PowerTech Energy Solutions
Conserve to Consume

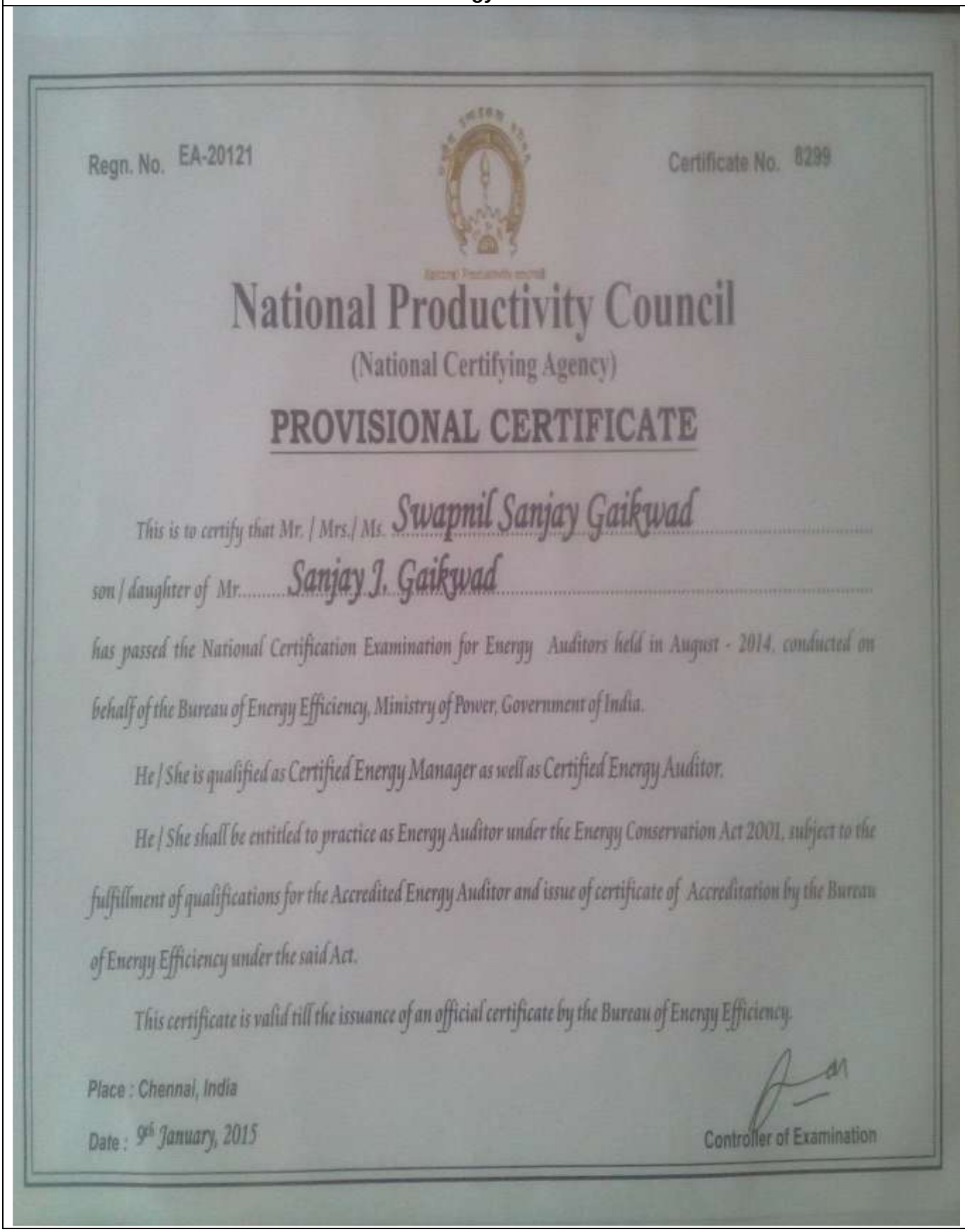
Energy & Green Audit Report
Of
College of Social Work, Nirmala Niketan

Submitted By

PowerTech Energy Solutions

Our Certificates

BEE Certified Energy Auditor Certificate	



Regn. No. EA-20121

Certificate No. 8299

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Mrs./ Ms. Swapnil Sanjay Gaikwad

son / daughter of Mr. Sanjay J. Gaikwad

has passed the National Certification Examination for Energy Auditors held in August - 2014, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India

Date : 9th January, 2015

Controller of Examination

Lead Auditor Certificate – ISO 50001: Energy Management System

TÜV NORD

PR366: ISO 50001:2018 Lead Auditor (Energy Management System) Training Course

Certificate of Achievement

Atul Kakad

has successfully completed the above mentioned course and examination.

26th - 30th November 2019

PUNE, INDIA

Certificate No. 35258395 07

Delegate No. 222777

for TÜV NORD CERT GmbH

Essen, 2020-01-08

The course is certified by CQI and IRCA (Certification No. 2088). The learner meets the training requirements for those seeking certification under the IRCA EnMS Auditor certification scheme.

TÜV NORD CERT GmbH Langemarckstraße 20 45141 Essen www.tuev-nord-cert.com

CQI | IRCA CERTIFIED COURSE

MEDA Registration Certificate

MAHARASHTRA ENERGY DEVELOPMENT AGENCY

Maharashtra Energy Development Agency

(A Government of Maharashtra undertaking)
Aundh Road, Opposite Spicer College,
Near Commissionerate of Animal Husbandry, Aundh, Pune – 411 067
Ph No: 020-26614393/266144403
Email: eee@mahaurja.com, Web: www.mahaurja.com

ECN/2024-25/CR-06/38

6th February, 2025

CERTIFICATE OF REGISTRATION
FOR CLASS 'A'

We hereby certify that, the firm having following particulars is registered with ***MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)*** under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

Name and Address of the firm	:	M/s PowerTech Energy Solutions Office No. 10, B-wing, 3rd floor, Phuge Prima, Bhosari Dighi Road Bhosari, Pimpri Chinchwad- 411 039.
Registration Category	:	*Empanelled Consultant for Energy Conservation Programme for Class 'A'*
Registration Number	:	***MEDA/ECN/2024-25/Class - A/EA-31***

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till **5th February, 2027** from the date of registration, to carry out energy audits under the Energy Conservation Programme.
- The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.

Mayura

General Manager (EC)

1 Executive Summary – Energy Audit

ECM	Area	Observations	Proposed Action	Estimated Monthly Energy Savings	Estimated Monthly CO2 Emission Reduction	Estimated Monthly Monetary Savings	Estimated Investment	Payback Period
				kWh	Tones	Rs.Lakh	Rs. Lakh	Months
ECM- 1	Lighting	LED lights and conventional lights are used throughout the college. A total of 229, 143 LED lights and 86 conventional lights are installed in various areas of the college.	It is recommended to replace existing 36 W conventional tube lights with new 20 W LED tube lights.	223	0.18	0.03	0.12	5
ECM- 2	Ceiling Fan	At present, conventional ceiling fans of 75W are installed in all areas	It is recommended to replace existing 75 W ceiling fans with new energy efficient 28W BLDC fan	1121.5	0.91	0.15	4.44	37
TOTAL				**1344.5**	**1.09**	**0.18**	**4.56**	**42**
Monthly Energy Consumption of the College of Social Work, Nirmala Niketan (kWh)				2901.2				
% Saving on Energy Usage				61.34%				
Monthly Energy Bill of the College of Social Work, Nirmala Niketan (Rs. Thousand)				10.75				

2 Executive Summary – Green Audit

Sr. No	Area	Observations	Remark
1	Use of renewable energy – Solar water heaters in hostels & Solar PV system	Water heating requirement in the hostels is being fulfilled by solar water heaters. College has installed the solar PV plant of 30 kW on rooftop & 10kW on extension centers rooftop to generate the electricity and reduce CO_2 emission	Good initiative Approximate annually 0.32 Tons of CO_2 emission will be reduce due to solar PV system
2	Used LED Lightings	The utilization of LED lighting across the college some premises signifies a commitment to energy efficiency and sustainability.	Using LED lighting in college premises is a good practice.
3	Plastic awareness	The college is encouraging everyone to say no to plastic in an effort to create a more sustainable campus.	This initiative aims to reduce plastic waste and foster eco-friendly habits, contributing to a greener environment for all.
4	E-waste Management	The college's e-waste management reflects a commitment to environmental responsibility and sustainability, promoting proper disposal practices for electronic devices.	Good initiative taken by college towards E-waste waste management

3 Scope of Improvement

Liquid Waste Management

The absence of a Sewage Treatment Plant (STP) highlights a crucial area for improvement in liquid waste management on the college campus. Without this infrastructure, there's a risk of untreated sewage harming the environment and compromising hygiene standards. Installing an STP is essential to meet regulatory requirements and uphold the college's commitment to sustainability, ensuring a cleaner and healthier campus environment.

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4 Acknowledgement

PowerTech Energy Solutions extends gratitude to **College of Social Work, Nirmala Niketan** 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 of College of Social Work, Nirmala Niketan in person for the diligent involvement and cooperation.

Prof. Dr. Lidwin Dias	Principal
Prof. Sr. Sabeena Gonsalves	Administrator & Vice President
Prof. Dr. Anita Machado	IQAC Coordinator & Associate Professor

5 About College

The College of Social Work Nirmala Niketan (CSWNN) is an autonomous institution established in 1955, with a strong legacy of training professionals in social work. Over the past 70 years, the college has equipped young individuals with the knowledge and skills to work for the rights of the underprivileged, making a significant impact on society.

5.1 Vision

The vision of CSWNN aligns with human dignity and social justice, emphasizing work with vulnerable and marginalized groups.

5.2 Mission

Its mission is to develop committed professionals with a global perspective and strong ethical values, including compassion, integrity, tolerance, and self-respect.

6 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.

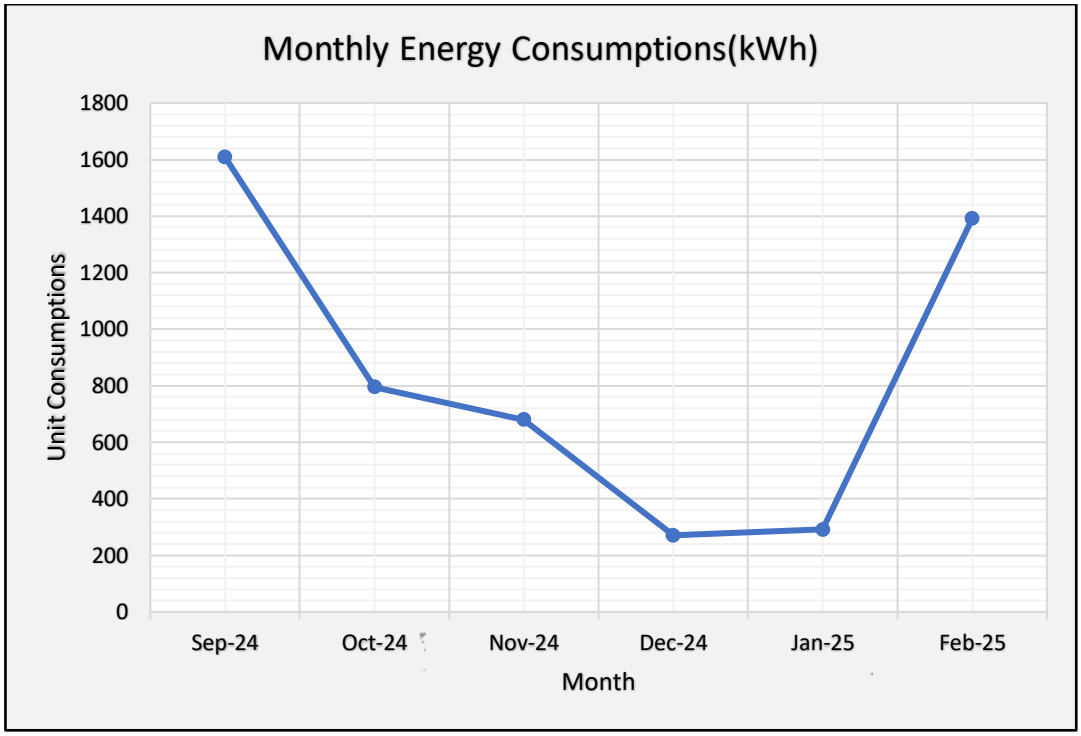
6.1 Electricity Bill Analysis

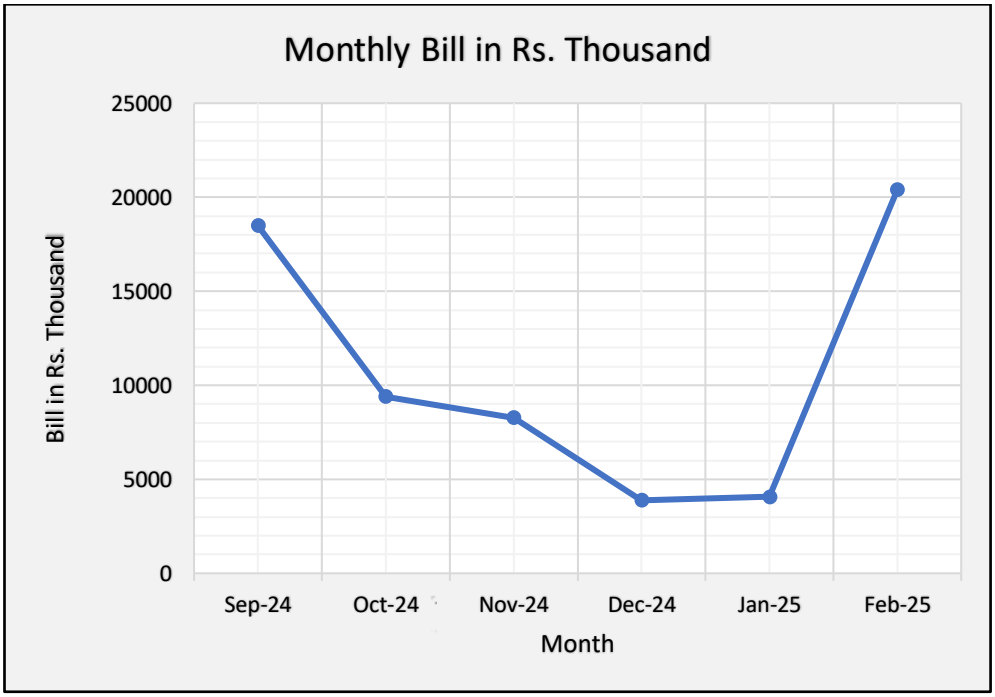
There is one energy meter on the college's campus premises. The meter is used for the consumer with the following name: INSTITUTE OF SOCIAL SERVICE. The monthly electricity bill is issued by BEST based on the electricity consumed and is paid by the college.

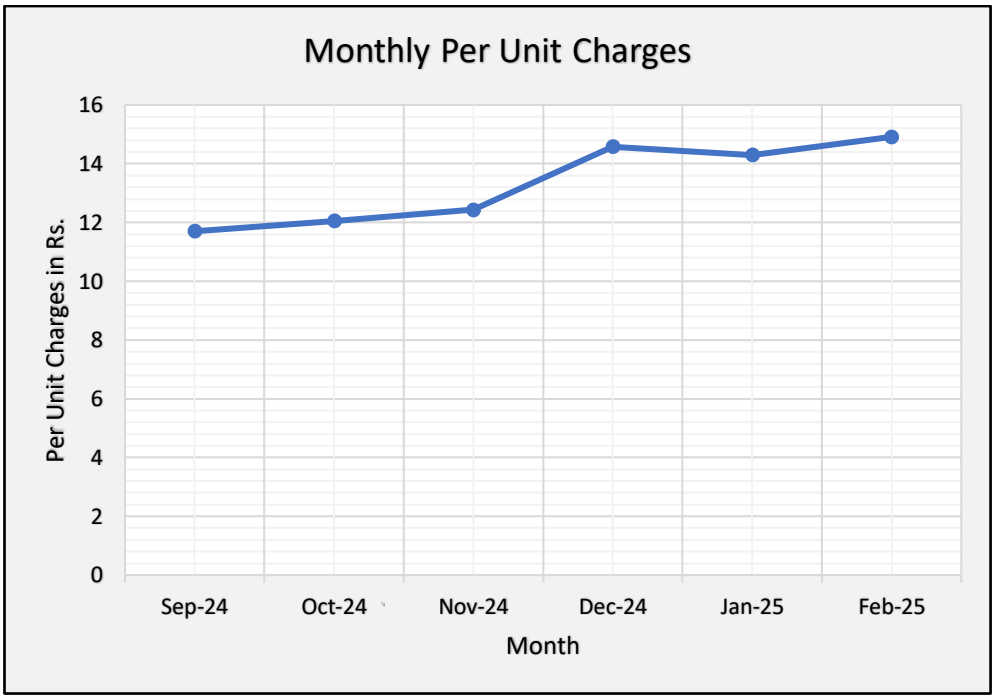
Consumer Name	**INSTITUE OF SOCIAL SERVICE**
Consumer Number	**1351000859**
Sanctioned Load	**39.46 KW**
Contract Demand (KVA)	**49.32 KVA**
Connected Load	**39.46 KW**
Tariff	**LT IV A**
Category	**HOSPITAL & EDUCATIONAL INSTITUTE**

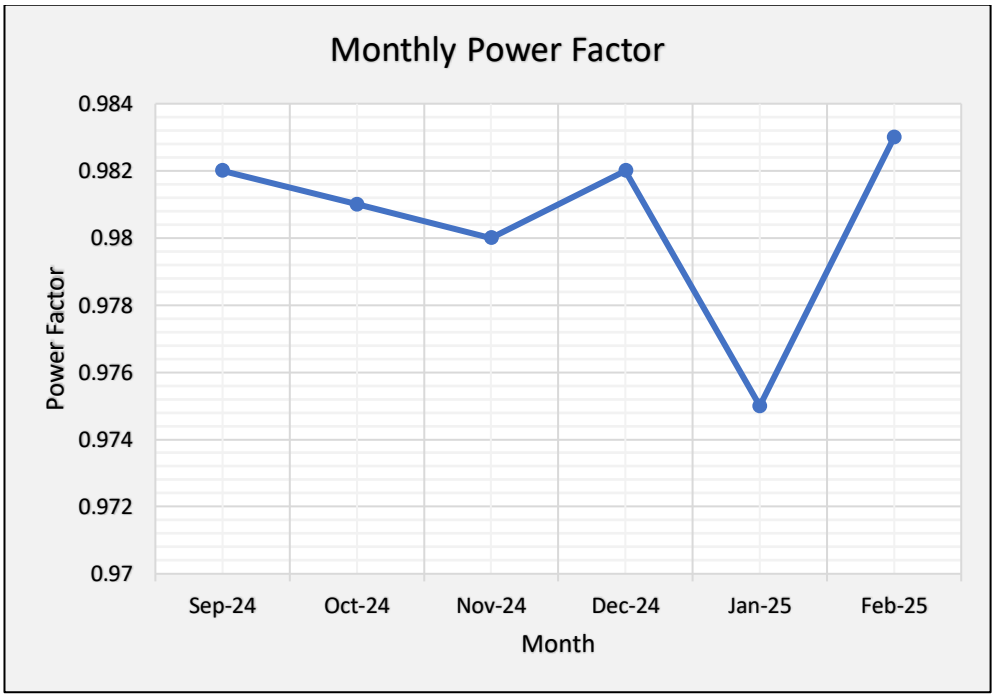
Month	Unit Consumption	Unit Consumption	Difference (kVAh-kWh)	Solar Power Generated	Billed Power Factor	Total Current Bill	Avg. Unit Rate
	kVAh	kWh		kWh		Rs.	Rs/kWh
Sep-24	1609	1580	29		0.982	18490	12
Oct-24	795	780	15	3105	0.981	9400	12
Nov-24	680	666	14	2274	0.98	8280	12
Dec-24	271	266	5	1845	0.982	3880	15
Jan-25	291	284	7	1596	0.975	4060	14
Feb-25	1391	1367	24	1564	0.983	20390	15
Min	**271**	**266**	**5**	**1,564**	**0.975**	**3,880**	**12**
Avg.	**839**	**824**	**16**	**2,077**	**0.981**	**10,750**	**13**
Max	**1,609**	**1,580**	**29**	**3,105**	**0.983**	**20,390**	**15**
Total	**5,036**	**4,943**				**64,500**	

Below table shows the graphical presentation of energy consumption, power factor, electricity bill.






Monthly Per Unit Charges
Per Unit Charges in Rs.
16
14
12
10
8
6
4
2
0
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Month


Monthly Power Factor
Power Factor
0.984
0.982
0.98
0.978
0.976
0.974
0.972
0.97
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Month

6.2 Observation and Remark

Sr.No.	Parameter	Observation	Remark
1	Contract Demand	Contract demand of the college is 49.32 kVA	No action required
2	Sanctioned Load	Sanction load of the college is 39.46 kW	No action required
3	Connected Load	Connected load of the college is 39.46 kW	No action required
4	Unit consumption	Minimum unit consumption recorded is 266 kWh in the month of Dec-24	No action required
		Average unit consumption recorded is 824 kWh	No action required
		Maximum unit consumption recorded is 1580 kWh in the month of Sep-24	No action required
5	Power factor	Avg. power factor recorded is 0.981	No action required
6	Total bill	Avg. monthly electricity bill is Rs.10,750	No action required
		Total annual electricity bill is Rs.64,500	No action required

6.3 Connected Load

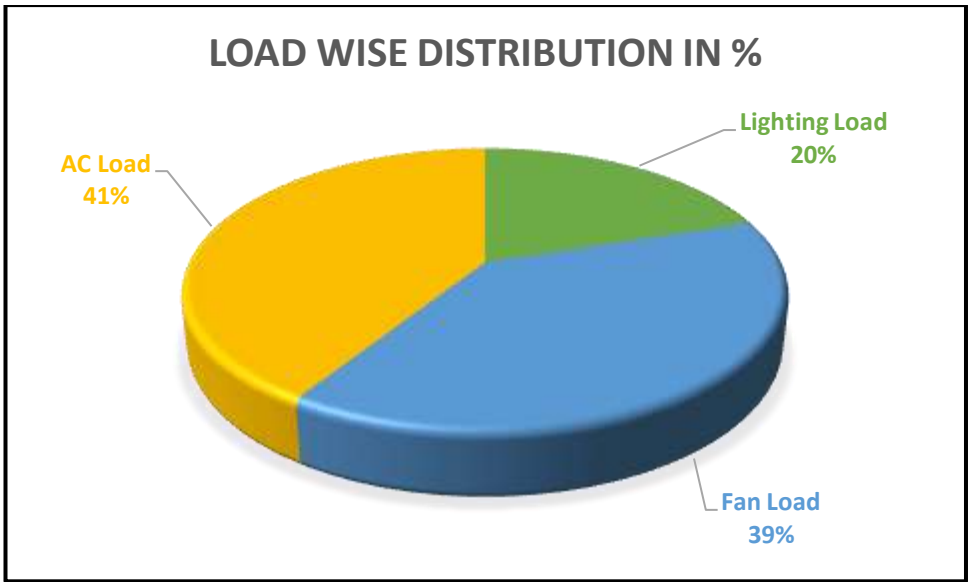
Location	Type	Wattage (W)	Qty.	Lighting Load kW
MSW-II Classroom	LED Tube Light	20	4	0.08
MSW-II Classroom	Conventional Tube light	36	3	0.108
Reception & Lobby	Conventional Tube light	36	2	0.072
Reception & Lobby	LED Bulb	15	6	0.09
ISS Office	LED Tube Light	20	2	0.04
Examination Centre	LED Tube Light	20	2	0.04
Examination Centre	Conventional Tube light	36	2	0.072
Computer Lab	LED Tube Light	20	1	0.02
Computer Lab	Conventional Tube light	36	11	0.396
IQAC Lab	Conventional Tube light	36	2	0.072
Building Outside Campus	LED Bulb	30	1	0.03
Watchman Cabin	LED Bulb	9	1	0.009
Gents Toilet	LED Bulb	15	4	0.06
BSW I Classroom	LED Lights	15	12	0.18
BSW I Classroom	Conventional Tube light	36	1	0.036
BSW II Classroom	LED Lights	15	9	0.135
BSW II Classroom	Conventional Tube light	36	1	0.036
Principal Office	LED Tube Light	20	2	0.04
Outside Principal office	LED Tube Light	20	2	0.04
General Office- I	LED Tube Light	20	4	0.08
Faculty Room I	Conventional Tube light	36	4	0.144
Account Office	Conventional Tube light	36	3	0.108
AV Unit Room	Conventional Tube light	36	2	0.072
AV Unit Room	Bulb	100	1	0.1
Ladies Toilet	LED Lights	15	2	0.03
Research Unit	Conventional Tube light	36	3	0.108
Research Unit	LED Tube Light	20	2	0.04
Faculty Room II	LED Tube Light	20	1	0.02
Faculty Room II	Conventional Tube light	36	7	0.252
1st Floor Lobby	LED Lights	15	7	0.105
1st Floor Lobby	Conventional Tube light	36	1	0.036
Board Room	LED Lights	15	6	0.09
Board Room	Conventional Tube light	36	6	0.216
Girls Room	Conventional Tube light	36	1	0.036
Lunch Room	Conventional Tube light	36	2	0.072
Ladies Toilet	LED Lights	15	2	0.03
Counselor Office	Conventional Tube light	36	2	0.072
2nd Floor Lobby	LED Lights	15	6	0.09
Faculty Room III	Conventional Tube light	36	6	0.216
BSW-III Classroom	Conventional Tube light	36	4	0.144
MSW-I Classroom	LED Tube Light	20	2	0.04
MSW-I Classroom	Conventional Tube light	36	4	0.144
MASIE Classroom	Conventional Tube light	36	4	0.144
Gym Room	Conventional Tube light	36	5	0.18
Fieldwork Co-coordinator Room	Conventional Tube light	36	1	0.036

Location	Type	Wattage (W)	Qty.	Lighting Load kW
Admin Office	LED Tube Light	20	1	0.02
Superintendent Office/ Lobby	LED Tube Light	20	1	0.02
Superintendent Office/ Lobby	Conventional Tube light	36	1	0.036
Eng. Lab MASIE II	Conventional Tube light	36	2	0.072
Gents Toilet	LED Lights	15	2	0.03
Staff Toilet	Conventional Tube light	36	1	0.036
Store Room	Conventional Tube light	36	1	0.036
Accessible Room	LED Lights	12	1	0.012
Guest Room	Conventional Tube light	36	1	0.036
Staff Room	LED Lights	15	1	0.015
Play Room	Conventional Tube light	36	1	0.036
Recording Room	LED Lights	15	5	0.075
3rd Floor Lobby	LED Lights	15	4	0.06
3rd Floor Lobby	LED Tube Light	20	1	0.02
3rd Floor Lobby	Conventional Tube light	36	1	0.036
Library	LED Tube Light	20	27	0.54
Library	CFL Bulb	15	11	0.165
Library PHD Room	LED Tube Light	20	2	0.04
Library Xerox Room	LED Tube Light	20	2	0.04
Library Bound Volume Room	LED Tube Light	20	1	0.02
Library Bound Volume Room	LED Lights	15	1	0.015
Library Guest Room	Conventional Tube light	36	1	0.036
Library Guest Room	Bulb	100	1	0.1
Library Librarian Office	LED Tube Light	20	2	0.04
Library Discuss Room	LED Tube Light	20	1	0.02
MSW-II Classroom	Ceiling Fan	75	9	0.675
Reception & Lobby	Ceiling Fan	75	2	0.15
ISS Office	Ceiling Fan	75	2	0.15
Examination Centre	Ceiling Fan	75	1	0.075
Examination Centre	Wall Fan	35	1	0.035
Computer Lab	Ceiling Fan	75	6	0.45
IQAC Lab	Ceiling Fan	75	2	0.15
Gents Toilet	Exhaust Fan	35	1	0.035
Gents Toilet	Ceiling Fan	75	4	0.3
Watchman Cabin Ground Floor	Wall Fan	35	1	0.035
BSW I Classroom	Ceiling Fan	75	8	0.6
BSW I Classroom	Wall Fan	35	4	0.14
BSW I Classroom	Exhaust Fan	35	1	0.035
BSW II Classroom	Ceiling Fan	75	6	0.45
BSW II Classroom	Wall Fan	35	4	0.14
BSW II Classroom	Exhaust Fan	35	1	0.035
Principal Office	Ceiling Fan	75	1	0.075

Location	Type	Wattage (W)	Qty.	Lighting Load kW
Outside Principal office	Ceiling Fan	75	1	0.075
General Office- I	Ceiling Fan	75	3	0.225
Faculty Room I	Ceiling Fan	75	4	0.3
Account Office	Ceiling Fan	75	2	0.15
Account Office	Wall Fan	35	1	0.035
AV Unit Room	Ceiling Fan	75	1	0.075
Ladies Toilet	Exhaust Fan	35	2	0.07
Research Unit	Ceiling Fan	75	2	0.15
Faculty Room II	Ceiling Fan	75	7	0.525
1st Floor Lobby	Wall Fan	35	1	0.035
Board Room	Ceiling Fan	75	2	0.15
Board Room	Wall Fan	35	2	0.07
Girls Room	Ceiling Fan	75	1	0.075
Lunch Room	Ceiling Fan	75	3	0.225
Ladies Toilet	Exhaust Fan	35	2	0.07
Counselor Office	Ceiling Fan	75	1	0.075
Counselor Office	Wall Fan	35	1	0.035
Faculty Room III	Ceiling Fan	75	7	0.525
BSW-III Classroom	Ceiling Fan	75	7	0.525
BSW-III Classroom	Wall Fan	35	2	0.07
MSW-I Classroom	Ceiling Fan	75	9	0.675
MASIE Classroom	Ceiling Fan	75	6	0.45
Gym Room	Ceiling Fan	75	4	0.3
Fieldwork Co-coordinator Room	Ceiling Fan	75	1	0.075
Admin Office	Ceiling Fan	75	1	0.075
Superintendent Office/ Lobby	Ceiling Fan	75	2	0.15
Superintendent Office/ Lobby	Table Fan	35	1	0.035
Eng. Lab MASIE II	Ceiling Fan	75	2	0.15
Guest Room	Ceiling Fan	75	1	0.075
Staff Room	Ceiling Fan	75	1	0.075
Play Room	Ceiling Fan	75	1	0.075
Recording Room	Ceiling Fan	75	5	0.375
Library	Ceiling Fan	75	16	1.2
Library	Wall Fan	35	4	0.14
Library PHD Room	Ceiling Fan	75	1	0.075
Library Xerox Room	Ceiling Fan	75	1	0.075
Library Bound Volume Room	Ceiling Fan	75	1	0.075
Library Guest Room	Ceiling Fan	75	1	0.075
Library Guest Room	Wall Fan	35	1	0.035
Library Librarian Office	Ceiling Fan	75	1	0.075
Library Discuss Room	Ceiling Fan	75	1	0.075
Research Unit	AC	1200	1	1.2
Faculty Room II	AC	1200	2	2.4
Principle Office	AC	1200	1	1.2

Location	Type	Wattage (W)	Qty.	Lighting Load kW
Account Office	AC	1200	1	1.2
Board Room	AC	1200	1	1.2
Faculty Room III	AC	1200	2	2.4
Admin Office	AC	1200	1	1.2
Library PHD Room	AC	1200	1	1.2
Total			**406**	**29.04**

The following graph shows the percentage-wise load distribution in the college premises.



6.4 Performance Assessment of Lighting System

The lighting system analysis is based on data collected from various areas of the college building. Most of the system uses energy-efficient LED lights. A total of 229 lights are installed in the college building at different locations and for various purposes. Of these, 143 are LED lights, while the 86 lights are conventional lights.

Location	Type	Wattage (W)	Qty.	Lighting Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Ground Floor														
MSW-II Classroom	LED Tube Light	20	4	0.08	8	26	0.64	16.64						
MSW-II Classroom	Conventional Tube light	36	3	0.108	8	26	0.864	22.464	0.06	12.48	9.984	139.776	480	3
Reception & Lobby	Conventional Tube light	36	2	0.072	12	30	0.864	25.92	0.04	14.4	11.52	161.28	320	2
Reception & Lobby	LED Bulb	15	6	0.09	12	30	1.08	32.4						
ISS Office	LED Tube Light	20	2	0.04	8	30	0.32	9.6						
Examination Centre	LED Tube Light	20	2	0.04	8	26	0.32	8.32						
Examination Centre	Conventional Tube light	36	2	0.072	8	26	0.576	14.976	0.04	8.32	6.656	93.184	320	3
Computer Lab	LED Tube Light	20	1	0.02	8	26	0.16	4.16						
Computer Lab	Conventional Tube light	36	11	0.396	8	26	3.168	82.368	0.22	45.76	36.608	512.512	1760	3
IQAC Lab	Conventional Tube light	36	2	0.072	1	26	0.072	1.872	0.04	1.04	0.832	11.648	320	27
Building Outside Campus	LED Bulb	30	1	0.03	12	30	0.36	10.8	0.02	7.2	3.6	50.4	160	3

Location	Type	Wattage (W)	Qty.	Lighting Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Watchman Cabin	LED Bulb	9	1	0.009	2	30	0.018	0.54						
Gents Toilet	LED Bulb	15	4	0.06	8	26	0.48	12.48						
1st Floor														
BSW I Classroom	LED Lights	15	12	0.18	8	26	1.44	37.44						
BSW I Classroom	Conventional Tube light	36	1	0.036	8	26	0.288	7.488	0.02	4.16	3.328	46.592	160	3
BSW II Classroom	LED Lights	15	9	0.135	8	26	1.08	28.08						
BSW II Classroom	Conventional Tube light	36	1	0.036	8	26	0.288	7.488	0.02	4.16	3.328	46.592	160	3
Principal Office	LED Tube Light	20	2	0.04	8	26	0.32	8.32						
Outside Principal office	LED Tube Light	20	2	0.04	0	0	0	0						
General Office- I	LED Tube Light	20	4	0.08	8	26	0.64	16.64						
Faculty Room I	Conventional Tube light	36	4	0.144	8	26	1.152	29.952	0.08	16.64	13.312	186.368	640	3
Account Office	Conventional Tube light	36	3	0.108	8	26	0.864	22.464	0.06	12.48	9.984	139.776	480	3
AV Unit Room	Conventional Tube light	36	2	0.072	8	26	0.576	14.976	0.04	8.32	6.656	93.184	320	3
AV Unit Room	Bulb	100	1	0.1	8	26	0.8	20.8	0.02	4.16	16.64	232.96	160	1
Ladies Toilet	LED Lights	15	2	0.03	8	26	0.24	6.24						
Research Unit	Conventional Tube light	36	3	0.108	8	26	0.864	22.464	0.06	12.48	9.984	139.776	480	3
Research Unit	LED Tube Light	20	2	0.04	8	26	0.32	8.32						
Faculty Room II	LED Tube Light	20	1	0.02	8	26	0.16	4.16						

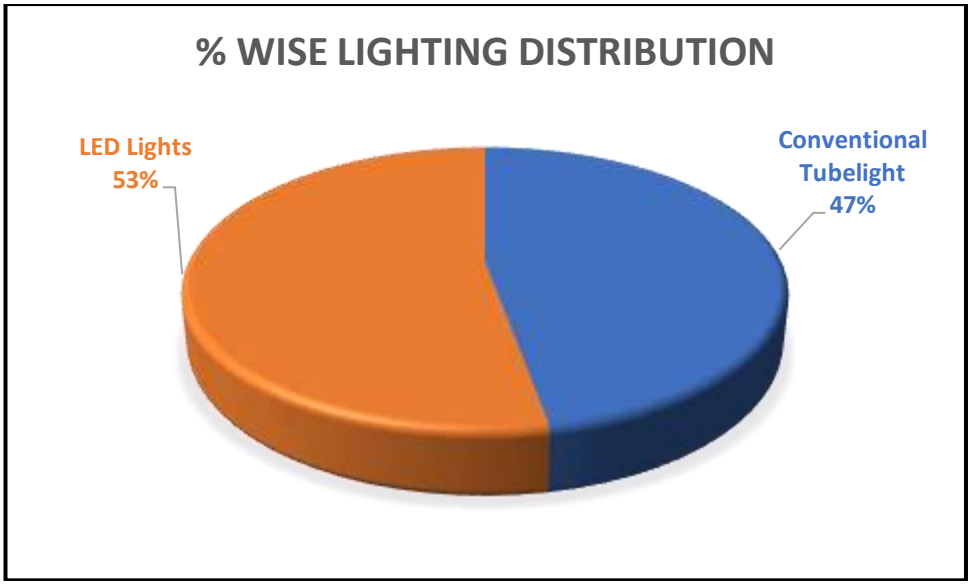
Location	Type	Wattage (W)	Qty.	Lighting Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Faculty Room II	Conventional Tube light	36	7	0.252	8	26	2.016	52.416	0.14	29.12	23.296	326.144	1120	3
1st Floor Lobby	LED Lights	15	7	0.105	4	26	0.42	10.92						
1st Floor Lobby	Conventional Tube light	36	1	0.036	0	0	0	0						
2nd Floor														
Board Room	LED Lights	15	6	0.09	4	26	0.36	9.36						
Board Room	Conventional Tube light	36	6	0.216	0	0	0	0						
Girls Room	Conventional Tube light	36	1	0.036	8	26	0.288	7.488	0.02	4.16	3.328	46.592	160	3
Lunch Room	Conventional Tube light	36	2	0.072	4	26	0.288	7.488	0.04	4.16	3.328	46.592	320	7
Ladies Toilet	LED Lights	15	2	0.03	8	26	0.24	6.24						
Counseller Office	Conventional Tube light	36	2	0.072	1	26	0.072	1.872	0.04	1.04	0.832	11.648	320	27
2nd Floor Lobby	LED Lights	15	6	0.09	1	26	0.09	2.34						
Faculty Room III	Conventional Tube light	36	6	0.216	8	24	1.728	41.472	0.12	23.04	18.432	258.048	960	4
BSW-III Classroom	Conventional Tube light	36	4	0.144	8	26	1.152	29.952	0.08	16.64	13.312	186.368	640	3
MSW-I Classroom	LED Tube Light	20	2	0.04	8	26	0.32	8.32						
MSW-I Classroom	Conventional Tube light	36	4	0.144	8	26	1.152	29.952	0.08	16.64	13.312	186.368	640	3
MASIE Classroom	Conventional Tube light	36	4	0.144	8	26	1.152	29.952	0.08	16.64	13.312	186.368	640	3
Gym Room	Conventional Tube light	36	5	0.18	4	26	0.72	18.72	0.1	10.4	8.32	116.48	800	7
Fieldwork Co-	Conventional Tube light	36	1	0.036	8	26	0.288	7.488	0.02	4.16	3.328	46.592	160	3

Location	Type	Wattage (W)	Qty.	Lighting Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
ordinator Room														
Admin Office	LED Tube Light	20	1	0.02	8	26	0.16	4.16						
Superintendent Office/ Lobby	LED Tube Light	20	1	0.02	8	26	0.16	4.16						
Superintendent Office/ Lobby	Conventional Tube light	36	1	0.036	8	26	0.288	7.488	0.02	4.16	3.328	46.592	160	3
3rd Floor														
Eng. Lab MASIE II	Conventional Tube light	36	2	0.072	8	26	0.576	14.976	0.04	8.32	6.656	93.184	320	3
Gents Toilet	LED Lights	15	2	0.03	8	26	0.24	6.24						
Staff Toilet	Conventional Tube light	36	1	0.036	0	0	0	0						
Store Room	Conventional Tube light	36	1	0.036	0	0	0	0						
Accessible Room	LED Lights	12	1	0.012	0	0	0	0						
Guest Room	Conventional Tube light	36	1	0.036	0	0	0	0						
Staff Room	LED Lights	15	1	0.015	4	26	0.06	1.56						
Play Room	Conventional Tube light	36	1	0.036	0	0	0	0						
Recording Room	LED Lights	15	5	0.075	0	0	0	0						
3rd Floor Lobby	LED Lights	15	4	0.06	4	26	0.24	6.24						
3rd Floor Lobby	LED Tube Light	20	1	0.02	4	26	0.08	2.08						

Location	Type	Wattage (W)	Qty.	Lighting Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
3rd Floor Lobby	Conventional Tube light	36	1	0.036	0	0	0	0						
Library	LED Tube Light	20	27	0.54	8	26	4.32	112.32						
Library	CFL Bulb	15	11	0.165	8	26	1.32	34.32						
Library PHD Room	LED Tube Light	20	2	0.04	4	26	0.16	4.16						
Library Xerox Room	LED Tube Light	20	2	0.04	4	26	0.16	4.16						
Library Bound Volume Room	LED Tube Light	20	1	0.02	8	26	0.16	4.16						
Library Bound Volume Room	LED Lights	15	1	0.015	8	26	0.12	3.12						
Library Guest Room	Conventional Tube light	36	1	0.036	0	0	0	0						
Library Guest Room	Bulb	100	1	0.1	0	0	0	0						
Library Librarian Office	LED Tube Light	20	2	0.04	8	26	0.32	8.32						
Library Discuss Room	LED Tube Light	20	1	0.02	4	26	0.08	2.08						
Total			**229**	**5.717**			**36.684**	**960.896**	**1.5**	**290.08**	**243.216**	**3405.024**	**12000**	**5.16**

6.5 Type wise lighting distribution in college

The following graph shows the percentage-wise lighting distribution in the college premises.



6.6 ECM replace existing 36W conventional tube lights with 20W LED tube lights

Parameter	Unit	Value
Present tube lights type		Conventional Tube lights
Present wattage of conventional tube lights	watt	36
Total no.of conventional tube lights installed	Nos.	86
Present load of conventional tube lights	kW	3.09
Present monthly energy consumption of conventional tube lights	kWh	501.7
Recommended tube lights type		LED Tube lights
New Estimated wattage of tube lights	watt	20
Estimated load of tube lights	kW	1.72
Power saving	kW	1.37
% Savings	%	%
New Estimated monthly energy consumption	kWh	278.7
Estimated monthly energy savings	kWh	223
Estimated monthly carbon emission reduction	Tons	0.18
Estimated monthly monetary savings	Rs.	3121.66
Estimated investment for 1 fan	Rs.	160
Estimated total investment	Rs.	12,000
Average Payback period	Months	5

6.7 Observation& Remark

Sr. No.	Area	Observation	Remark
1	Lighting	LED lights and conventional lights are used throughout the college. A total of 229 LED lights and 86 conventional CFL lights are installed in various areas of the college. Total light load is 5.7 kW	The use of LED lights is a simple yet effective measure for energy conservation. Replace the conventional lights with energy-efficient LED lights.

6.8 Performance Assessment of 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 28W energy efficient fans. Below table shows the estimated energy and monetary saving along with payback period.

Location	Type of Lights	Wattage (W)	Qty.	Ceiling Fan Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Ground Floor														
MSW-II Classroom	Ceiling Fan	75	9	0.675	8	26	5.4	140.4	0.252	52.42	87.98	1231.776	31500	26
Reception & Lobby	Ceiling Fan	75	2	0.15	12	30	1.8	54	0.056	20.16	33.84	473.76	7000	15
ISS Office	Ceiling Fan	75	2	0.15	4	26	0.6	15.6	0.056	5.82	9.78	136.864	7000	51
Examination Centre	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.82	9.78	136.864	3500	26
Examination Centre	Wall Fan	35	1	0.035	8	26	0.28	7.28						
Computer Lab	Ceiling Fan	75	6	0.45	8	26	3.6	93.6	0.168	34.94	58.66	821.184	21000	26
IQAC Lab	Ceiling Fan	75	2	0.15	1	26	0.15	3.9	0.056	1.46	2.44	34.216	7000	205
Gents Toilet	Exhaust Fan	35	1	0.035	8	26	0.28	7.28		0.00	7.28	101.92	3500	34
Gents Toilet	Ceiling Fan	75	4	0.3	8	26	2.4	62.4	0.112	23.30	39.10	547.456	14000	26
Watchman Cabin Ground Floor	Wall Fan	35	1	0.035	6	30	0.21	6.3						
1st Floor														

Location	Type of Lights	Wattage (W)	Qty.	Ceiling Fan Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
BSW I Classroom	Ceiling Fan	75	8	0.6	8	26	4.8	124.8	0.224	46.59	78.21	1094.912	28000	26
BSW I Classroom	Wall Fan	35	4	0.14	8	26	1.12	29.12						
BSW I Classroom	Exhaust Fan	35	1	0.035	0	0	0	0						
BSW II Classroom	Ceiling Fan	75	6	0.45	8	26	3.6	93.6	0.168	34.94	58.66	821.184	21000	26
BSW II Classroom	Wall Fan	35	4	0.14	8	26	1.12	29.12						
BSW II Classroom	Exhaust Fan	35	1	0.035	0	0	0	0						
Principal Office	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.82	9.78	136.864	3500	26
Outside Principal office	Ceiling Fan	75	1	0.075	0	0	0	0	0.028					
General Office- I	Ceiling Fan	75	3	0.225	8	26	1.8	46.8	0.084	17.47	29.33	410.592	10500	26
Faculty Room I	Ceiling Fan	75	4	0.3	8	26	2.4	62.4	0.112	23.30	39.10	547.456	14000	26
Account Office	Ceiling Fan	75	2	0.15	8	26	1.2	31.2	0.056	11.65	19.55	273.728	7000	26
Account Office	Wall Fan	35	1	0.035	0	0	0	0						
AV Unit Room	Ceiling Fan	75	1	0.075	0	0	0	0	0.028					
Ladies Toilet	Exhaust Fan	35	2	0.07	8	26	0.56	14.56						
Research Unit	Ceiling Fan	75	2	0.15	8	26	1.2	31.2	0.056	11.65	19.55	273.728	7000	26
Faculty Room II	Ceiling Fan	75	7	0.525	8	26	4.2	109.2	0.196	40.77	68.43	958.048	24500	26

Location	Type of Lights	Wattage (W)	Qty.	Ceiling Fan Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
1st Floor Lobby	Wall Fan	35	1	0.035	0	0	0	0						
2nd Floor														
Board Room	Ceiling Fan	75	2	0.15	4	26	0.6	15.6	0.056	5.824	9.78	136.864	7000	51
Board Room	Wall Fan	35	2	0.07	0	0	0	0						
Girls Room	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.824	9.78	136.864	3500	26
Lunch Room	Ceiling Fan	75	3	0.225	4	26	0.9	23.4	0.084	8.736	14.66	205.296	10500	51
Ladies Toilet	Exhaust Fan	35	2	0.07	8	26	0.56	14.56						
Counselor Office	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.824	9.78	136.864	3500	26
counselor Office	Wall Fan	35	1	0.035	0	0	0	0						
Faculty Room III	Ceiling Fan	75	7	0.525	8	26	4.2	109.2	0.196	40.768	68.43	958.048	24500	26
BSW-III Classroom	Ceiling Fan	75	7	0.525	8	26	4.2	109.2	0.196	40.768	68.43	958.048	24500	26
BSW-III Classroom	Wall Fan	35	2	0.07	8	26	0.56	14.56						
MSW-I Classroom	Ceiling Fan	75	9	0.675	8	26	5.4	140.4	0.252	52.416	87.98	1231.776	31500	26
MASIE Classroom	Ceiling Fan	75	6	0.45	8	26	3.6	93.6	0.168	34.944	58.66	821.184	21000	26
Gym Room	Ceiling Fan	75	4	0.3	4	26	1.2	31.2	0.112	11.648	19.55	273.728	14000	51
Fieldwork Co-coordinator Room	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.824	9.78	136.864	3500	26

Location	Type of Lights	Wattage (W)	Qty.	Ceiling Fan Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Admin Office	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.824	9.78	136.864	3500	26
Superintendent Office/ Lobby	Ceiling Fan	75	2	0.15	8	26	1.2	31.2	0.056	11.648	19.55	273.728	7000	26
Superintendent Office/ Lobby	Table Fan	35	1	0.035	8	26	0.28	7.28						
3rd Floor														
Eng. Lab MASIE II	Ceiling Fan	75	2	0.15	8	26	1.2	31.2	0.056	11.648	19.55	273.728	7000	26
Guest Room	Ceiling Fan	75	1	0.075	0	0	0	0	0.028					
Staff Room	Ceiling Fan	75	1	0.075	4	26	0.3	7.8	0.028	2.912	4.89	68.432	3500	51
Play Room	Ceiling Fan	75	1	0.075	0	0	0	0	0.028					
Recording Room	Ceiling Fan	75	5	0.375	0	0	0	0	0.14					
Library	Ceiling Fan	75	16	1.2	6	26	7.2	187.2	0.448	69.888	117.31	1642.368	56000	34
Library	Wall Fan	35	4	0.14	4	26	0.56	14.56			14.56	203.84	14000	69
Library PHD Room	Ceiling Fan	75	1	0.075	4	26	0.3	7.8	0.028	2.912	4.89	68.432	3500	51
Library Xerox Room	Ceiling Fan	75	1	0.075	4	26	0.3	7.8	0.028	2.912	4.89	68.432	3500	51
Library Bound Volume Room	Ceiling Fan	75	1	0.075	4	26	0.3	7.8	0.028	2.912	4.89	68.432	3500	51

Location	Type of Lights	Wattage (W)	Qty.	Ceiling Fan Load Kw	Hours of usage	No of Days in a month	Daily consumption (kWh)	Monthly consumption (kWh)	New KW	New Monthly kWh	Monthly Energy Saving in kWh	Monthly Monetary saving in Rs	Investment in Rs.	Payback period in months
Library Guest Room	Ceiling Fan	75	1	0.075	0	0	0	0	0.028					
Library Guest Room	Wall Fan	35	1	0.035	0	0	0	0						
Library Librarian Office	Ceiling Fan	75	1	0.075	8	26	0.6	15.6	0.028	5.824	9.78	136.864	3500	26
Library Discuss Room	Ceiling Fan	75	1	0.075	4	26	0.3	7.8	0.028	2.912	4.89	68.432	3500	51
Total			**167**	**11.325**			**74.08**	**1934.12**	**3.836**	**668.08**	**1143.26**	**16005.64**	**462000**	**38**

6.9 ECM replace existing 75W ceiling fans with 28W 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.	137
Present load of ceiling fans	kW	10.27
Present monthly energy consumption of ceiling fans	kWh	1789.5
Recommended fan type		Energy Efficient BLDC fan
New Estimated wattage of fan	watt	28
Estimated load of ceiling fan	kW	3.84
Power saving	kW	6.43
% Savings	%	40.27%
New Estimated monthly energy consumption	kWh	668
Estimated monthly energy savings	kWh	1121.5
Estimated monthly carbon emission reduction	Tons	0.91
Estimated monthly monetary savings	Rs.	15699.88
Estimated investment for 1 fan	Rs.	3500
Estimated total investment	Rs.	4,44,500
Average Payback period	Months	37

6.10 Observation& Remark

Sr.No	Area	Observation	Remark
1	Ceiling Fans	At present, conventional ceiling fans of 75W are installed in whole campus. There are total 137 no. of ceilings fans installed Total ceiling fan load is 10.27 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 75W ceiling fans with new energy efficient 28W BLDC fan Estimated new load of fan is 3.84 kW Estimated monthly energy saving is 1121.5 units Estimated monthly carbon emission reduction is 0.91 Tones

7 Requirements of NAAC

7.1 Alternative Energy Initiative

Percentage of power requirement met by renewable energy sources

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

= (2077/2901) X 100

= 71.59% (Energy generated from Solar PV system)

7.2 Percentage of lighting power requirement met through LED bulbs

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

= (99/229) X 100

= 43%

8 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.

8.1 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

8.2 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

9 Initiatives by College towards Waste Management

9.1 Waste segregation

- It was mentioned that separate bins for wet and dry waste, as per the Brihanmumbai Corporation Guidelines, are provided.
- It was also shared that an orientation is conducted for all classes to raise awareness about keeping the environment clean, with regular announcements and posters displayed in every classroom.
- Students are encouraged to take responsibility for maintaining cleanliness in their classrooms and are asked to clean them independently when necessary through activities like Shramdaan.
- The housekeeping staff and gardeners assist with waste segregation, which is done at the source and collected by Safai Karmacharis for proper disposal at the Municipal Corporation's dumping yards.
- Furthermore, it was highlighted that the importance of environmental cleanliness is taught to students through regular announcements in class, and they are urged to maintain cleanliness by cleaning their classrooms as needed.

Below are photo that show the segregation of waste conducted by the college.

Dry & Wet Waste Segregation initiative by college

9.1 Solid Waste Management

- It was noted that waste is collected in an organized manner, segregated into different categories, and then sold to approve vendors for recycling.
- The shift towards a paperless system was highlighted, with the use of electronic methods such as WhatsApp, email, and Google Classroom for office work. Additionally, the practice of using one side of paper for tasks like faxes, printing drafts, meeting minutes, memos, and notes in the office is promoted to reduce waste.
- Students and staff are encouraged to use waste paper and newspapers creatively during workshops and extracurricular activities related to various subjects.
- It was also mentioned that fines are imposed on a class if waste is not properly managed, as both a preventive and primitive measure.
- Regarding bio-medical waste, arrangements have been made for the disposal of sanitary napkins in all washrooms of the college.

Waste to best activity conducted by college

Segregation of plastic waste

9.2 E- Waste Management

- In line with its commitment to sustainable practices, the college recently took a significant step by handing over 179 kg of e-waste for recycling on July 19, 2024. Through this initiative, the college aims to raise awareness about the importance of proper e-waste management and reduce its environmental impact.
- Currently, the extension centre does not have a formal e-waste management system in place. Instead, all e-waste generated within the college premises is collected and stored in a designated cupboard. Once a sufficient amount of e-waste has been accumulated, the college plans to take proactive measures to address the issue. This will likely involve partnering with certified e-waste recycling vendors to ensure the proper disposal and recycling of electronic waste in an environmentally responsible manner.

E-Waste Collection Point Hostel

E-Waste storage in Extension Centre


Greenlife Ewaste Recycling Pvt. Ltd.

CERTIFICATE OF E-WASTE RECYCLING

This Document Certifies the E-waste Collected by Greenlife Ewaste Recycling Pvt. Ltd. were handled in strict compliances with the guidelines set by pollution contr ol board (PC B).

COLLEGE OF SOCIAL WORK NIRMALA NIKETAN (Autonomous)

Has been processed & recycled in a manner that is environmentally safe & compliant with the law for E- Waste management & handling Rules 2016 & 2022.

We appreciate your contribution towards the green environment.

E-waste Management | Secured Data Destruction | Lamp Recycling

E-Waste Recycling Certificate

9.3 Waste Recycle System

- It was stated that the college actively encourages paperless work practices across various departments and activities to reduce paper consumption and minimize waste.
- This initiative aligns with the college's broader environmental sustainability goals, aiming to reduce the ecological footprint of its operations.
- In addition to paperless practices, any paper waste generated by the college is sold to the paper industry for recycling, ensuring that it is repurposed in a way that supports sustainable practices.
- During a Faculty Meeting, a significant decision was made to ban the use of plastic for any college event. This decision reflects the institution's commitment to reducing plastic waste and promoting more eco-friendly alternatives.
- As a result of this policy, paper-made products and cloth bags are now to be used for event kits, replacing plastic items that were previously common at such events.
- This change not only reduces plastic waste but also encourages the use of biodegradable and reusable materials.
- Furthermore, students are encouraged to creatively utilize wastepaper and newspapers in various subject-based workshops, extracurricular activities, and college events.
- This practice allows students to explore innovative ways of reusing materials, fostering creativity and environmental awareness. For example, wastepaper and newspapers are often repurposed to create decorations, art, and other creative projects, such as the backdrop for the Annual Day celebration.
- By incorporating these sustainable practices, the college not only promotes environmental consciousness but also empowers students to take an active role in supporting eco-friendly initiatives within the campus community.

9.4 Vermicomposting plant

Vermicomposting plant had been installed on the extension centre to promote sustainable waste management practices. This initiative was part of the institution's efforts to reduce waste and enhance its environmental sustainability. The plant would be used for composting organic waste, converting it into nutrient-rich soil, which could later be used for the college's gardens and landscaping projects. This step was taken to not only manage waste more effectively but also to educate students about the importance of eco-friendly practices.

Vermicomposting Plant

Metal Waste Segregated

Vermicomposting Plant

10 Initiatives by College towards Water Conservation

10.1 Water Recycling

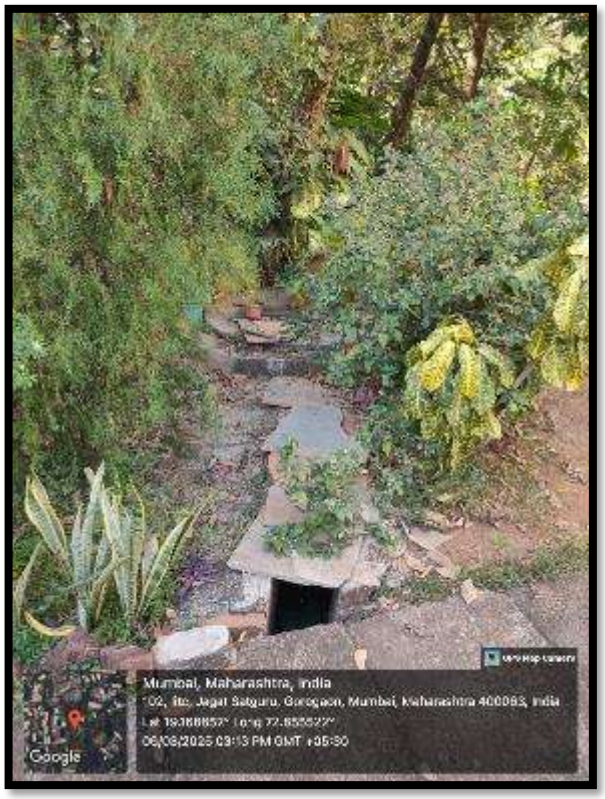
- It was noted that the college has constructed a bore well and tank, both equipped with specially marked red connections, distinct from the municipal water supply system.
- This initiative is designed to conserve water and ensure sustainable practices on campus.
- The bore well and tank are primarily intended for non-drinking purposes, such as washing, gardening, and other essential tasks that do not require potable water.
- By utilizing these resources, the college aims to reduce the consumption of treated municipal water, promoting environmental sustainability and efficient water management across the campus.
- Additionally, a water level indicator has been implemented at the extension center, which automatically cuts off the water supply once it reaches the designated level.
- This system ensures that water is used efficiently and prevents overuse.
- These initiatives highlight the college's commitment to water conservation, demonstrating a proactive approach toward sustainable resource management.
- By incorporating such practices, the college not only conserves water but also sets an example of environmental responsibility for the entire campus community.

Bore well for water conservation

Water level indicator installed in water tank

10.2 Rain Water Harvesting

- The college has implemented a water harvesting initiative at its extension center to promote sustainable water management and conservation.
- This initiative is part of the college's broader commitment to environmental responsibility and efficient resource use. The extension center now has a rainwater harvesting system in place, designed to capture and store rainwater for various non-potable uses across the campus.
- The rainwater collected through this system is directed to a dedicated storage tank, which is then used for activities such as landscaping, gardening, and other operational needs that do not require potable water.
- By harnessing rainwater, the college reduces its reliance on municipal water supply, thereby conserving valuable water resources and lowering the institution's overall water consumption.
- In addition to the physical infrastructure, the college has also raised awareness among students and staff about the importance of water conservation.
- Educational campaigns, workshops, and informational materials are provided to emphasize the role that water harvesting plays in sustaining the environment.
- This initiative not only helps in reducing the campus's environmental impact but also sets an example for students and the local community about the importance of sustainable water practices.
- The college's water harvesting efforts at the extension center demonstrate a proactive approach to managing natural resources efficiently and contribute to the institution's broader environmental sustainability goals.



Rain Water Harvesting in Extension Centre

11 Initiatives by College towards Green Campus

- The college takes immense pride in its meticulously maintained landscaping, which is not only aesthetically pleasing but also serves an environmental purpose. The campus features a diverse array of trees and plants, many of which are known for their medicinal properties. This rich variety of flora contributes to the overall ecological health of the environment, while also offering valuable resources for research and learning. The landscaping design focuses on sustainability and creating a green, vibrant atmosphere that enhances the college's commitment to environmental conservation.
- As a token of appreciation, guests and visitors to the college are often presented with saplings from the college garden. This gesture not only symbolizes the institution's dedication to environmental stewardship but also encourages individuals to participate in green initiatives by planting and nurturing these saplings in their own environments. These thoughtful gifts reflect the college's values of promoting sustainability and fostering a connection with nature.
- In keeping with its strong commitment to environmental responsibility, the college has taken a firm stance against the use of plastic on campus. Recognizing the detrimental effects of plastic on the environment, the institution strictly prohibits its use in all activities and events. Instead, the college prioritizes the use of eco-friendly alternatives, such as materials sourced from paper and indigenous materials. This policy ensures that every event, workshop, and gathering adheres to the principles of sustainability, minimizing waste and supporting the college's broader goal of promoting environmental stewardship and responsible resource use. Through these initiatives, the college not only creates a cleaner, greener campus but also sets an example for students, staff, and the community in adopting environmentally conscious practices.

Landscapes & Pedestrian Friendly Pathway in Extension Centre

Landscapes & Pedestrian Friendly Pathway in College Campus

Landscapes & Pedestrian Friendly Pathway in College Campus

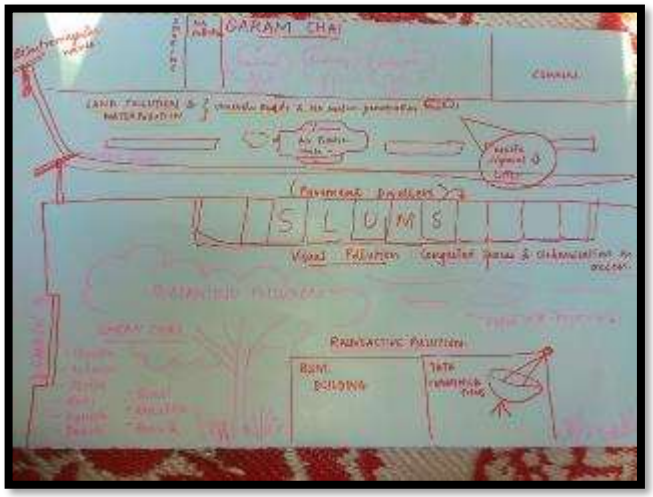
12 Initiatives by College against Pollution

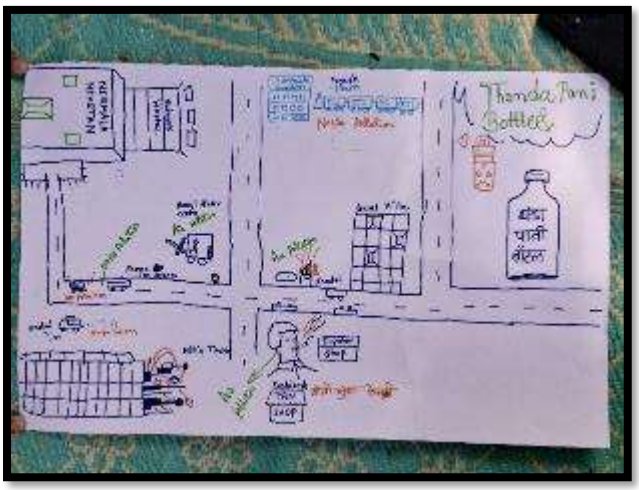
College of Social Work (Autonomous) Nirmala Niketan is a pioneering institute in the field of social work. With over 70 years of legacy in social work, the institution has been actively involved in addressing various social issues through its academic programs and rigorous field interventions. Additionally, nature and environmental conservation have been integral components of these efforts. The college has made numerous contributions in these areas, which were highlighted below:-

12.1 Pollution Mapping

Sustainable Development is an inevitable concept when it comes to social sector. Development plans of the government as well as Non-Government Organizations always revolve around the Sustainable Development Goals. In order to give a better understanding and clarity for the students in the area of sustainability, an elective paper is introduced for the second year masters students titled; Sustainable Development and Environment. As part of this programme, a pollution mapping was introduced combining the lessons on different kinds of pollution and the PRA technique of community mapping in social work on 21.09.2024. The mapping took place within 500 meters radius of College of Social Work (Autonomous) Nirmala Niketan. Students were divided into groups and were sent to the surrounding areas and asked to observe the different types of pollution they come across during their walk.

Students were asked to map the pollution once they are back after their visit.





Discussions were facilitated by the faculty member and the students shared the various pollutions such as air, water, soil, noise and so on. Students also provided various sollutions that can be put into practice in order to prevent these pollutions.

12.2 Oath against Noise Pollution

Noise pollution remains a serious concern especially in the cities. Mumbai being a fast growing metropolitan city, also witnesses development at a speed that is much higher than most of the cities in the country. Along with increase in the infrastructural facilities and other advancements, increasing pollution is also the flip side of the coin. Noise pollution, although being a serious concern in cities, becomes the least discussed types of pollution. Though there are few efforts by the government and the municipal corporations to curb this issue, it still remains one of the major concerns which will also have serious impact on the quality of human life. In order to spread an awareness about the reality of noise pollution and also to ensure responsible behavior among the students towards reducing and controlling noise pollution, an oath was taken by College of Social Work on 21.02.2025 at 12.00 noon. More than 300 students and faculty members and staff participated in the oath taking.

The oath taking ceremony instilled a sense of responsibility among the students and staff members towards the society. It touched upon the areas of honking in public, soundproofing, usage of excessive fire crackers, high frequency mike systems and so on.

13 Green Initiatives by College towards Course Offered

In response to the growing global concern over environmental degradation, climate change, and sustainability, educational institutions have integrated green initiatives into their curricula. The **Environmental Studies** course for **BSW I** and the **Sustainable Development** course for **MSW II** have been designed to equip students with knowledge, skills, and attitudes necessary for promoting ecological balance and social responsibility. These courses aim to foster environmental stewardship, sustainable practices, and an understanding of the interdependence between social work and ecological well-being.

Integration of Green Initiatives in Environmental Studies (BSW I)

The Environmental Studies course for BSW I focuses on building a foundational understanding of environmental issues and their impact on individuals, communities, and social work practice. The curriculum incorporates green initiatives in the following ways: Sustainable Development (MSW II) and Green Initiatives

The **Sustainable Development** course for **MSW II** expands on the foundational concepts from BSW I and integrates advanced strategies for promoting sustainability in social work.

The **Environmental Studies** and **Sustainable Development** courses are strategically designed to prepare students for integrating green initiatives into social work practice. By fostering environmental consciousness, sustainable interventions, and policy advocacy, these courses contribute to creating socially responsible professionals capable of addressing global ecological challenges. Through education and action, students are empowered to drive change towards a greener and more sustainable future.

14 Initiatives by College towards Sustainable Development

The College has a history of innovation in intervention in problem situations. Field Action Projects (FAPs) initiated by Faculty Members with student participation have played a major role in establishing the College as a leadership training institute. Many of the FAPs evolved into Non-Governmental Organizations contributing to the development of marginalized sections in India. These FAPs have worked on issues ranging from dowry-related violence, prostitution, communal violence, malnourishment, disability, and HIV/AIDS; the target groups include women in distress, street children, mentally challenged children, children of sex workers, youth, tribal communities, and the urban poor.
In alignment with the sustainable development goals and the vision statement of the College to build a social order based on human dignity and social justice, the FAPs strive to reach the most marginalized communities.

14.1 Spandan: A Sustainable Development Initiative

Spandan, a Field Action Project of the College, promotes sustainable development for better livelihood and focuses on malnutrition issues in the Talsari and Dahanu blocks of Palghar district, Maharashtra. The initiative supports Indigenous groups by addressing livelihood, health, and nutrition challenges. Spandan operates from the Gyanjyoti Community College, Karajgaon, which provides skill-based education accessible to marginalized communities with an emphasis on Indigenous groups. The focus is on a flexible and open education system catering to community-based lifelong learning needs.

Recognizing the severe impact of malnutrition in tribal areas, Spandan initially conducted a baseline survey and participatory research appraisal to identify community issues. The findings revealed interconnected problems such as traditional subsistence agriculture, migration, lack of awareness about nutrition, improper dietary habits, substance abuse, child motherhood, preference for home deliveries, lack of breastfeeding awareness, poor education, dropout rates, limited access to medical facilities, disability, mental health concerns, and livelihood issues.

Spandan launched an Integrated Development Approach and Participatory Intervention model to address these concerns. Currently, it operates in multiple villages across various hamlets.

14.2 Satwaahar: Promoting Sustainable Nutrition Gardens

The Satwaahar program focuses on setting up eco-friendly projects, particularly nutrition gardens, to improve families' food security and dietary conditions. The initiative has included:

- Training programs on sustainable farming practices and eco-friendly gardening techniques.
- Establishing community and school-based nutrition gardens with support from partner organizations.
- Distribution of seeds to promote local-level sustainable farming practices.
- Herbal medicinal training to encourage the use of natural remedies.
- Development of model nutrition gardens to serve as training and demonstration sites

Below are the locations & photos where all this activities conducted:

Udhwa Jambalunpada

Ganjad Dasrapada

Raipur Gavalipada

Gangangaon Jitgaon Khomarpada

14.3 Unnati: Eco-Friendly Livelihood Training

The Unnati project provides alternate livelihood options through eco-friendly skill development initiatives, including:

- Training on coconut shell artefact production, where participants learn sustainable crafting techniques.
- Bamboo artefact training in collaboration with research and training institutions, equipping participants with the skills to create eco-friendly products such as vases, mats, photo frames, and pen stands.
- Sales of eco-friendly bamboo products through various community markets and institutions, promoting sustainable economic opportunities. Below are some records and photos that show the activities conducted by the college.

Coconut shell decoration

Coconut shell earring

Coconut shell key chains

Pen stand

15 Initiatives by College on Environmental Justice

Session on environmental justice was conducted for the students of Shailendra Degree College at Rajiv Gandhi National Park. The session, which aimed to raise awareness about environmental justice issues, engage the community, and inspire action for a sustainable and equitable future, was attended by 78 students. The session commenced at 11:30 am.

The session began with an ice-breaking game led by student social worker Mansi, under the guidance of Mr. Sandesh Lalge. In the game, students were asked to collect stones and leaves. They were then paired up, and in the first round, they placed the stones between them, with the goal of grabbing it as quickly as possible when instructed. In the second round, the same activity was repeated, but with leaves replacing the stones. The game helped set the tone for the session, offering both fun and a deeper lesson.

After the game, the student social workers began the main discussion. Mansi first explained the concept of the environment, emphasizing the distinction between biotic and abiotic elements, and discussed how human actions impact the environment. Then, Antara introduced the concept of environmental justice, focusing on the fairness of how environmental harms are distributed. Finally, Rutuja highlighted several critical environmental issues, including climate change, air pollution, water pollution, wildfires, global warming, deforestation, and loss of biodiversity.

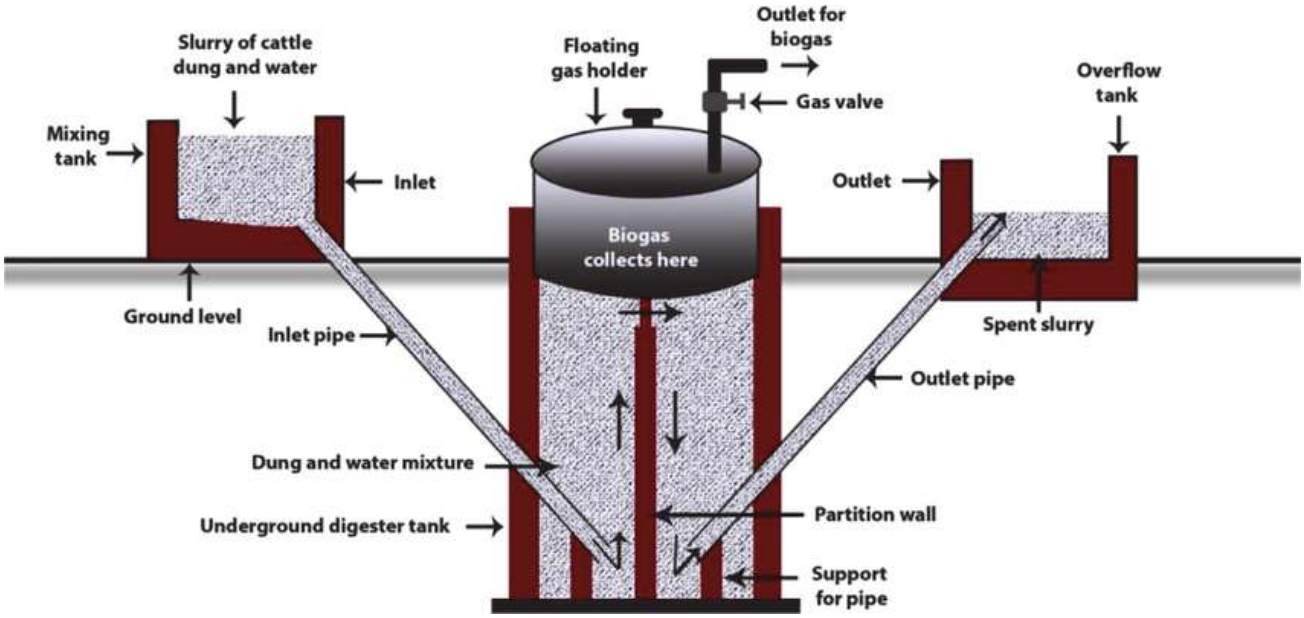
Following this, Mr. Sandesh elaborated on the purpose behind the ice-breaking game. He explained that while students competed to grab the leaf, they unknowingly broke it into two parts, illustrating how people exploit resources for their own benefit, often without considering the consequences.

Mr. Santosh Mekale, the State Youth Coordinator of the Yashwantrao Chavan Centre, also participated in the session. He engaged the students in a song and emphasized the need for individual actions to protect the environment.

The session proved to be an interactive and insightful experience for the students. They not only gained a better understanding of environmental justice but also recognized the importance of addressing environmental issues equitably, ensuring that vulnerable communities are not unfairly affected. The students were highly engaged throughout the session, offering thoughtful responses to the questions posed and reflecting on the injustices happening to the environment. The ice-breaking game was particularly effective in making the students realize the real-world implications of their actions on the environment.

16 Bio-Gas Production from Biodegradable Waste

The biodegradable waste material is effectively utilized for the production of bio-gas. This process involves the segregation of organic waste, such as food scraps and other biodegradable materials, from the general waste stream. The collected waste is then processed in a bio-digester, where it undergoes anaerobic digestion. During this process, microorganisms break down the organic matter, producing bio-gas, primarily methane, which can be used as a renewable energy source. This initiative not only helps in waste management but also contributes to reducing the college's reliance on traditional energy sources, promoting environmental sustainability.



Biogas installed at Gnanjyoti Community College by the College of Social Work Nirmala Niketan

17 Use of Solar PV System for Power Generation

As a source of renewable energy, the Solar Photovoltaic system is currently in use.

Total Capacity: 30 KW / 10 KW

Solar Photovoltaic System 1: College – Capacity 30 KW, Installed in 2019

Solar Photovoltaic System 2: Extension Centre – Capacity 10 KW, Installed in 2019

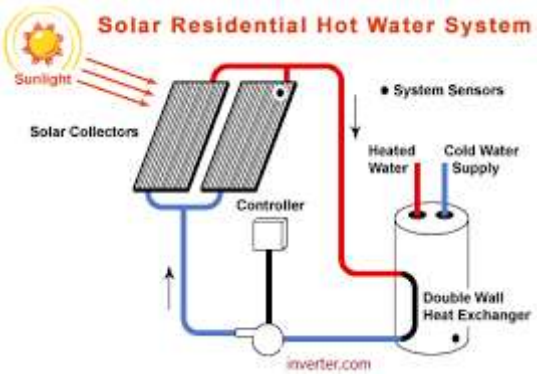
This initiative not only supports the college's goal of promoting renewable energy but also plays a crucial role in combating climate change and fostering a more eco-friendly campus environment.

10kW Solar PV System Installation on College Rooftop

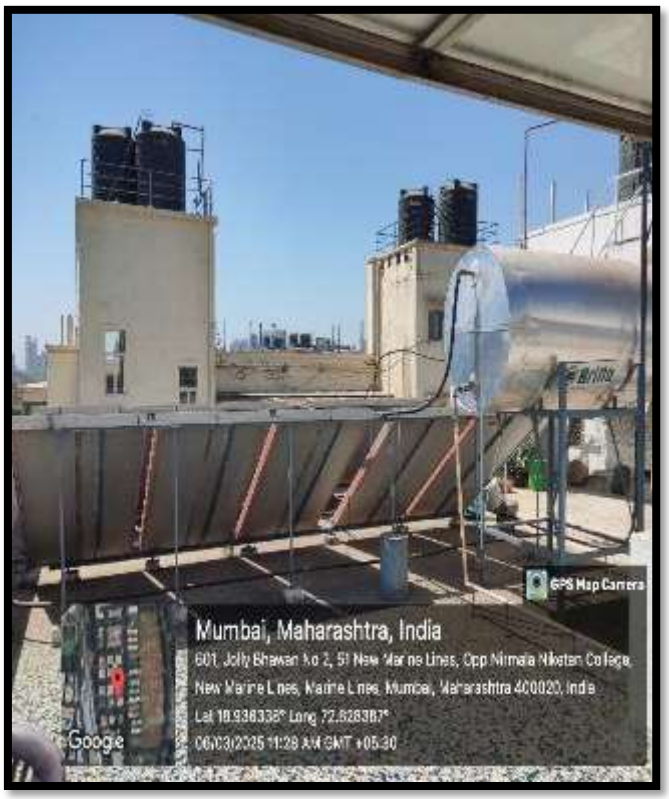
30kW Solar PV System Installation on Extension Centre Rooftop

18 Use of Solar PV System for water heating

The college hostel has successfully installed a solar photovoltaic (PV) plant for water heating, harnessing renewable energy to provide an eco-friendly and cost-effective solution for heating water, while reducing the campus's carbon footprint.



Solar Water Heater Installation In Extension Centre



Solar Water Heater Installation in College/ Hostel