

Energy Audit
Power Factor Management
Harmonics Analysis
Consul Stabilisers - Sales & Service



Date: 04/06/2021

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the Mahatma Gandhi Shikshan Mandal Sanchalit, Smt.Sharadchandrika Suresh Patil College Pharmacy,Chopda. has carried out an Energy Audit.

The report is based upon the readings at that particular time and load present at that time.

We do not take any responsibility if anything happens after our survey. However the readings and observation are based on best of our knowledge.

This report neither determines nor implies liability.

Yours Faithfully,

Powercop

A handwritten signature in black ink, appearing to be 'Amit Kulkarni'.

Mr.Amit Kulkarni



Mob.No.9822909699

Energy
report

20-21

Energy Audit report of
Mahatma Gandhi Shikshan Mandal

Sri no 1103, Yaw
Chopda - 425

Conducted By
Powercop

P 66, Near Varnas Road
Ahmednagar - 414

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energy is precious

Ahmednagar, Pune, Auranpabad, Mumbai.

Energy Audit Report
Of
Mahatma Gandhi Shikshan Mandal
Gat no 1143, Yawal road,
Chopda – 425 107.

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P 46, Near Vishwas Roadlines, Midc,

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ACKNOWLEDGEMENT

Powercop thanks to Hon. Adv. Mr. Sandeep Suresh Patil (Chairman) Sir, Hon. Smt. Asha Vijay Patil (Vice Chairman) Ma'am, Hon. Dr. Mrs. Smita Sandeep Patil (Secretary) Ma'am and the management of Mahatma Gandhi Shikshan Mandal for their cooperation & support during energy audit activity.

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1.0 Executive Summary:

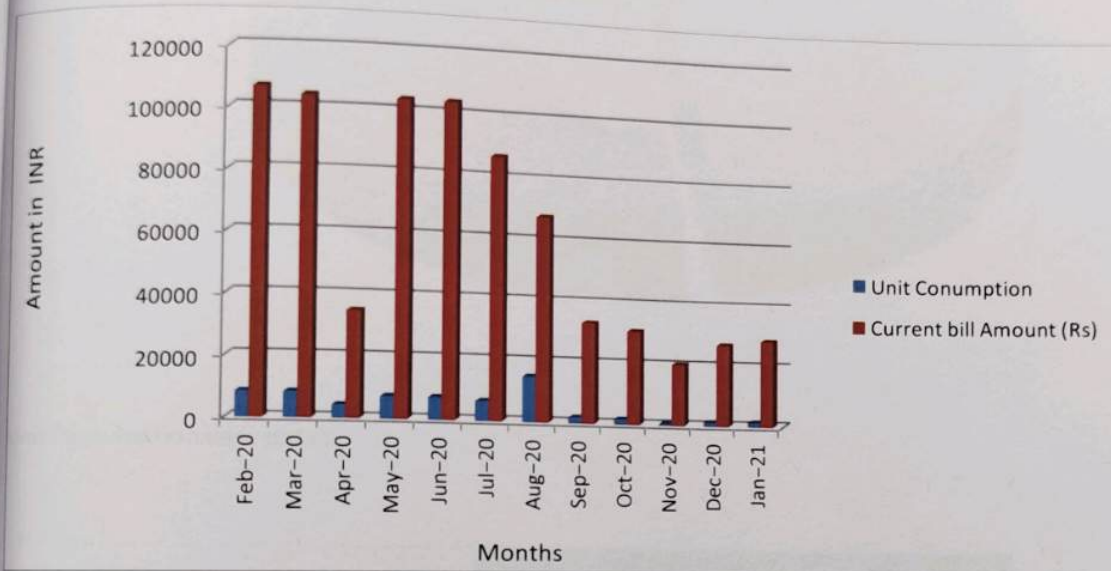
1.1 Present Energy Consumption Scenario:

As per historical data, present energy consumption scenario is as per under:

Chart :: Historical Data Analysis:

Monthly Bill Analysis:

Based on the historical data the energy consumption of Mahatma Gandhi Shikshan Mandalduring last twelve months was 1,06,631 KWh.



1.2 Conclusion:

The present energy consumption is **106631 kwh** per annum (Approx).

The proposed energy consumption shall be **34631 kwh** per annum (Approx.) which will vary as per the season.

The saving in terms of monitory benefit will be **3 8.73 Lac** per annum only (**with ROOF TOP SOLAR POWER PLANT**)

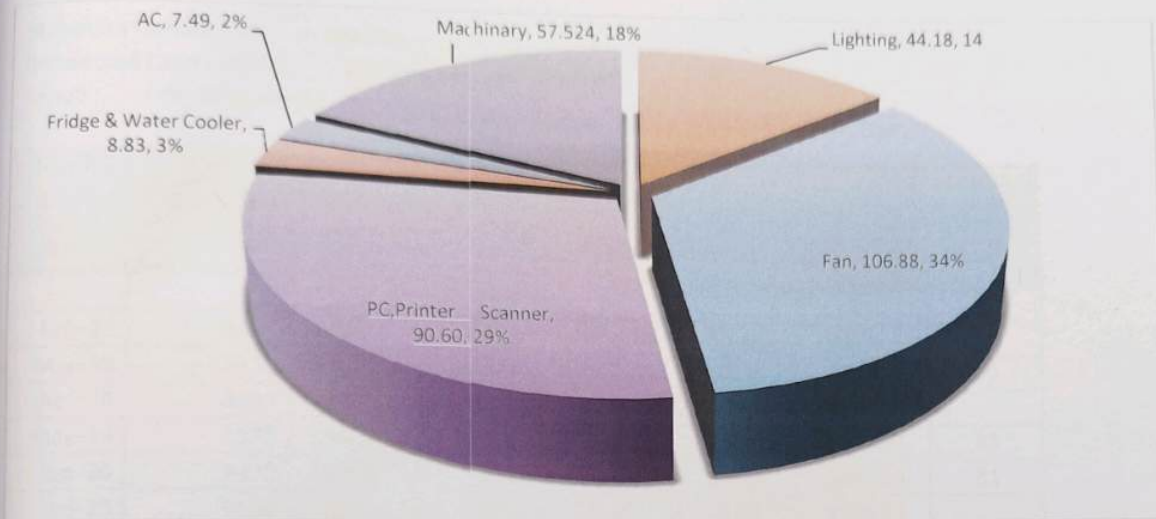
The proposed energy consumption shall be **83211 kwh** per annum (Approx.) which will vary as per the season.

The saving in terms of monitory benefit will be **3 2.90 lacs** per annum only. (**without Roof Top Solar Power Plant**).

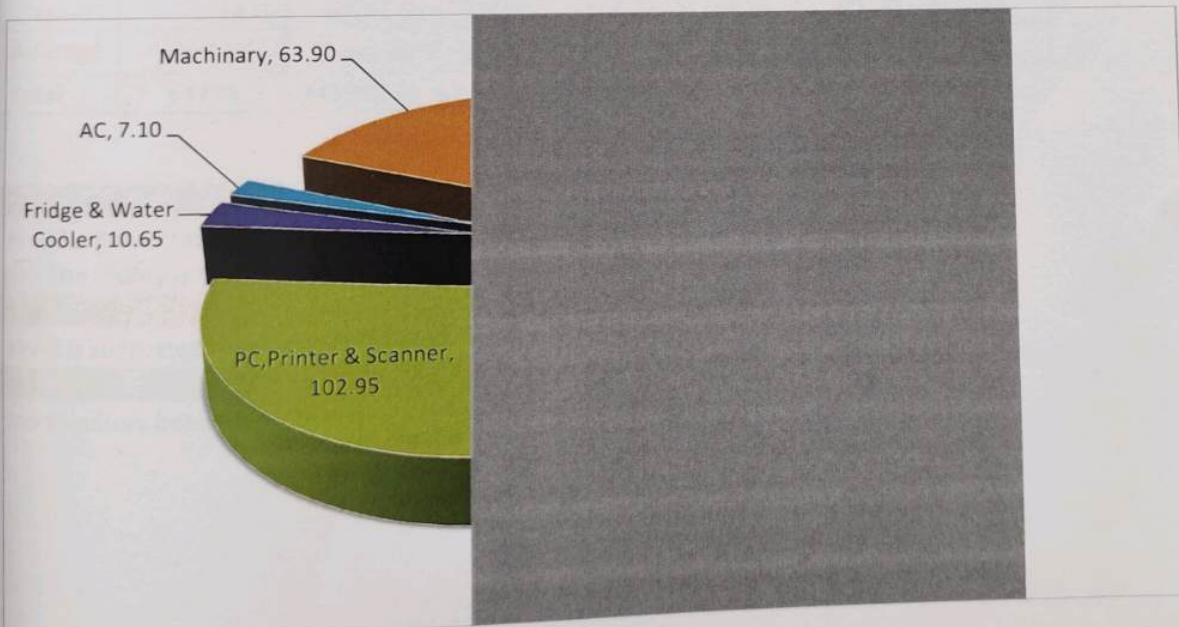
Graphical Representation of LOAD :

The assumption is that the college is working for 24 hrs a day, actual readings may differ.

Load wise data in KW :: 315 KW.



Unit Consumption wise data ::



2.0 Electricity bill observation & Analysis :

The 12 month electricity bill data is tabulated as under & analysis has been carried out based on Analysis , average electrical unit cost is calculated. The electrical data was logged by online power analyzer.

Table : Monthly Energy Bills

Mahatma Gandhi Shikshan Mandal

Connected Load : 65 KW Contract Demand :81Kva

Period : Feb-20 to Jan-21

Month	Unit Consumption	Current bill Amount (Rs)	Power Factor	PF incentive	Rs. /kWh	Loss due to Poor PF	Demand in KVA
			(PF)	Rs.		Rs.	
Feb-20	8422	106886.34	0.990	-2319.00	12.69	927.60	49
Mar-20	8422	104305.41	0.990	-2262.16	12.38	904.86	49
Apr-20	4409	34957.54	0.99	-1271.84	7.93	508.73	
May-20	7375	104002.49	0.900	0.00	14.10	3095.63	81
Jun-20	7375	104002.49	0.900	0.00	14.10	3095.63	81
Jul-20	6628	86894.24	0.900	0.00	9.20	2583.73	
Aug-20	15035	67871.90	0.990	-3661.14	4.51	1464.45	30
Sep-20	1988	33372.54	0.990	-726.74	16.79	290.69	25
Oct-20	1750	31098.39	0.990	-677.65	17.77	271.90	24
Nov-20	605	20397.58	0.990	-446.75	33.72	178.69	12
Dec-20	1292	27238.09	0.970	-234.71	21.08	586.78	15
Jan-21	1475	28885.31	0.970	-248.73	19.58	621.83	16
Average	5398.00	62492.69	0.96	-987.39	11.58	14530.52	38
Total	64776	749912.32		-11848.72			

Observation :

- >>> The Power factor need to improve.
- >>> The facility is having LT X B III connection.

Remedies:

- >>> It is suggested to repair APFC panel.

Benefits :

- >>> Monitory **benefit will be 30.15 Lac** approximately per annum.

3.0 Energy Saving Potential:

*** The assumption is that the college is working for 12 hrs a day, actual readings may differ.

Sr.No.	Particulars	Quantity	Saving Kwh/annum	Unit Rate (Rs.)	Saving Rs./ Annum	Investment (Rs.)	Payback in Months
A] Lighting							
1	Replace 28w FTL with electronic choke by 20w LED	879	15822	12.13	191920.86	219750	13.74
2	Replace 36w FTL with copper choke by 20w LED tube	51	3213	12.13	38973.69	51000	15.70
3	Replace existing 18w CFL by 10w LED bulb	102	1468	12.13	17806.84	10200	6.87
4	Replace existing 14w CFL by 10w LED bulb	18	130	12.13	1576.90	1800	13.70
5	Replace existing 23w CFL by 10w LED bulb	2	47	12.13	570.11	200	4.21
6	Replace existing 250w Mercury by 100w LED flood light	12	3240	12.13	39301.20	60000	18.32
E] APFC Repairing							
1	Repairing of APFC Panel , make 70 Kvar panel	1	0	12.13	50000.00	105000	25.20
F] Roof Top Solar power Plant							
1	Solar power plant of 40 KW	1	72000	12.13	873360.00	1800000	24.73
TOTAL			95920		1213509.60	2247950	22.23

Other Requirements for Better POWER QUALITY :

Sr. No.	Particulars	Qty	Specification
A] For Neutral Compensation			
1	To main MCCB near meter Connect it to neutral point.	8	Make OBO Betterman, Germany or equivalent Length of Earth electrode: 1250 mm, Diameter of earth electrode: 14.2mm. Tested as per IEC 60364-5-54. Earth conductivity enhancing mineral compound of 5KG

Findings:

- > There is no centralize control panel for whole facility.
- > Current in Neutral is high and some time it is equal to phase current.
- > There is no spike protection against sudden rise in current vector.

4.0 Power Quality Observations & Remedies :

Site Description.

The detailed Single Line Diagram is not available with Mahatma Gandhi Shikshan Mandal The basic site survey was conducted as per following Single Line Diagram.

Single Line Diagram:

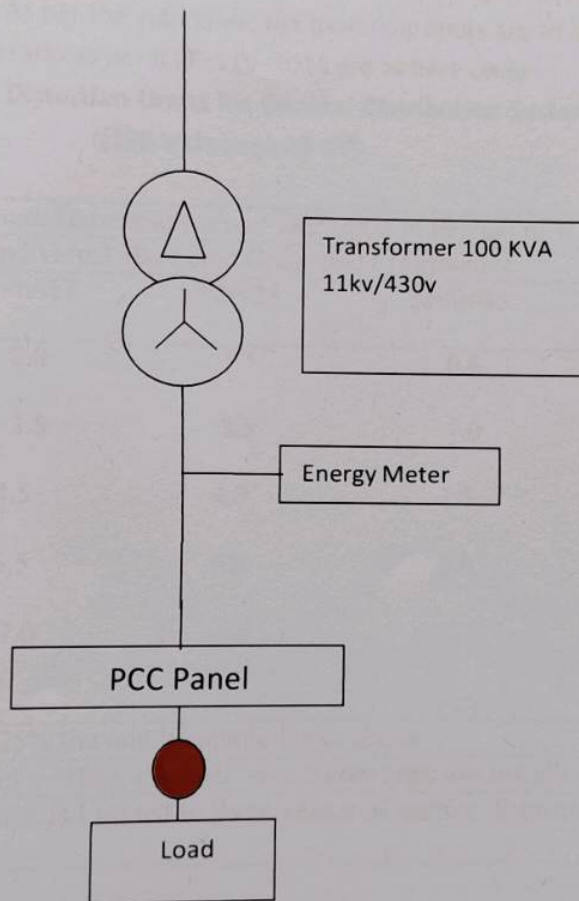


Figure 1

Existing Scenario with the Installation under survey:

Main Transformer details:

Transformer	100 KVA
Voltage on LV side	433 V
Voltage on HV side	11 KV

IEEE-519-1992 Consideration and Value for Plant under survey:

The said standard is applicable at the PCC (Point of Common Coupling). In above mentioned SLD at Survey Point no.1 is the point of coupling. As per the standards; the harmonic limits are to be considered at PCC. Recommended Limits for this ratio as per IEEE-519-2014 are as here under.

**Current Distortion Limits for General Distribution Systems
(120 V through 69 KV)**

Isc/L TDD	Maximum Harmonic Current Distortion in Percent of IL				
	Individual Harmonic Order (Odd Harmonic)				
	<11	11<h<17	17<h<23	23<h<35	35<h
<20*	4.0	2.0	1.5	0.6	0.3
5.0					
20<50	7.0	3.5	2.5	1.0	0.5
8.0					
50<100	10.0	4.5	4.0	1.5	0.7
12.0					
100<1000	12.0	5.5	5.0	2.0	1.0
15.0					
>1000	15.0	7.0	6.0	2.5	1.4
20.0					

Even harmonic are limited to 25% the odd harmonic limits above

Current distortions that result in a offset, e.g. half-wave convertes are not allowed

*All power generation equipment is Limited to these values of current distortion, regardless of actual/sc/L

Where

/sc =maximum short-circuit current at PCC

/L =maximum demand load current (fundamental frequency component) at PCC,

TDD =Total demand distortion (RSS).harmonic current distortion in% of maximum demand load current (15 or 30 min demand).

PCC =Point of common coupling.

Voltage Distortion Limits

Bus Voltage at PCC Voltage	Individual Voltage Distortion (%)	Total Distortion
69 kv and below	3.0	5.0
69,000 kV through 161kv	1.5	2.5
161,001 kV and above	1.0	1.5

Note: High-voltage systems can have up to 2.0% THD where the cause is an HADC terminal that will attenuate by the time it is tapped for a user.

4.1 Survey Measurement Method

Instrument Used:

- a) FLUKE make power analyser :

These instruments were used primarily for following nodal point survey:

By FLUKE 434 SERIES II

PCC no1 ie at main breaker were surveyed for 4 Hrs.

Voltage Connection directly on Bus-Bars

Current Connection: On the secondary of CTs.

Survey Interval: one second.

The readings for Survey Point no.1 were taken with conditions.

Viz:

1. With MSEDCL in ON condition.

Main Installation Survey – Important Abstracts.

4.2 Voltage ,Current & Harmonics values

A) For 400 KVA Transformer::

RMS Voltage Values							
	Phase R-Y	Phase Y-B	Phase R-B	Phase R-N	Phase Y-N	Phase B-N	Ph N-G
Min Value	402.97	406.66	401.41	231.23	234.84	233.14	0.42
Ave Value	403.47	407.15	401.97	231.52	235.13	233.43	0.42
Max Value	404.04	407.73	4012.97	231.84	235.46	233.76	0.42

RMS Current Values				
	Phase R	Phase Y	Phase B	Neutral
Min Value	51.40	26.55	32.23	46.96
Ave Value	51.97	26.91	32.67	47.67
Max Value	52.65	27.36	33.32	48.43

PEAK Current Values				
	Phase R	Phase Y	Phase B	Neutral
Min Value	81.43	45.96	55.04	75.01
Ave Value	82.86	47.09	56.23	76.69
Max Value	85.15	48.80	59.20	78.96

HARMONIC LEVEL IN %						
	Phase R	Phase Y	Phase B	Phase N	As per IEEE in %	As per MSEDCL in %
Voltage	8	7	8	60%	Up to 5%	Up to 5%
Current	22%	62%	60%	35%	Up to 5%	Up to 5%

Frequency	
Max	50.01
Avg	50.01
Min	50.01

Power Factor	
Max	0.57
Avg	0.58
Min	0.59

Observations

1. Due to unbalanced and non linear load condition in each phase, harmonics in neutral is 60% and 35 % in voltage and current respectively.
2. 3rd, 5th, 7th & 9th harmonic is present in the system. This is observed due to SMPS ie computer load & electronic ballasts.
3. Current in **Neutral is 48 amp and 79 amp** to maximum level.
4. Voltage harmonics are under permissible limits of MSEDCL and IEEE norm, while the Current harmonics are above the ideal values and these harmonics were induced through machinery.
5. Spikes are observed, no spike protection is provided to the system.
6. Overall Voltage supplied by grid is good.
7. Power factor is poor, need to improve.

Remedies :

1. For Harmonics of 7th order the APFC panel (automatic power factor control) of 70 KVAR with 7.68% detuned reactors with thyristered switching is to be installed.
2. For harmonics of 3rd, 6th and 9th order the phase balancing is recommended.
3. Install a **Spike Protection Device**, for protection from sudden high current spike which occurs due to high voltage. This is to be installed next to Energy Meter ; also in each control panel.

The Specification for SPD is as follows:

I] For protection against the Lightning surge and Surge through power lines (HT),

A] Combi controller = 1nos. to be connected to transformer LT side.

Technology : MOV for L to N and SG for N to PE, Normal line voltage 230/ 400 v, 50Hz.

Impulse current (10/350 micro sec), 7 KA and 25 KA.

Response time < 25 nano seconds.

Voltage protection level 900 volts & 1200 volts.

II] For protection against internal surges.

B] Surge Controller = 18nos. to be installed at each building.

Technology : MOV for L to N and SG for N to PE, Normal line voltage 230/ 400 v, 50Hz.

Nominal discharge current 8/20 micro sec. = 20 KA & 50 KA.

Voltage protection level = 1300v and 1200 volt.

Response time less than 20 nano sec.

➤ Effect on system

1. Circuit will be free from harmonic current.
2. The voltage regulation will be good, which results in low maintenance and saving in units also.
3. Neutral Current will be minimizing so very negligible amount of current will be there.
4. The improvement in power factor will results in lower consumption of RMS current.

❖ The detailed report is attached.

5.0 Energy Audit Methodology:

5.1 Electrical Distribution System:

Scope of Work:

To study existing electrical distribution system

Measure/ Record the 12 hrs Load distribution

To suggest various energy efficient measures with first order cost benefit analysis.

Methodology:

A. Census :

1) Find out the electrical normal & emergency loading.

Type of tariff

- Rating of installed transformer
- General hygiene as per standard maintenance practices
- Operating hrs data were collected from respective person

B. Indoor Lighting

Scope of work

To study the existing lighting scenario of facility & verify the building data

To find out the performance of lighting fixture

To calculate the ILER (Lux/ watt/ m²) & compare lux with the bench mark /prevailing std in the facility.

To suggest various energy efficient measures with first order cost benefit analysis

A. Censes

Upto 80% of the lighting fixture were inspected for following

No. of light installed & no of light working.

Type of lights, General hygiene as per std maintenance practices

Operating hrs data were collected from respective person.

5.2 Computer:

Scope of work :

To study existing computer at facility and verify the billing data.

To Find out the power drawn.

To compare the power drawn with the bench mark or prevailing standard in the facility.

To identify the causes of deviation in the performance & suggest recommendation for corrective actions.

To suggest various energy efficient measures with the first order cost benefit analysis.

Methodology:

A. Census:

Up to 80% of the computers printers & faxes were inspected for following.
No of computers printers & faxes installed.
General hygiene as per standard maintenance practices.
Operating hour's data were collected from respective persons.

5.3 Diesel Generators (D.G. sets)

The facility is having D.G. set of 250 KVA 1nos.

5.4 Pumps:

Scope of work:

To study existing pumpSing system at facility and verify the billing data.

To carry out analysis.

To Find out the performance of the pumSing system.

To compare the operating efficiency with the bench mark or prevailing standard in the facility.

To identify the causes of deviation in the performance & suggest recommendation for corrective actions.

To suggest various energy efficient measures with the first order cost benefit analysis.

Methodology:

1. Census:
2. All water pumps were audited for following.
3. Total no of pumps installed.

6.0 Present energy scenario:

6.1.1 Overview of the facility energy usage.

MAHATMA GANDHI SHIKSHAN MANDAL contains several departments around 600 persons are working in the facility the load distribution based on units 355 kwh per day..

6.1.2 Electrical Single Line Diagram (SLD)

Electrical SLD is not available for the MAHATMA GANDHI SHIKSHAN MANDAL

6.1.3 Transformer Loading :

For MAHATMA GANDHI SHIKSHAN MANDAL tariff type is High tension tariff (LT IX III B) public sector non continuous three phase commercial having 440 V 3-phase supply.

7.0 Lighting System:

7.1.1 Present Lighting System:

The facility is having Copper choke FTL more as compared to LED fittings. The office lighting remains on during 8am to 8 pm. Following is the measured data lighting system.

7.1.2 Lux level at various locations:

Sr.No.	Location	Lux Level Maximum	Lux Level Minimum	Standard as per ECBC Norm	Remark
1	D pharm				
2	office	135	129	150	OK
3	laboratory	272	365	150	OK
4	chemistry	272	300	150	OK
5	class room II	272	105	150	OK
6	physiology lab	175	104	150	OK
7	reading hall	231	194	150	OK
8	girls room	301	235	150	OK
9	store B	60	50	150	NOT OK
10	store A	566	565	150	OK
11	class room I	165	145	150	OK
12	B pharm				
13	seminar hall	145	139	150	OK
14	dept. office	123	102	150	NOT OK
15	class room I	102	96	150	NOT OK
16	tutorial room	145	102	150	OK
17	exam room	665	323	150	OK
18	principal cabin	110	94	150	NOT OK
19	machine room	65	49	150	NOT OK
20	dispensing lab	95	85	150	NOT OK
21	english language lab	235	124	150	OK
22	pharmaceutical analysis lab	301	250	150	OK
23	chem. lab	202	90	150	NOT OK
24	chem. lab II	89	66	150	NOT OK
25	aphe lab	102	80	150	OK
26	pharmacognosy lab	185	145	150	OK
27	class room VI	151	102	150	OK
28	studio/material museum	210	145	150	OK
29	smart class room	235	185	150	OK
30	pharmaceutical lab	276	265	150	OK
31	computer lab	155	95	150	OK
32	faculty room	235	145	150	OK
33	library	365	232	150	NOT OK
34	girls room	92	32	150	OK
35	pharmacognosy lab	276	265	150	OK
36	pharmaceutics lab- II	285	210	150	OK
37	pharmaceutics lab	215	186	150	OK
38	girls common room II	185	127	150	OK
39	biotech lab	537	506	150	OK
40	girls common room I	407	328		

Sr.No.	Location	Lux Level Maximum	Lux Level Minimum	Standard as per ECBC Norm	Remark
41	pharmacy lab	360	311		
42	pharmalogy lab	210	176	150	OK
43	class room VI	325	132	150	OK
44	class room IV	462	385	150	OK
45	staff room	425	375	150	OK
46	admin office	206	205	150	OK
47	workshop	102	62	150	OK
48	hod dept. of zoology	422	215	150	OK
49	botony lab	210	105	150	OK
50	plant dept.	195	105	150	OK
51	microbiology dept.	85	81	150	OK
52	polytech. electric panel	140	75	150	OK
53	computer centre	120	97	150	OK
54	micro process lab	87	85	150	NOT OK
55	digital lab	70	64	150	NOT OK
56	programming lab	80	54	150	NOT OK
57	computer lab	71	60	150	NOT OK
58	main office	38	23	150	NOT OK
59	principal office	55	41	150	NOT OK
60	seminar hall	148	143	150	OK
61	principal dept. of commerce	65	61	150	NOT OK
62	dept. of maths	282	262	150	OK
63	dept. of chem	76	74	150	NOT OK
64	electronics lab	99	97	150	NOT OK
65	physics lab	94	80	150	NOT OK
66	dept. of computer science	155	107	150	OK
		205	256	150	OK

Following table shows the Lux level at different places.

There are some suggestions to improve the efficiency of light, as seen in above tables some area is having low light density and some is having high or more than required specification.

Sr.No.	Particulars	Quantity	Saving Kwh/annum	Unit Rate (Rs.)	Saving Rs./ Annum	Investment (Rs.)	Payback in Months
Lighting							
1	Replace 28w FTL with electronic choke by 20w LED tube	879	15822	12.13	191920.86	219750	13.74
2	Replace 36w FTL with copper choke by 20w LED tube	51	3213	12.13	38973.69	51000	15.70
3	Replace existing 18w CFL by 10w LED bulb	102	1468	12.13	17806.84	10200	6.87
4	Replace existing 14w CFL by 10w LED bulb	18	130	12.13	1576.90	1800	13.70
5	Replace existing 23w CFL by 10w LED bulb	2	47	12.13	570.11	200	4.21
6	Replace existing 250w Mercury by 100w LED flood light	12	3240	12.13	39301.20	60000	18.32
TOTAL			23920		290149.60	342950	14.18

S.O Earthing values at Pits :

Sr.No.	Location	Resistance in Ohm	Current in mili Amp.	Standard Resistance as per IS 3043 norms	Remark
1	reading room	0.87	0.80	5	OK
2	machine room	5.66	0.00	5	NOT OK
3	dispensing lab	1.53	9.00	5	OK
4	chem lab II	1.45	0.10	5	OK
5	smart class room	2.43	0.00	5	OK
6	computer lab	4.21	6.09	5	OK
7	pharmaceutics lab	5.40	25.30	5	NOT OK
8	polytechnical electrical dept.	0.14	15.10	5	OK
10	micro process lab	6.64	11.20	5	NOT OK
11	digital lab	11.71	2.70	5	NOT OK
12	programming lab	0.00	0.00	5	OK
13	computer lab	0.00	0.00	5	OK
14	dept. of computer engg.	0.00	0.30	5	OK
15	seminar hall	0.00	0.90	5	OK
16	dept. of commerce	1.09	0.00	5	OK
17	electronics lab	0.21	6.40	5	OK
18	physics lab	1.54	0.00	5	OK
19	dept. of computer science	0.51	8.40	5	OK
20	ledies hostel	0.74	2.24	5	OK

Observations:

- The overall earthing seems to be good.
- New earthing is needed wherever it is not OK.
- At few places pour the salty water so that the ohm values, we can monitor.
- As seen the earthing is proper as per IEEE standards at few places.

9.0 Power saving with Good Voltage Regulation:

The voltage regulation is GOOD at the facility; there is no requirement of voltage regulation.

The table below gives approximate quantitative advantage of a voltage stabilizer at various fluctuation levels :

Input Voltage variations	% age reduction in breakdown possible	Approximate power saving possible due to stabilized voltage near rated value
380-420 Volts	No reduction in breakdown	No saving, no stabilizer required
380-440 Volts	Up to 20% reduction	Up to 5%
380-460 Volts	Up to 40% reduction	Up to 7%
380-480 Volts	Up to 60% reduction	Up to 10%

10 Vendors

10.1 Vendor List:

1. Electronic Ballast:

Elmech Electronics
Lake place Building ,
Marol Village Road,
Andheri(E),
Mumbai.

West coast Instruments & Devices
1/1 Sahara Tower Pasi Wada,
Andheri Sahar road,
Mumbai.

Philips India Ltd.
Business group lamps,
P-65, Tarotalla road,
Calcutta-700 088.

Euro light Electricals Ltd.
20 , Rahi Chamber, Sadashiv peth,
LBS marg,
Pune-30.

Crompton Greaves Ltd.
Lighting Business Group,
405, Concorde RC data Road,

Baroda-390 007.

2. Voltage Controller For Lighting:

Tas Powertek Pvt. Ltd.
Ambad Midc, Nasik.

Ph: 7620688805,
Email : tushar@taspowertek.com

Energy Systems
3660, 5th cross , D block, Gayatri nagar ,
Bangaluru-560021.

3. LED Tube Lights :

Ikon Lighting & Energy Solutions
L-129/3, Midc,
Ahmednagar - 414111.
Cell : 922 333 5350.

Philips India
Mahakali Cave Road ,
Chakala, Andheri (E)
Mumbai-93

Crompton Greaves Ltd.
Kanjur (E) ,
Mumbai-42

4. Lamps & Luminaries :

Osaram India Pvt. Ltd.
1/95, Market Road,
Bhai Veer Singh lane,
New Delhi -01.

Philips India Ltd.
Business group lamps,
P-65, Tarotalla road,
Culcutta-700 088.

Wipro Lighting
Tulsi Chmber, Opp. ST Fransis School,
Jalna Road,
Aurangabad-431001

Bajaj Electricals Ltd.
15/17, Sant Savta Marg,
Reay road ,
Mumbai-10.

Ikon Lighting & Energy Solutions
L-129/3, Midc,
Ahmednagar - 922333350

5. High Efficiency Motor:

Crompton Greaves Ltd.
Machine Div. 1, Dr. E. Moses Road,
Warali,
Mumbai-18.

N G E F Ltd.
PB No.3876, byappanahalli,
Bangaluru-560038.

Bharat Bijlee Ltd.
PB no.100, Thane Belapur Road,
Thane-400 601.

Kirloskar Electric Ltd.
Unit No.1 PB no. 5555,
Malleswaram(W)
Bangaluru-560 055.

Siemens Ltd.
Electric Mansion ,
1086, Appasaheb Marg,
Prabha Devi, 19111,
Mumbai-071

6. Star Delta Auto Controller For Motors:

Vijay Energy Product Pvt. Ltd.
SP 75 Ambattur Ind.Estate,
Chennai-058.

Rulac Enginners Pvt.Ltd.
111, Gala Complex, DumSing Road ,
Mulund (W),
Mumbai-080.

7. Heat Resistant Paint:

Ikon Lighting & Energy Solutions
P-58, Near Bank of MaharaSira,
Midc, Ahmednagar - 414 111.
Cell: 93710 43439

8. Servo Controlled Voltage Stabiliser & Solar Plant:

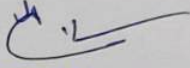
Consul Neowatt Power Systems Pvt.Ltd.
201, 4th Floor, Near Panchami Hotel,
Off Pune- Satara road,
Pune- 411009.
932607878.

9. Compressors:

Datta Enterprises (Atlas Copco dealer)
N-16, Midc,
Ahmednagar - 414 111.
Contact: 0241-2429685.

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




PRINCIPAL
Mahatma Gandhi Shikshan Mandal's
Smt. Sharadchandra surash patil
College of Pharmacy
Chopda Dist. Jalgaon (M.S.)



ISO 9001:2008 Certified & NBA Reaccredited B. Pharm Course
Mahatma Gandhi Shikshan Mandal's

Smt. Sharadchandrika Suresh Patil College of Pharmacy



Chopda-425107, Dist. Jalgaon, (M.S.), India.

Phone / Fax No - +91-2586-222366/223150. E-mail-bpharmchopda@yahoo.com

(Affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Approved by Govt. of Maharashtra and Pharmacy Council of India, New Delhi.)

Dr. Suresh G. Patil
Founder President

Adv. Sandeep S. Patil
President

Dr. G. P. Vadnere
Principal

B} ENERGY AUDIT CERTIFICATE

- ★ Energy Audit
- ★ Power Factor Management
- ★ Harmonics Analysis
- ★ Consul Stabilisers - Sales & Service



An ISO 9001 : 2008 Certified Company

Date: 04/06/2021

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the Mahatma Gandhi Shikshan Mandal Sanchalit, Smt. Sharadchandrika Suresh Patil College Pharmacy, Chopda, has carried out an Energy Audit.

The report is based upon the readings at that particular time and load present at that time.

We do not take any responsibility if anything happens after our survey. However the readings and observation are based on best of our knowledge.

This report neither determines nor implies liability.

Yours Faithfully,

Powercop

Mr. Amit Kulkarni

Mob. No. 9822909699



P 44, Near Vishwas Roadlines, Midc, Ahmednagar, 414111 (M.S.) India. Cell : 93710 43439
E mail : powercop.auditors@gmail.com Visit us at : www.powercopindia.com

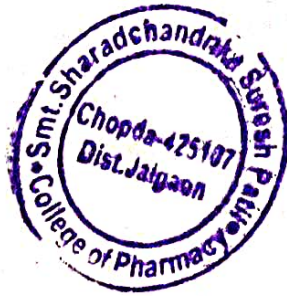
8. Servo Controlled Voltage Stabiliser & Solar Plant:

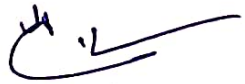
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