



GOVERNMENT COLLEGE KASARAGOD

VIDYANAGAR, KASARAGOD, KERALA, 671123

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NAAC 3RD CYCLE ACCREDITATION

ENERGY AUDIT REPORT



GOVERNMENT COLLEGE KASARAGOD

VIDYANAGAR, KASARAGOD, KERALA 671123

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Energy Audit Team

External Auditor

Sooraj K

Director

Wahni Green Technologies Pvt Ltd

Internal Environmental Audit Team

Convenor

Dr. Jijo P U

Associate Professor & Head, Department of Physics, Government College Kasaragod

Members

- Dr. Vineethkumar V
Assistant Professor, Department of Physics, Government College Kasaragod
- Dr. Anumol CN
Assistant Professor, Department of Physics, Government College Kasaragod
- Dr. Ahmed Rizwan C L
Assistant Professor, Department of Physics, Government College Kasaragod
- III Year and PG students of Physics Department, Physics Club Members.



Name and Signature of the Principal
Dr. Ananthapadmanabha A.L.

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Authentication

This is to certify that we have conducted an Energy Audit for Government College Kasaragod to assess the energy costs, availability and reliability of supply of energy, energy conservation technologies, and the ways to reduce the energy consumption. The measures and action taken by the college to maintain the energy sustainability are remarkable and highly appreciable.

Sooraj K
(External Auditor)

Dr. Jijo P U
PEN: 600784
Associate Professor
Government College Kasaragod
Vidyanagar Post - 671123.

Dr. Jijo P U
(Internal Audit Team Convenor)



Name and Signature of the Principal
Dr. Ananthapadmanabha A.L.

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ACKNOWLEDGMENTS

The team responsible for this audit, comprised of Dr. Vineethkumar V, Assistant Professor, Department of Physics, Government College Kasaragod Government College Kasaragod, under the supervision and direction of Dr. Jijo P U, Associate Professor, Department of Physics, Government College Kasaragod and Mr. Sooraj K, Director; Wahni Green Technologies Pvt Ltd would like to thank those individuals who contributed to this project, particularly, Dr. V. S. Anilkumar, Principal, Government College Kasaragod, all the faculties and staff who provided insights and comments as part of this audit.



Name and Signature of the Principal
Dr. Ananthapadmanabha.A.L

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STATEMENT OF ASSURANCE

This audit has been conducted in accordance with the International Standards for the Professional Practice of Internal Auditing. In our professional judgement, sufficient and appropriate audit procedures were completed, and evidence was gathered to support the accuracy of the conclusions reached and contained in this report. The conclusions are based on a comparison of the situations as they existed at the time of the audit with the established criteria.



Name and Signature of the Principal
Dr. Ananthapadmanabha.A.L

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EXECUTIVE SUMMARY

"An energy audit is a systematic management tool employed to safeguard and preserve the environment, as well as to promote its sustainability. This audit evaluates various established criteria, approaches, and initiatives for utilising the energy effectively. Energy Auditing of the Government College Kasaragod enables us to assess the energy consumption and availability and reliability of supply of energy. The process of generating the audit report involved the use of questionnaires, surveys, group discussions, and interviews to collect information. This information, along with recommendations and suggestions, was then utilised to create the final Energy Audit report."



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1. INTRODUCTION

About the College

Government College Kasaragod was established in 1957 by the Government of Kerala, as a need was felt for a college in this underdeveloped area. The College commenced functioning early in August 1957. The College was declared open by the Honourable Minister of Finance, Sri. C. Achutha Menon on 07-08-1957. Now, the college offers 14 undergraduate courses, 8 postgraduate courses and 6 PhD programmes. College is re-accredited with NAAC 'A' grade in 2013. In 2021, the college was ranked 82 among all colleges in India under the National Institution Ranking Framework (NIRF).

Mission

“Our Mission is to achieve the overall development of the students with a focus on knowledge, skill and the right social attitudes and service-mindedness required for attaining excellence in personal as well as social life.”

Vision

“We are guided and inspired by a glorious vision to use our physical, mental and Intellectual energies to the advancement of the individual and the society, to strive for the noble cause of education, truth and righteousness, to instil a sense of pride and emotional belongingness in the mind of every individual.”



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Courses offered by the College

Undergraduate Courses

BA Arabic	BSc Botany	BSc Chemistry	BCom Co-operation
BA Economics	BA English	BSc Computer Science	BSc Geology
BA History	BA Kannada	BA Malayalam	BSc Mathematics
BSc Physics	BSc Zoology		

Post Graduate Programmes

MA Arabic	MSc. Chemistry	MA Economics	MA English
MSc Geology	MA Kannada	MSc Mathematics	MSc Physics with Computational and Nano Science Specialization

Ph.D. Programs

PhD in Chemistry	PhD in Economics	PhD in Geology	PhD in Kannada
PhD in Zoology	PhD in Statistics	PhD in Arabic	

Student and faculty strength:

Total number of Students	1953
Teachers	99
Non-teaching staff	42
Total	2094



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2. PHYSICAL AREAS

Government College Kasaragod has a total area of 30.26 Acres. Out of the total area, 10153.81 square metres is the built-up area, and the rest of the area is used for various purposes. The following table provides a detailed breakdown of the built-up area within the campus:

Area details of the Nirmalagiri College Campus:

Sl. No	AREA DETAILS	BUILT UP AREA (im m ²)
1	Science block	177.5
2	Main block	436.85
3	Auditorium	124.80
4	Open auditorium	90.30
5	Library	190
6	Canteen	52
7	Maths block	100.70
8	T block	207.43
9	Old PG block	76.46
10	Kannada-Arabic block	167.83
11	New tank	39.66



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3. OBJECTIVES OF THE AUDIT

- To furnish fundamental data for the institution to assess and oversee energy usage.
- To identify, diagnose, and rectify energy-intensive practices.
- To propose optimal guidelines for the sustainable utilisation of energy.
- To acknowledge the proactive measures institutions have taken in pursuit of sustainable energy practices.

ENERGY AUDIT

An energy audit evaluates an institution's energy efficiency by examining energy sources and consumption stemming from equipment, appliances, lighting, and usage patterns. This metric aims to gauge the institution's sustainable energy resource management and identify steps for enhancing overall efficiency.

4. METHODOLOGY ADOPTED

1. Field Visit:

The purpose of the field visit is to analyse the utilisation of different sources. The energy audit team conducted field visits during specific intervals and collected the data on different indicators.

2. Group Discussion:

Group discussions were held with Bhoomithrasena, Physics club, NSS, faculties, office staff, and management of the various strategies of target areas.

3. Survey:

The audit team conducted surveys on various aspects of target areas by distribution of survey founders on different headings. All the departments, office, canteen, and library participated in the detailed questionnaire survey study.



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5. ENERGY AUDIT REPORT

Table - The energy consumption pattern of the college for a month

DEPARTMENT OF COMPUTER SCIENCE									
SI No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption per month
1	Tube	35	28	980	0.98	6	5.88	20	118
2	Fan	30	48	1440	1.44	6	8.64	20	173
3	Computer	18	69	1242	1.242	6	7.452	20	149
4	Laptop	5	50	250	0.25	6	1.5	20	30
5	Projector	3	250	750	0.75	1	0.75	20	15
6	Speaker	3	6	18	0.018	0.08	0.00144	20	0.03
7	Printers	5	259	1295	1.295	0.2	0.259	20	5.18
8	Main UPS	1	5000	5000	5	6	30	20	600
9	Exhauster	1	40	40	0.04	6	0.24	20	4.8
10	CPU	18	300	5400	5.4	6	32.4	20	648
11	Mic	1	5	5	0.005	0.2	0.001	20	0.02
12	WiFi modem	2	20	40	0.04	6	0.24	20	4.8
13	Incandescent Lamp	1	60	60	0.06	2	0.12	20	2.4
Grand total									1750.23
DEPARTMENT OF MALAYALAM									
SI No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	CFL	1	14	14	0.014	3	0.042	20	0.84
2	Tube	15	20	300	0.3	3	0.9	20	18
3	Fan	12	48	576	0.576	6	3.456	20	69.12
4	Computer	1	729	729	0.729	2	1.458	20	29.16
5	Laptop	1	50	50	0.05	2	0.1	20	2
6	Projector	2	250	500	0.5	0.2	0.1	20	2
7	Speaker	4	6	24	0.024	0.08	0.00192	20	0.04
8	Printer	1	259	259	0.259	0.2	0.0518	20	1.04
9	Exhauster	1	40	40	0.04	6	0.24	20	4.8



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10	WiFi Modem	1	20	20	0.02	2	0.04	20	0.8
Grand total									127.8

DEPARTMENT OF HISTORY

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	CFL	3	14	42	0.042	3	0.126	20	2.52
2	Tube	20	20	400	0.4	3	1.2	20	24
3	Fan	13	48	624	0.624	6	3.744	20	74.88
4	Computer	1	729	729	0.729	2	1.458	20	29.16
5	Projector	1	250	250	0.25	0.2	0.05	20	1
6	Speaker	4	6	24	0.024	0.2	0.0048	20	0.1
7	Printer	1	259	259	0.259	0.08	0.02072	20	0.41
8	Exhauster	1	40	40	0.04	6	0.24	20	4.8
9	Sound Box	1	50	50	0.05	0.3	0.015	20	0.3
Grand total									137.17

NCC ROOM

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total Consumption /month
1	CFL	1	14	14	0.014	2	0.028	20	0.56
2	Tube	5	20	100	0.1	2	0.2	20	4
3	Fan	4	48	192	0.192	2	0.384	20	7.68
4	Laptop	1	50	50	0.05	1	0.05	20	1
5	Printer	1	50	50	0.05	0.2	0.01	20	1.04
6	Speaker	1	6	6	0.006	0.08	0.00048	20	0.02
7	Exhauster	1	40	40	0.04	6	0.24	20	4.8
Grand total									19.1

LADIES HOSTEL (PG)

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	CFL	18	14	252	0.252	6	1.512	30	45.36
2	Tube	31	20	620	0.62	6	3.72	30	111.6
3	Fan	21	48	1008	1.008	15	15.12	30	453.6
4	Exhauster	1	40	40	0.04	6	0.24	30	7.2



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Dr. Ananthapadmanabha A.I.





5	Mixi	1	750	750	0.75	0.4	0.3	30	9
6	Grinder	1	600	600	0.6	0.4	0.24	30	7.2
7	Refrigerator	1	300	300	0.3	24	7.2	30	216
8	Sanitary Napkin Incinerator	2	800	1600	1.6	2	3.2	30	96
9	Motor	1	600	600	0.6	5	3	30	90
Grand total									1046.76

DEPARTMENT OF ZOOLOGY

Sl. No	Appliances /Items	Number	Power W /Unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption/ month
1	CFL	1	4	4	0.004	3	0.012	20	0.24
2	Tungsten	1	60	60	0.06	1	0.06	20	1.2
3	Fan	28	48	1344	1.344	6	8.064	20	161.28
4	Computer	729	2	1458	1.458	4	5.832	20	116.64
5	Laptop	1	50	50	0.05	3	0.15	20	3
6	Projector	1	250	250	0.25	3	0.75	20	15
7	Speaker	3	6	18	0.018	0.08	0.00144	20	0.0288
8	Tube	24	28	672	0.672	3	2.016	20	40.32
9	LED tube	13	20	260	0.26	3	0.78	20	15.6
10	Printer	1	50	50	0.05	0.2	0.01	20	0.2
11	Led bulb	2	20	40	0.04	3	0.12	20	2.4
12	Giant bulb	2	50	100	0.1	3	0.3	20	6
13	Microscope-magnus	2	20	40	0.04	1	0.04	20	0.8
14	Microscope-unilab	1	50	50	0.05	1	0.05	20	1
15	Digital weighing machine	2	10	20	0.02	1	0.02	20	0.4
16	Centrifuge	2	250	500	0.5	1	0.5	20	10
17	Rectangular water bath	1	1000	1000	1	1	1	20	20
18	Hot plate	1	1500	1500	1.5	0.5	0.75	20	15
19	Hot plate	1	1500	1500	1.5	0.5	0.75	20	15



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 DR. Ananthapadmanabha A.L

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20	Digital colony counter	1	20	20	0.02	1	0.02	20	0.4
21	Bacteriological incubator	1	400	400	0.4	1	0.4	20	8
22	Laminar air flow cabinet	1	200	200	0.2	1	0.2	20	4
23	Lamp	2	5	10	0.01	1	0.01	20	0.2
24	Flame Photometer	1	10	10	0.01	1	0.01	20	0.2
25	Microwave Oven	1	970	970	0.97	0.5	0.485	20	9.7
26	pH analyzer	1	2.5	2.5	0.0025	1	0.0025	20	0.05
27	Cell	3	9	27	0.027	1	0.027	20	0.54
28	Heating Mantle	2	350	700	0.7	1	0.7	20	14
29	Visible Spectrophotometer	1	80	80	0.08	1	0.08	20	1.6
30	Fume Exhaust Hood	1	300	300	0.3	1	0.3	20	6
31	Double Beam U-V Spectrophotometer	1	10	10	0.01	1	0.01	20	0.2
32	PCR Machine	1	170	170	0.17	1	0.17	20	3.4
33	Calorimeter	2	20	40	0.04	1	0.04	20	0.8
34	pH Metre	1	2.5	2.5	0.0025	1	0.0025	20	0.05
35	Stabiliser	3	50	150	0.15	1	0.15	20	3
36	Stirrer	1	8.5	8.5	0.0085	1	0.0085	20	0.17
37	Dryer	1	800	800	0.8	1	0.8	20	16
38	Fridge	1	180	180	0.18	24	4.32	20	86.4
39	Deep Freezer	2	400	800	0.8	24	19.2	20	384
40	Autoclave	1	1500	1500	1.5	0.02	0.03	20	0.6
Grand total: 962.8188									
Name and Signature of the Principal									
Dr. Ananthapadmanabha.A.L									
DEPARTMENT OF BOTANY									



PRINCIPAL
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Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	LED	7	8	56	0.056	3.136	0.175616	20	3.51
2	Tube	36	20	720	0.72	3	2.16	20	5.23
3	Fan	30	48	1440	1.44	6	8.64	20	172.8
4	Centrifuge	2	250	500	0.5	6	3	20	60
5	Computer	2	250	500	0.5	2	1	20	20
6	Laptop	2	50	100	0.1	2	0.2	20	4
7	Projector	3	250	750	0.75	0.2	0.15	20	3
8	Speaker	6	6	36	0.036	0.08	0.00288	20	0.06
9	Printer	2	50	100	0.1	0.2	0.02	20	0.4
10	Autoclave	1	1500	1500	1.5	0.02	0.03	20	0.6
11	Laminar air flow	1	200	200	0.2	0.2	0.04	20	0.8
12	Hot air oven	2	1500	3000	3	0.02	0.06	20	1.2
13	Water purifier	2	30	60	0.06	24	1.44	20	28.8
14	Refrigerator	1	275	275	0.275	8	2.2	20	44
15	Water bath	1	1000	1000	1	0.02	0.02	20	0.4
16	Hot plate	2	1500	3000	3	0.02	0.06	20	1.2
17	Cooling centrifuge	1	110	110	0.11	0.02	0.0022	20	0.04
18	PA Sound system	1	250	250	0.25	0.02	0.005	20	0.1
Grand Total									346.14

DEPARTMENT OF GEOLOGY

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Tube	35	20	700	0.7	3	2.1	20	42
2	Fan	30	48	1440	1.44	6	8.64	20	172.8
3	Projector	2	250	500	0.5	0.2	0.1	20	2
4	Speaker	5	6	30	0.03	0.08	0.0024	20	0.05
5	Focus light	200	200	200	0.2	12	2.4	20	48
6	Electric microscope	2			0.012	0.2	0.0024	20	



Name and Signature of the Principal
 0.012 0.2 0.0024 20
 Dr. Ananthapadmanabha A.L.

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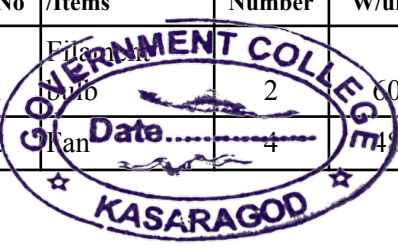
7	TV	1	140	140	0.14	0.2	0.028	20	0.56
8	Mic	1	5	5	0.005	0.2	0.001	20	0.02
9	Laboratory oven	1	750	750	0.75	0.2	0.15	20	3
10	Weighing machine	1	10	10	0.01	0.2	0.002	20	0.04
11	Sieving machine	1	400	400	0.4	0.1	0.04	20	0.8
12	Computer	2	250	500	0.5	2	1	20	20
13	Laptop	6	50	300	0.3	2	0.6	20	12
14	Printer	1	50	50	0.05	1	0.05	20	1
15	Filament bulb	1	60	60	0.06	1	0.06	20	1.2
16	Exhaust fan	1	35	35	0.035	1	0.035	20	0.7
Grand Total									304.22

PRINCIPAL OFFICE

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	LED	2	8	16	0.016	0.256	0.004096	24	0.1
2	Computer	3	250	750	0.75	4	3	24	72
3	CCTV	2	15	30	0.03	24	0.72	24	17.28
4	Printer	1	50	50	0.05	1	0.05	24	1.2
5	Sound system	1	8	8	0.008	0.2	0.0016	24	0.04
6	Fan	3	48	144	0.144	7	1.008	24	24.19
7	Tube	3	20	60	0.06	7	0.42	24	10.08
8	Speaker	1	6	6	0.006	0.08	0.00048	24	0.01
9	Exhaust fan	1	35	35	0.035	1	0.035	24	0.84
Grand Total									124.9

VICE PRINCIPAL

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Filament bulb	2	60	120	0.12	4	0.48	20	9.6
2	Fan	4	47.25	189	0.19	4	0.76	20	15.36



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3	Tube	4	20	80	0.08	4	0.32	20	6.4
Grand Total									24.96
OFFICE									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Tube	16	20	320	0.32	8	2.56	24	61.44
2	Fan	8	48	384	0.384	8	3.072	24	73.73
3	Computer	13	250	3250	3.25	8	26	24	624
4	Printer(Ricoh)	1	1110	1110	1.11	2	2.22	24	53.28
5	Printer	10	50	500	0.5	3	1.5	24	36
6	Purifier	1	30	30	0.03	24	0.72	24	17.28
7	Network server	1	365	365	0.365	8	2.92	24	70.08
8	UPS(5KV)	1	5000	5000	5	8	40	24	960
9	Calling bell	1	2	2	0.002	1	0.002	24	0.05
10	CCTV	2	15	30	0.03	24	0.72	24	17.28
11	Speaker	1	6	6	0.006	0.08	0.00048	24	0.01
Grand Total									1913.15
AUDITORIUM									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	LED	29	8	232	0.232	2	0.464	8	3.71
2	Tube	14	20	280	0.28	2	0.56	8	4.48
3	Fan	21	48	1008	1.008	2	2.016	8	16.13
4	CFL	3	14	42	0.042	2	0.084	8	0.67
5	Sound box	10	50	500	0.5	2	1	8	8
6	CCTV	5	15	75	0.075	24	1.8	8	14.4
7	Speaker	2	6	12	0.012	0.08	0.00096	8	0.01
8	Purifier	4	30	120	0.12	24	2.88	8	23.04
9	Filament bulb	1	60	60	0.06	0.2	0.012	8	0.1
Grand Total									70.44



SEM Name and Signature of the Principal
 Date.....
 Dr. Ananthapadmanabha.A.L





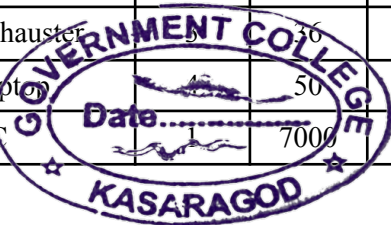
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Tube	12	20	240	0.24	1	0.24	10	2.4
2	Fan	6	48	288	0.288	1	0.288	10	2.88
3	AC	4	4000	16000	16	1	16	10	160
4	Speaker	3	6	18	0.018	0.08	0.00144	10	0.01
5	Amplifier	1	10	10	0.01	1	0.01	10	0.1
6	Projector	1	250	250	0.25	1	0.25	10	2.5
7	Mic	1	5	5	0.005	1	0.005	10	0.05
8	Table fan	2	50	100	0.1	1	0.1	10	1
9	D link modem	1	20	20	0.02	1	0.02	10	0.2
Grand Total									169.14
SEMINAR HALL 2									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Tube	1	20	20	0.02	1	0.02	10	0.2
2	AC	4	4000	16000	16	1	16	10	160
3	Speaker	2	6	12	0.012	0.08	0.15	10	1.5
4	LED	20	8	160	0.16	1	0.16	10	1.6
5	Mic	1	5	5	0.005	1	0.005	10	0.05
6	Amplifier	2	10	20	0.02	1	0.02	10	0.2
7	Battery	1	500	500	0.5	1	0.5	10	5
8	Projector	1	250	250	0.25	1	0.25	10	2.5
Grand Total									171.05
NSS ROOM									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Fan	1	48	48	0.048	5	0.24	24	5.76
2	Tube	1	20	20	0.02	5	0.1	24	2.4
3	LED	3	8	24	0.024	5	0.12	24	2.88
4	Printer	1	50	50	0.05	1	0.05	24	1.2
Grand Total									12.24
Name and Signature of the Principal									
Date.....									
NIGHT WATCH MAN ROOM									



Name and Signature of the Principal
Dr. Ananthapadmanabha A.I.
 PRINCIPAL
 GOVERNMENT COLLEGE
 KASARAGOD



Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	LED	1	8	8	0.008	3	0.024	30	0.72
2	Fan	2	48	96	0.096	12	1.152	30	34.56
3	Tube	1	20	20	0.02	2	0.04	30	1.2
Grand Total									36.48
EXAMINATION CONTROL ROOM									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Tube	3	20	60	0.06	1	0.06	24	1.44
2	Fan	2	48	96	0.096	3	0.288	24	6.91
3	Printer	4	50	200	0.2	1	0.2	24	4.8
4	Laptop	1	50	50	0.05	1	0.05	24	1.2
5	Punching machine	2	18	36	0.036	6	0.216	24	5
6	CCTV	1	15	15	0.015	24	0.36	24	8.64
Grand Total									27.99
PTA ROOM									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working Days	Total consumption /month
1	Fan	1	48	48	0.048	2	0.096	1	0.1
2	Tube	1	20	20	0.02	2	0.04	1	0.04
Grand Total									0.14
DEPARTMENT OF PHYSICS									
Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Tube light	36	20	720	0.72	5	3.6	20	72
2	Fan	46	48	2208	2.208	6	13.248	20	264.96
3	CFL	1	14	14	0.014	3	0.042	20	0.84
4	Speaker	9	6	54	0.054	0.25	0.0135	20	0.27
5	TV	1	140	140	0.14	0.25	0.035	20	0.7
6	Exhauster	36	3	108	0.108	1	0.108	20	2.16
7	Laptop	4	50	200	0.2	1	0.2	20	4
8	AC	1	7000	7000	7	1	7	20	140



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Dr. Ananthapadmanabha A.L

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9	Projector	2	250	500	0.5	1	0.5	20	10
10	Ceiling light	4	60	240	0.24	5	1.2	20	24
11	TV speaker	1	400	400	0.4	1	0.4	20	8
12	Printer	2	259	518	0.518	0.25	0.1295	20	2.59
Grand Total									529.52

DEPARTMENT OF MATHEMATICS

SI No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	28	20	480	0.48	6	2.88	20	57.6
2	Tube light	33	48	1584	1.584	3	4.752	20	95.04
3	Speaker	7	6	42	0.042	0.25	0.0105	20	0.21
4	Purifier	1	50	50	0.05	6	0.3	20	6
5	LED bulb	3	9	27	0.027	1	0.027	20	0.54
6	Computer	5	729	729	0.729	1	0.729	20	14.58
7	Projector	1	250	250	0.25	1	0.25	20	5
8	Printer	2	259	518	0.518	0.25	0.1295	20	2.59
9	CFL	2	14	28	0.028	6	0.168	20	3.36
Grand Total									184.92

DEPARTMENT OF ENGLISH

SI No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Tube light	30	48	1140	0.114	5	0.57	20	11.4
2	Fan	24	20	1440	0.144	6	0.684	20	13.68
3	Speaker	4	6	40	0.04	0.25	0.01	20	0.2
4	Computer	2	729	500	0.5	1	0.5	20	10
5	Printer	2	259	120	0.12	0.25	0.03	20	0.6
6	CFL	2	14	28	0.028	6	0.168	20	3.36
7	Filament bulb	1	60	60	0.06	2	0.12	20	2.4
8	TV	1	140	140	0.14	1	0.14	20	2.8
9	Punching machine	2	4	8	0.008	6	0.048	20	0.96
Grand Total									45.4



Name and Signature of the Principal
D. Ananthapadmanabha.A.L

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Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Tube light	28	20	560	0.56	5	2.8	20	56
2	Fan	26	48	1248	1.248	6	7.488	20	149.76
3	Speaker	5	6	30	0.03	0.25	0.0075	20	0.15
4	Projector	2	250	500	0.5	1	0.5	20	10
5	CFL	1	14	14	0.014	6	0.014	20	0.28
6	Exhauster	1	36	36	0.036	1	0.036	20	0.72
7	Computer	1	729	729	0.729	1	0.729	20	14.58
8	Printer	1	259	259	0.259	0.25	0.06475	20	1.295
Grand Total									232.785


DEPARTMENT OF COMMERCE

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	8	20	160	0.16	6	0.96	20	19.2
2	Tube light	10	48	480	0.48	5	2.4	20	48
3	Speaker	4	6	24	0.024	0.25	0.006	20	0.12
4	Projector	1	250	250	0.25	1	0.25	20	5
5	Computer	2	729	1458	1.458	1	1.458	20	29.16
6	Printer	1	259	259	0.259	0.25	0.06475	20	1.295
Grand Total									102.775

PHYSICAL EDUCATION OFFICE

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	4	20	80	0.08	6	0.48	20	9.6
2	Tube	6	48	288	0.288	3	0.864	20	17.28
3	Speaker	1	6	6	0.006	0.25	0.0015	20	0.03
4	Computer	1	729	729	0.729	1	0.729	20	14.58
5	Printer	1	259	259	0.259	0.25	0.06475	20	1.295
Grand Total									42.785

UG HOSTEL (girls)

Sl No	Appliances /Items	Number	Power W/unit	Total Power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
 Name and Signature of the Principal Dr. Ananthapadmanabha A.L									





1	Tube light	55	48	2640	2.64	6	15.84	30	475.2
2	LED bulb	63	9	567	0.567	2	1.134	30	34.02
3	CFL	8	14	112	0.112	6	0.672	30	20.16
4	Lamp	14	80	1120	1.12	11	12.32	30	369.6
5	Fan	24	20	480	0.48	15	7.2	30	216
6	Sanitary napkin incinerator	1	300	300	0.3	2	0.6	30	18
7	Refrigerator	1	750	750	0.75	24	18	30	540
8	Mixer	3	600	1800	1.8	0.4	0.72	30	21.6
9	Grinder	1	600	600	0.6	0.4	0.24	30	7.2
Grand Total									1701.78

DEPARTMENT OF CHEMISTRY

Sl No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption / month
1	Fan	34	48	1632	1.632	6	9.792	20	195.84
2	CFL	6	14	84	0.084	2	0.168	20	3.36
3	Tube	56	20	1120	1.12	3	3.36	20	67.2
4	Speaker	10	6	60	0.06	0.2	0.012	20	0.24
5	Projector	1	250	250	0.25	1.5	0.375	20	7.5
6	Desktop	12	400	4800	4.8	1	4.8	20	96
7	Laptop	2	6	12	0.012	2	0.024	20	0.48
8	Centrifuge	4	250	1000	1	0.5	0.5	20	10
9	Exhaust Fan	4	35	140	0.14	6	0.84	20	16.8
10	Fume Exhaust Hood	1	300	300	0.3	0.02	0.006	20	0.12
11	Laboratory oven	1	1250	1250	1.25	0.1	0.125	20	2.5
12	Bunsen Burner	15	400	6000	6	0.2	1.2	20	24
13	Weighing Machine	7	10	70	0.07	0.5	0.035	20	0.7
14	Conductivity Meter	1	230	230	0.23	0.5	0.115	20	2.3



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Dr. Ananthapadmanabha A.I.



15	Distillation Unit	2	1000	2000	2	0.25	0.5	20	10
16	Shaking Incubator	2	1000	2000	2	0.01	0.02	20	0.4
17	Hot Air Oven	1	225	225	0.225	0.06	0.0135	20	0.27
18	Vacuum Oven	1	225	225	0.225	0.06	0.0135	20	0.27
19	Air Oven	1	1700	1700	1.7	0.05	0.085	20	1.7
20	Generator	1	1500	1500	1.5	0.02	0.03	20	0.6
21	Heating Mantle	1	450	450	0.45	0.05	0.0225	20	0.45
22	Small Heating Mantle	4	150	600	0.6	0.05	0.03	20	0.6
23	Vacuum Pump	1	1400	1400	1.4	0.5	0.7	20	14
Grand Total									441.33

DEPARTMENT OF ARABIC

Sl No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	25	48	1200	1.2	6	7.2	20	144
2	CFL	6	14	84	0.084	2	0.168	20	3.36
3	Tube	29	20	580	0.58	3	1.74	20	34.8
4	Speaker	6	6	36	0.036	0.2	0.0072	20	0.144
5	Projector	4	250	1000	1	1.5	1.5	20	30
6	Desktop	10	400	4000	4	2	8	20	160
7	Laptop	5	6	30	0.03	2	0.06	20	1.2
8	Printer	1	259	259	0.259	0.5	0.1295	20	2.59
9	WIFI	1	10	10	0.01	6	0.06	20	1.2
10	Wall Fan	1	50	50	0.05	6	0.3	20	6
11	Induction Cooker	1	1800	1800	1.8	0.5	0.9	20	18
12	Exhaust Fan	2	40	80	0.08	12	0.96	20	19.2
13	TV	1	70	70	0.07	0.5	0.035	20	0.7
14	CCTV Camera	1	15	15	0.015	24	0.36	20	7.2



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Grand Total									428.394
DEPARTMENT OF ECONOMICS									
SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	24	48	1152	1.152	6	6.912	20	138.24
2	CFL	3	14	42	0.042	2	0.084	20	1.68
3	Tube	29	20	580	0.58	3	1.74	20	34.8
4	Speaker	4	6	24	0.024	0.2	0.0048	20	0.096
5	Projector	2	250	500	0.5	0.2	0.1	20	2
6	Desktop	1	400	400	0.4	0.5	0.2	20	4
7	Printer	1	259	259	0.259	0.5	0.1295	20	2.59
Grand Total									180.816
DEPARTMENT OF STATISTICS									
SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption /month
1	Fan	2	48	96	0.096	6	0.016	20	0.32
2	Tube	2	20	40	0.04	3	0.01333	20	0.26
3	CFL	1	14	14	0.014	0.2	0.07	20	1.4
4	Printer	1	50	50	0.05	0.5	0.1	20	2
5	Speaker	1	6	6	0.006	0.2	0.03	20	0.6
6	Desktop	1	400	400	0.4	1	0.4	20	8
Grand Total									12.58
LIBRARY									
SI No	Appliance /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/ month
1	Fan	73	48	3504	3.504	4	14.016	24	336.384
2	Tube	113	20	2260	2.26	1.5	3.39	24	81.36
3	CFL	3	14	42	0.042	2	0.084	24	2.016
4	Speaker	1	6	6	0.006	0.2	0.0012	24	0.0288
5	Desktop	7	400	2800	2.8	3	8.4	24	201.6
6	Printer	2	259	518	0.518	1	0.518	24	12.432
7	Laptop	1	50	50	0.05	4	0.2	24	4.8
8	LED	4	8	32	0.032	2	0.064	24	1.536



Name and Signature of the Principal
Dr. Ananthapadmanabha. A.L



9	CCTV Camera	16	15	240	0.24	24	5.76	24	138.24
10	Exhaust Fan	2	40	80	0.08	12	0.96	24	23.04
Grand Total									801.4368

GIRLS REST ROOM

SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/ month
1	Fan	8	48	384	0.384	4	1.536	20	30.72
2	Tube	16	20	320	0.32	3	0.96	20	19.2
3	CFL	8	14	112	0.112	2	0.224	20	4.48
4	Exhaust Fan	7	40	280	0.28	12	3.36	20	67.2
5	Sanitary Napkin Incinerator	1	800	800	0.8	1	0.8	20	16
Grand Total									137.6

CANTEEN

SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/ month
1	Fan	26	48	1248	1.248	6	7.488	20	149.76
2	Tube	55	20	1100	1.1	4	4.4	20	88
3	CFL	7	14	98	0.098	2.5	0.245	20	4.9
4	Exhaust Fan	4	40	160	0.16	12	1.92	20	38.4
5	Mixie	1	600	600	0.6	2	1.2	20	24
6	Fridge	1	400	400	0.4	24	9.6	20	192
7	Grinder	1	600	600	0.6	6	3.6	20	72
8	Induction Cooker	1	1800	1800	1.8	6	10.8	20	216
9	Freezer	1	500	500	0.5	24	12	20	240
Grand Total									1025.06

REPROGRAPHIC CENTRE

SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/ month
1	Fan	3	48	144	0.144	6	0.864	20	17.28



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Dr. Ananthapadmanabha. A. I.



2	Tube	4	20	80	0.08	3	0.24	20	4.8
3	Photostat Machine	1	800	800	0.8	1	0.8	20	16
Grand Total									38.08

MENS HOSTEL & HOSTEL OFFICE

SI No	Appliances	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/month
1	Fan	18	48	864	0.864	6	5.184	30	155.52
2	Tube	33	25	825	0.825	3	2.475	30	74.25
3	CFL	30	14	420	0.42	2	0.84	30	25.2
4	fridge	1	400	400	0.4	24	9.6	30	288
5	Grinder	1	600	600	0.6	1	0.6	30	18
6	Street Light	2	150	300	0.3	12	3.6	30	108
Grand Total									668.97

LADIES TOILET

SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/month
1	Sanitary Napkin Incinerator	1	800	800	0.8	12	9.6	20	192
2	LED	4	8	32	0.032	2	0.064	20	1.28
3	Tube	3	25	75	0.075	3	0.225	20	4.5
Grand Total									197.78

COMMON AREA

SI No	Appliances /Items	Number	Power W/unit	Total power	kW	Usage hr/day	kW/hr	Working days	Total consumption/month
1	CCTV Camera	17	15	255	0.255	24	6.12	24	146.88
2	Tube	32	25	800	0.8	3	2.4	24	57.6
3	Speaker	2	6	12	0.012	0.2	0.0024	24	0.0576
4	LED Flood light	28	200	5600	5.6	2	11.2	24	268.8
5	Fan	1	48	48	0.048	6	0.288	24	6.912



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Dr. Ananthapadmanabha A.L



6	Street Light	3	150	450	0.45	12	5.4	24	129.6
7	Water Purifier	2	60	120	0.12	24	2.88	24	69.12
Grand Total									678.9696

Monthly Electricity Consumption and Bill Report

Introduction:

This report provides the details of the average monthly electricity consumption and the average monthly electricity bill amount for a college.

Electricity Consumption:

The college has consumed an average of 2742 units of electricity in a month (main campus consumption). This indicates the level of electricity usage by the college for its various operations and activities.

Monthly Electricity Bill:

The average monthly electricity bill amount for the college was 28383.00/-. This shows the cost incurred by the college for the consumption of electricity in a month.

Conclusion:

In summary, electricity consumption and associated costs are crucial factors for tracking the college's energy usage and expenses. Consistent monitoring and assessment of these factors can reveal potential areas where enhancements can be made to achieve cost savings.

Alternate Energy Source:

The installation of a 10 kWh solar panel system at Government College Kasaragod signifies a significant stride towards sustainability and renewable energy adoption. This alternate source of energy harnesses the power of the sun to generate clean and environmentally friendly electricity, contributing to a reduced carbon footprint and energy cost savings for the college. This initiative not only exemplifies the institution's commitment to environmental stewardship but also serves as a practical example for students and the community of the benefits of renewable energy technology. It aligns with the broader goals of energy efficiency



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and environmental conservation, making Government College Kasaragod a beacon of sustainable practices in the region.

6. SUMMARY OF FINDINGS

The audit results suggest that, on the whole, both departments and students demonstrate an awareness of the significance of energy management. Positive practices like the adoption of solar panels, LED lighting, and biogas facilities are being put into action across the campus. Nevertheless, a more detailed analysis unveiled instances where the college's actions do not align with its Green Policy and the applicable standards. There is a need for additional scrutiny to improve efficiency, equity, and consistency in specific processes.

7. SUGGESTIONS AND RECOMMENDATIONS

- Replace existing fluorescent tubes with LED tubes
- Increase the power of Solar panel installed in the college
- Maximise the use of solar panels for electricity needs
- Build structures with improved ventilation and air circulation to reduce the need for lights and fans
- Establish biogas plants college hostel for the disposal of biodegradable waste and sustainable energy production
- Monitor energy consumption and set reduction targets in specific areas or overall
- Replace ceiling fans with 5-star-rated BLDC fans
- Replace computers older than 3-5 years with new ones.



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CERTIFICATE OF APPRECIATION

This certificate acknowledges that Government Kasaragod, Kerala, has undertaken a thorough energy audit to evaluate electrical energy conservation, implement energy-saving measures, and ensure sustainability in adherence to relevant regulations, policies, and standards. The institution has demonstrated a commitment to maintaining an environmentally friendly campus. Upon examination of the submitted report and credentials, the activities and measures implemented by the college have been verified for their validity and reliability.

We extend our sincere appreciation to the management, faculty, and students for their commendable efforts toward energy sustainability.

Sincerely

Sooraj K



Director

Wahni Green Technologies Pvt Ltd



Name and Signature of the Principal
Dr. Ananthapadmanabha A.L.

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