Abhinav Education Society's
Institute of Management and Business Administration, Akole
Approved by AICTE, New Delhi, Re... By DTE (Govt. of MH) and Affiliated to Savitribai Phule Pune University ... Dhamangaon Awari Road, Akole
Dist. Ahmednagar M.S. 422601

7.1.3 Quality audits on environment and energy regularly undertaken by the Institution.

The institutional environment and energy initiatives are confirmed through the following.

1. Green audit / Environment audit

2. Energy audit

3. Clean and green campus initiatives

4. Beyond the campus environmental promotion activities

Clarification for

4. Please provide Action taken reports and achievement report as clear and Green campus initiatives.

AES's Institute of Management & Business Education AKOLE

DIRECTOR
AES's Institute of Management & Business Administration, Akole

Abhinav Education Society's

Institute of Management and Business Administration, Akole

Approved by AICTE, New Delhi, Recognised by DTE (Govt. of MH) and Affiliated to Savitribai Phule Pune University.

Pune Dhamangaon Awari Road, Akole

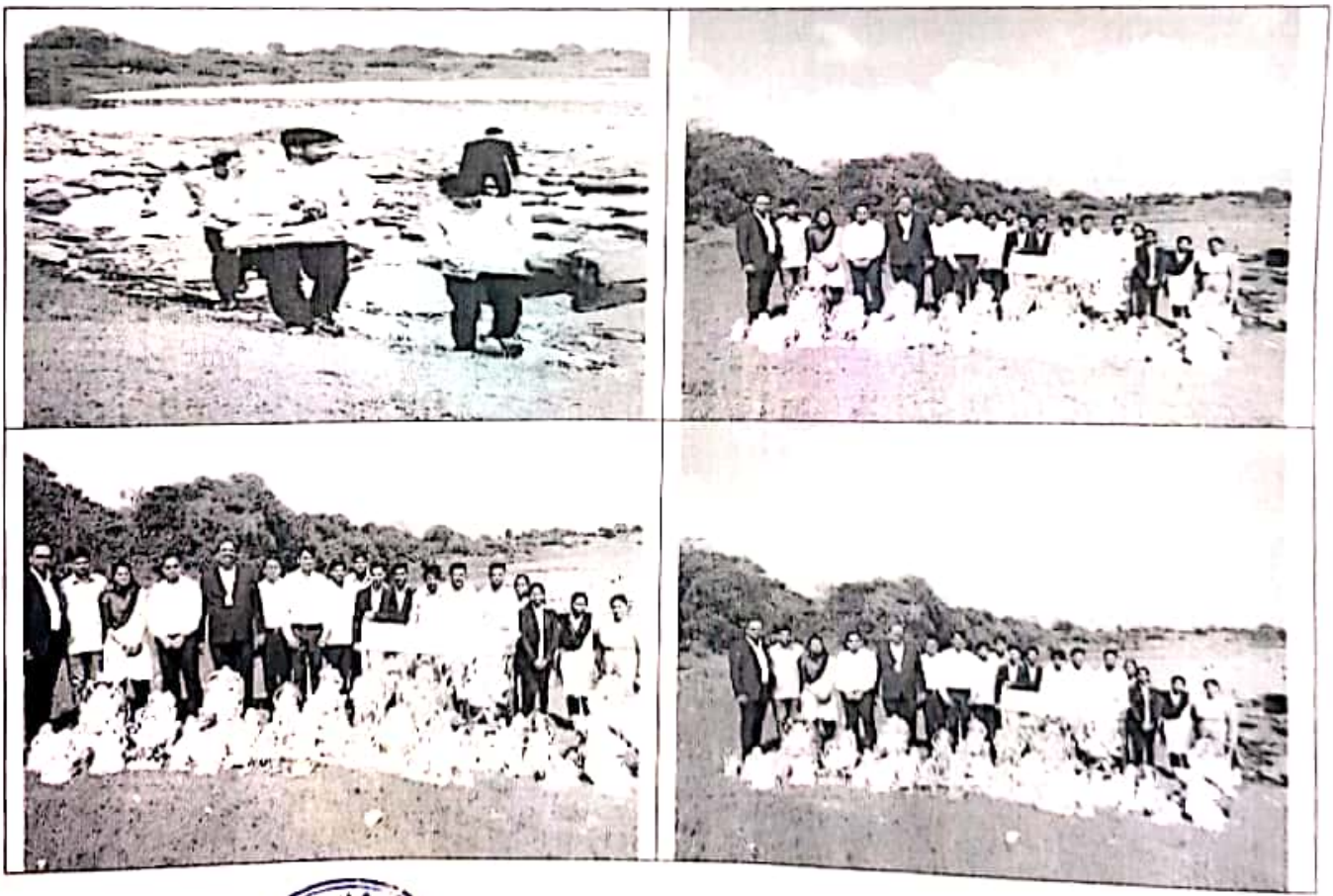
Dist. Ahmednagar M.S. 422601

Programe – Eco-friendly Ganesh Visarjan

Venue- Pravara River

Date- 3rd September 2017

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted eco-frindly ganesh visarjan activity dated on 3rd September 2017 at Pravara River. All the teaching, supporting staff and students participated in this programme.



AES's Institute of Management & Business Administration AKOLE

for DIRECTOR

AES's Institute of Management & Business Administration, Akole

Programe – Tree Plantation – Beyond the campus area

Venue- Outside campus (Near Bhikaji Appa Naikwadi Path-Dhamangao Awari Road)

Date- 15th July 2017

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Tree Plantation activity dated on 15th July 2017 at beyond the campus area. All the teaching, supporting staff and students participated in this programme.

AKOLE

DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Pravara Swachata Abhiyan

Venue- Pravara River – Near Smashan Bhumi Akole

Date- 16th Feb 2018

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Pravara Swachata Abhiyan dated on 16th February 2018 at Pravara River Near Smashan Bhumi Akole. All the teaching, supporting staff and students participated in this programme.

AKOLE

For DIRECTOR
AES's Institute of Management &

Programe – Naikwadi Path Swachta Abhiyan

Venue- Outside campus (Near Bhikaji Appa Naikwadi Path-Dhamangao Awari Road)

Date- 29 January 2018

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted swachata abhiyan activity dated on 129th January 2018 at beyond the campus area Outside campus (Near Bhikaji Appa Naikwadi Path-Dhamangao Awari Road). All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Pravara Swachata Abhiyan

Venue- Pravara River – Near Agasti Madir Bridge

Date- 1st December 2018

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Pravara Swachata Abhiyan dated on 1st December 2018 at Pravara River Near Agasti Mandir Bridge. All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

for DIRECTOR
AES's Institute of Management &
Busir ole

Programe – Akole Bajar Tal Swachata Abhiyab

Venue- Akole Bajar Tal, Akole

Date- 3rd January 2019

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Akole Bajar Tal Swachata Abhiyan dated on 3rd January 2019 at Akole Bajar Tal Akole. All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

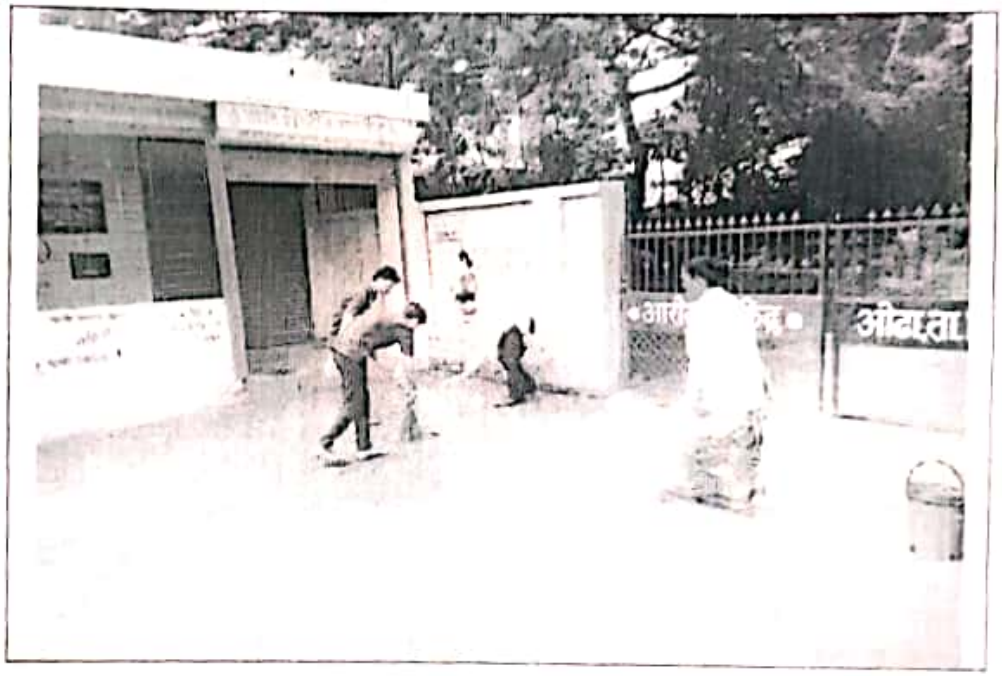
for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Prathamic School Swachata Abhiyab

Venue- Odha Village Tal. Akole

Date- 2nd February 2019

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Prathamic School Swachata Abhiyan dated on 2nd February 2019 at Odha Village Tal Akole. All the teaching, supporting staff and students participated in this programme..



AES's Institute of Management & Business Administration AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Siddheshwar Mandir Swachata

Venue- Kamanwes Akole

Date- 11th February 2019

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Siddheshwar Mandir Swachata dated on 11th February 2019 at Kamanwes Siddheshwar Mandir Tal Akole. All the teaching, supporting staff and students participated in this programme..

AES's Institute of Management & Business Administration AKOLE

for DIRECTOR

AES's Institute of Management & Business Administration, Akole

Programe – Eco-friendly Ganesh Visarjan

Venue- Pravara River

Date- 22nd September 2019

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted eco-frindly ganesh visarjan activity dated on 22nd September 2019 at Pravara River. All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Tree Plantation – Beyond the campus area

Venue- Outside campus (Near Agasti Sugar Factory)

Date- 13rd July 2019

Abhinav Education Society's Institute of Management and Business Administration, Akole – Activity Cell has been conducted Tree Plantation activity dated on 13rd July 2019 at beyond the campus area. All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Research AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – Swachata Abhiyan – Beyond the campus area

Venue- Outside campus (Nawalewadi Village)

Date- 21st February 2022

Abhinav Shikshan Sanstha's Institute of Management and Business Administration, Akole has organized Swach Bharat Abhiyan in Nawalewadi Village on 21st February 2022. All the students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

Programe – AWARENESS PROGRAM ON DIGITAL INDIA AND HEALTH &HYGIENE

Venue- Outside campus (Akole City Area)

Date- 5th March 2022

Abhinav Shikshan Sanstha's Institute of Management and Business Administration, Akole – Activity Cell has organized AWARENESS PROGRAM ON DIGITAL INDIA AND HEALTH & HYGIENE in our college on 5th March 2022, Tuesday. All the teaching, supporting staff and students participated in this programme.

AES's Institute of Management & Business Administration AKOLE

DIRECTOR
AES's Institute of Management & Business Administration Akole

Programe – Tree Planatation

Venue- Inside Campus

Date- 25th June 2022

"Just living is not enough, one must have sunshine, freedom, and a little flower." – Hans Christian Andersen.

Nature is God's most beautiful creation. It felicitates the growth, development and nourishment of all its creatures. Under the Green Campus Policy initiative, a "Tree Plantation Drive – Abhinav IMBA Akole" was organized in Abhinav Institute of management and business administration akole, 25th June 2022.

AES's Institute of Management & Business AKOLE

for DIRECTOR
AES's Institute of Management &
Business Administration, Akole

PowerTech Energy Solutions
Conserve to Consume

Energy & Green Audit Report
of
Abhinav Education Society's
Institute of Management & Business Administration, Akole
(For the Academic Year of 2021-22)

Submitted By

PowerTech Energy Solutions

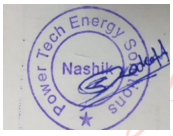
Reg. Office: - 6, Vaikuntha Apt, Hire Nagar, Nashik-Pune Road, Nashik.422 011
Mumbai Office: Shop No.39, Gokul Nagri 1, Thakur Complex, 90 Feet Road, Kandivali (E), Mumbai. 400101
Pune Office: - 3rd Floor, Phuge Prima ,Bhosari Pimpri Chinchwad,411039 Mob. +91 9226936163,
Email: info@ptesolutions.in, www.ptesolutions.co.in

ENERGY & GREEN AUDIT COMPLETION CERTIFICATE

This is to certify that following utility has carried out Energy & Green Audit for the academic year of 2021-22 as per guidelines laid down in The Energy Conservation Act, 2001 in the month of March 2023

Name of the Installation	Abhinav Education Society's Institute Of Management & Business Administration, Akole
Details of Facilities Audited	Main college building including laboratories, libraries, Classroom etc.
Date of Energy and Green Audit	20 March 2023
Audit for Academic Year	2021-22
Name of Certified Energy Auditor	Mr. Swapnil Gaikwad
Certification No.	EA 20121
Validity of the Certificate	19 March 2024

Authorised Signatory



Digitally signed by Atul Sharad Kakad
Date: 2023.04.29 21:48:54 +05'30'

Atul S Kakad

PowerTech Energy Solutions

1 Executive Summary – Energy Audit

ECM	Area	Observations	Proposed Action	Estimated Annual Energy Saving	Estimated Annual CO2 Emission Reduction	Estimated Annual Monetary Savings	Estimated Investment	Payback Period
				kWh	**Tones**	**Rs. Lakh**	**Rs. Lakh**	**Months**
ECM-1	Power Factor	Average power factor is 0.960	Power factor can be improved 0.960 to 0.999	9693	0.0	0.10	0.14	17
ECM-2	Ceiling Fans	There are 45 fans used in Institute.	Replace existing 75-watt conventional ceiling fans with 40-watt energy efficient fans	4007	3.2	0.32	1.575	59
SUM				**13700**	**3.2**	**0.42**	**2**	**76**
Annual Energy Consumption of the Institute (kWh)				**39542**				
% Saving on Energy Usage				**34.6%**				
Annual Energy Bill of the Institute (Rs. In Lakhs)				**5.0**				
% Savings on Energy Bill				**8.3%**				

2 Executive Summary – Green Audit

Sr.No	Area	Observations	Remark
1	Tree Plantation and Awareness about Energy Conservation	College has carried out tree plantation activity. Several types of trees have been planted by students and staffs	Good initiative taken by college toward green campus
2	Use of renewable energy – Solar PV system for power generation	Solar PV system of 9 kW has been installed by college to generate the electricity from solar energy. It helps to reduce 90 tons of CO_2 emission annually	Good initiative taken by college towards use of renewable energy
3	Vermicomposting plant.	College has taken initiative to compost the daily solid waste by means of vermicomposting plant. College is using the compost in the campus garden area and distributing it to nearby farmers, as this promotes sustainability and helps to reduce waste.	This is good imitative by college and commitment towards to improve soil quality and support healthy plant growth.

Table Contents

3 Acknowledgement

PowerTech Energy Solutions extends gratitude Abhinav Education Society's Institute of Management & Business Administration, Akole for extending us the opportunity to conduct the Energy & Green Audit.

We are thankful to the professors & supporting staff of the college for their transparency & consistent support in sharing relevant information and for providing data about policies and projects along with their other valuable information. This report would have not been possible without their support.

The study team would like to acknowledge the following distinguished personnel's Abhinav Education Society's Institute of Management & Business Administration, Akole in person for the diligent involvement and cooperation.

Dr. Sangeeta Birjepatil	Director
Dr. Anil Bapusaheb Bendre	Assistant Professor

4 About College

Institute of Management and Business Administration, Akole has been in existence since 2009. The institute offers 2 years fulltime MBA program. Formerly Affiliated to Savitribai Phule Pune University (2009-2022) approved by AICTE, New Delhi. The institute is located in a rural area but it has an excellent infrastructure, fully equipped library, modern computer laboratories, air-conditioned conference rooms, classrooms with latest audio-visual aids, cafeteria and other amenities.

The institute is headed by Dr. Sangeeta Birjepatil who is a Director at Institute of Management and Business Administration, Akole. She is a renowned personality in SPPU. The institute also has senior and experienced faculty members and innovative teaching methodologies and strategies guaranteed to unleash the potential of the students and to produce efficient and effective managers and professionals.

The MBA program prepares a student for a career in diverse sectors as an employer or employee. The core Management subjects along with the functional specializations, serves as the spoke of this wheel of management education. The Savitribai Phule Pune University is proactive in designing a syllabus & updating it, as per the recent trend & Industry needs. The program facilitates learning in theory and practice of different functional areas of management.

4.1 Mission

- The mission of the Sanstha is to provide quality and value-based education to the talented youths in order to shape their dreams and aspirations of becoming professional graduates

- This will not only help the students of the region but will also enhance the economic and cultural growth of the society in the region.

4.2 Vision

We are dedicated to secure & deliver knowledge through teaching and research to seek continuous improvement in the quality of education to remain globally competitive.

5 Energy Audit

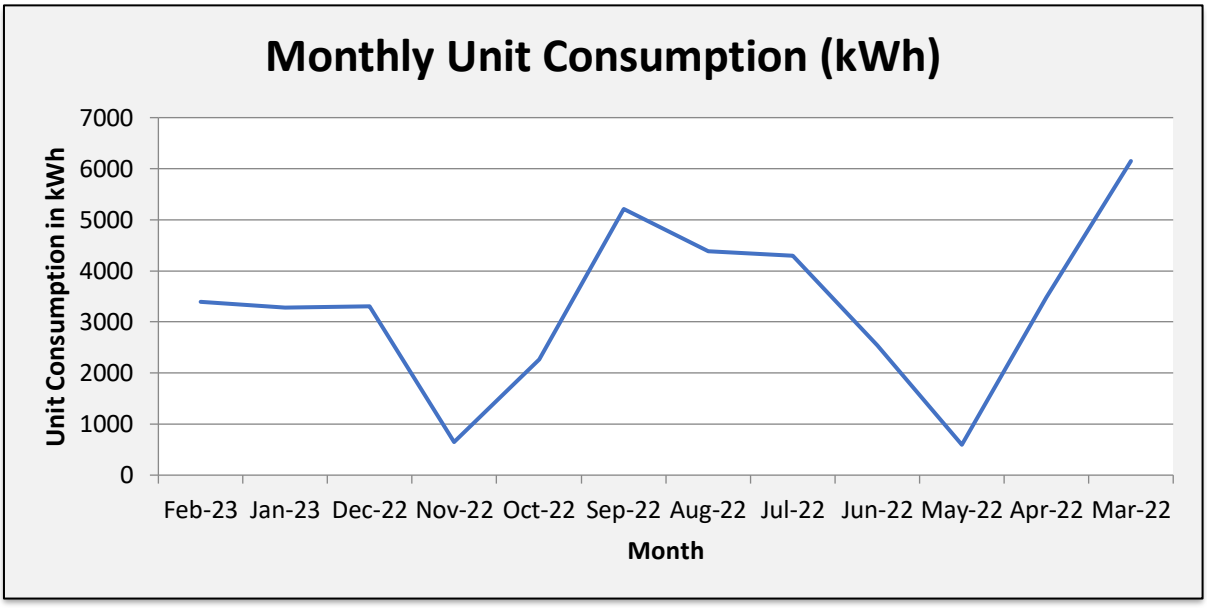
An energy audit is an inspection, survey and analysis of energy flows, for energy conservation in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s). In commercial and industrial real estate, an energy audit is the first step in identifying opportunities to reduce energy expense and carbon footprints.

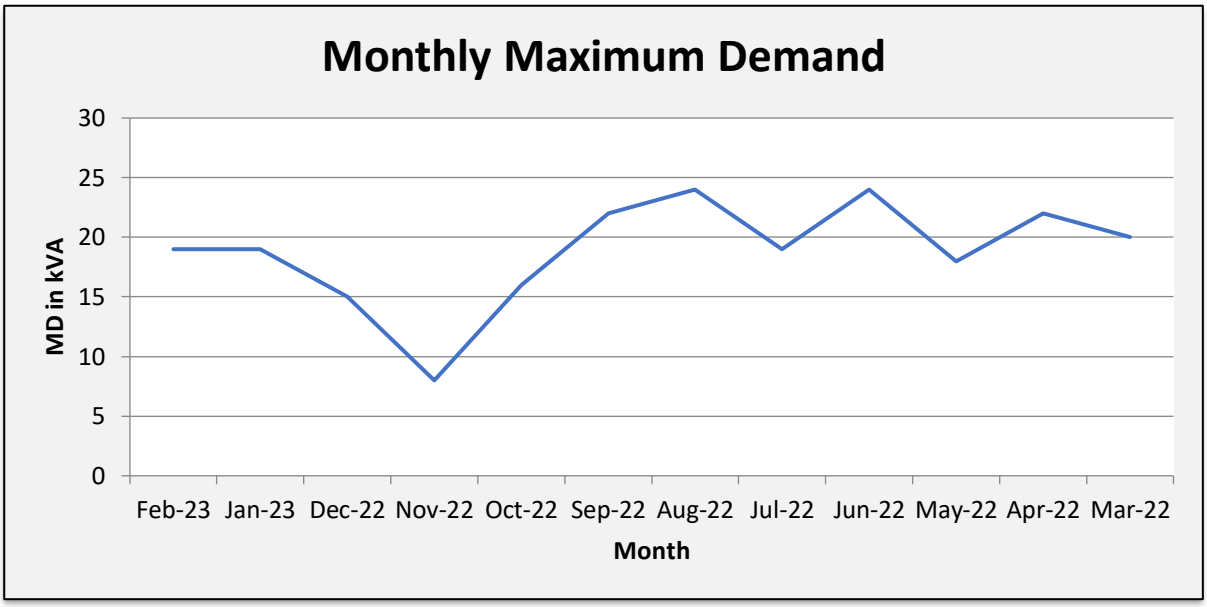
5.1 Electricity Bill Analysis

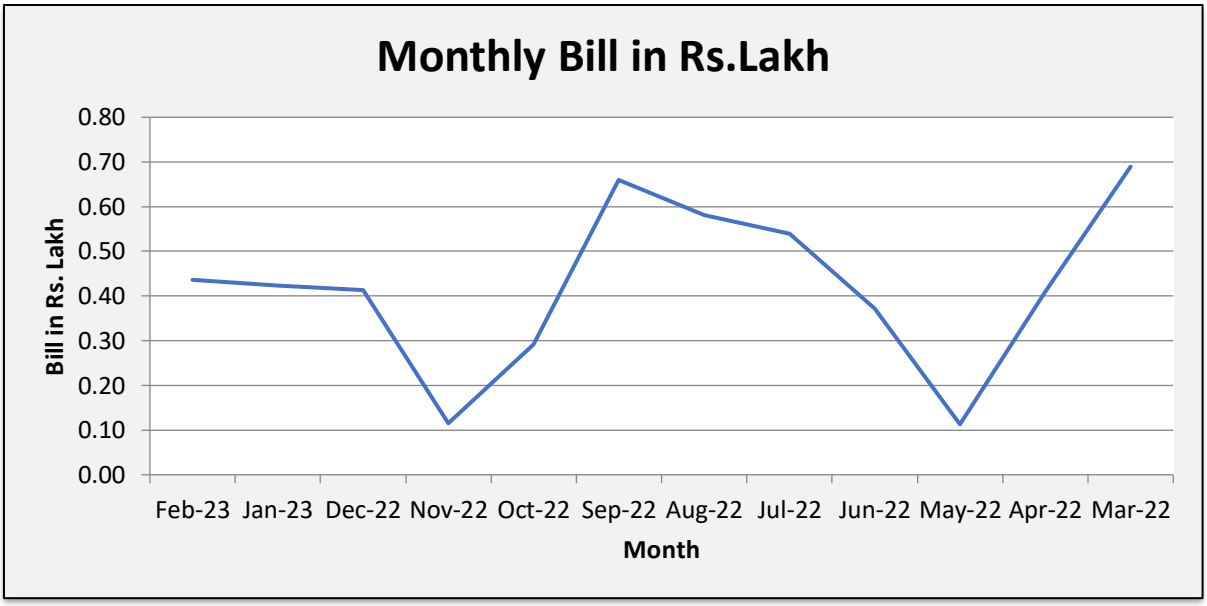
At present, one electricity meter is there for all campus. Bill analysis for the last 12 months below (Consumer number – 142680037701)

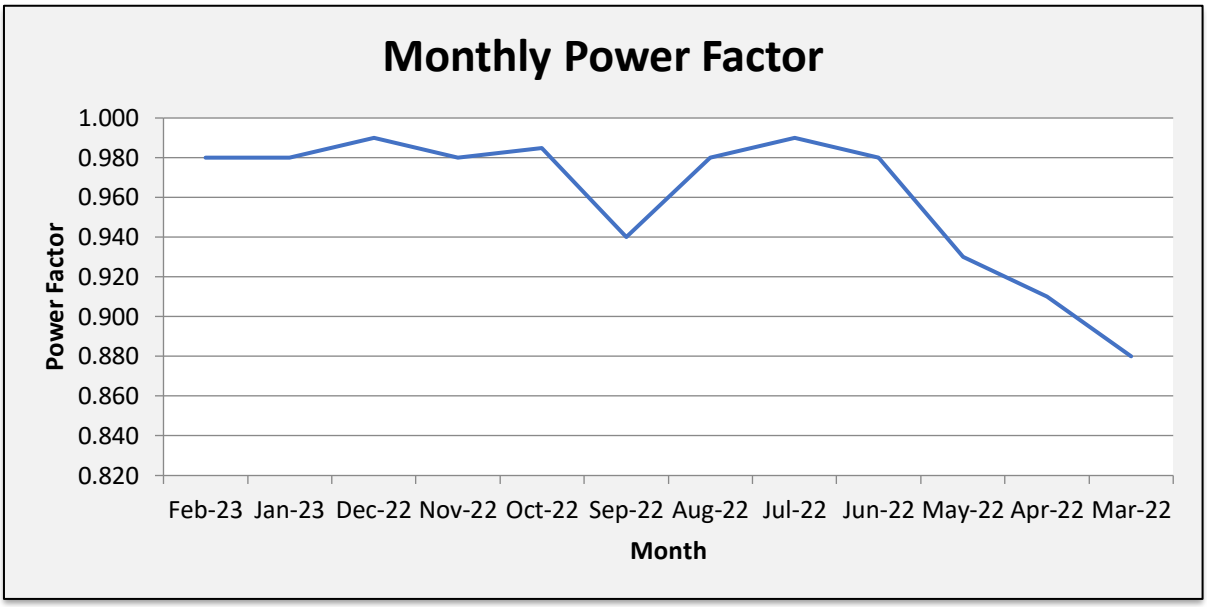
Consumer Name	**The Secretary, Abhinav Shikshan Sanstha, Akole**
Consumer Number	**142680037701**
Sanctioned Load (KW)	**22.5**
Contract Demand (KVA)	**22**
Connected Load (KW)	**22.5**
Tariff	**88 LT-VII B I**

Below graphs shows the monthly energy consumption,Maximum Demand,Bill amount ,Power factor etc.




Monthly Maximum Demand
MD in kVA
30
25
20
15
10
5
0
Feb-23 Jan-23 Dec-22 Nov-22 Oct-22 Sep-22 Aug-22 Jul-22 Jun-22 May-22 Apr-22 Mar-22
Month


Monthly Bill in Rs.Lakh
Bill in Rs. Lakh
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Feb-23 Jan-23 Dec-22 Nov-22 Oct-22 Sep-22 Aug-22 Jul-22 Jun-22 May-22 Apr-22 Mar-22
Month


Monthly Power Factor
Power Factor
1.000
0.980
0.960
0.940
0.920
0.900
0.880
0.860
0.840
0.820
Feb-23
Jan-23
Dec-22
Nov-22
Oct-22
Sep-22
Aug-22
Jul-22
Jun-22
May-22
Apr-22
Mar-22
Month

Month	Maximum Demand	Billed Demand	Unit Consumption	Power Factor	Demand Charge	Wheeling Charges	Energy Charges	P.F. Incentive	Incentive	Expected PF Incentive	Saving due to improving power factor	Total Current Bill	Avg. Unit Rate
	kVA	kVA	kWh		Rs	Rs	Rs	Rs	%	Rs	Rs	Rs	Rs/kWh
Feb-23	19	12	3393	0.980	4608	4580.55	24531.39	-563.48	-1.73%	1,180	617	43623.23	10.21
Jan-23	19	12	3285	0.980	4608	4434.75	23750.55	-546.69	-1.73%	1,148	601	42321.8	10.20
Dec-22	15	10	3300	0.990	3840	4455	23859	-896	-2.88%	1,125	229	41300.12	10.17
Nov-22	8	9	653	0.980	3456	881.55	4721.19	-148.58	-1.66%	317	168	11458.98	11.03
Oct-22	16	10	2262	0.985	3840	3053.7	16354.26	-633.98	-2.87%	814	180	29189.92	10.04
Sep-22	22	14	5207	0.940	5376	7029.45	37646.61	0	0.00%	1,752	1,752	66011.07	10.19
Aug-22	24	16	4382	0.980	6144	5915.7	31681.86	-732.62	-1.68%	1,571	839	58048.67	10.30
Jul-22	19	12	4298	0.990	4608	5802.3	31074.54	-1170.49	-2.88%	1,452	281	53913.82	10.29
Jun-22	24	16	2542	0.980	6144	3431.7	18378.66	-464.43	-1.63%	1,019	554	37245.09	10.51
May-22	18	12	595	0.930	4608	803.25	4301.85	0	0.00%	340	340	11291.36	11.03
Apr-22	22	14	3475	0.910	5376	4691.25	25124.25	0	0.00%	1,232	1,232	40941.53	10.03
Mar-22	20	13	6150	0.880	4849	8487	44772	866.02	1.53%	2,034	2,900	68945.39	10.08
Min	**8**	**9**	**595**	**0.880**	**3456**	**803**	**4302**	**-1170**		**317**	**168**	**11291**	**10**
Avg	**19**	**13**	**3295**	**0.960**	**4788**	**4464**	**23850**	**-358**		**1165**	**808**	**42024**	**10**
Max	**24**	**16**	**6150**	**0.990**	**6144**	**8487**	**44772**	**866**		**2034**	**2900**	**68945**	**11**
Total			**39542**		**57457**	**53566**	**286196**	**-4290**		**13983**	**9693**	**504291**	

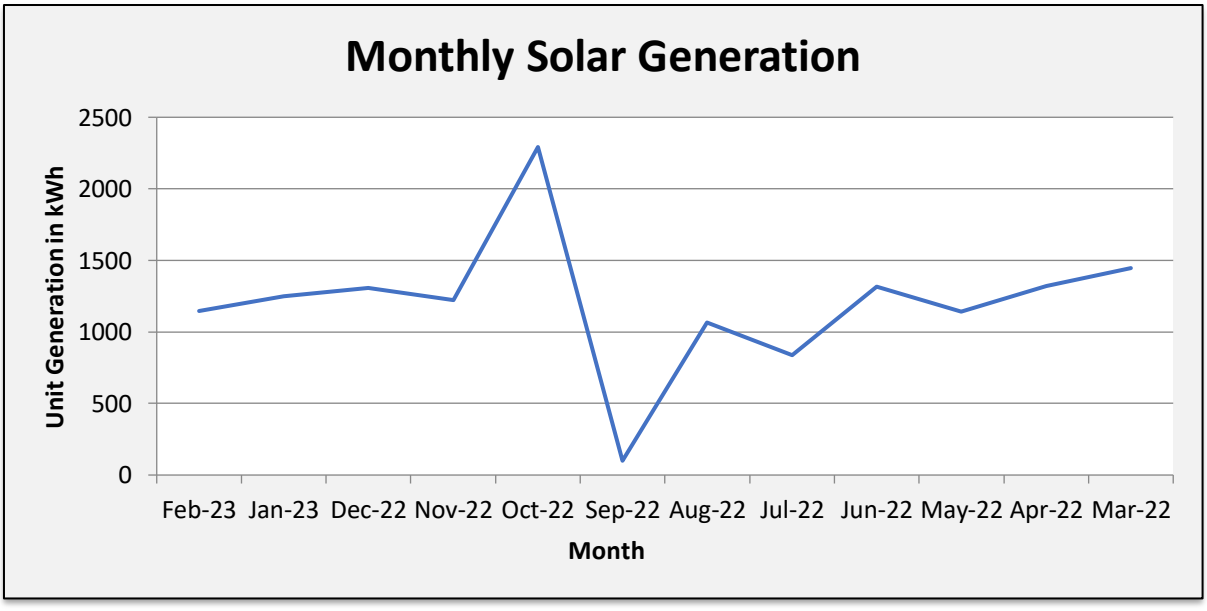
5.2 Observations & Remark

Sr.No.	Parameter	Observation	Remark
1	Contract Demand (KVA)	Contract demand of the plant is 22kVA	No action required
2	Sanctioned Load	Sanctioned Load of the plant is 22.5kW	No action required
3	Connected Load	Connected Load of the plant is 22.5 kW	No action required
4	Maximum Demand	Minimum demand recorded is 8 kVA in the month of Nov-22	No action required
		Avg. demand recorded is 19 kVA	Avg. MD is less than contract demand. No action required
		Max. demand recorded is 24 kVA in the month of Aug-22 & June-22	Max. MD is more than contract demand. Action required to increase the contract demand
5	Billed demand	Avg. billed demand recorded is 13 kVA	No action required
6	Unit consumption	Minimum unit consumption recorded is 595 kWh in the month of May-22	No action required
		Avg. unit consumption recorded is 3295 kWh	No action required
		Maximum unit consumption recorded is 6150 kWh in the month of March-22	No action required
7	Power factor	Avg. power factor recorded is 0.960	Power factor can be improved 0.960 to 0.999
8	Total bill	Avg. monthly electricity bill is 0.69 Rs. Lakh	No action required
		Total annual electricity bill is 4.18 Rs. Lakh	No action required

5.3 Generation from solar power plant.

Month	Total Solar Generation	TOD Solar Export	Units Consumption from Solar System	Solar % Use
	kWh	kWh	kWh	
Feb-23	1145	97	3490	51%
Jan-23	1247	182	3467	51%
Dec-22	1309	163	3463	51%
Nov-22	1222	496	1149	64%
Oct-22	2292	586	2848	56%
Sep-22	100	89	5296	50%
Aug-22	1065	147	4528	51%
Jul-22	836	101	4397	51%
Jun-22	1317	201	2743	52%
May-22	1143	500	1096	65%
Apr-22	1322	219	3694	52%
Mar-22	1444	87	6237	50%
Min	**100**	**87**	**1096**	**50%**
Avg	**1204**	**239**	**3534**	**54%**
Max	**2292**	**586**	**6237**	**65%**
Total	**12050**	**2589**	**35451**	

Below graphs shows the monthly energy consumption from solar power plant.



5.4 Connected Load

Name of the Space	Type of Light	Total Qty	Used Qty	Existing Wattage (W)	Load in Kw	Usage hours/ day	Daily kWh	Mthly kWh
Class Room-1	LED Tube	1	2	20	0.04	8.00	0.32	8
Class Room-2	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-1	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-2	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-3	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-4	LED Tube	1	4	20	0.08	8.00	0.64	17
Tutorial Room-5	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-6	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-7	LED Tube	1	2	20	0.04	8.00	0.32	8
Tutorial Room-8	LED Tube	1	4	20	0.08	8.00	0.64	17
Tutorial Room-9	LED Tube	1	4	20	0.08	8.00	0.64	17
Staff Room	LED Tube	1	2	20	0.04	8.00	0.32	8
Seminar Hall	LED Tube	1	8	20	0.16	8.00	1.28	34
Library	LED Tube	1	6	20	0.12	8.00	0.96	25
V. C Hall	LED Tube	1	22	20	0.44	8.00	3.52	93
Directors Cabin	LED Tube	1	3	20	0.06	8.00	0.48	13
Computer Lab	LED Tube	1	4	20	0.08	8.00	0.64	17
Class Room	Printer	3	3	300	0.90	1.00	0.90	24
Class Room	Computer	27	27	60	1.62	8.00	13.0	343
Class Room	Xerox	3	3	800	2.40	1.00	2.40	64
Class Room	Projector	4	4	250	1.00	8.00	8.00	212
Class Room-1	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Class Room-2	Ceiling fan	3	3	75	0.23	8.00	1.80	48
Tutorial Room-1	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-2	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-3	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-4	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-5	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-6	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-7	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-8	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Tutorial Room-9	Ceiling fan	1	1	75	0.08	8.00	0.60	16
Staff Room	Ceiling fan	1	1	75	0.08	8.00	0.60	16
Seminar Hall	Ceiling fan	8	8	75	0.60	8.00	4.80	127
Library	Ceiling fan	4	4	75	0.30	8.00	2.40	64
V. C Hall	Ceiling fan	4	4	75	0.30	8.00	2.40	64
Directors Cabin	Ceiling fan	2	2	75	0.15	8.00	1.20	32
Computer Lab	Ceiling fan	4	4	75	0.30	8.00	2.40	64
Total					**11**		**63**	**1668**

5.5 Energy Saving Measure 2 – Replacement of conventional ceiling fans with energy efficient ceiling fans

It has been observed that conventional ceilings fans are used at different areas in college. It is recommended to replace existing 75W ceiling fans with 40W energy efficient fans. Below table shows the estimated energy and monetary saving along with payback period

Building Location	Fan Type	Qty	Wattage	kW Load	Hours of Usage	No. of Days in Month	Hrs/Month	Monthly Consumption (kWh)	New Wattage	New kW	New Monthly kWh	Energy Saving in kWh	Monetary saving in Rs	Investment in Rs	Payback period in months
Class Room-1	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Class Room-2	Ceiling fan	3	75	0.23	8	26.5	212	47.7	40	0.12	25.4	22.3	178	10500	59
Tutorial Room-1	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-2	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-3	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-4	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-5	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-6	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-7	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-8	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Tutorial Room-9	Ceiling fan	1	75	0.08	8	26.5	212	15.9	40	0.04	8.5	7.4	59	3500	59
Staff Room	Ceiling fan	1	75	0.08	8	26.5	212	15.9	40	0.04	8.5	7.4	59	3500	59
Seminar Hall	Ceiling fan	8	75	0.60	8	26.5	212	127.2	40	0.32	67.8	59.4	475	28000	59
Library	Ceiling fan	4	75	0.30	8	26.5	212	63.6	40	0.16	33.9	29.7	237	14000	59

Building Location	Fan Type	Qty	Wattage	kW Load	Hours of Usage	No. of Days in Month	Hrs/Month	Monthly Consumption (kWh)	New Wattage	New kW	New Monthly kWh	Energy Saving in kWh	Monetary saving in Rs	Investment in Rs	Payback period in months
V .C Hall	Ceiling fan	4	75	0.30	8	26.5	212	63.6	40	0.16	33.9	29.7	237	14000	59
Directors Cabin	Ceiling fan	2	75	0.15	8	26.5	212	31.8	40	0.08	17.0	14.8	119	7000	59
Computer Lab	Ceiling fan	4	75	0.30	8	26.5	212	63.6	40	0.16	33.9	29.7	237	14000	59
	Total	**45**		**3**				**716**	**680**	**2**	**382**	**334**	**2671**	**1,57,500**	**59**

5.6 Observation & Remark

Sr.No	Area	Observation	Remark
1	Ceiling Fans	At present, conventional ceiling fans of 75 W are installed in Class Room, Tutorial Room, and Staff Room. There are total 45 no. of ceilings fans installed Total ceiling fan load is 3.375 kW	New energy efficient fans are available in the market which deliver same air volume at less power consumption It is recommended to replace existing 75 W ceiling fans with new energy efficient 40W BLDC fan Estimated new load of fan is 1.8 kW Estimated annual energy saving is 4007 units Estimated annual carbon emission reduction is 3.2 Tones Estimated annual monetary saving is Rs.0.3205 Lakh Estimated investment is Rs.1.575 Lakh Payback period is 59 months

Fan Recommendation 1

Replace existing 75-watt conventional ceiling fans with 40-watt energy efficient fans

Parameter	Unit	Value
Present fan type		Conventional ceiling fan
Present wattage of ceiling fans	watt	75
Total no.of fans installed	Nos.	45
Present load of ceiling fans	kW	3
Present monthly energy consumption of ceiling fans	kWh	715.5
Recommended fan type		Energy Efficient BLDC fan
New Estimated wattage of fan	watt	40
Estimated load of ceiling fan	kW	1.8
Power saving	kW	1.575
% Savings	%	47%
New Estimated monthly energy consumption	kWh	382
Estimated annual energy savings	kWh	4007
Estimated annual carbon emission reduction	Tons	3.2
Estimated annual monetary savings	Rs	32054.4
Estimated investment for 1 fan	Rs	3,500
Estimated total investment	Rs	1,57,500
Payback period	Months	59

5.7 Performance Assessment of Lighting load

Building - Location	Light Type	Light/Lumen	Qty	Usage factor	Used Qty	Wattage	Lighting Load in kW	Hours of usage	No of Days in month	Hrs/M	Monthly consumption(kWh)
MBA Building -Class Room-1	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Class Room-2	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-1	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-2	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-3	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-4	LED Tube	LED Tube-1X20W	4	1	4	20	0.08	8.00	26.5	212	17
MBA Building -Tutorial Room-5	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-6	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-7	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Tutorial Room-8	LED Tube	LED Tube-1X20W	4	1	4	20	0.08	8.00	26.5	212	17
MBA Building -Tutorial Room-9	LED Tube	LED Tube-1X20W	4	1	4	20	0.08	8.00	26.5	212	17
MBA Building -Staff Room	LED Tube	LED Tube-1X20W	2	1	2	20	0.04	8.00	26.5	212	8
MBA Building -Seminar Hall	LED Tube	LED Tube-1X20W	8	1	8	20	0.16	8.00	26.5	212	34
MBA Building -Library	LED Tube	LED Tube-1X20W	6	1	6	20	0.12	8.00	26.5	212	25
MBA Building -Video Conference Hall	LED Tube	LED Tube-1X20W	22	1	22	20	0.44	8.00	26.5	212	93
MBA Building -Directors Cabin	LED Tube	LED Tube-1X20W	3	1	3	20	0.06	8.00	26.5	212	13
MBA Building -Computer Lab	LED Tube	LED Tube-1X20W	4	1	4	20	0.08	8.00	26.5	212	17
Total			**73**		**73**		**1.5**				**310**

Requirements of NAAC

5.8 Alternative Energy Initiative

Percentage of power requirement met by renewable energy sources
= (Power requirement met by renewable energy sources / Total power requirement) X 100

= (42408/81950) X 100

= 51.75%

Reference data is shown below

Month	Units Consumption from Solar System	Total Unit Consumption	Solar % Use
	kWh	**kWh**	
Feb-23	3490	6883	51%
Jan-23	3467	6752	51%
Dec-22	3463	6763	51%
Nov-22	1149	1802	64%
Oct-22	2848	5110	56%
Sep-22	5296	10503	50%
Aug-22	4528	8910	51%
Jul-22	4397	8695	51%
Jun-22	2743	5285	52%
May-22	1096	1691	65%
Apr-22	3694	7169	52%
Mar-22	6237	12387	50%
Min	**1096**	**1691**	**50%**
Avg	**3534**	**6829**	**54%**
Max	**6237**	**12387**	**65%**
Total	**42408**	**81950**	

5.9 Percentage of lighting power requirement met through LED bulbs

= (Lighting power requirement met through LED bulbs / Total lighting power requirement) X 100

= (1.5/1.5)

= 100%

6 Green Audit

Green audit was initiated with the beginning of 1970s with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. It exposes the authenticity of the proclamations made by multinational companies, armies and national governments with the concern of health issues as the consequences of environmental pollution. It is the duty of organizations to carry out the Green Audits of their ongoing processes for various reasons such as; to make sure whether they are performing in accordance with relevant rules and regulations, to improve the procedures and ability of materials, to analyze the potential duties and to determine a way which can lower the cost and add to the revenue. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit. Some of the incidents like Bhopal Gas Tragedy (Bhopal; 1984), Chernobyl Catastrophe (Ukraine; 1986) and Exxon-Valdez Oil Spill (Alaska; 1989) have cautioned the industries that setting corporate strategies for environmental security elements have no meaning until they are implemented.

Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade a, Grade B or Grade C according to the scores assigned at the time of accreditation.

The intention of organizing Green Audit is to upgrade the environment condition in and around the institutes, colleges, companies and other organizations. It is carried out with the aid of performing tasks like waste management, energy saving and others to turn into a better environmentally friendly institute.

6.1 Goals of Green Audit

- The objective of carrying out Green Audit is securing the environment and cut down the threats posed to human health.
- To make sure that rules and regulations are taken care of
- To avoid the interruptions in environment that are more difficult to handle and their correction requires high cost.
- To suggest the best protocols for adding to sustainable development

6.2 Benefits of Green Audit

- It would help to shield the environment
- Recognize the cost saving methods through waste minimizing and managing
- Point out the prevailing and forthcoming complications
- Authenticate conformity with the implemented laws
- Empower the organizations to frame a better environmental performance
- It portrays a good image of a company which helps building better relationships with the group of stakeholders
- Enhance the alertness for environmental guidelines and duties

7 Initiatives by College towards Sustainable Environment

7.1 Tree Plantation

Tree-planting is the process of transplanting tree seedlings, generally for forestry, land reclamation, or landscaping purpose. It differs from the transplantation of larger trees in arboriculture, and from the lower cost but slower and less reliable distribution of tree seeds.

7.2 Use of Solar PV System for Power Generation

The college has taken an eco-friendly initiative by installing a 9-kW solar PV (photovoltaic) plant on its premises. This plant harnesses solar energy from the sun and converts it into usable electricity that can be utilized by the college.

The solar panels of the plant are mounted on the rooftop of the building in a manner that maximizes their exposure to sunlight. The panels are connected to an inverter that converts the direct current (DC) electricity produced by the panels into alternating current (AC) electricity, which can be used to power the college's electrical appliances and equipment.

The 9-kW solar PV plant generates a significant amount of electricity that helps to reduce the college's reliance on traditional sources of electricity, such as coal and natural gas. This, in turn, helps to reduce carbon emissions and promote sustainability.

Overall, the installation of the 9-kW solar PV plant is a positive step towards creating a more sustainable and eco-friendly future.

Following are some actual images of installed solar PV plant.


By AAkash

7.3 Vermicomposting Plant

College has taken initiative to compost the daily solid waste by means of vermicomposting plant.

The compost generated through vermicomposting can be used as a natural fertilizer for plants and gardens, which helps to improve soil quality and support healthy plant growth. It's great to hear that your college is using the compost in the campus garden area and distributing it to nearby farmers, as this promotes sustainability and helps to reduce waste.

Following is the details of vermicomposting plant.