7.1.3 ***Alternate Energy initiatives such as:***

Percentage of annual power requirement of the Institution met by the renewable energy sources (current year data)

Power requirement met by renewable energy sources	**Total power requirement**	**Renewable energy source**	**Renewable energy generated and used**	**Energy supplied to the grid**
1440	31826 Watts	Solar water heater Solar lamp	**1440**	Nil

Solar Water Heater

Accuracy: 40.367
time: 2020-01-09 11:52:35
longitude: 77.0617182
latitude: 21.0855022
Saraswati Nagar,Akot,Maharashtr
Weather: few clouds
Temparature: 23.49 °C
Racold

Energy Audit Report

Of

Shri Shivaji Arts, Commerce and Science College, Akot

Preface

Data collection for energy audit of the Shri Shivaji Arts, Commerce and Science College Akot Campus was conceded by team .This audit was over sighted to enquire about convenience to progress the energy competence of the campus. To drop of energy utilization whilst cultivate or humanizing comfort, health and safety were of prime anxiety. This audit required to recognize the mainly energy proficient appliances. Besides, several each day processes concerning common appliances have been

provided which facilitate sinking the energy expenditure. The energy audit survey was completed by B.Sc. III Physics Student. All data collected from each classroom, laboratory, every room. The work is completed by considering, how much tubes, fan, A.Cs, electronic instruments, etc in each room. How much was participation of each component in total electricity consumption.

Acknowledgement

Head Department of Physics, Shri Shivaji Arts, Commerce and Science College, Akot is very much thankful to Principal Dr. A. L. Kulat, IQAC/ NAAC Think tank team for motivating us for energy audit. Also, Thanks to all the students of B.Sc.III (Mathematics and Computer Science) for collecting all necessary data from the laboratory, office, library and class room. On the same way, thanks to Electrical Engineering Mr._____ who verify our record, thankful to Dr. Gajanan Virkar, Head of Department of Political Science who constantly supporting and assisting in this. Thanks to the department Teacher Dr. S. H. Nimkar, Dr. A. R. Choudhari and Prof. D. P. Rathod for their support to complete this. Also, thanks to all teaching, supporting staff and students for their support.

Principal
Shri Shivaji Arts, Commerce
& Science College, Akot
Dist. Akola (Maharashtra)

Introduction

SHRI SHIVAJI EDUCATION SOCIETY, AMRAVATI

Dr. Panjabrao alias Bhausaheb Deshmukh, one of the greatest educationist, agriculturist and reformist founded this society in 1931 and started its work through Shri Shivaji Maratha High school. It aimed at educating and upbringing the poor rural students who were far away from the field of education. The Society succeeded tremendously in its aim and to-day we have educational institutes at cities as well as in interior areas, offering courses in Agriculture, Commerce, Arts Education, Engineering, Fine Arts, Law, Management, Medicine, Physical Education, Science and Information Technology.

SHRI SHIVAJI ARTS COMMERCE AND SCIENCE COLLEGE, AKOT

The college was established out of a very imaginative activity of social workers and cotton-market members. Amongst them were **late. President Pundlikrao Choudhari, Late Dr. J. N. Korpe and Late B. B. Bhende.** Akot thluka is famous for cotton production. During 1960, above six thousand cotton loaded bullock-carts were brought by farmers in market. Above members requested each farmer to donate **one rupee per cart** and farmers who were starving for higher education also responded to the mission enthusiastically and collected 3 lakh rupees and donated it to the society. Dr. J.N.Korpe generously donated the building of freedom fighter Shri Govindsingh Killedar which was owned by Janpad sabha. He also donated Rs.10,000/- to begin the college. Thus the faculty of Arts began in 1960, Commerce in 1962 and Science in 1980. Since 1960 the college has received ample response from society and made rapid progress in education field. Today the college has Arts, Commerce and Science faculties with Junior college and M.C.V.C. Arts faculty has Post Graduation in Marathi, English, Economics, Political Science, History and Chemistry. Teaching staff of the college is efficient and studious, working with zeal for brightening the academic career of the students. Well-equipped laboratories are the major assets of the college. The college has a spacious ground for the games and sport activities as well as a large auditorium for the cultural and educational activities. The ecofriendly and large premises with flora and fauna add to the beauty of the college and makes it a worthy place for learning. N. S. S. and N. C. C. units take efforts for overall personality development of the students and keep them attached with the society. A rich library is the soul of the college and so our college has a rich and well facilitated library to pacify the thirst for knowledge. The college with all its potential and capacity strives for the welfare of the

students and provide them quality education to make them able to face the challenges of the new globalized world.

SUMMARY

The objective of the audit was to study the energy consumption pattern of the facility, identify the areas where potential for energy/cost saving exists .

The salient observations and recommendations are given below.

1. Shri Shivaji Arts, Commerce and Science College, Akot uses energy in the following forms:

a. Electricity from MSEDCL

b. Generator:- Diesel Engine

Electrical energy is used for various applications, like:

- Computers
- Lighting
- Air-Conditioning
- Fans
- Mainly all Laboratory Equipment/s

2. The average range of cost of energy in between Rs. **21,000- 25,000/Month**.

3. After the measurement and analysis, we propose herewith following Main Energy Efficiency Improvement measures.

S.N.	Recommendation
1.	Replacing Tube Lights (FTL) with LED Tube Lights
2.	Providing Solar PV system for part load operations during day time
3.	Replace old type fans with newly one.
4.	Display of Energy saving measure in each class room, office and campus

Power consumption of electrical appliance/ items in the department (Minimum and Maximum):-

Department	S.N.	Electrical/ Electronic items	QTY	minimum watt	maximum Watt	minimum Daily consumption in hours	maximum Daily consumption in hours	minimum Number of day use in Month	maximum Number of day use in Month	minimum Total Electric consumption Unit use by items in one month (KWH)	maximum Total Electric consumption Unit use by items in one month (KWH)
PRINCIPAL OFFICE	1	Tubelight	2	35	60	4	6	19	26	5.32	18.72
	2	LED bulb	4	5	20	3	5	19	26	1.14	10.4
	3	Fan	4	50	70	3	5	19	26	11.4	36.4
	4	PC	1	100	200	2	4	19	26	3.8	20.8
	5	Ventilation Fan	1	80	100	4	6	19	26	6.08	15.6
	6	AC	2	1300	1800	2	3	19	26	98.8	280.8
	7	refrigerator	1	100	270	3	5	19	26	5.7	35.1
	8	led tv	1	85	85	2	3	19	26	3.23	6.63
OFFICE	1	Tubelight	11	35	60	5	8	19	26	36.575	137.28
	2	LED bulb	1	5	20	5	8	19	26	0.475	4.16
	3	Fan	9	50	70	5	8	19	26	42.75	131.04
	4	PC	11	100	200	5	8	19	26	104.5	457.6
	5	Printer	10	30	50	5	8	19	26	28.5	104
	6	Scanner	2	35	45	0	0.5	7	10	0	0.45
	7	Ventilation Fan	2	80	100	5	8	19	26	15.2	41.6
	8	WATER COOLER	1	800	1100	8	12	19	26	121.6	343.2
	9	CCTV CAMERA	2	45	60	16	24	22	30	31.68	86.4
MEETING HALL	1	Tubelight	8	35	60	1	2	3	4	0.84	3.84
	2	Fan	9	50	70	1	2	3	4	1.35	5.04
	3	WATER COOLER	1	800	1100	8	12	19	26	121.6	343.2
	4	CCTV CAMERA	2	45	60	16	24	22	30	31.68	86.4
	5	PODIUM	1	300	450	1	2	2	3	0.6	2.7
Chemistry	1	Tubelight	16	35	60	5	8	19	26	53.2	199.68
	2	Fan	18	50	70	5	8	19	26	85.5	262.08
	3	PC	1	100	200	2	4	19	26	3.8	20.8
	4	Printer	1	30	50	0	0.5	19	26	0	0.65
	5	Ventilation Fan	8	80	100	5	8	19	26	60.8	166.4

	6	oven	2	2150	2150	0	1	19	26	0	111.8
	7	oven	1	1500	2400	0	1	3	5	0	12
	8	ice chiller	1	80	100	16	24	19	26	24.32	62.4
	9	condutometer	3	3	5	1	2	18	25	0.162	0.75
	10	potentiometer	4	1	2	1	2	19	26	0.076	0.416
	11	TDS METER	1	2	3	0	1	19	26	0	0.078
	12	pH meter	1	2	3	0	1	15	20	0	0.06
	13	Photocolonimeter	1	2	3	0	1	15	20	0	0.06
PHYSICS+ MATHS	1	Tubelight	13	35	60	2	3	19	26	17.29	60.84
	2	Bulb	4	40	80	0	0.5	7	10	0	1.6
	3	LED bulb	1	5	20	3	5	19	26	0.285	2.6
	4	Fan	9	50	70	2	3	19	26	17.1	49.14
	5	PC	1	100	200	2	4	19	26	3.8	20.8
	6	Printer	1	30	50	0	0.25	19	26	0	0.325
	7	Ventilation Fan	3	80	100	1	2	15	20	3.6	12
Computer lab	1	Bulb	6	40	80	4	6	19	26	18.24	74.88
	2	Fan	6	50	70	3	5	19	26	17.1	54.6
	3	PC	17	100	200	4	6	19	26	129.2	530.4
	4	Printer	1	30	50	1	2	19	26	0.57	2.6
	5	Projector	1	220	270	1	2.5	18	24	3.96	16.2
HOME ECONOMI CS	1	Tubelight	3	35	60	3	5	19	26	5.985	23.4
	2	Fan	3	50	70	3	5	19	26	8.55	27.3
	3	PC	1	100	200	1	2	19	26	1.9	10.4
	4	refrigerator	1	100	270	16	24	22	30	35.2	194.4
	5	MIXER	2	300	400	0	0.5	2	3	0	1.2
	6	MICROWAVE	1	800	900	0	1	2	3	0	2.7
Botany	1	Tubelight	14	35	60	3	5	19	26	27.93	109.2
	2	Fan	9	50	70	3	5	19	26	25.65	81.9
	3	PC	1	100	200	2	4	19	26	3.8	20.8
	4	Printer	1	30	50	0	0.5	19	26	0	0.65
	5	Ventilation Fan	2	80	100	2	4	19	26	6.08	20.8
	6	refrigerator	1	100	270	16	24	22	30	35.2	194.4
	7	Stablizer	1	50	70	16	24	19	26	15.2	43.68
ZOOLOGY	1	Tubelight	6	35	60	3	5	19	26	11.97	46.8
	2	Fan	6	50	70	3	5	19	26	17.1	54.6
	3	PC	1	100	200	1	2	19	26	1.9	10.4

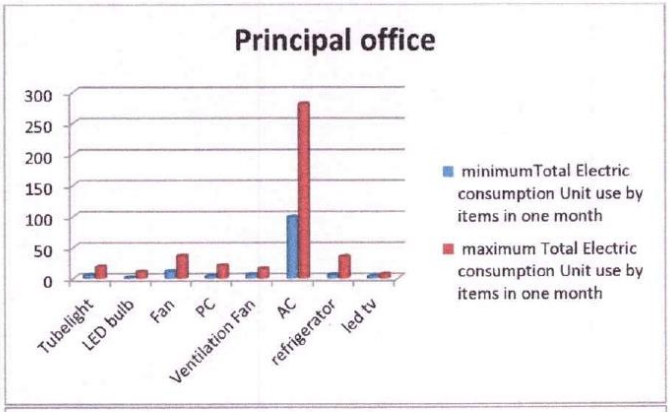
	4	Printer	1	30	50	0	0.5	11	15	0	0.375
	5	Scanner	1	35	45	0	0.5	3	5	0	0.1125
	6	Projector	1	220	270	1	1.5	11	15	2.42	6.075
LIB OLD	1	Tubelight	20	35	60	4	7	19	26	53.2	218.4
	2	LED bulb	1	5	20	3	5	19	26	0.285	2.6
	3	Fan	8	50	70	4	7	19	26	30.4	101.92
	4	PC	4	100	200	3	5	19	26	22.8	104
	5	Ventilation Fan	2	80	100	4	7	19	26	12.16	36.4
	6	XEROX MACHIN	1	400	1200	0	0	19	26	0	0
	7	WATER PURIFIER	1	25	40	3	5	18	25	1.35	5
	8	WATER COOLER	1	800	1100	3	5	19	26	45.6	143
	9	CCTV CAMERA	2	45	60	16	24	22	30	31.68	86.4
LIB NEW	1	Tubelight	10	35	60	3	5	19	26	19.95	78
	2	Fan	10	50	70	3	5	19	26	28.5	91
	3	PC	3	100	200	3	5	19	26	17.1	78
	4	Printer	1	30	50	0	0.25	19	26	0	0.325
CANTEEN	1	Tubelight	1	35	60	7	10	19	26	4.655	15.6
	2	Bulb	1	40	80	4	6	19	26	3.04	12.48
	3	Fan	1	50	70	7	10	19	26	6.65	18.2
	5	WATER PUMP WATER SUPPLY	1	500	700	1	2	21	28	10.5	39.2
	6	MIXER	1	450	750	0	0.5	18	25	0	9.375
AUDITORIUM	1	Tubelight	12	35	60	2	3	7	10	5.88	21.6
	2	Fan	17	50	70	2	3	7	10	11.9	35.7
	3	PC	3	100	200	2	3	7	10	4.2	18
	4	Ventilation Fan	6	80	100	2	3	7	10	6.72	18
	5	Projector	1	220	270	2	3	7	10	3.08	8.1
	6	AMPLIFIER	2	750	1200	2	3	7	10	21	72
MCVC-1	1	Tubelight	2	35	60	3	5	19	26	3.99	15.6
	2	Fan	3	50	70	3	5	19	26	8.55	27.3
MCVC-2	1	Tubelight	5	35	60	3	5	19	26	9.975	39
	2	Fan	9	50	70	3	5	19	26	25.65	81.9
COMMERCE	1	Tubelight	2	35	60	3	5	22	30	4.62	18
	2	Fan	3	50	70	3	5	22	30	9.9	31.5
	3	PC	28	100	200	2	3	7	10	39.2	168
	4	Printer	1	30	50	0	0.5	19	26	0	0.65
COMMERCE S C	1	Tubelight	6	35	60	7	11	22	30	32.34	118.8
	2	Fan	5	50	70	7	11	21	28	36.75	107.8

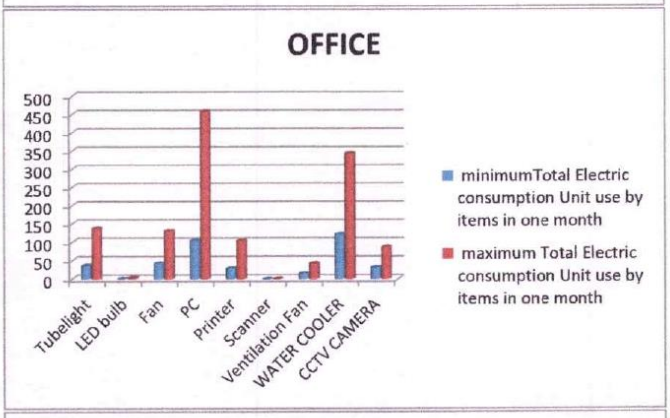
	3	Ventilation Fan	1	80	100	7	11	21	28	11.76	30.8
	4	WATER COOLER	1	800	1100	7	11	19	26	106.4	314.6
Political Science	1	Tubelight	1	35	60	3	5	19	26	1.995	7.8
	2	Fan	1	50	70	3	5	19	26	2.85	9.1
	3	PC	1	100	200	0	0	19	26	0	0
HISTORY	1	Tubelight	1	35	60	3	5	19	26	1.995	7.8
	2	Fan	1	50	70	3	5	19	26	2.85	9.1
	3	PC	1	100	200	3	5	19	26	5.7	26
ENGLISH	1	Tubelight	1	35	60	3	5	19	26	1.995	7.8
	2	LED bulb	1	5	20	3	5	19	26	0.285	2.6
	3	Fan	2	50	70	3	5	19	26	5.7	18.2
	4	PC	1	100	200	3	5	19	26	5.7	26
Economics	1	Tubelight	2	35	60	3	5	18	25	3.78	15
	2	Fan	1	50	70	3	5	18	25	2.7	8.75
Physical Edcuation	1	Tubelight	3	35	60	2	3	18	25	3.78	13.5
	2	Fan	4	50	70	2	3	18	25	7.2	21
	3	PC	1	100	200	0	1	11	15	0	3
	4	Printer	1	30	50	0	0.5	11	15	0	0.375
MUSIC	1	Tubelight	1	35	60	2	4	19	26	1.33	6.24
	2	LED bulb	1	5	20	2	4	19	26	0.19	2.08
	3	Fan	3	50	70	2	4	19	26	5.7	21.84
	4	PC	1	100	200	0	0	19	26	0	0
MARATHI	1	Tubelight	2	35	60	2	4	19	26	2.66	12.48
	2	Bulb	1	40	80	2	3	19	26	1.52	6.24
	3	Fan	2	50	70	2	4	19	26	3.8	14.56
	4	PC	1	100	200	0	1	19	26	0	5.2
	5	Printer	1	30	50	0	0.25	7	10	0	0.125
R-13	1	Fan	4	50	70	5	8	19	26	19	58.24
	2	Projector	1	220	270	0	1	3	5	0	1.35
	3	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
R-12	1	Fan	4	50	70	5	8	19	26	19	58.24
	2	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
R-11	1	Fan	4	50	70	5	8	19	26	19	58.24
	2	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
R-10	3	Fan	4	50	70	5	8	19	26	19	58.24
	4	Projector	1	220	270	0	1	3	5	0	1.35
	5	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2

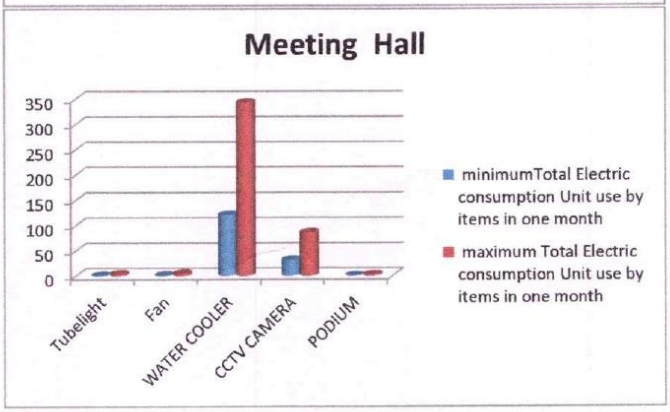
ROOM 09	1	Tubelight	4	35	60	4	7	19	26	10.64	43.68
	2	Fan	3	50	70	5	8	19	26	14.25	43.68
ROOM 8	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	4	50	70	5	8	19	26	19	58.24
ROOM 7	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	4	50	70	5	8	19	26	19	58.24
ROOM 6	1	Tubelight	1	35	60	4	7	19	26	2.66	10.92
	2	Fan	1	50	70	5	8	19	26	4.75	14.56
ROOM 5	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	4	50	70	5	8	19	26	19	58.24
ROOM 4	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	4	50	70	5	8	19	26	19	58.24
ROOM 3	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	1	50	70	5	8	19	26	4.75	14.56
ROOM 2	1	Tubelight	1	35	60	4	7	19	26	2.66	10.92
	2	Fan	6	50	70	5	8	19	26	28.5	87.36
	3	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
ROOM 1	1	Tubelight	2	35	60	4	7	19	26	5.32	21.84
	2	Fan	6	50	70	5	8	19	26	28.5	87.36
	3	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
IQAC +EXAM+ JR. STAFF ROOM	1	Tubelight	5	35	60	2	4	19	26	6.65	31.2
	2	Bulb	1	40	80	0	1	19	26	0	2.08
	3	LED bulb	6	5	20	1	2	19	26	0.57	6.24
	4	Fan	5	50	70	2	4	19	26	9.5	36.4
	5	PC	3	100	200	3	5	19	26	17.1	78
	6	Printer	3	30	50	0	0.2	7	10	0	0.3
	7	Scanner	1	35	45	0	0.25	3	4	0	0.045
	8	Projector	1	220	270	2	3	15	20	6.6	16.2
	9	XEROX MACHIN	1	400	1200	0	1	19	26	0	31.2
	10	CCTV CAMERA	1	45	60	16	24	22	30	15.84	43.2
YCMOU AND CAMPUS	1	Tubelight	10	35	60	8	12	22	30	61.6	216
	2	LED bulb	6	5	20	8	12	22	30	5.28	43.2
	3	Fan	2	50	70	4	6	22	30	8.8	25.2
	4	Ventilation Fan	1	80	100	4	6	19	26	6.08	15.6

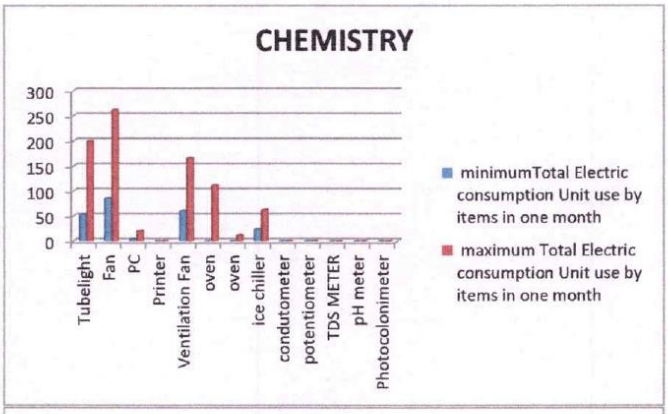
	5	XEROX MACHIN	1	400	1200	0	0.2	19	26	0	6.24
	6	CCTV CAMERA	8	45	60	16	24	22	30	126.72	345.6
	7	BELL	1	5	10	0	0.2	19	26	0	0.052
GUEST HOUSE	1	Tubelight	5	35	60	1	2	5	7	0.875	4.2
	2	Fan	4	50	70	2	4	4	6	1.6	6.72
	3	Ventilation Fan	1	80	100	2	4	3	5	0.48	2
	4	AC	1	1300	1800	7	10	2	3	18.2	54
	5	led tv	1	85	85	1	2	3	4	0.255	0.68
GIRLS HOSTEL (	1	Tubelight (APRX)	10	35	60	2	4	22	30	15.4	72
	2	Bulb (APRX)	10	40	3	1	2	22	30	8.8	1.8
	4	Fan (APRX)	11	50	70	4	7	22	30	48.4	161.7
	8	Ventilation Fan (APRX)	2	80	100	2	4	3	5	0.96	4
									Total	**1574.145**	**5377.5895**

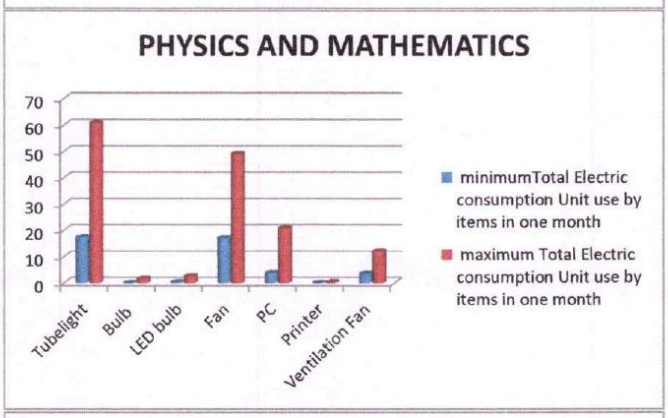
Graphical Analysis of power consumption of Electrical Appliance/ items in the Department (Minimum and Maximum):-

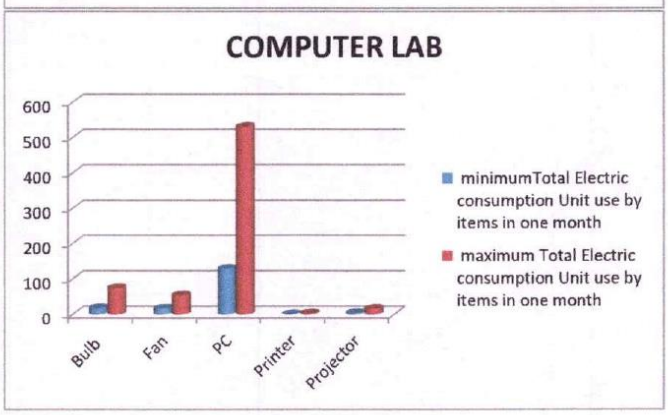


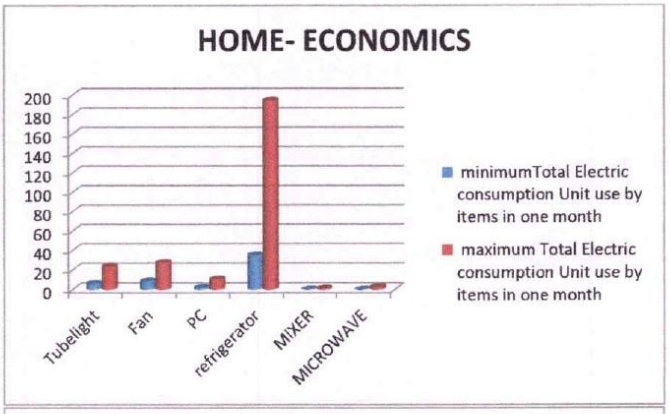


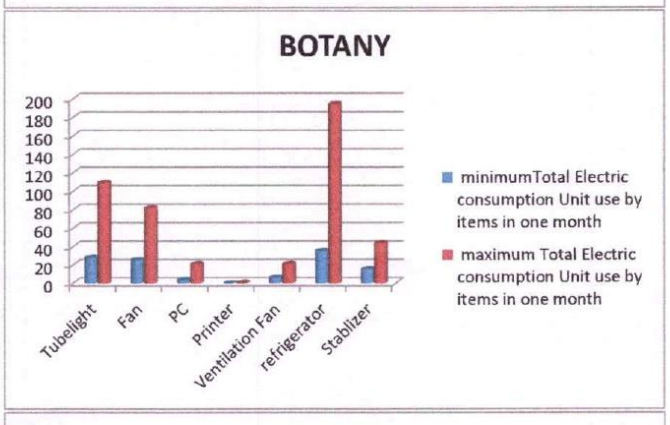


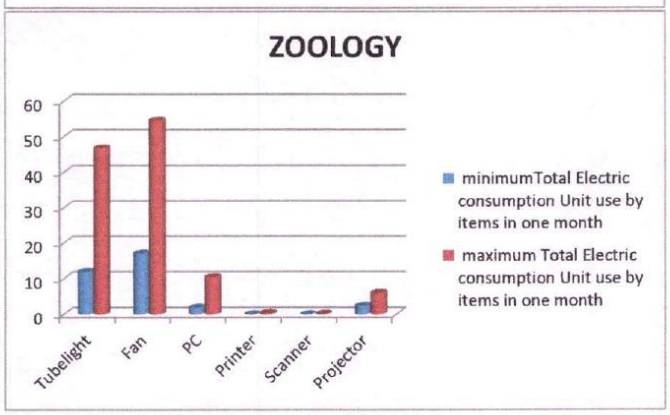

CHEMISTRY
300
250
200
150
100
50
0
Tubelight
Fan
PC
Printer
Ventilation Fan
oven
oven
ice chiller
condutometer
potentiometer
TDS METER
pH meter
Photocolonimeter
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

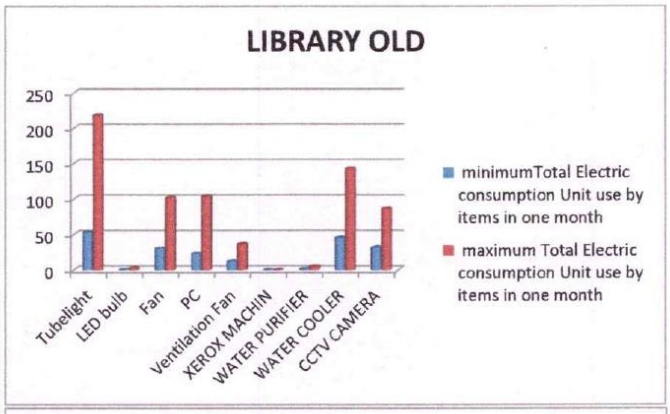

PHYSICS AND MATHEMATICS
70
60
50
40
30
20
10
0
Tubelight
Bulb
LED bulb
Fan
PC
Printer
Ventilation Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

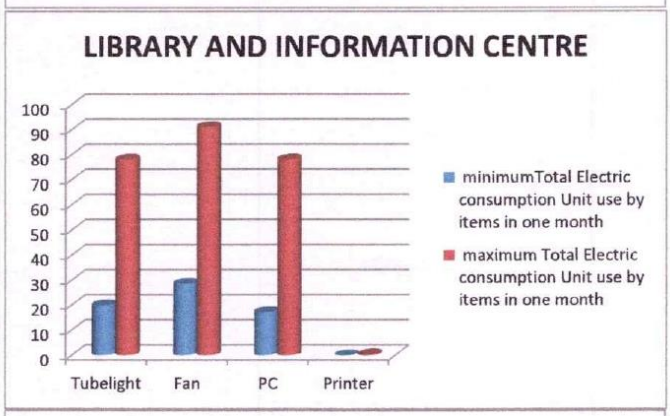

COMPUTER LAB
600
500
400
300
200
100
0
Bulb
Fan
PC
Printer
Projector
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

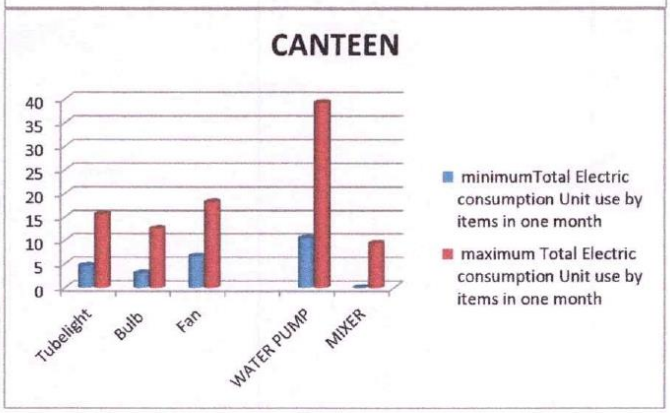

HOME- ECONOMICS
200
180
160
140
120
100
80
60
40
20
0
Tubelight
Fan
PC
refrigerator
MIXER
MICROWAVE
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

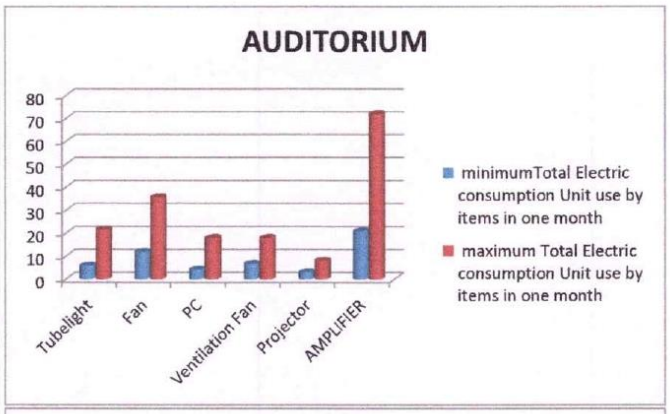

BOTANY
200
180
160
140
120
100
80
60
40
20
0
Tubelight
Fan
PC
Printer
Ventilation Fan
refrigerator
Stablizer
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

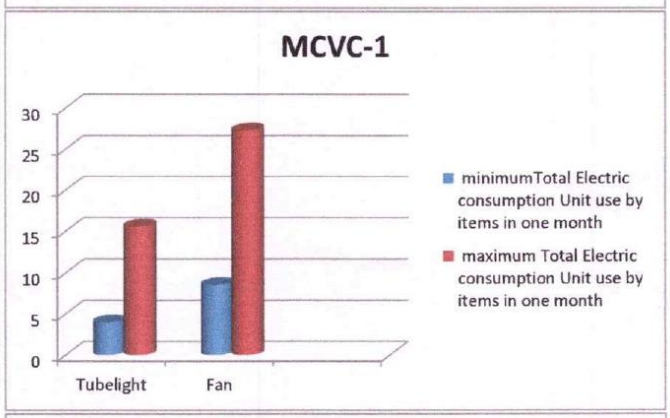

ZOOLOGY
60
50
40
30
20
10
0
Tubelight
Fan
PC
Printer
Scanner
Projector
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

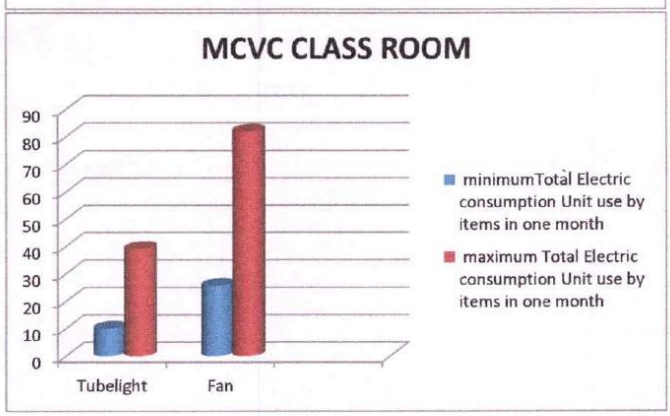

LIBRARY OLD
250
200
150
100
50
0
Tubelight
LED bulb
Fan
PC
Ventilation Fan
XEROX MACHIN
WATER PURIFIER
WATER COOLER
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

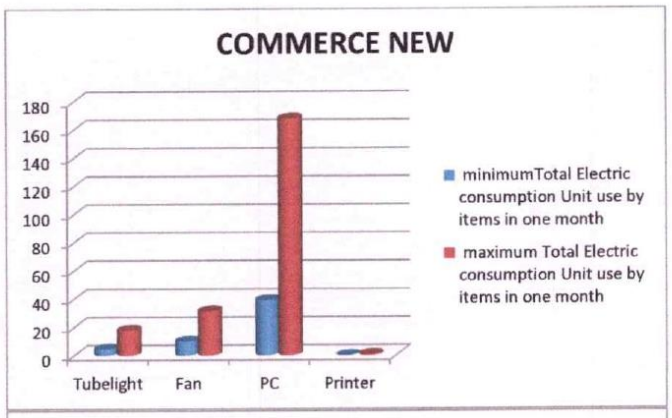

LIBRARY AND INFORMATION CENTRE
100
90
80
70
60
50
40
30
20
10
0
Tubelight
Fan
PC
Printer
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

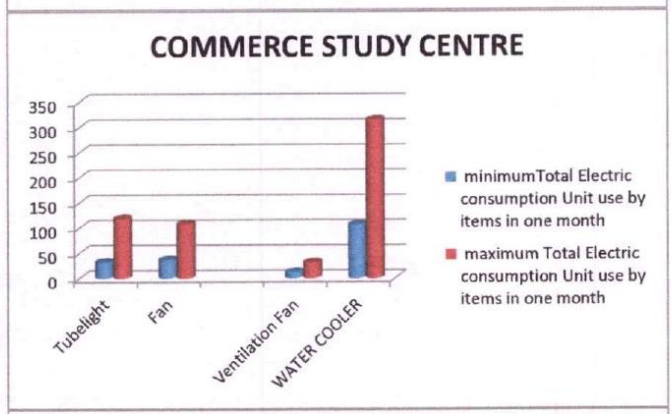

CANTEEN
40
35
30
25
20
15
10
5
0
Tubelight
Bulb
Fan
WATER PUMP
MIXER
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

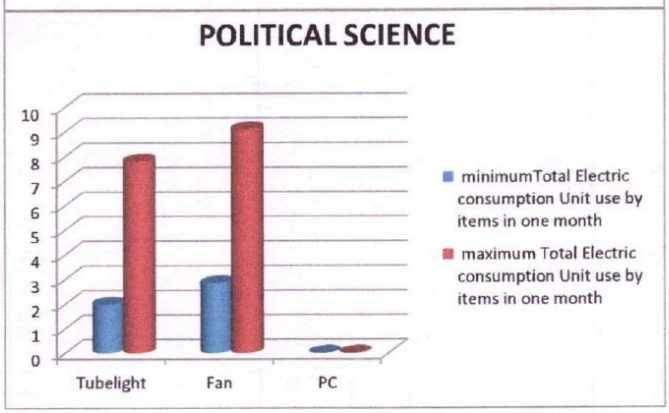

AUDITORIUM
80
70
60
50
40
30
20
10
0
Tubelight
Fan
PC
Ventilation Fan
Projector
AMPLIFIER
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

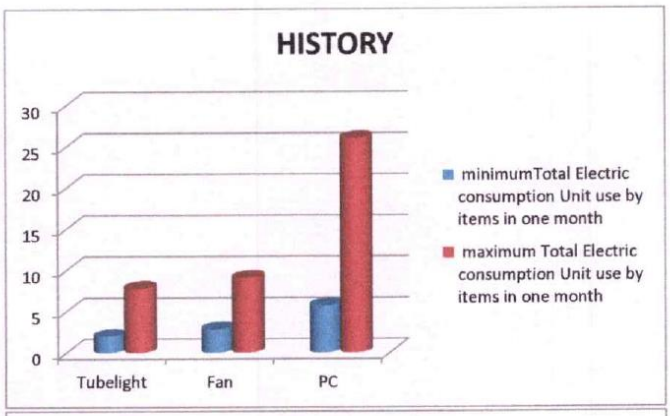

MCVC-1
30
25
20
15
10
5
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

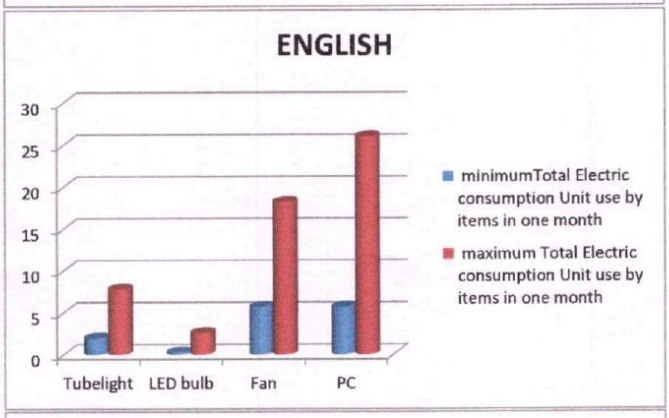

MCVC CLASS ROOM
90
80
70
60
50
40
30
20
10
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

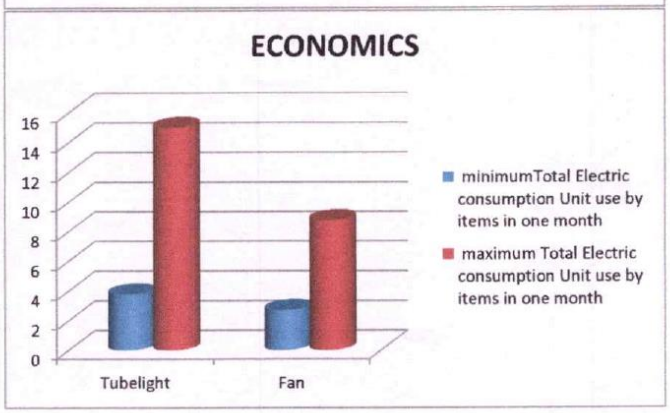

COMMERCE NEW
180
160
140
120
100
80
60
40
20
0
Tubelight
Fan
PC
Printer
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

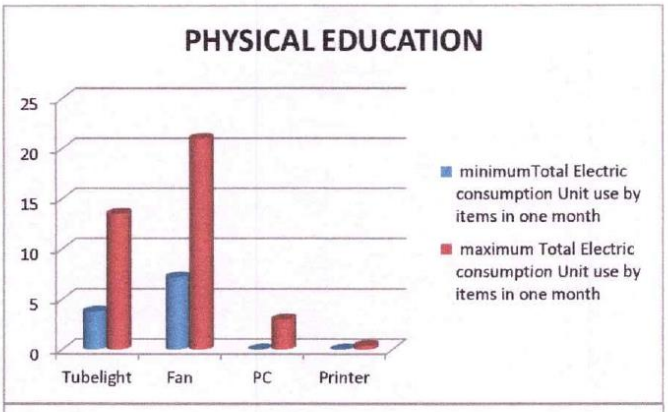

COMMERCE STUDY CENTRE
350
300
250
200
150
100
50
0
Tubelight
Fan
Ventilation Fan
WATER COOLER
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

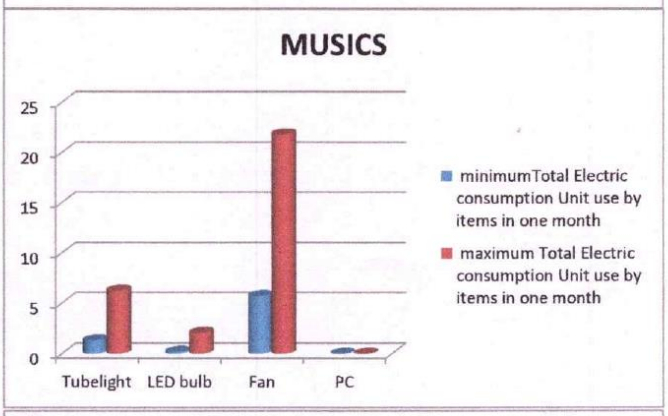

POLITICAL SCIENCE
10
9
8
7
6
5
4
3
2
1
0
Tubelight
Fan
PC
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

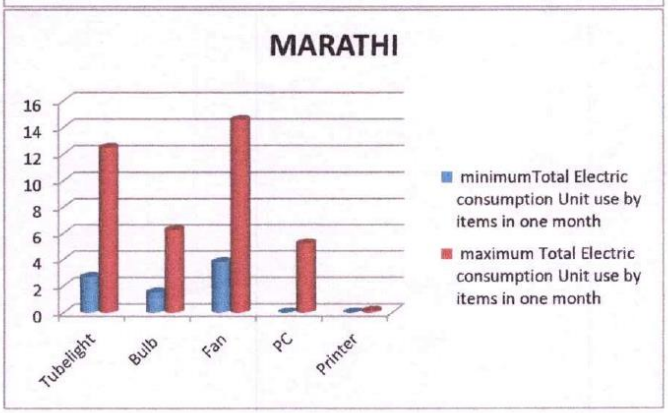

HISTORY
30
25
20
15
10
5
0
Tubelight
Fan
PC
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

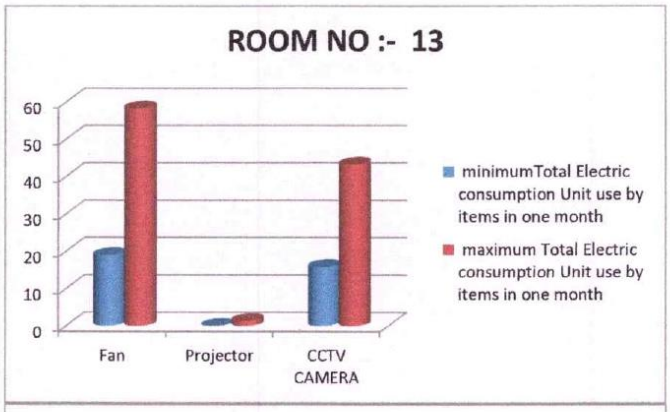

ENGLISH
30
25
20
15
10
5
0
Tubelight
LED bulb
Fan
PC
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

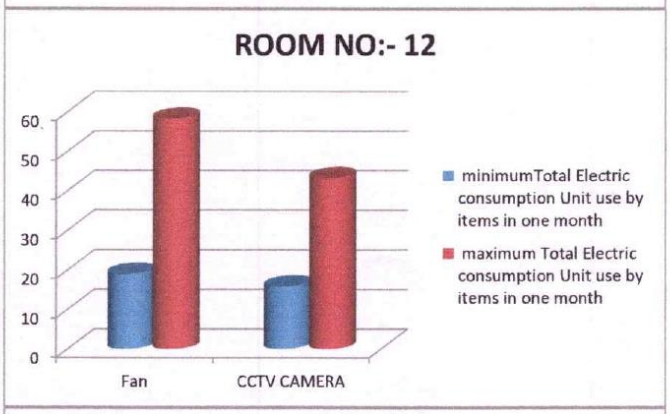

ECONOMICS
16
14
12
10
8
6
4
2
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

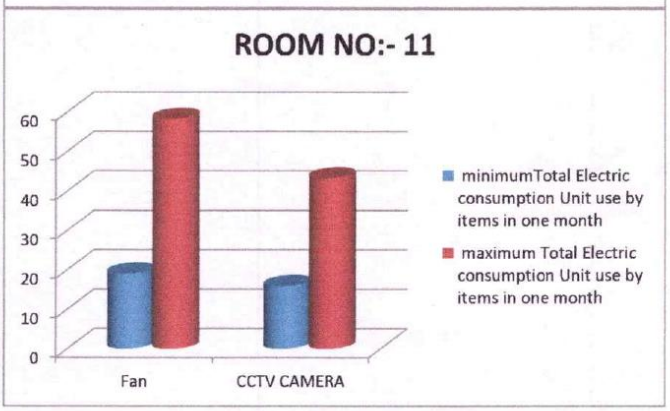

PHYSICAL EDUCATION
25
20
15
10
5
0
Tubelight
Fan
PC
Printer
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

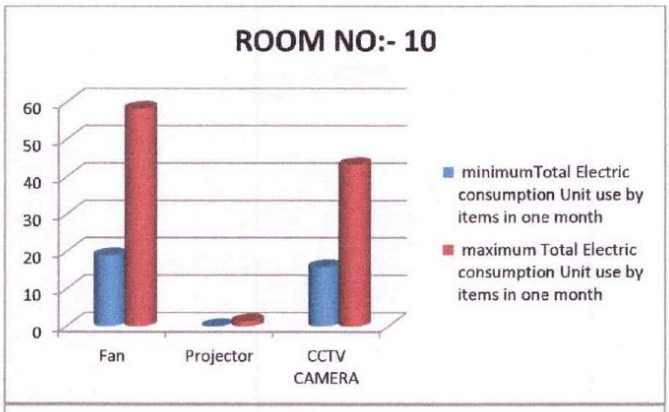

MUSICS
25
20
15
10
5
0
Tubelight
LED bulb
Fan
PC
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

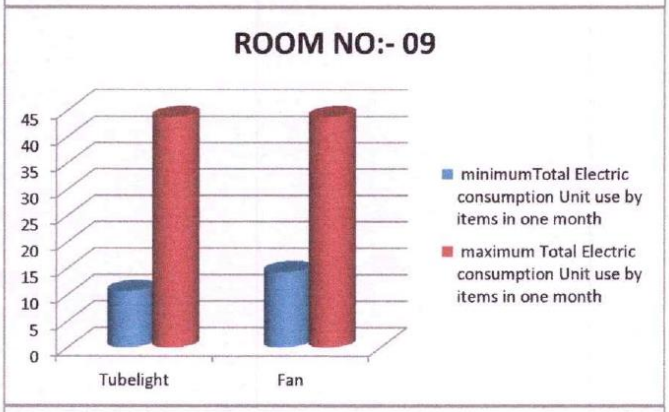

MARATHI
16
14
12
10
8
6
4
2
0
Tubelight
Bulb
Fan
PC
Printer
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

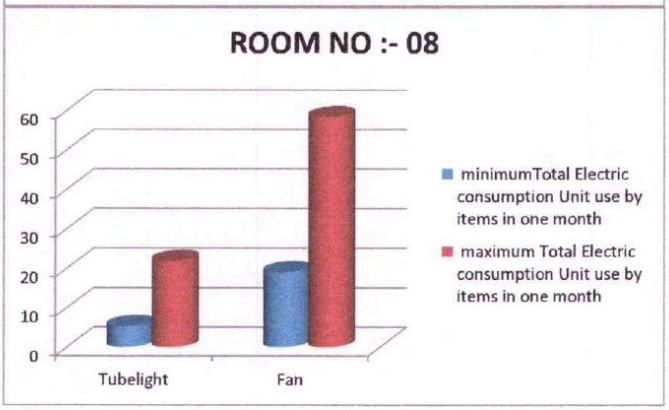

ROOM NO :- 13
60
50
40
30
20
10
0
Fan
Projector
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

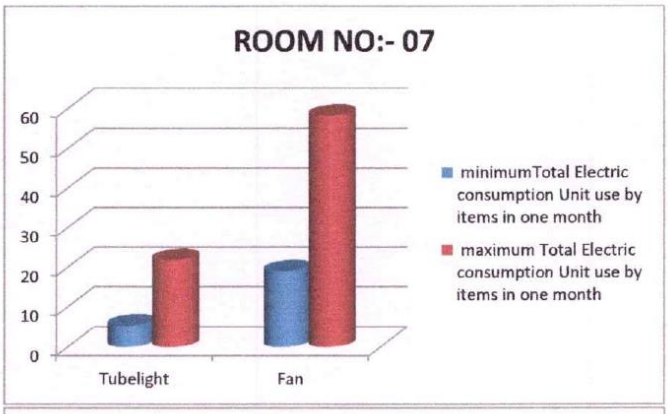

ROOM NO:- 12
60
50
40
30
20
10
0
Fan
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

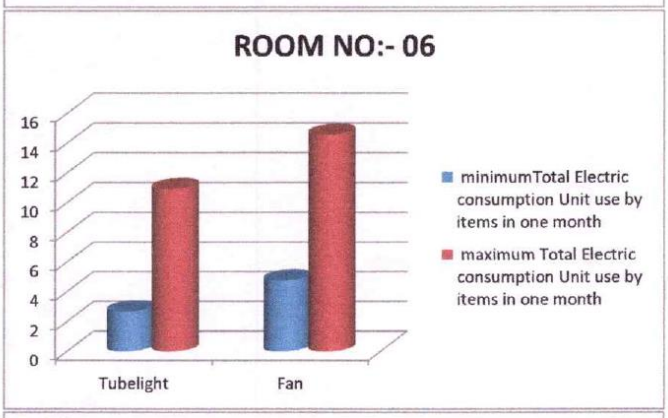

ROOM NO:- 11
60
50
40
30
20
10
0
Fan
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

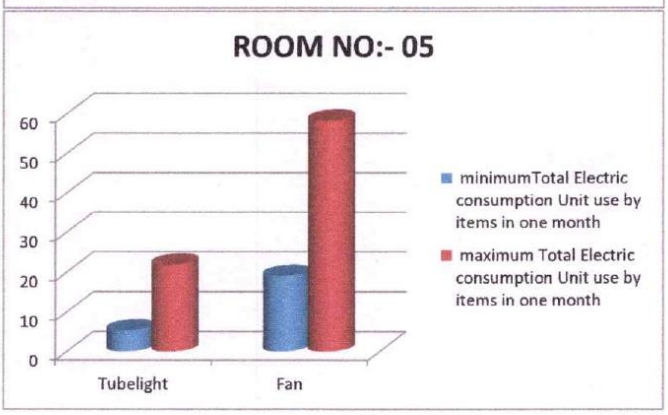

ROOM NO:- 10
60
50
40
30
20
10
0
Fan
Projector
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

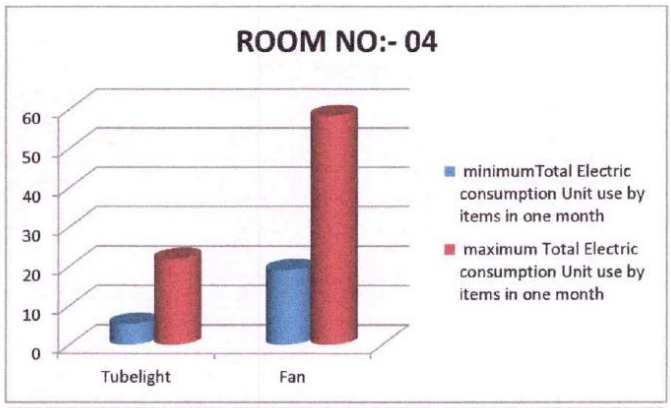

ROOM NO:- 09
45
40
35
30
25
20
15
10
5
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

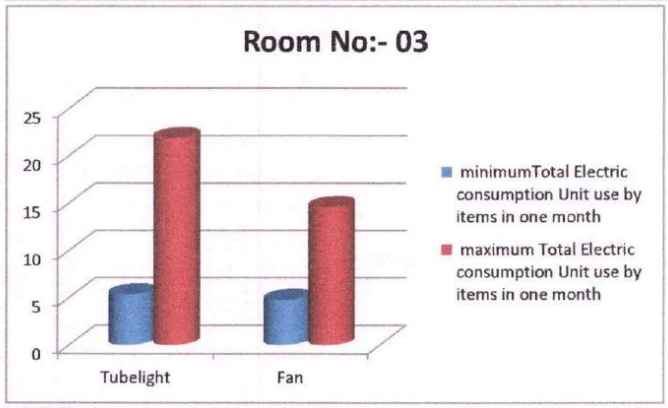

ROOM NO :- 08
60
50
40
30
20
10
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

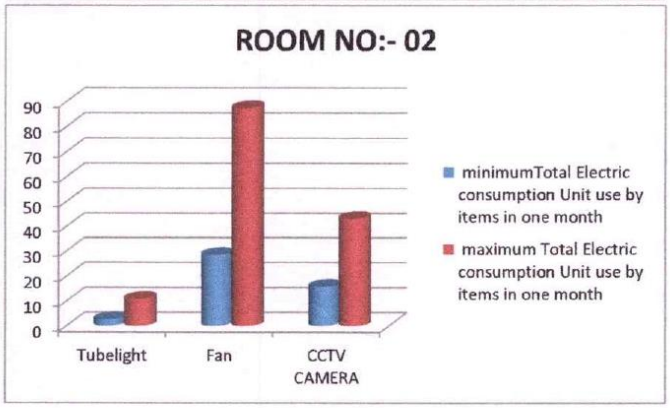

ROOM NO:- 07
60
50
40
30
20
10
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

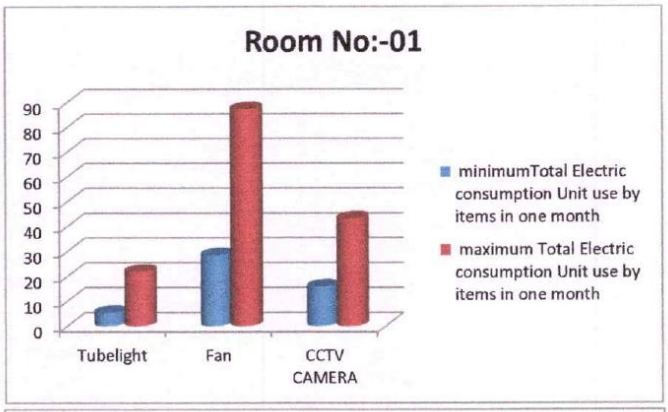

ROOM NO:- 06
16
14
12
10
8
6
4
2
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

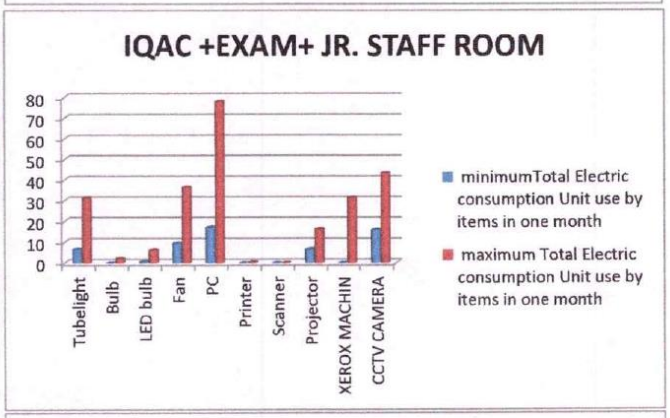

ROOM NO:- 05
60
50
40
30
20
10
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

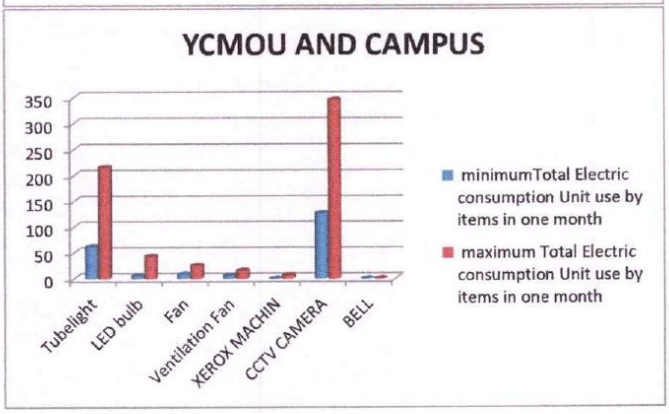

ROOM NO:- 04
60
50
40
30
20
10
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

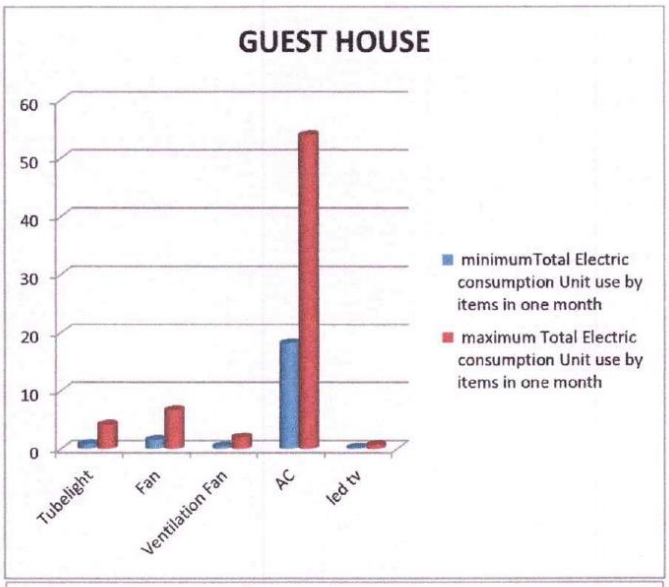

Room No:- 03
25
20
15
10
5
0
Tubelight
Fan
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

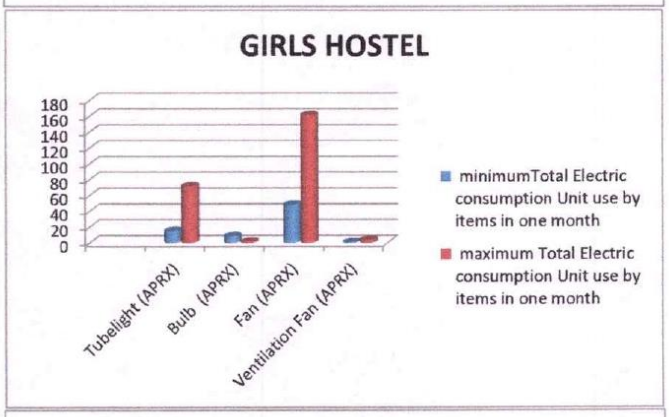

ROOM NO:- 02
90
80
70
60
50
40
30
20
10
0
Tubelight
Fan
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

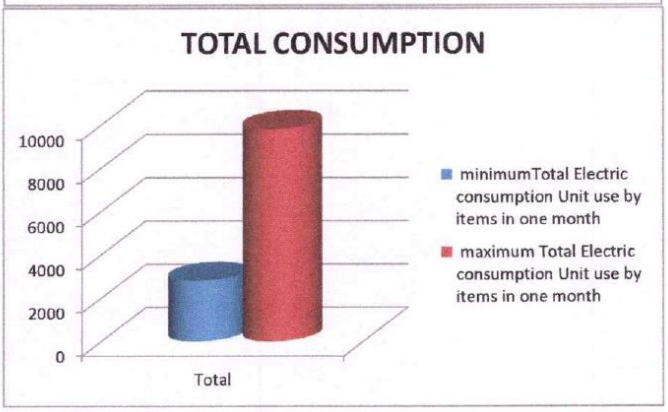

Room No:-01
90
80
70
60
50
40
30
20
10
0
Tubelight
Fan
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month


IQAC +EXAM+ JR. STAFF ROOM
80
70
60
50
40
30
20
10
0
Tubelight
Bulb
LED bulb
Fan
PC
Printer
Scanner
Projector
XEROX MACHIN
CCTV CAMERA
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month


YCMOU AND CAMPUS
350
300
250
200
150
100
50
0
Tubelight
LED bulb
Fan
Ventilation Fan
XEROX MACHIN
CCTV CAMERA
BELL
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month


GUEST HOUSE
60
50
40
30
20
10
0
Tubelight
Fan
Ventilation Fan
AC
led tv
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

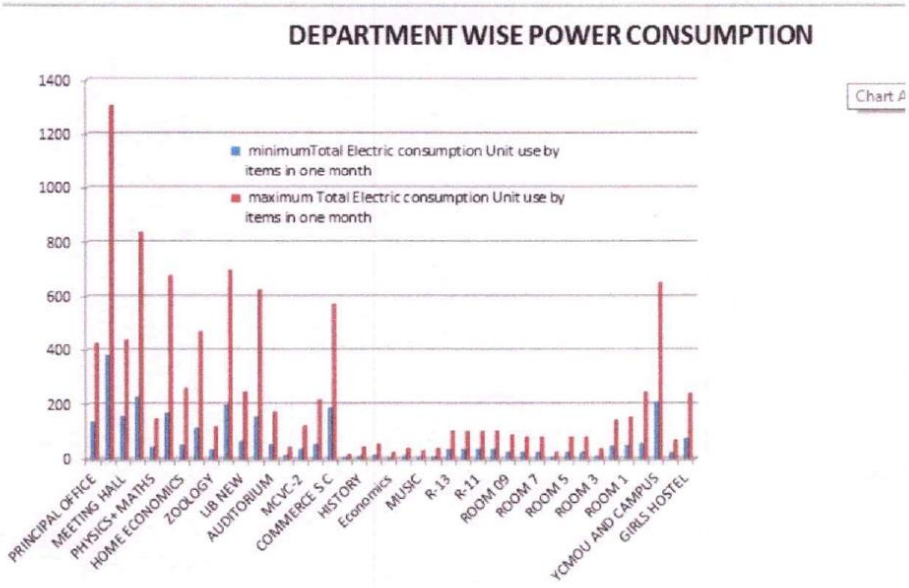

GIRLS HOSTEL
180
160
140
120
100
80
60
40
20
0
Tubelight (APRX)
Bulb (APRX)
Fan (APRX)
Ventilation Fan (APRX)
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month


TOTAL CONSUMPTION
10000
8000
6000
4000
2000
0
Total
minimumTotal Electric consumption Unit use by items in one month
maximum Total Electric consumption Unit use by items in one month

Department wise power consumption (Minimum and Maximum):-

Department	Minimum Total Electric consumption Unit use by items in one month	Maximum Total Electric consumption Unit use by items in one month
PRINCIPAL OFFICE	135.47	424.45
OFFICE	381.28	1305.73
MEETING HALL	156.07	441.18
Chemistry	227.858	837.174
PHYSICS+ MATHS	42.075	147.305
Computer lab	169.07	678.68
HOME ECONOMICS	51.635	259.4
Botany	113.86	471.43
ZOOLOGY	33.39	118.3625
LIB OLD	197.475	697.72
LIB NEW	65.55	247.325
CANTEEN	154.045	625.255
AUDITORIUM	52.78	173.4
MCVC-1	12.54	42.9
MCVC-2	35.625	120.9
COMMERCE	53.72	218.15
COMMERCE S C	187.25	572
Political Science	4.845	16.9
HISTORY	10.545	42.9
ENGLISH	13.68	54.6
Economics	6.48	23.75
Physical Education	10.98	37.875
MUSIC	7.22	30.16
MARATHI	7.98	38.605
R-13	34.84	102.79
R-12	34.84	101.44
R-11	34.84	101.44
R-10	34.84	102.79
ROOM 09	24.89	87.36
ROOM 8	24.32	80.08
ROOM 7	24.32	80.08
ROOM 6	7.41	25.48
ROOM 5	24.32	80.08
ROOM 4	24.32	80.08
ROOM 3	10.07	36.4
ROOM 2	47	141.48
ROOM 1	49.66	152.4
IQAC +EXAM+ JR. STAFF ROOM	56.26	244.865
YCMOU AND CAMPUS	208.48	651.892
GUEST HOUSE	21.41	67.6
GIRLS HOSTEL	73.56	239.5

Graphical Analysis of Department wise power consumption (Minimum and Maximum):-



Study of Historical Data Analysis:-

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd

Web Self Service

Web Self Service Home > View History

View History

- Home
- New User Registration
- Login
- Forgot Login Name/Password?
- View/Pay Bill
- Consumption Calculator
- Energy Bill Calculator
- New Connection Request
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- Track Status,Upload Documents & Pay Charges
- *Online Payment of Other Charges

Connection Information

Consumer Number	318730002726	BU	2810 AKOT SUB DN
Name	SHRI PRINCIPAL SHRISHIVAJIN COLLEGE	Connection Type	LT
Address	DARYAPUR ROAD AKOT U-III AKOT 444101	Contact Numbers	9623459557

Billing | Payments History

Bill Month	Consumption (Units)	Status	Bill Amount	Prompt Payment Date	Due Date	View/Download
Oct 2019	1,043	LIVE	11,300.00	21 Oct 2019	25 Oct 2019	
Sep 2019	37	LIVE	7,640.00	20 Sep 2019	25 Sep 2019	
Aug 2019	632	LIVE	6,880.00	21 Aug 2019	26 Aug 2019	
Jul 2019	680	LIVE	7,530.00	20 Jul 2019	25 Jul 2019	
Jun 2019	199	LIVE	7,560.00	20 Jun 2019	25 Jun 2019	
May 2019	501	LIVE	16,690.00	20 May 2019	25 May 2019	
Apr 2019	999	LIVE	11,080.00	20 Apr 2019	25 Apr 2019	
Mar 2019	575	LIVE	6,240.00	22 Mar 2019	26 Mar 2019	
Feb 2019	496	LIVE	5,350.00	20 Feb 2019	25 Feb 2019	
Jan 2019	593	LIVE	6,790.00	21 Jan 2019	28 Jan 2019	
Nov 2018	421	LIVE	9,760.00	20 Dec 2018	26 Dec 2018	
Oct 2018	492	LIVE	5,380.00	22 Nov 2018	27 Nov 2018	

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Maharashtra State Electricity Distribution Co. Ltd

Web Self Service

Web Self Service Home > View History

View History

- Home
- New User Registration
- Login
- Forgot Login Name/Password?
- View/Pay Bill
- Consumption Calculator
- Energy Bill Calculator
- New Connection Request
- Register your Complaint
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Connection Information

Consumer Number	310738899075	BU	2810 AKOT SUB DN
Name	SHRI SHIVAJI KALA VANIJYA COLLEGE AK	Connection Type	LT
Address	56 AT POST AKOT 444101	Contact Numbers	9623459557

Billing | Payments History

Bill Month	Consumption (Units)	Status	Bill Amount	Prompt Payment Date	Due Date	View/Download
Oct 2019	977	LIVE	8,250.00	17 Oct 2019	25 Oct 2019	
Sep 2019	1,629	LIVE	25,500.00	17 Sep 2019	25 Sep 2019	
Aug 2019	1,381	LIVE	11,940.00	19 Aug 2019	26 Aug 2019	
Jul 2019	1,207	LIVE	10,600.00	17 Jul 2019	25 Jul 2019	
Jun 2019	2,899	LIVE	54,180.00	17 Jun 2019	25 Jun 2019	
May 2019	3,132	LIVE	50,280.00	17 May 2019	25 May 2019	
Apr 2019	2,518	LIVE	22,080.00	18 Apr 2019	25 Apr 2019	
Mar 2019	1,720	LIVE	14,910.00	18 Mar 2019	26 Mar 2019	
Feb 2019	1,625	LIVE	14,260.00	18 Feb 2019	25 Feb 2019	
Jan 2019	1,737	LIVE	15,570.00	18 Jan 2019	28 Jan 2019	
Nov 2018	1,564	LIVE	33,340.00	17 Dec 2018	26 Dec 2018	
Oct 2018	2,252	LIVE	20,050.00	19 Nov 2018	27 Nov 2018	

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Web Self Service

Web Self Service Home > View History

View History

- Home
- New User Registration
- Login
- Forgot Login Name/Password?
- View/Pay Bill
- Consumption Calculator
- Energy Bill Calculator
- New Connection Request
- Register your Complaint
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Connection Information

Consumer Number	310730000022	BU	2810 AKOT SUB DN
Name	PRACHARYA SHIVAJI COLLEGE	Connection Type	LTIP
Address	DARYAPUR ROAD AKOT AKOT IP-WATER PUMP AKOT U-I 444001	Contact Numbers	9623459557

Billing | Payments History

Bill Month	Consumption (Units)	Status	Bill Amount	Prompt Payment Date	Due Date	View/Download
Sep 2019	200		1,847.03	14 Oct 2019	21 Oct 2019	
Aug 2019	200		1,801.05	16 Sep 2019	23 Sep 2019	
Jul 2019	200		1,856.71	19 Aug 2019	27 Aug 2019	
Jun 2019	200		1,905.11	17 Jul 2019	25 Jul 2019	
May 2019	200		1,912.37	18 Jun 2019	26 Jun 2019	
Apr 2019	200		1,907.53	21 May 2019	29 May 2019	
Mar 2019	250		2,413.03	18 Apr 2019	25 Apr 2019	
Feb 2019	250		2,384.72	20 Mar 2019	28 Mar 2019	
Jan 2019	250		2,427.67	20 Feb 2019	28 Feb 2019	
Dec 2018	250		2,262.51	21 Jan 2019	28 Jan 2019	
Nov 2018	250		2,317.37	19 Dec 2018	27 Dec 2018	
Oct 2018	250		2,447.44	20 Nov 2018	28 Nov 2018	

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Web Self Service

Web Self Service Home > View History

View History

- Home
- New User Registration
- Login
- Forgot Login Name/Password?
- View/Pay Bill
- Consumption Calculator
- Energy Bill Calculator
- New Connection Request
- Register your Complaint
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Connection Information

Consumer Number	318730202296	BU	2810 AKOT SUB DN
Name	SHRI PRINCIPOL SHRI SHIVAJI MAHAVIDH	Connection Type	LT
Address	DARYAPUR ROAD TQ. AKOT DARYAPUR ROAD 444101	Contact Numbers	9623459557

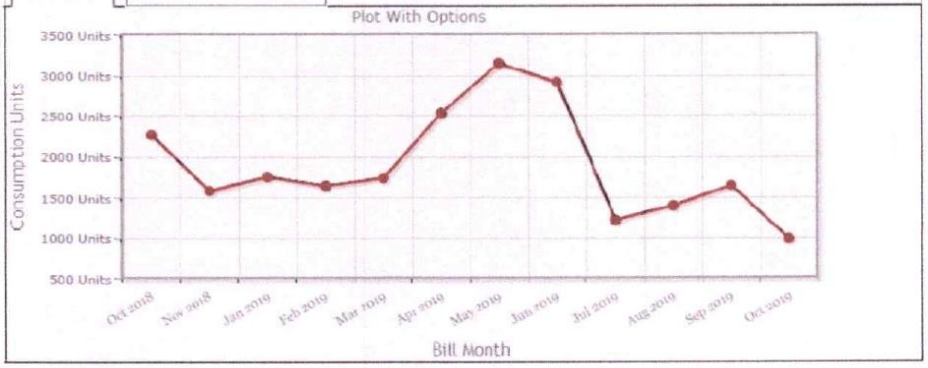
Billing | Payments History

Bill Month	Consumption (Units)	Status	Bill Amount	Prompt Payment Date	Due Date	View/Download
Oct 2019	858	LIVE	7,210.00	17 Oct 2019	25 Oct 2019	
Sep 2019	797	LIVE	19,390.00	17 Sep 2019	25 Sep 2019	
Aug 2019	1,491	LIVE	12,770.00	19 Aug 2019	26 Aug 2019	
Jul 2019	110	LIVE	910.00	17 Jul 2019	25 Jul 2019	
Jun 2019	1,037	LIVE	17,060.00	17 Jun 2019	25 Jun 2019	
May 2019	997	LIVE	13,100.00	17 May 2019	25 May 2019	
Apr 2019	614	LIVE	5,210.00	18 Apr 2019	25 Apr 2019	
Mar 2019	385	LIVE	3,230.00	18 Mar 2019	26 Mar 2019	
Feb 2019	426	LIVE	3,550.00	18 Feb 2019	25 Feb 2019	
Jan 2019	503	LIVE	4,610.00	18 Jan 2019	28 Jan 2019	
Nov 2018	458	LIVE	8,630.00	17 Dec 2018	26 Dec 2018	
Oct 2018	570	LIVE	4,890.00	19 Nov 2018	27 Nov 2018	

Connection Information

Consumer Number	318738899075	BU	2810 AKOT SUB DN
Name	SHRI SHIVAJI KALA VANIJYA COLLEGE AK	Connection Type	LT
Address	56 AT POST AKOT 444101	Contact Numbers	9623459557

Billing | Payments History

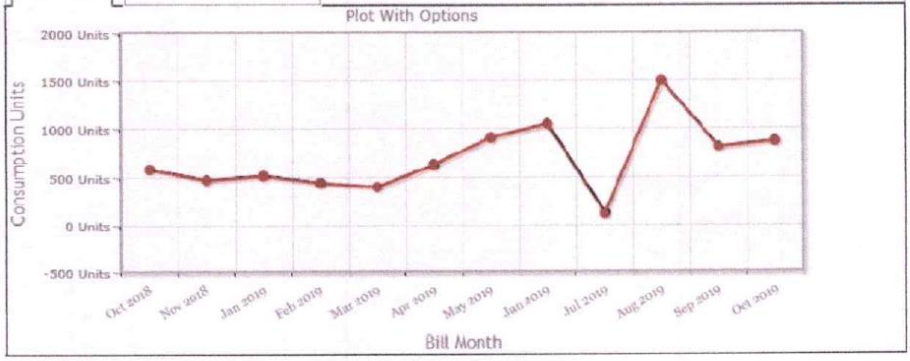


View Details View Consumption Graph

Connection Information

Consumer Number	318730202296	BU	2810 AKOT SUB DN
Name	SHRI PRINCIPOL SHRI SHIVAJI MAHAVIDH	Connection Type	LT
Address	DARYAPUR ROAD TQ. AKOT DARYAPUR ROAD 444101	Contact Numbers	9623459557

Billing | Payments History



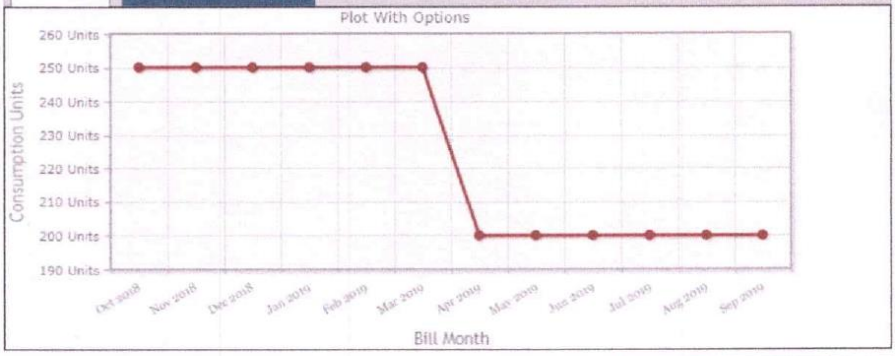
View Details View Consumption Graph

View History

Connection Information

Consumer Number	318730000022	BU	2810 AKOT SUB DN
Name	PRACHARYA SHIVAJI COLLEGE	Connection Type	LTIP
Address	DARYAPUR ROAD AKOT AKOT IP-WATER PUMP AKOT U-I 444001	Contact Numbers	9623459557

Billing | Payments History



View Details | View Consumption Graph

View History

Connection Information

Consumer Number	318730002726	BU	2810 AKOT SUB DN
Name	SHRI PRINCIPAL SHRISHIVAJIN COLLEGE	Connection Type	LT
Address	DARYAPUR ROAD AKOT U-III AKOT 444101	Contact Numbers	9623459557

Billing | Payments History

View Details | View Consumption Graph

Conclusion from Historical Data Analysis:-

From Analysis of data is found that, there is increasing of power consumption in the span of August to Octobers and March to June.

Following is Approximately Power consumption from the graphical analysis

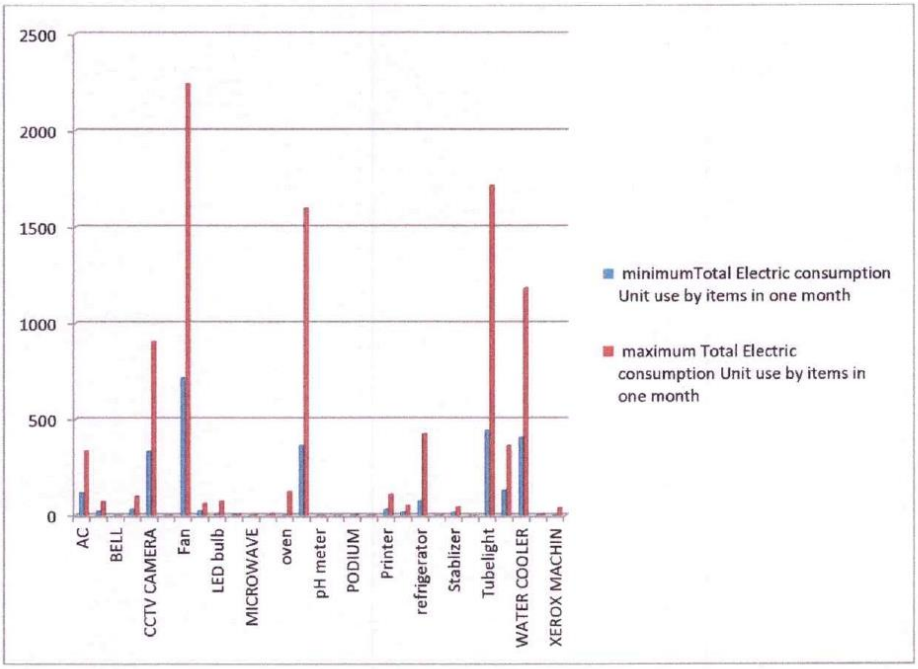
Minimum Power consumption per Month=(200+200+400+1500)=2300 Units

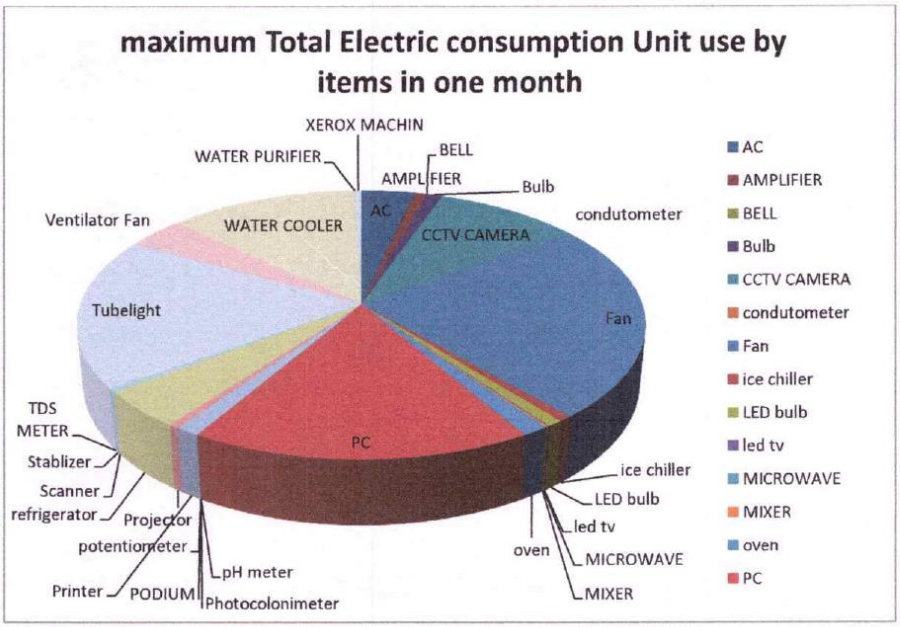
Maximum Power consumption per Month=(1100+250+1500+3150)=5850 Units

Total Power Consumption of each types electrical appliances/items :-

Electrical/ Electronic items	Quantity	minimum watt	maximum Watt	minimum Daily consumption in hours	maximum Daily consumption in hours	minimum Number of day use in Month	maximum Number of day use in Month	minimum Total Electric consumption Unit use by items in one month	maximum Total Electric consumption Unit use by items in one month	Remarks
AC	3	2600	3600	9	13	21	29	117	334.8	
AMPLIFIER	2	750	1200	2	3	7	10	21	72	
BELL	1	5	10	0	0.2	19	26	0	0.052	
Bulb	23	240	403	11	18.5	105	144	31.6	99.08	
CCTV CAMERA	21	495	660	176	264	242	330	332.64	907.2	
condutometer	3	3	5	1	2	18	25	0.162	0.75	
Fan	214	2050	2870	155	253	745	1020	716.65	2243.43	
ice chiller	1	80	100	16	24	19	26	24.32	62.4	
LED bulb	21	40	160	28	46	155	212	8.51	73.88	
led tv	2	170	170	3	5	22	30	3.485	7.31	
MICROWAVE	1	800	900	0	1	2	3	0	2.7	
MIXER	3	750	1150	0	1	20	28	0	10.575	
oven	3	3650	4550	0	2	22	31	0	123.8	
PC	81	1900	3800	38	67	329	451	364.5	1598.2	
pH meter	1	2	3	0	1	15	20	0	0.06	
Photocolonimeter	1	2	3	0	1	15	20	0	0.06	
PODIUM	1	300	450	1	2	2	3	0.6	2.7	
potentiometer	4	1	2	1	2	19	26	0.076	0.416	
Printer	22	330	550	6	13.45	169	232	29.07	110.375	
Projector	6	1320	1620	6	12	57	79	16.06	49.275	
refrigerator	3	300	810	35	53	63	86	76.1	423.9	
Scanner	4	105	135	0	1.25	13	19	0	0.6075	
Stablizer	1	50	70	16	24	19	26	15.2	43.68	
TDS METER	1	2	3	0	1	19	26	0	0.078	
Tubelight	190	1260	2160	125	209	652	893	443.66	1715.34	
Ventilator Fan	29	880	1100	38	63	163	224	129.92	363.2	
WATER COOLER	5	3700	5100	27	42	97	132	405.7	1183.2	
WATER PURIFIER	1	25	40	3	5	18	25	1.35	5	
XEROX MACHIN	3	1200	3600	0	1.2	57	78	0	37.44	

Graphical Analysis of Total Power Consumption of each type of electrical appliances/items:-

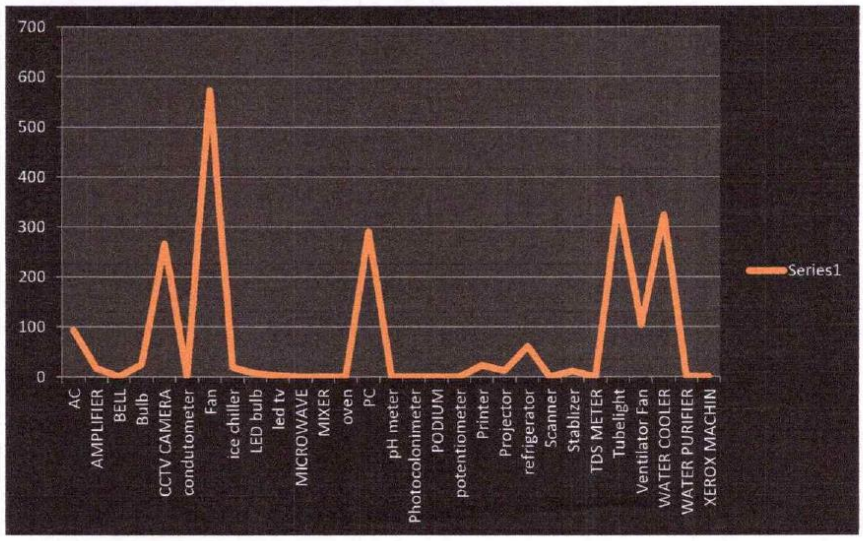




Carbon Di-Oxide Emission:-

For consumption of 1 Unit (1 kWh) of Electricity, the CO2 emitted is 0.8 Kg. OR the Emission is 0.8 Kg/kWh. In the following Table we present the total units consumed and CO2 emitted as under:

Electrical / Electronic items	CO2 EMISSION IN KG
AC	93.6
AMPLIFIER	16.8
BELL	0
Bulb	25.28
CCTV CAMERA	266.112
condutometer	0.1296
Fan	573.32
ice chiller	19.456
LED bulb	6.808
LED TV	2.788
MICROWAVE	0
MIXER	0
oven	0
PC	291.6
pH meter	0
Photocolonimeter	0
PODIUM	0.48
potentiometer	0.0608
Printer	23.256
Projector	12.848
refrigerator	60.88
Scanner	0
Stablizer	12.16
TDS METER	0
Tubelight	354.928
Ventilator Fan	103.936
WATER COOLER	324.56
WATER PURIFIER	1.08
XEROX MACHIN	0



Conclusion :-

As far concerning the energy audit, electricity audit is main concern regarding educational institution. We have collected data by considering the tube light, fan, computer, printer, A.C and instruments. The total required energy is in the range of 2300 to 5850 Unit and College required money in between Rs.25000 to Rs. 35000 for every month. Variation in electricity bill is due to different programs, local environment, functions. In the month of August, September, April and May energy requirement is more, because exams and going on in this period and in March to April summer season is going on so more electricity is required in this month's mostly. In conclusion, data generated in energy audit are useful for to understand the energy distribution and utilization of college. Office time of college in morning and afternoon shift so there is larger scope to use the Solar energy/ Net metering/ and also, College have heighted and large roof top building it will use to hybrid (solar with wind miles) energy generation device.

Long term measure:-

1. Replacing Fluorescent Tube Lights (FTL) with LED Tube Lights
2. Providing Solar PV system for part load operations during day time.
3. Providing to hybrid (solar with wind miles) energy generation device.
4. Replace old type fans with newly one.
5. Display of Energy saving measure in each class room, office and campus

General Recommendations:-

1. All projectors to be kept OFF or in idle mode if there will be no presentation slides.
2. All computers to have power saving settings to turn off monitors and hard discs, say after 10 minutes/30 minutes.
3. All Class Rooms and labs to have Display Messages regarding optimum use of electrical appliances in the room like, lights, fans, computers and projectors.
4. Most of the time, all the tube lights in a class room are kept ON, even though, there is sufficient light level near the window opening. In such cases, the light row near the window may be kept OFF.
5. The comfort air conditioning temperature to be set between 24°C to 26°C.
6. Lights in toilet area may be kept OFF during day time.

Principal
Shri Shivaji Arts, Commerce
& Science College, Akot
Dist. Akola (Maharashtra)

Certificate

This is certifying that, the data of Energy Audit of Shri Shivaji Arts, Commerce and Science college, Akot (203) is found correct.

I suggest following recommendation regarding Energy audit and save power.

office time of college in morning and afternoon shift. So there is larger scope to use the solar energy / net metering and also, college have highest heited and large roof top building.

Signature and Stamp

सहाय्यक अभियंता
म. राज्य विद्युत वितरण कंपनी मर्या
दक्षिण खेडे विभाग, अकोट