graph

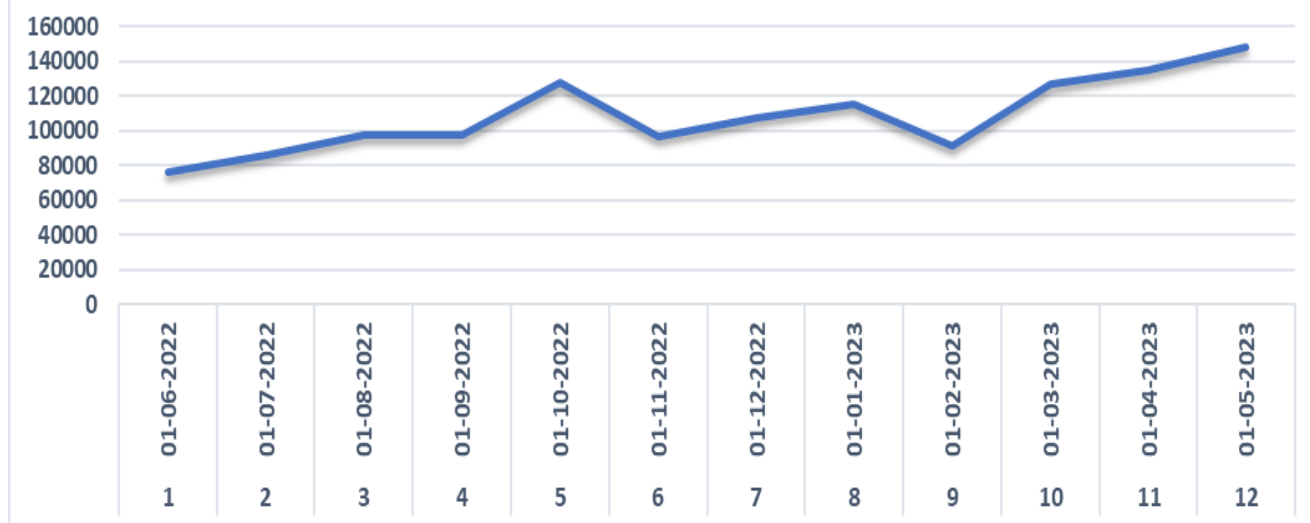


ENERGY CONSUMED IN MONTH WISE REPORT

B.J.B. AUTONOMOUS COLLEGE, BHUBANESWAR.

SL.NO.	MONTH	ENERGY BILL	COST/UNIT @IN Rs.	UNIT CONSUMED IN KWH
1	01-06-2022	76128	6.2	₹ 12,278.71
2	01-07-2022	85780	6.2	₹ 13,835.48
3	01-08-2022	97205	6.2	₹ 15,678.23
4	01-09-2022	97802	6.2	₹ 15,774.52
5	01-10-2022	127620	6.2	₹ 20,583.87
6	01-11-2022	96432	6.2	₹ 15,553.55
7	01-12-2022	106957	6.2	₹ 17,251.13
8	01-01-2023	115257	6.2	₹ 18,589.84
9	01-02-2023	91625	6.2	₹ 14,778.23
10	01-03-2023	126540	6.2	₹ 20,409.68
11	01-04-2023	135210	6.2	₹ 21,808.06
12	01-05-2023	148150	6.2	₹ 23,895.16

ENERGY CONSUMED IN MONTH WISE REPORT

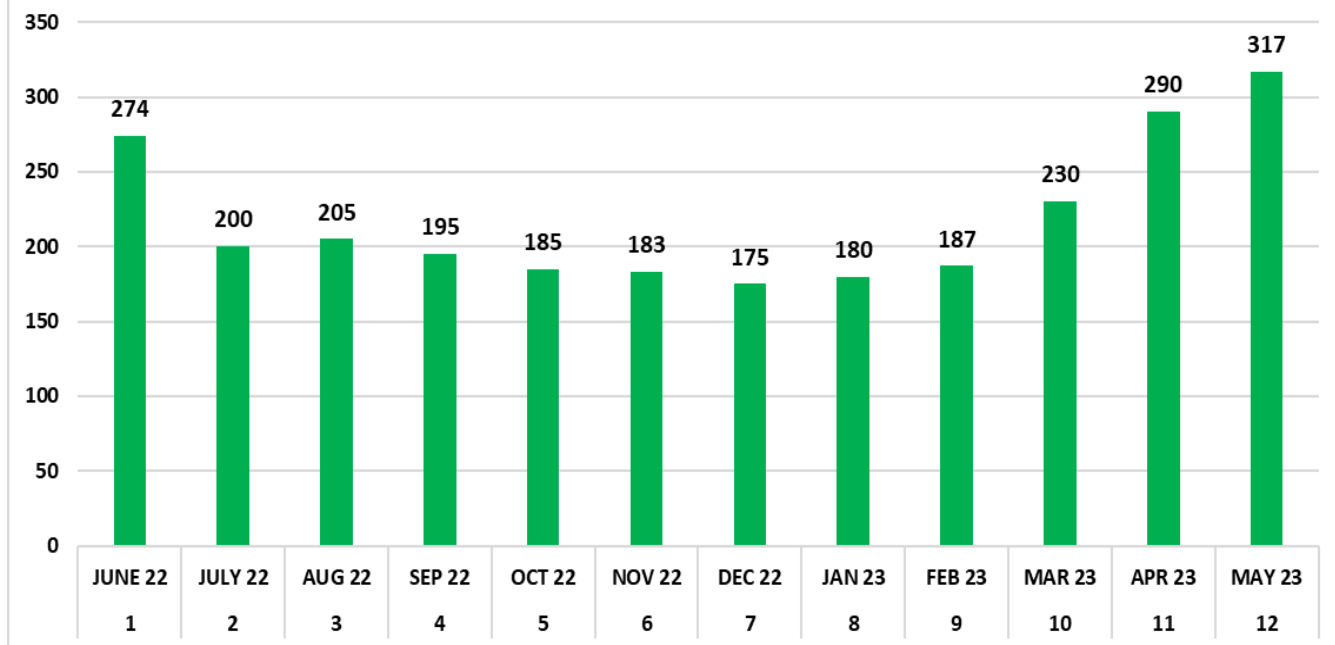


Energy Saving Data

The data of roof top solar panel of Arts Block was collected from office and was in the tabular form and a suitable diagram for better understanding.

SOLAR ENERGY HARVESTING		
B.J.B. AUTONOMOUS COLLEGE, BHUBANESWAR.		
SL.NO.	YEAR & MONTH	UNIT IN K/W
1	01-06-2022	274
2	01-07-2022	200
3	01-08-2022	205
4	01-09-2022	195
5	01-10-2022	185
6	01-11-2022	183
7	01-12-2022	175
8	01-01-2023	180
9	01-02-2023	187
10	01-03-2023	230
11	01-04-2023	290
12	01-05-2023	317

SOLAR ENERGY HARVESTING B.J.B. AUTONOMOUS COLLEGE, BHUBANESWAR UNIT IN K/W



Suggestion and Recommendation

- From Physical observation and data analysis team recommended following points:
- Upgrading of technologies in Laboratory equipment's.
- Replacing old electrical cables in some places in administrative block and science block for safety and power loss.
- Replacement of CFL bulb with LED.
- Replacement of LCD monitors with LED.
- Use of master switch outside each room to save energy.
- Old appliances should replace to reduce energy consumption.
- Replacement of old generation computer and TV with LED.
- MCB panel in each department for safety and to reduce power consumption.
- Installation of roof top Solar cell in Science block, Administrative block & S.F. block to reduce annual electric bill.

- Conceal wiring in administrative block and science block for safety purpose.
- Steps should be taken to make roof top solar panel operational.
- Proper installation for AC.
- Proper earthing system for new science block, administrative & S.F. block to save electrical appliances & power loss.

Conclusion

Considering the fact that the organization is a well-established, long time run establishment with good reputation, there is significant scope for conserving energy and made the campus as self-sustained in of the energy conservation initiative taken by the institution are sustained. The energy efficiency lighting schemes awareness among stake holder and necessary power backup are being practiced by the institution. Electrical wire, switch board, stabilizer and WIFI switch is properly covered. In new arts block the electrical wiring (cable), switch, panel board, WIFI switch and etc are properly installed so that there is minimum power loss. Solar energy production in arts block to reduce electric bills almost zero. Administrative block and Science block in some place's cables are weak and of needs replacement to avoid energy loss. Each block needs installation of meter and panel system in each department to avoid loss of energy. The roof top solar panel should be operational in administrative block to reduce electric energy load. It is better for conceal wiring in administrative block and science block to reduce power loss. Steps may be taken to install roof top solar panel in new science block to save energy bill. The overall electrical system in the college is satisfactory and needs further improvement.

PHOTOGRAPHS-



OFFICE OF THE PRINCIPAL



PRINCIPAL WITH ADMINISTRATIVE BURSAR



ADMINISTRATIVE BURSAR IN DEPT. OF ANTHROPOLOGY



OFFICE ROOM



OFFICE OF THE EXAM CONTROLLER



SAMS ROOM



LIBRARY



READING ROOM



JOURNAL SECTION



ACADEMIC SECTION



PANEL SWITCH, ARTS BLOCK



MAIN SWITCH & PANEL IN ADMINSTRATIVE BLOCK



AUDITORIUM



SOLAR PANEL INSTALLED IN ARTS BLOCK ROOF TOP



PANEL BOARD



TRANSFORMER



ADMINISTRATIVE BLOCK



SCIENCE BLOCK



ARTS BLOCK

THANK YOU

