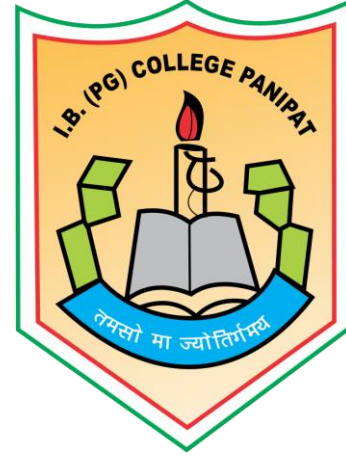


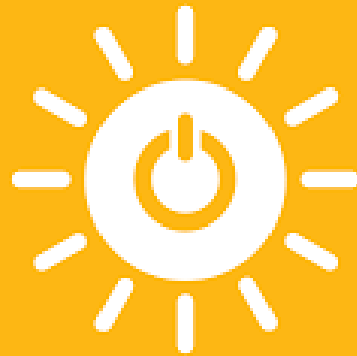
I.B. (PG) COLLEGE, PANIPAT



SUSTAINABLE DEVELOPMENT GOALS



7 AFFORDABLE AND
CLEAN ENERGY



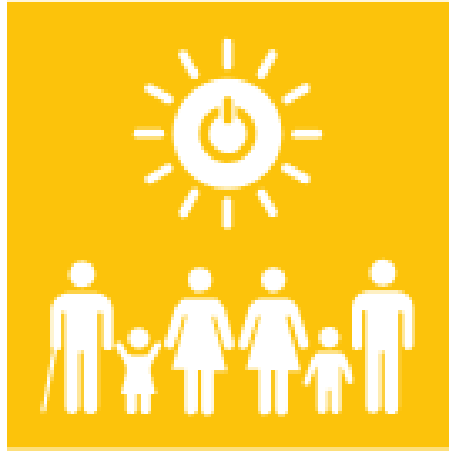
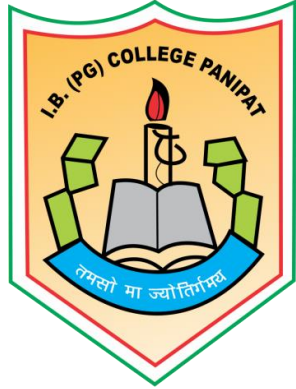




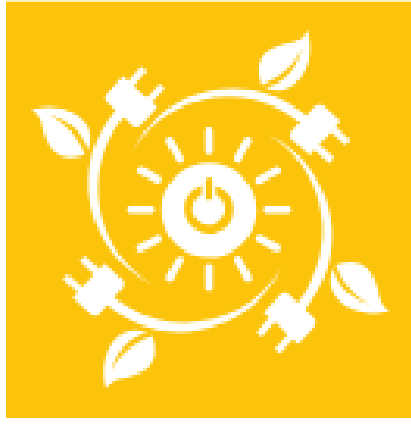
7 AFFORDABLE AND CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all.



UNIVERSAL ACCESS TO MODERN ENERGY



INCREASE GLOBAL PERCENTAGE OF RENEWABLE ENERGY



PROMOTE ACCESS TO RESEARCH, TECHNOLOGY AND INVESTMENTS IN CLEAN ENERGY



Green Initiatives: Energy Conservation and Environment Consciousness

- **Energy Audit and Green Audit (State Level Energy Conservation Award)**
- **ISO 9001:2015 and ISO 14001:2015 certification**
- **Grid Connected Roof Top Solar Panel system for electricity (50 kW)**
- **Environmental Studies- a part of the curriculum**
- **Electronic medium for notices to promote paperless working of the office**
- **The entire campus is 'No Smoking Zone'**
- **Tree plantation drives, distribution of cloth/jute bags, rallies and other awareness programmes etc.**
- **Labelling of trees with Common and Botanical names**



Green Initiatives: Energy Conservation and Environment

Consciousness

- **‘Save-Energy’ stickers have been pasted on all switch boards**
- **Eco-friendly mementos to guests in the form of plant saplings in functions**
- **During “Hawan” ceremonies (organized monthly), organic substances such as medicinal herbs, ghee, and wood are carefully chosen as offerings, fostering sustainability and eco-friendliness**
- **Appreciation from Chief Minister of Haryana, Local MPs, MLA and Gram Panchayat**
- **Memorandum of Understanding (MoU) with Exigo Recycling Private Limited, Panipat**
- **Promotion of Plastic –Free Environment**
- **Implementation of energy-efficient solutions such as LED lighting and three to five-star rated air conditioning units**



Glimpses of Green Initiatives



15-04-2024



6



Glimpses of Green Initiatives

Hawan Ceremonies



Vermi-Compost Unit



Installed Solar Panels



15-04-2024



Our College is Contributing significantly towards achieving the Sustainable Development Goal (SDG) of “Affordable and Clean Energy (SDG 7)” through various initiatives and actions:

Reducing Energy Consumption

Energy Audits: College regularly conducts energy audits to identify areas where the college can improve energy efficiency.

Energy-Efficient Upgrades: College has invested in energy-efficient upgrades like LED lighting, and high-efficiency appliances in buildings across campus.

Behavioral Change Campaigns: College conducts awareness campaigns to educate students and staff about the importance of conserving energy. This also involves promoting responsible practices like turning off lights and electronics when not in use.



Implementing Clean Energy Solutions:

Renewable Energy Sources: Solar Panels have been installed in the campus.

Microgrid Development: A microgrid system has been developed. A microgrid allows the college to generate, distribute, and manage its own electricity, potentially including a mix of renewable and traditional sources.

Green Building Practices: College has incorporated green building practices into new construction projects (the new science block). This involves maximizing natural light.

Education and Awareness

College works on raising awareness among students, faculty, and staff about the importance of clean energy and sustainability. Sustainability principles have been integrated into the curriculum



CERTIFICATE

This is to Certify that
Environmental Management System
of

I.B. COLLEGE, PANIPAT
(ESTD. 1956)

G.T.ROAD, PANIPAT-132103 (HARYANA), INDIA

has been independently assessed by DBS
and is compliant with the requirement of:

ISO 14001:2015

For the following scope of activities:

***IMPARTING HIGHER EDUCATION TO UNDERGRADUATE AND
POSTGRADUATE STUDENTS IN DIVERS AREAS OF ACADEMICS AND
TO PROVIDE FURTHER SUPPORT SERVICES***

Certificate Number: Draft

Date of Certification:	13th October 2021
1 st Surveillance Audit Due:	12th October 2022
2 nd Surveillance Audit Due:	12th October 2023
Certificate Expiry:	12th October 2024

This Certificate is property of DBS Certifications and remains valid
subject to satisfactory surveillance audits

Head of Certification



The certificate remains the property of DBS Certifications Private Limited, to whom it must be returned upon request.

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ACCREDITED BY :

International Accreditation Service (IAS) 3060, Saturn Street Suite 100, Brea, Ca 92821-1732, United States of America

15-04-2024



CERTIFICATE

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Quality Management System
of

I.B. COLLEGE, PANIPAT
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10



State Level Energy Conservation Award by Hon'ble Energy Minister, Haryana Sh. Ranjeet Singh, IAS Secretary Haryana Energy





No-2630

Date:- 11/07/23



Certificate for promoting Green Energy



This certificate is awarded to

I.B. (PG) College, G.T. Road, Panipat

in recognition of the successful installation of a Solar Power Plant-50 KW and hence contributing significantly to energy conservation efforts in the college premises by promoting Green Energy.

This achievement demonstrates the college's commitment to sustainable practices and the advancement of renewable energy sources. By harnessing the power of solar energy, the college has taken a significant step towards reducing its carbon footprint and promoting a cleaner and greener environment.

The solar power plant installed at the college has made a significant impact on energy conservation, providing a reliable and sustainable source of electricity. The efforts put forth by I.B. (PG) College, G.T. Road, Panipat in embracing solar energy as an alternative power source are commendable. By adopting this eco-friendly solution, the college has set a remarkable example for other educational institutions to follow in their quest for a more sustainable future.

This certificate is presented to I.B. (PG) College, G.T. Road, Panipat as a testament to their commitment to energy conservation and sustainable practices.

The Department of New & Renewable Energy, Panipat extends heartfelt congratulations and best wishes to I.B. (PG) College, G.T. Road, Panipat for their outstanding achievements in energy conservation.

Project Officer
New & Renewable Energy Deptt.
Panipat ✓

ACKNOWLEDGMENT

We profoundly thank the officials of **I.B. College, Panipat** for entrusting us with the work of conducting Green & Energy Audit at **I.B. College, Panipat** and giving us an opportunity to be a part of spreading the awareness of Energy Efficiency and Audit of building by making it a showcase example of Green & Energy Efficient Building.

We express our immense gratitude to **Dr. Ajay Kumar Garg, Principal and Prof. Ajay Pal Singh, Asst. Prof., Deptt. of Commerce** for extending their utmost cooperation and help in coordination for Green & Energy Audit of **I.B. College, Panipat**. We are also thankful to all technical staff for their active help during data collection.

Further, we would like to express our gratitude to all the officials for providing us with the required support to complete the task successfully.

PGSEPL Team looks forward to associating with you in your future endeavours.

Pradeep Dhingra
AEA-191

(Accredited Energy Auditor)

(Green and Energy Audit)





2022-23

Green & Energy Audit Report

PGS
Energy Services (P) Ltd.

**I.B. COLLEGE, PANIPAT
G.T. ROAD, PANIPAT
HARYANA-132103**



CHANGE FOR
GREEN

GREEN IS NO LONGER AN OPTION.
IT'S THE ONLY WAY FORWARD...

SAVE THE EARTH

BECOME A GREEN CITIZEN



“Whenever someone saves energy, or uses it more efficiently, he reduces the demand for oil, coal, electricity etc. Less consumption of these means lower emission of carbon dioxide in the atmosphere that is the major contributor to global warming. Your discretion in energy conservation can help emit less global warming pollution”

Table of Contents

CORPORATE OVERVIEW OF THE AUDITING FIRM	6
PGSEPL STUDY TEAM	6
BACKGROUND & SUMMARY	8
1. METHODOLOGY OF STUDY	12
□ Instruments used for the study	13
□ Building Energy Bill Analysis	14
2. ELECTRICAL SUPPLY AND DISTRIBUTION SYSTEM	15
□ Transformer	15
□ Diesel Generator System	16
3. ELECTRICAL UTILITY LOAD	17
Pumps	17
Motors	17
Water Cooler	17
Refrigerator	18
Air Condition System	18
Lighting System	21
4. Water Audit	34
5. Solid Waste Audit	37
6. RESULTS AND CONCLUSION	39
ANNEXURES7. RESULTS AND CONCLUSION	39
ANNEXURES	40

**ABBREVIATIONS**

AEA	Accredited Energy Auditor
ASSOCHAM	Associated Chambers of Commerce and Industry of India
ACs	Air Conditioners
ECRM	Energy Conservation & Retrofit Measures
EE	Energy Efficiency
EER	Energy Efficiency Ratio
ESCO	Energy Service Company
FMCG	Fast Moving Commercial Goods
FTL	Fluorescent Tube Light
GEF	Global Environment Facility
GHG	Green House Gases
GLS	General Lighting Service (Incandescent Lamp)
ILER	Installed Load Efficacy Ratio
IRR	Internal Rate of Return
JAPCC	Jharkhand Action Plan on Climate Change
kVA	Kilo Volt Ampere
kW	Kilo Watt
kWh	Kilowatt Hour
LED	Light Emitting Diode
MoEFCC	Ministry of Environment, Forest and Climate Change
MRV	Monitoring, Reporting and Verification
MTOE	Metric Tonnes of Oil Equivalent
MU	Million Units
MWh	Megawatt Hour
NAPCC	National Action Plan on Climate Change
NPV	Net Present Value
O&M	Operation and Maintenance
PF	Power Factor
RE	Renewable Energy
ROI	Return on Investment
SAPCC	State Level Action Plan on Climate Change
SEC	Specific Energy Consumption
tCO ₂ e	Tonnes of CO ₂ equivalent
TR	Ton of Refrigeration

ACKNOWLEDGMENT

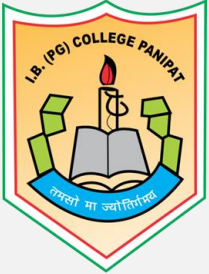
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PGSEPL Team looks forward to associating with you in your future endeavours.

Er. Pradeep Dhingra
(Accredited Energy Auditor)



CORPORATE OVERVIEW OF THE AUDITING FIRM

PGS Energy Services Pvt. Ltd. is an Accredited Energy Auditor and ESCO Empanelled firm with Bureau of Energy Efficiency, (BEE), Ministry of Power, Govt. of India. The EC Act 2001 was the first major legislative Act to institutionalize energy conservation efforts. BEE and State Designated Agencies (SDAs) act as nodal agencies cum regulators for implementing the Act at National and State levels respectively to reduce *Energy Intensity in the Economy*. We are also working as Energy Professional with BEE & EESL for Perform Achieve & Trade (PAT scheme).

A well-conducted Green and energy audit would reveal areas of wastage of energy and if recommendations are implemented by the concerned organization, a significant reduction in energy consumption levels can be achieved.

We offer value added services in the field of Energy Conservation which leads to increased Efficiency and reduction in operational costs. "Our vision is a prosperous future for our country where energy is Clean, Abundant, Reliable and Affordable."

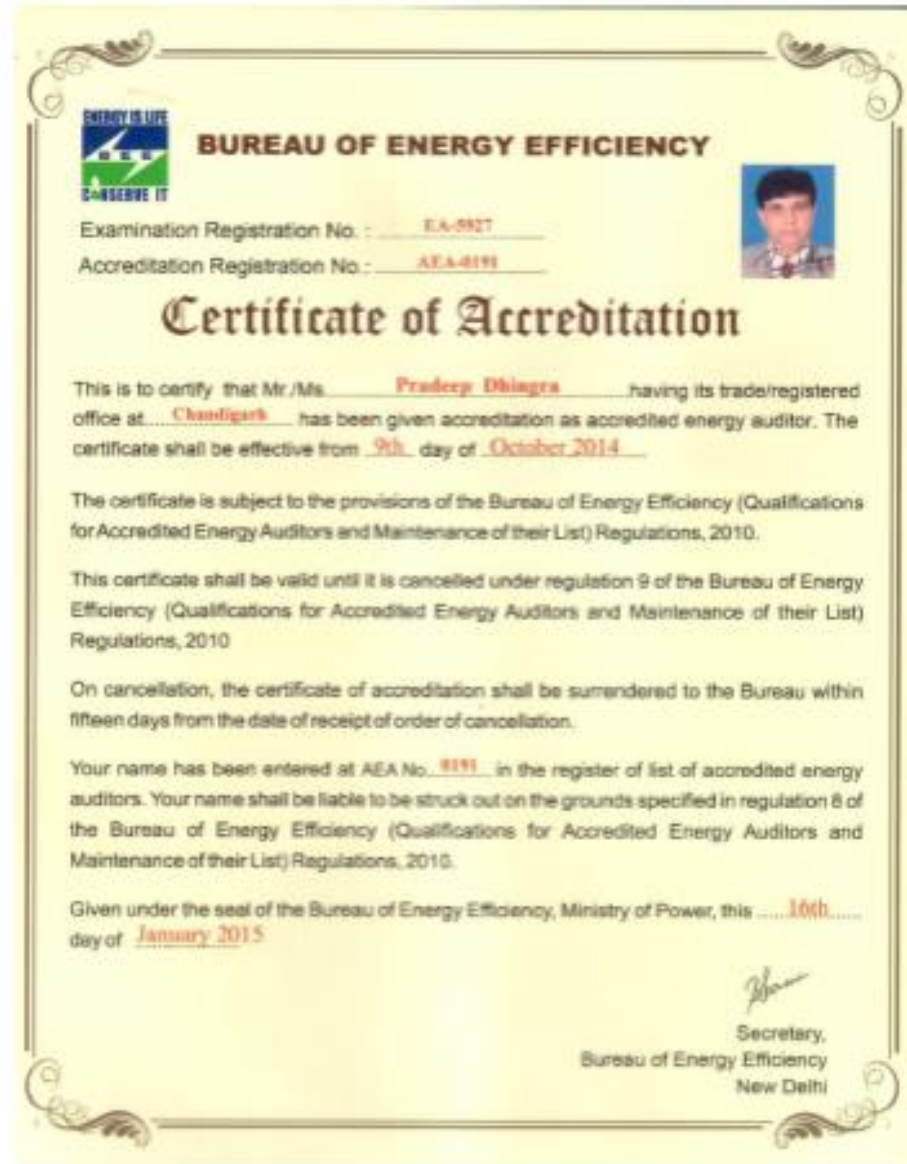
Core Activities of our business are:

- Comprehensive Energy Audits of Electrical & Thermal utilities, Harmonics Study & Analysis and solution to reduce harmonics, Thermography, Noise level study of furnaces, boilers etc, Star rating of existing buildings, BPO & Hospitals
- Renewable Energy (Solar) Power projects
- Total Energy Management solution, DPR for Biomass, Co-generation, & WHRS projects
- PAT Consultancy, Mandatory Energy Audit under PAT *
- Investment Grade Energy Audit of commercial buildings

PGSEPL STUDY TEAM

Green and Energy Audit team participated in study

1. Er. Pradeep Dhingra - AEA
2. Dr. Balkar Singh - CEA
3. Mr. Manish Mishra - CEA
4. Mr. Upkar Rathore - Asst. Manager
5. Er. Ratnesh Kumar - Engineer
6. Er. Arjun Kumar - Engineer





BACKGROUND & SUMMARY

The building sector in India is growing at a rapid pace and now there is an imminent need to introduce green concepts and techniques in this sector, which can aid growth in a sustainable manner. The green concepts and techniques in the building sector can help address issues like water efficiency, energy efficiency, reduction in fossil fuel use for commuting etc. Most importantly, these concepts can enhance occupant health, productivity and well-being.

IGBC's GRIHA rating system takes into account the provisions of the National Building Code 2005; the Energy Conservation Building Code 2007 announced by BEE (Bureau of Energy Efficiency) and other IS codes and evaluate the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a 'green building'.

To comply with GRIHA criterions and ECBC building norms, Green & Energy Audit is an essential step towards energy management, includes assessment of current energy performance and evaluation of energy performance index of the building.

In this view to assess the environmental impact & building energy & water usage I.B. College, Panipat has awarded the job of "Green & Energy Audit of I.B. College, Panipat at G.T. Road Panipat, Haryana-132103" to PGS Energy Services Pvt. Ltd. on as per actual year thought the competitive bidding process as per procedure in vogue.

• I.B. College, Panipat Facility

I.B. College, Panipat is a premier co-educational institution in Haryana. It was founded in 1956 in the memory of the well-wisher of Leiah Biradari Late Sh. Inder Bhan Dhingra. Keeping in view the requirement of education for women, Late Seth Brij Lal Dhingra with the help of his energetic friends Late Sh. Shanu Lal Narang & Late Sh. Sukh Dayal Sachdeva, founded this College for women only. In 1966, the College started working as a co-educational institute. The College progressed by leaps and bounds under the leadership of Late Dr. Somnath Dhingra and Late Sh. Ram Kishan Gandhir who worked in the capacity of erstwhile President & Vice President respectively.

At present, it has a student strength of more than 3000, with 126 teaching staff and more than 90 non-teaching staff members. The College has the honour to own a sprawling campus with well-ventilated classrooms, fully-equipped science labs, computer labs and

spacious AC seminar hall. In the pursuit for excellence, the College is constantly upgrading its infrastructure and in the same direction, construction of a new and modern science block is in full swing. The College has steadily built up over the past six decades, maintaining high traditions of scholastic excellence along with the culture of discipline and social service. The overall goal is to prepare the students to play roles in the society with responsibility and commitment.

Electrical power: The establishment has a 0.4 KV H.T. connection from Uttar Haryana Bijli Vitran Nigam limited. The contract demand/ Electrical load of the unit is 450kW. The campus has Solar SPV of capacity 50 kWp and a backup of two Diesel Generators of 125 kVA & 70 kVA.

Building Area: The College have 5 blocks inside the campus including Commerce block, Arts block, BBA/BCA block, Girls wing block and Science block with a small garden at the center of the campus. The built-up area details are as below:

SN	Block	No of floors x floor area (sq. ft)	Block built up area (m ²)
1	Commerce block	3 floors x 21033 sq. ft	1954 m ²
2	Arts block	3 floors x 6279 sq. ft	583 m ²
3	BBA/BCA block	3 floors x 5446 sq. ft	506 m ²
4	Girls wing block	4 floors x 4128 sq. ft	385 m ²
5	Science block	5 floors x 11412 sq. ft	1060 m ²
	TOTAL	Floor area: 173194 sq. ft.	Built up area: 4488 m²



Critical Comments

- 1.) The I.B. College, Panipat has contracted load 450 kW and there are 2 Nos. Transformer as 1X250 KVA and 1X 63KVA transformer. During audit, load at 2nd Transformer 63KVA was very low.
- 2.) The transformer has total harmonics distortion Thdv 2.5% and Thdi 12.4 % Which are within the limits.
- 3.) In the institute solar is grid connected and the capacity of solar is 50 kWp.
- 4.) The energy consumption of all utilities has been taken into consideration for EPI analysis since it is the total consumption of DG and EB power.
- 5.) DG sets are used for only during emergency and grid power shut-off. A trail run was made during data collection and the performance evaluation is presented.
- 6.) We checked ACs which are inefficient and operating at Low efficiency which leads to high power consumption. It is suggested to replace with BEE 5-star models.
- 7.) Water audit is also done and its consumption and recycle details also mentioned in the report.
- 8.) College authorities maintained Solid & E waste management and the details are mentioned in the report.
- 9.) In lighting section, ILER is calculated and recommended to replace CFL and tube light with LED lights.
- 10.) The Institute have Energy Performance Index (EPI) unit as below:

Particulars	EPI (kWh/annum/m ²)
As per EB bill + DG power + Solar	24.66 kWh/annum/m ²

Table 32.1 Green & Energy Audit data

A. Energy Consumption			
SN	Item	Value	
1	Name of the building	I.B. (PG) College, G.T. Road, Panipat, Haryana	
2	Type of building (office, institution, hotel, hospital, and so on)	Institution	
3	Working hours(day working/24hour working)	8	
4	Working days/week (5/6/7 days per week)	6	
5	Area of the building (exclude parking, lawn, roads, and so on)	1. Built Up Area (m ²) (Excluding Basement Area)	4488
		2. Conditioned Area (in m ²)	1379
		3. Conditioned Area (as % of Built-Up Area)	15.6
6	Connected Load(kW) or Contract Demand(kVA)	450 kW	
7	Installed capacity of DG/GG sets (kVA or kW)	No.	2
		Capacity	125+70 kVA
8	Installed capacity of Transformers (kVA)	No.	2
		Capacity	250+50 kVA
9	Installed capacity of Air Conditioning system (TR)	22.5	
10	Installed Lighting load (kW)	20	
11	a) Annual Electricity consumption, purchased from utilities (kWh)	105689	
	b) Annual Electricity consumption, through diesel generating (DG)/ gas generating (GG) sets (kWh)	4988	
	c) Total annual Electricity consumption, utilities + DG/GG sets (kWh)	110677	
12	a) Energy consumption for lighting (kWh) (data collected from indoor lighting sub meter)	42824	
	b) Energy consumption for HVAC (kWh)	<ul style="list-style-type: none"> • HVAC plant/AC units (Data collected from HVAC sub meter/ AC unit) • AHU fans (Data collected from AHU fans sub meter) 	85506.24 N/A
13	HSD (or any other fuel oil used, specify)/ gas consumption in DG/GG sets (litres/cu metres) in the year	2371	
14	Fuel (FO, LDO, LPG, NG) used for generating steam/water heating in the year (in appropriate units)	NA	
15	EPI (Energy Performance Index) Energy includes electricity purchased and generated (excluding electricity generated from onsite renewable resources)	kWh/m ² /year	24.66

During the course of the audit, we followed the standard methodology and procedures as prescribed by Bureau of Energy Efficiency (BEE) and as per the requirements of GRIHA. The basic approach followed during the audit was first to establish a rapport with the management of I.B. College, Panipat by giving them information the basic purpose of the audit and then gathering the requisite information and verifying the information provided in a systematic manner with the cooperation and support of staff as well as independent evaluation by the audit team wherever needed and feasible. The audit and preparation of report was done in an atmosphere of mutual exchange of information and ideas and mutual concurrence on the substance of final report. During the audit there was continual interaction between the staff and audit team on the various aspects of operation, equipment, maintenance and possible outcomes. This was done to ensure that any setup made regarding energy conservation and environmental benefit are as realistic and practical as possible and can be implemented with minimum disruptions to existing eco-system in a cost-effective manner within a reasonable time-frame.

The main basic steps followed during the course of the audit are as follows:

- Fixing dates for site visit and chalking out other details
- Discussions with management and staff about data collection as per scope of work
- Visit to utility & building area for collection & recording of energy data with calibrated instruments.
- Identification and study of the major energy equipment.
- Preparation of the draft audit & validation report.
- Presentation of the draft report and discussions with College management for their acceptance of the report.
- Preparation of final report with any changes if necessary and submission of report.

• Instruments used for the study

The specialized measuring instruments that were used to support the audit investigations and analysis are listed below:

- Krykard Power Analyzers – 3 Phase & Single Phase
- Lux Meter
- Hygrometer
- Anemometer

Instruments Used

Figure 1: Instruments used



Electrical Measuring Instruments:

These are instruments for measuring major electrical parameters such as kVA, kW, PF, Hertz, kVAr, Amps and Volts. In addition some of these instruments also measure harmonics.



Infrared Thermometer:

This is a non-contact type measurement which when directed at a heat source directly gives the temperature read out. This instrument is useful for measuring hot spots in furnaces, surface temperatures etc.



Lux meters:

Illumination levels are measured with a lux meter. It consists of a photo cell which senses the light output, converts to electrical impulses which are calibrated as lux.



Speed Measurements:

In any audit exercise speed measurements are critical as they may change with frequency, belt slip and loading.

A simple tachometer is a contact type instrument which can be used where direct access is possible.



Building Energy Bill Analysis

Auditors collected the energy bills of previous years and the details have been presented below:

Table 1: Building Energy Bill Analysis
Electricity Bill IB Collage Panipat - 2022-23

S.No	Month	Account No; 5173940000					Account No; 3566221023				
		kWh	kVAh	PF	SD (kVA)	MD1 (kVA)	Solar Generated kWh	Grid kWh	Total kWh	SD (kW)	
1	May-22	11336	11338	1.0	150	70.92	4880	0	4880	49.90	
2	Jun-22	11548	11546	1.0	150	75.80	3660	1358	5018	49.90	
3	Jul-22	10326	10324	1.0	150	82.80	5660	3402	9062	49.90	
4	Aug-22	8922	8924	1.0	150	56.28	5380	1380	6760	49.90	
5	Sep-22	11150	11150	1.0	150	92.52	7280	3000	10280	49.90	
6	Oct-22	8494	8494	1.0	150	118.16	5140	540	5680	49.90	
7	Nov-22	4800	4800	1.0	150	33.60	2380	120	2500	49.90	
8	Dec-22	4518	4520	1.0	150	24.08	3940	1440	5380	49.90	
9	Jan-23	3758	3758	1.0	150	21.40	4060	100	4160	49.90	
10	Feb-23	3992	3992	1.0	150	16.80	4220	-1040	3180	49.90	
11	Mar-23	4040	4038	1.0	150	29.60	6580	0	6580	49.90	
12	Apr-23	10818	10818	1.0	150	0.00	3800	647	4447	49.90	

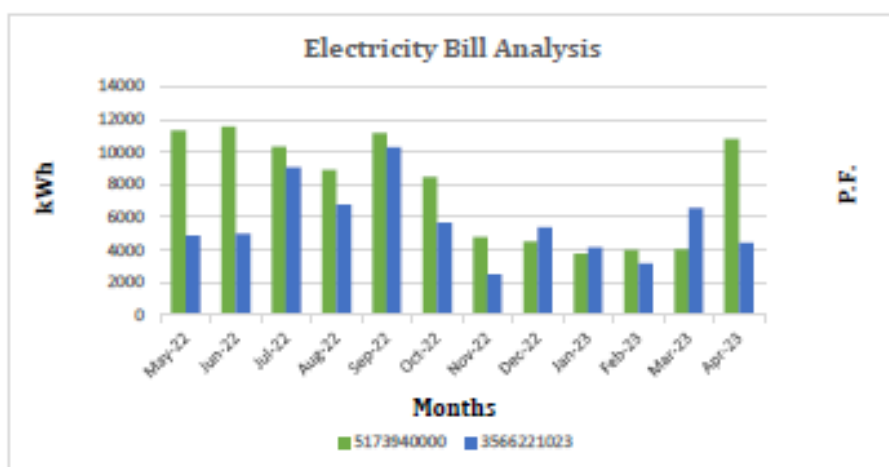


Figure 2: Electricity Bill Analysis (kVAh vs Months)

Transformer

IB collage has 0.40 kV LT connection with 1 no. 250 kVA and 1 no. 200 kVA transformer, both the transformers were energized at a time and share load simultaneously. Auditors have recorded the data of both the transformers and the details have been presented in enclosed annexures and observations have been mentioned below:

S. No.	1	2	
Tag No.	TR - 1	TR - 2	
Rated Parameter			
Spec.	LT Side	LT Side	
Supply Voltage (kV)	0.40	0.40	
Rating	250	63	
Hz	50.00	50.00	
Measured Parameter			
Voltage	RY	388.5	390.2
	YB	382.0	393.4
	BR	386.7	389.6
THDv (%)	R	2.7	2.5
	Y	2.9	2.2
	B	2.9	2.1
Current	R	412.3	12.7
	Y	301.6	10.2
	B	264.2	33.2
THDi (%)	R	10.6	25.9
	Y	8.5	30.7
	B	15.8	12.4
Hz	49.96	49.99	
Power Factor	0.981	0.922	
Measured kW	213.7	11.7	
Measured kVA	217.8	12.7	
MWh in 24 Hrs	5.13	0.28	
Loading (%)	87.1	20.1	



Risk and Sensitivity Analysis

Auditing Team inspected Fire Sensors, Water Sprayers and Fire alarm which were working satisfactorily and also inspected cables which were found to be of appropriate size. No abrupt heating of cables was observed. The PVC coatings/insulation of the connecting wires of Sub-station panels were satisfactory.

• Diesel Generator System

During Audit, it was observed that only one DG set was in operation and the others were on standby mode. The previous one-year data for all the two units - energy generation and fuel consumption are as below:

SN	DG Number and Location	RATING (in KVA)	Total DG kWh generation 23-24	Total Diesel Consumption (in ltr.) 23-24
1	DG-1	125	4988	2371
2	DG-2	70		
	Total	195	4988	2371

Analysis of DG set were audited by performing 15-min trail run of both units. The analysis is as below:

DG Set – 1 (125 kVA)		
Particulars	Unit	DG Set
Fuel Consumed during the test period of one hour	Lts	10.5
Power Generated during the test period of one hour	KWh	23.7
Load variations on the DG Set	KVA	19.9 to 26.4
DG Loading (%)	%	17 to 23%
Specific Power Generation	KWh/ ltr	2.26
Fuel Rate	Rs/ Ltr	89.5
Basic Power Generation Cost	Rs per Kwh	39.65

DG Set – 1 (70 kVA)		
Particulars	Unit	DG Set
Fuel Consumed during the test period of one hour	Lts	10
Power Generated during the test period of one hour	KWh	19.5
Load variations on the DG Set	KVA	21.5 to 24.6
DG Loading (%)	%	33 to 37%
Specific Power Generation	KWh/ ltr	1.95
Fuel Rate	Rs/ Ltr	89.5
Basic Power Generation Cost	Rs per Kwh	45.90

3

3. ELECTRICAL UTILITY LOAD

Pumps

S. No.	Equipment Name	Rated	Voltage	THDv %	Hz	Current	THDI %	P.F.	Measured kW	Measured kVA	(%) Loading	kWh/year
1	Water Pump - 1	3.7	388.6	1.8	50.00	9.7	5.2	0.797	5.20	6.53	128%	5432.27
2	Water Pump - 2	3.7	376.5	3.0	49.96	11.8	5.1	0.675	5.19	7.69	128%	5422.49
3	Water Pump - 3	3.7	387.9	3.6	49.98	8.6	4.6	0.701	4.05	5.78	100%	4228.48
	Total	11.2							14.45			15083.2

Motors

S. No.	Equipment Name	Rated	Voltage	THDv %	Hz	Current	THDI %	P.F.	Measured kW	Measured kVA	(%) Loading	kWh/year
1	Lift - 1	4.1	393.3	2.1	50.03	5.0	14.5	0.582	1.98	3.41	44%	2069.5
2	Lift - 2	4.1	394.5	2.5	50.02	4.9	20.3	0.578	1.94	3.35	43%	2020.32
	Total	8.2							3.9			4089.82

Water Cooler

S. No.	Equipment Name	Voltage	THDv %	Hz	Current	THDI %	P.F.	Measured kW	Measured kVA	kWh/year
1	Water Cooler – 1	223.1	3.4	49.99	2.3	11.1	0.815	0.4	0.5	284.377
2	Water Cooler – 2	213.6	4.5	49.93	1.8	9.9	0.812	0.3	0.4	212.294
3	Water Cooler – 3	221.7	3.2	49.96	2.1	10.9	0.811	0.4	0.5	256.753
4	Water Cooler – 4	220.9	4.1	49.98	2.4	9.8	0.816	0.4	0.5	294.175
5	Water Cooler – 5	219.8	3.7	49.97	1.9	10.3	0.811	0.3	0.4	230.309
6	Water Cooler – 6	214.6	3.6	49.99	2.2	10.2	0.814	0.4	0.5	261.328
7	Water Cooler – 7	215.4	3.3	49.98	2.3	10.1	0.812	0.4	0.5	273.551
8	Water Cooler – 8	217.6	3.4	49.97	2.1	10.5	0.809	0.4	0.5	251.383
9	Water Cooler – 9	218.4	4.1	49.96	2.0	9.4	0.810	0.4	0.4	240.589
	Total							3.4		2304.76



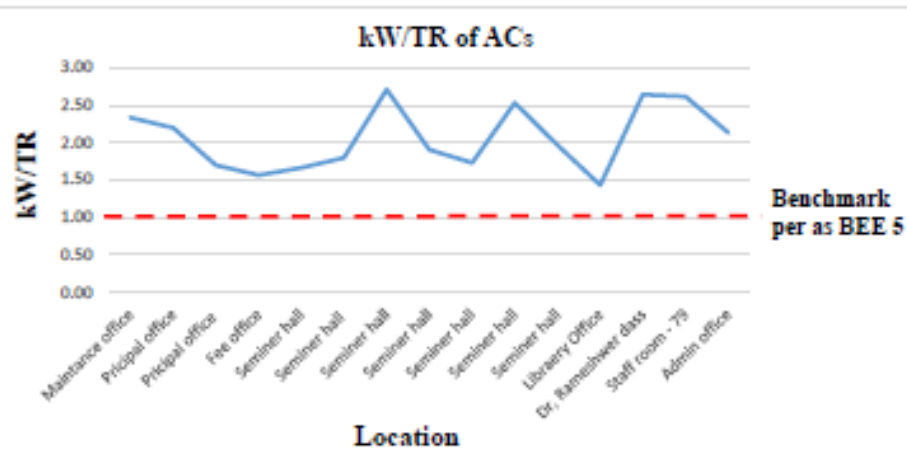
Refrigerator

S. No.	Equipment Name	Voltage	THDv %	Hz	Current	THDI %	P.F.	Measured Wattage	Measured kVA	kWh/year
1	Refrigerator - 1	221.8	3.8	49.96	0.8	7.3	0.613	0.1	0.2	227.11
2	Refrigerator - 2	221.5	4.0	50.00	0.9	9.6	0.709	0.1	0.2	295.12
3	Refrigerator - 3	222.3	3.9	49.99	1.1	7.6	0.643	0.2	0.2	328.30
4	Refrigerator - 4	221.5	3.8	49.96	0.9	7.4	0.712	0.1	0.2	296.36
5	Refrigerator - 5	221.7	3.7	49.97	0.7	7.7	0.724	0.1	0.2	234.60
6	Refrigerator - 6	221.4	4.1	49.99	0.8	8.1	0.637	0.1	0.2	235.58
7	Total							0.8		1617.078

Air Condition System

S.N.	Location	Rated Tonnage	Measured kW	PF	Measured Tonnage	kW/TR	EER	Star Rating	kWh/Year
1	Maintenance office	1.5	1.73	0.85	0.74	2.34	1.51	Non star	2356.52
2	Old Principal office	1.5	1.88	0.83	0.86	2.20	1.60	Non star	2555.84
3	Principal office	1.5	1.46	0.97	0.86	1.70	2.07	3 star	1986.42
4	Fee office	1.5	1.29	0.99	0.83	1.56	2.25	5 star	1757.77
5	Seminar hall	1.5	1.58	0.93	0.95	1.66	2.11	Non star	2148.87
6	Seminar hall	1.5	1.58	0.99	0.88	1.80	1.96	Non star	2145.99
7	Seminar hall	1.5	2.13	0.95	0.79	2.71	1.30	Non star	2894.03
8	Seminar hall	1.5	1.89	0.99	0.99	1.91	1.84	Non star	2568.45
9	Seminar hall	1.5	1.72	0.78	0.99	1.73	2.03	Non star	2334.21
10	Seminar hall	1.5	2.05	0.91	0.81	2.53	1.39	Non star	2792.42
11	Seminar hall	1.5	1.79	0.81	0.91	1.97	1.79	Non star	2439.5
12	Library Office	1.5	1.22	0.90	0.85	1.43	2.45	Non star	1655.65
13	Dr. Rameshwar dass	1.5	1.11	0.73	0.42	2.64	1.33	2 star	1506.95
14	Staff room - 79	1.5	1.22	0.91	0.47	2.62	1.34	3 star	1662.88
15	Admin office	1.5	1.12	0.92	0.52	2.13	1.65	5 star	1516.66
1	New Principal Office	1.5	1.29	0.98	0.84	1.55	2.28	2 Star	1760.72

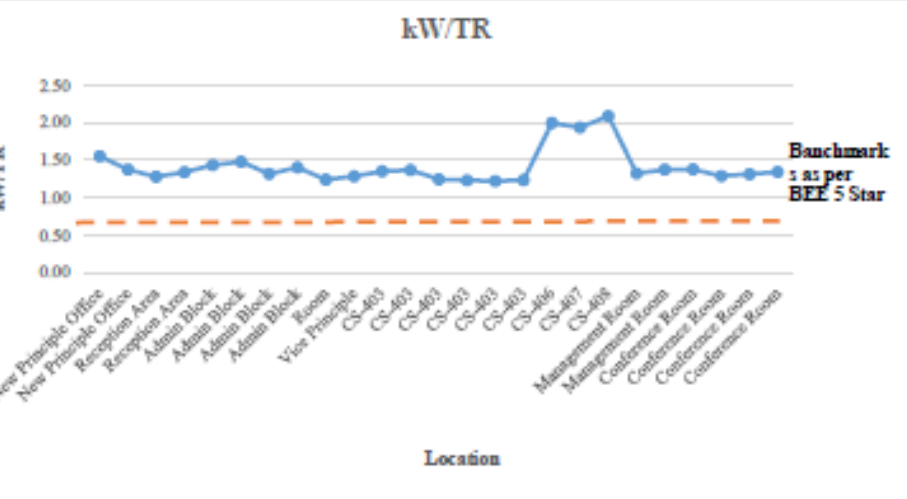
S.N.	Location	Rated Tonnage	Measured kW	PF	Measured Tonnage	kW/TR	EER	Star Rating	kWh/Year
2	New Principal Office	1.5	1.33	0.98	0.97	1.37	2.57	2 Star	1812.19
3	Reception Area	1.5	1.26	0.97	0.98	1.28	2.77	2 Star	1707.02
4	Reception Area	1.5	1.36	0.98	1.01	1.34	2.64	2 Star	1846.03
5	Admin Block	1.5	1.29	0.97	0.90	1.43	2.47	2 Star	1760.90
6	Admin Block	1.5	1.33	0.95	0.90	1.48	2.39	2 Star	1812.68
7	Admin Block	1.5	1.41	0.97	1.07	1.32	2.68	2 Star	1911.52
8	Admin Block	1.5	1.37	0.96	0.98	1.40	2.52	2 Star	1860.17
9	Room	1.5	1.21	0.92	0.98	1.24	2.85	3 Star	1647.33
10	Vice Principle	1.5	1.27	0.96	0.99	1.28	2.75	3 Star	1726.53
11	CS-403	1.5	1.36	0.98	1.00	1.35	2.61	2 Star	1847.15
12	CS-403	1.5	1.41	0.97	1.03	1.37	2.58	2 Star	1912.31
13	CS-403	1.5	1.33	0.96	1.07	1.24	2.84	3 Star	1811.72
14	CS-403	1.5	1.44	0.96	1.17	1.23	2.87	3 Star	1956.05
15	CS-403	1.5	1.46	0.97	1.20	1.22	2.90	3 Star	1991.46
16	CS-403	1.5	1.41	0.96	1.14	1.23	2.86	3 Star	1915.55
17	CS-406	2.0	1.95	0.97	0.98	1.99	1.77	Non-Star	2653.44
18	CS-407	2.0	1.96	0.98	1.01	1.94	1.82	Non-Star	2662.40
19	CS-408	2.0	2.02	0.98	0.97	2.09	1.69	Non-Star	2744.68
20	Management Room	1.5	1.43	0.97	1.08	1.32	2.67	2 Star	1943.91
21	Management Room	1.5	1.41	0.96	1.03	1.37	2.57	2 Star	1921.32
22	Conference Room	1.5	1.45	0.97	1.06	1.38	2.56	2 Star	1977.30
23	Conference Room	1.5	1.28	0.98	0.99	1.29	2.74	2 Star	1740.08
24	Conference Room	1.5	1.36	0.96	1.04	1.31	2.69	2 Star	1853.98
25	Conference Room	1.5	1.30	0.97	0.97	1.34	2.64	2 Star	1761.34
26	BS-304	2	1.96	0.97	0.91	2.17	1.63	Non-Star	2672.38
27	Examination Centre	1.5	1.45	0.97	1.09	1.33	2.65	3 Star	1973.92
	Total		62.88						85506.24

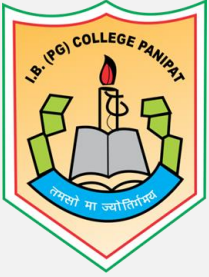


Lighting System

• Commerce Block

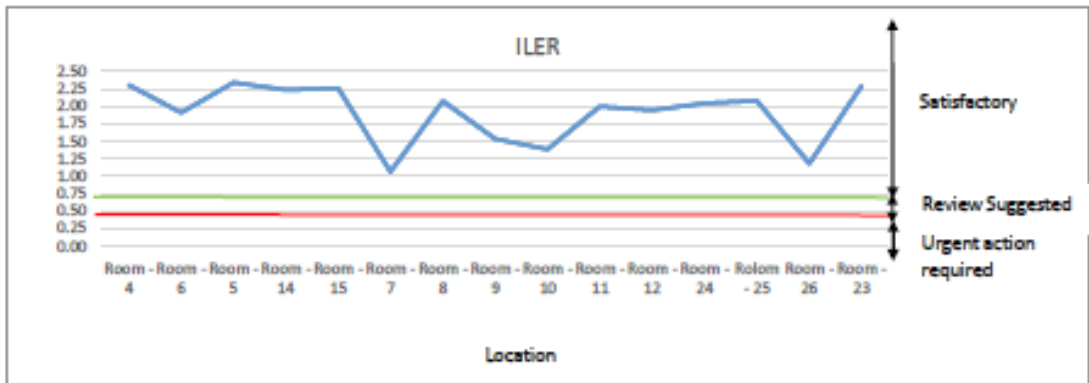
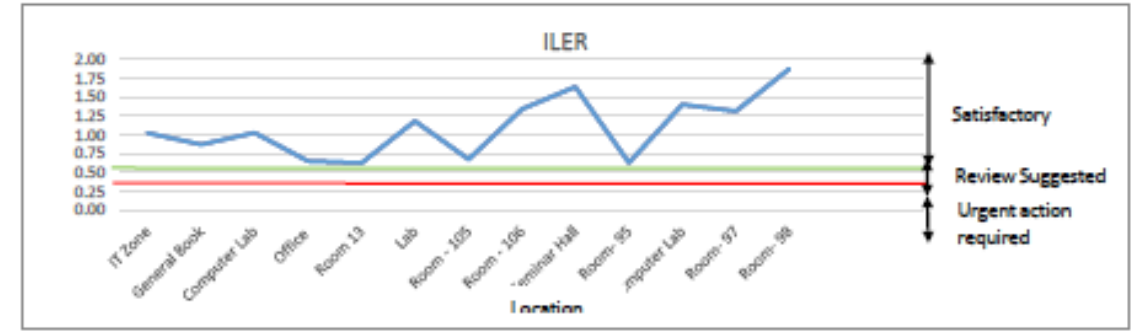
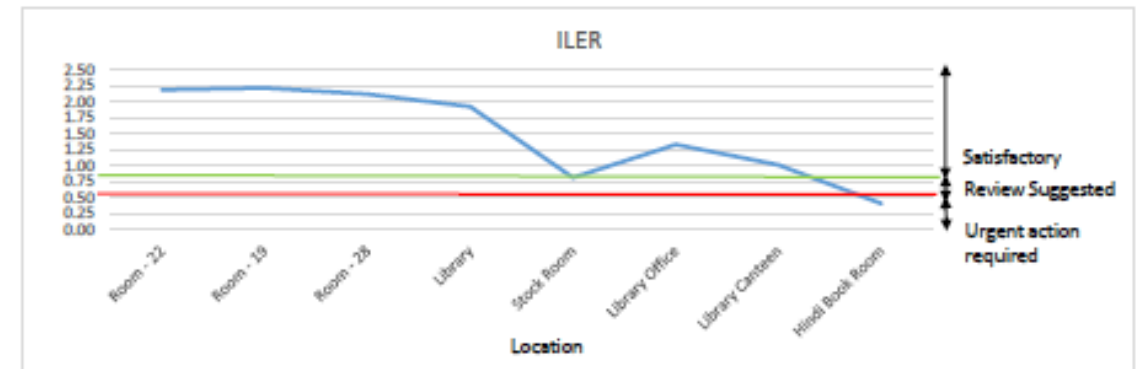
S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W /sq.m	ILER	kWh/year
1	Room - 4	Led (18W*2)	36	208.0	83.05	2.31	75.17
2	Room - 6	T.B (36W*3)	108	218.0	82.15	1.91	225.50
3	Room - 5	Led (18W*2), T.B (36W*1)	72	155.0	100.71	2.34	150.34
4	Room - 14	Led (18W*4)	72	160.0	96.19	2.24	150.34
5	Room -15	Led (18W*3), T.B (36W*1)	90	184.0	97.21	2.26	187.92
6	Room - 7	T.B (36W*4)	144	101.0	45.78	1.06	300.67
7	Room - 8	Led (18W*4)	72	188.0	83.07	2.08	150.34
8	Room - 9	Led (18W*2), T.B (36W*2)	108	110.0	65.98	1.53	225.50
9	Room - 10	Led (18W*3), T.B (36W*1)	126	115.0	59.49	1.38	263.09
10	Room - 11	Led (18W*1), T.B (36W*3)	126	158.0	91.97	2.00	263.09
11	Room - 12	Led (18W*3), T.B (36W*1)	90	152.0	83.70	1.95	187.92
12	Room - 24	T.B (36W*3)	108	197.0	81.81	2.05	225.50
13	Room - 25	Led (18W*2), T.B (36W*2)	108	203.0	89.46	2.08	225.50
14	Room - 26	T.B (36W*3)	108	125.0	54.33	1.18	225.50
15	Room - 23	Led (18W*1), T.B (36W*2)	90	193.0	91.69	2.29	187.92
16	Room - 22	Led (18W*1), T.B (36W*2)	90	173.0	94.17	2.19	187.92
17	Room - 19	Led (18W*1), T.B (36W*1)	54	144.0	102.08	2.22	112.75
18	Room - 28	Led (18W*3), T.B (36W*1)	90	166.0	97.52	2.12	187.92
19	Library	Led (18W*24), T.B (36W*9)	756	658.0	92.50	1.93	1578.53
20	Stock Room	Led (18W*15), Halogen (100W*2)	470	296.0	37.45	0.81	981.36
21	Library Office	Led (36W*4)	144	519.0	48.00	1.33	300.67
22	Library Canteen	Led (18W*2), T.B (36W*3)	144	245.0	36.43	1.01	300.67
23	Hindi Book Room	T.B (36W*2)	72	145.0	14.66	0.41	150.34





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24	IT Zone	Led (18W*2)	36	178.0	36.88	1.02	75.17
25	General Book	Led (18W*3)	54	215.0	31.35	0.87	112.75
26	Computer Lab	Led (18W*3), T.B (36W*7)	306	130.0	47.25	1.03	638.93
27	Office	Led (18W*4), T.B (36W*1)	108	242.0	23.47	0.65	225.50
28	Room 13	T.B (36W*6)	216	125.0	26.87	0.62	451.01
29	Lab	Led (18W*6), T.B (36W*5)	288	168.0	56.74	1.18	601.34
30	Room - 105	T.B (36W*2)	72	115.0	24.35	0.68	150.34
31	Room - 106	Led (18W*1), T.B (36W*3)	126	185.0	61.65	1.34	263.09
32	Seminar Hall	CFL (15W*18), LED (36W*8), Halogen (50W*2), CFL (36W*17)	1270	469.0	85.25	1.64	2651.76
33	Room- 95	Bulb (100W*1)	100	185.0	25.22	0.63	208.80
34	Computer Lab	Led (18W*6), T.B (36W*2)	180	165.0	64.47	1.40	375.84
35	Room- 97	Led (18W*1), T.B (36W*2), CFL (9W*1)	99	88.0	60.42	1.31	206.71
36	Room- 98	Led (18W*1), T.B (36W*2)	90	112.0	80.73	1.88	187.92
	Total		6223				12993.62





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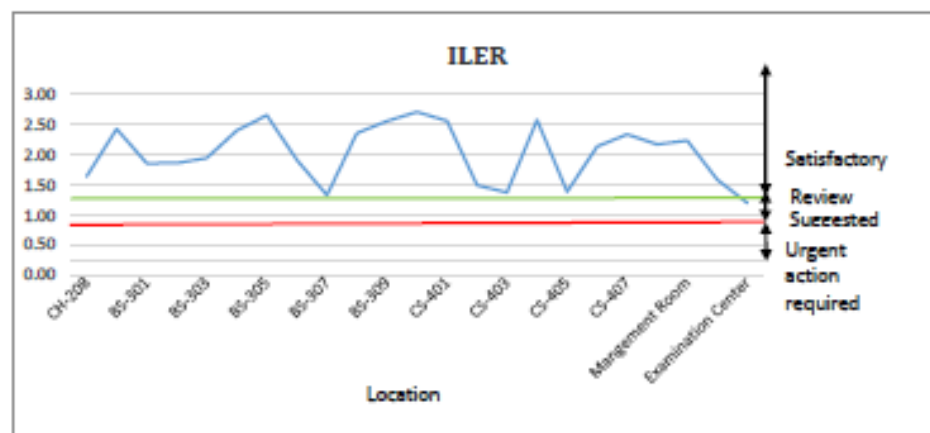
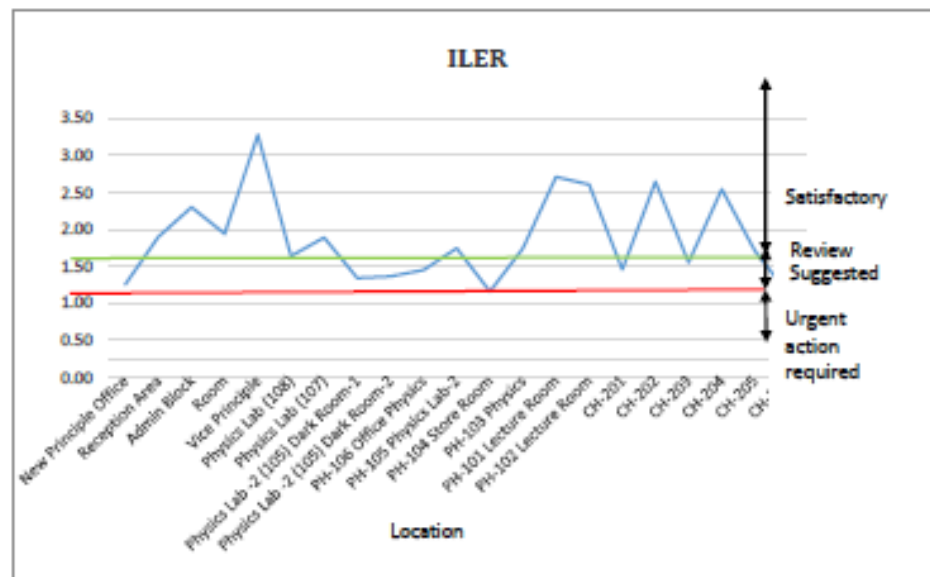
S. No.	Location	No. of Luminaries	Wattage	Avg-Lux	Lux/W/sq.m	ILER	kWh/Year
26	BS-303	Led(4*36w)	144	226	89.40	1.94	300.67
27	BS-304	Led(6*36w)	216	214	115.29	2.40	451.00
28	BS-305	Led(6*36w)	216	245	132.71	2.65	451.00
29	BS-306	Led(4*36w)	144	227	88.12	1.92	300.67
30	BS-307	Led(4*36w)	144	216	61.20	1.33	300.67
31	BS-308	Led(5*36w)	180	241	108.45	2.36	375.83
32	BS-309	Led(2*36w)	72	184	117.71	2.56	150.33
33	BS-310	Led(5*36w)	180	277	124.65	2.71	375.83
34	CS-401	Led(9*36w)	324	215	128.12	2.56	676.50
35	CS-402	Led(9*36w)	324	262	59.80	1.50	676.50
36	CS-403	Led(9*36w)	324	241	55.01	1.38	676.50
37	CS-404	Led(4*36w)	144	185	123.59	2.57	300.67
38	CS-405	Led(9*36w)	324	292	66.65	1.39	676.50
39	CS-406	Led(4*36w)	144	243	98.28	2.14	300.67
40	CS-407	Led(4*36w)	144	266	107.58	2.34	300.67
41	CS-408	Led(4*36w)	144	247	99.90	2.17	300.67
42	Management Room	Led(3*36w)	108	195	102.80	2.23	225.50
43	Conference Hall	Led(8*36w)	288	224	79.47	1.59	601.34
44	Examination Center	Led(4*15w)	60	295	57.77	1.20	125.28
	Total		8088				16887.50

• Science Block

S. No.	Location	No. of Luminaries	Wattage	Avg-Lux	Lux/W/sq.m	ILER	kWh/Year
1	New Principal Office	Led (19*15w)	285	250	60.35	1.26	595.07
2	Reception Area	Led (18*15w)	270	295	91.25	1.90	563.75
3	Admin Block	Led (16*15w)	240	225	115.00	2.30	501.11
4	Room	Led (4*15w)	60	261	77.69	1.94	125.28
5	Vice Principle	Led (3*15w)	45	202	141.01	3.28	93.96
6	Physics Lab (108)	Led(6*36w)	216	199	82.09	1.64	451.00
7	Physics Lab (107)	Led(6*36w)	216	222	90.65	1.89	451.00
8	Physics Lab -2 (105) Dark Room-1	Led(4*36w)	144	249	61.82	1.34	300.67
9	Physics Lab -2 (105) Dark Room-2	Led(4*36w)	144	267	54.54	1.36	300.67
10	PH-106 Office Physics	Led(4*36w)	144	316	62.38	1.45	300.67
11	PH-105 Physics Lab-2	Led(6*36w)	216	210	83.84	1.75	451.00
12	PH-104 Store Room	Led(3*36w)	108	227	46.45	1.16	225.50
13	PH-103 Physics	Led(4*36w)	144	250	75.00	1.74	300.67
14	PH-101 Lecture Room	Led(4*36w)	144	211	124.62	2.71	300.67
15	PH-102 Lecture Room	Led(4*36w)	144	203	119.90	2.61	300.67
16	CH-201	Led(4*36w)	144	218	62.74	1.46	300.67
17	CH-202	Led(4*36w)	144	206	121.67	2.64	300.67
18	CH-203	Led(3*36w)	108	233	62.13	1.55	225.50
19	CH-204	Led(4*36w)	144	198	116.94	2.54	300.67
20	CH-205	Led(10*36w)	360	265	85.46	1.71	751.67
21	CH-207	Led(5*36w)	180	275	48.66	1.13	375.83
22	CH-208	Led(10*36w)	360	255	82.24	1.64	751.67
23	CH-209	Led(6*36w)	216	265	121.46	2.43	451.00
24	BS-301	Led(4*36w)	144	214	85.60	1.86	300.67
25	BS-302	Led(4*36w)	144	239	85.72	1.86	300.67

PGS Energy Services Pvt. Ltd.

24

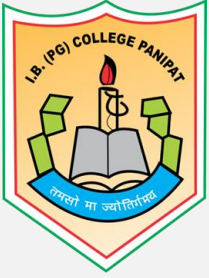


• Arts Block

S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W/sq.m	ILER	kWh/Year
1	Room-35	Led (18W*4)	72	195.0	107.68	2.34	152.64
2	Room-36	Led (18W*3), T.B (36W*1)	90	164.0	97.61	2.12	190.80
3	Room-37	Led (18W*3), T.B (36W*1)	90	147.0	87.60	1.90	190.80
4	Room- 34	Led (18W*4)	72	154.0	85.02	1.98	152.64
5	Room- 33	Led (18W*1), T.B (36W*1)	54	158.0	79.73	1.99	114.48
6	Room- 32	T.B (36W*2)	72	188.0	48.33	1.34	152.64
7	Room- 38	Led (18W*1), T.B (36W*2)	90	105.0	45.21	1.05	190.80
8	Room- 39	Led (18W*2)	36	152.0	72.73	2.02	76.32
9	Room- 40	Led (18W*2), CFL (9W*1)	45	214.0	71.83	2.00	95.40
10	Room- 42	Led (18W*3), T.B (36W*1)	90	185.0	79.67	1.99	190.80
11	Room- 49	CFL (18W*3)	54	101.0	64.86	1.62	114.48
12	Room- 50	Bulb (100W*1), T.B (36W*1)	136	210.0	23.26	0.65	288.32
13	Room- 41	Led (18W*2)	36	138.0	77.46	2.15	76.32
14	Room- 48	Bulb (100W*1), LED (18W*3)	154	240.0	49.48	1.24	326.48
15	Room- 43	Led (18W*3)	54	142.0	78.07	1.95	114.48
16	Room-44	Led (18W*4)	72	163.0	88.78	1.93	152.64
17	Room-47	Led (18W*4)	72	173.0	85.87	2.00	152.64
18	Room-46	Led (18W*3), T.B (36W*1)	90	167.0	95.71	2.08	190.80
19	Room- 45	Led (18W*4)	72	187.0	88.72	2.06	152.64
20	Room- 52	Led (18W*3)	54	164.0	79.12	1.98	114.48
21	Room- 59	Led (18W*3)	54	154.0	90.46	2.26	114.48
22	Room- 51	Bulb (100W*1), T.B (36W*1)	136	168.0	20.03	0.56	288.32
23	Room- 53	Led (18W*3)	54	185.0	85.61	2.14	114.48
24	Room- 58	Led (18W*3)	54	155.0	111.60	2.43	112.75
25	Room- 57	Led (18W*3)	54	173.0	89.96	2.25	112.75

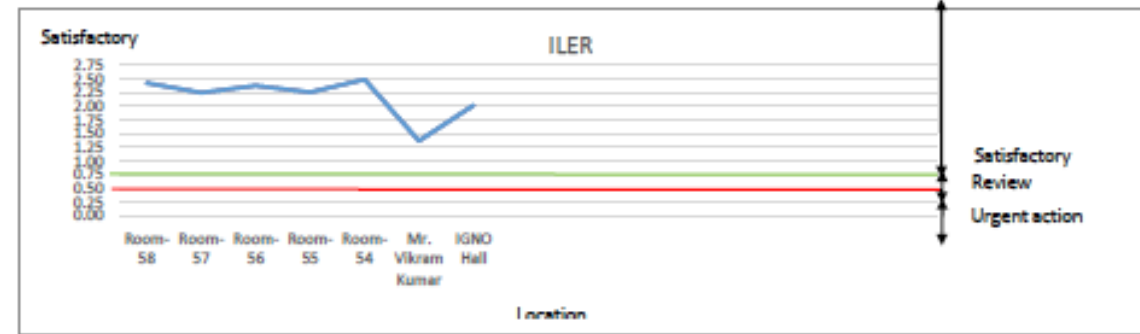
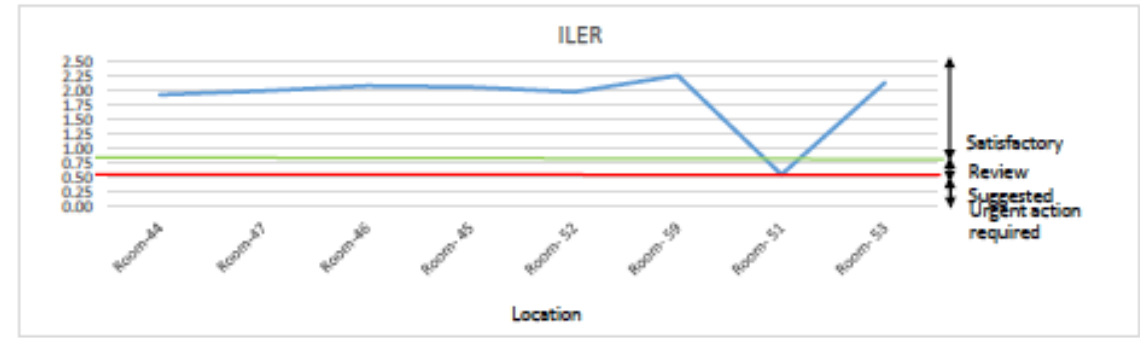
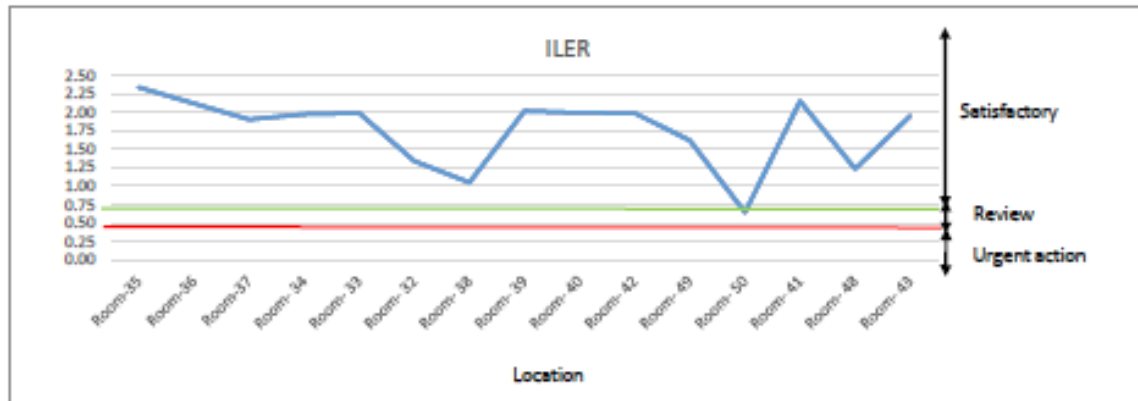
PGS Energy Services Pvt. Ltd.

27



Green & Energy Audit – I.B. COLLEGE, PANIPAT

S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W/sq.m	ILER	kWh/Year
26	Room- 56	Led (18W*3)	54	183.0	95.06	2.38	112.75
27	Room- 55	Led (18W*3)	54	175.0	90.22	2.26	112.75
28	Room- 54	Led (18W*3)	54	152.0	99.59	2.49	112.75
29	Mr. Vikram Kumar	Led (18W*2), T.B (36W*1)	72	207.0	49.34	1.37	150.34
30	IGNO Hall	Led (18W*8), Halogen (50W*2)	244	195.0	96.90	2.02	509.47
	Total		2335				4931.45

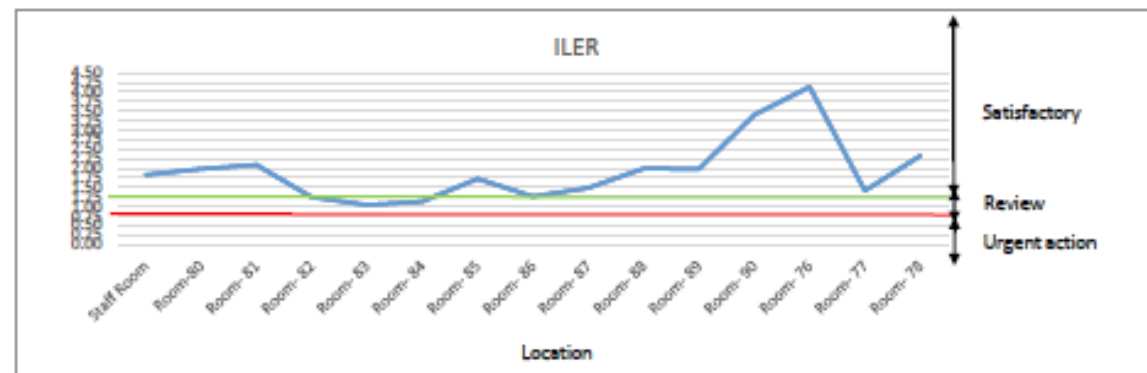




Green & Energy Audit – L.B. COLLEGE, PANIPAT

• Girls Wing Block

S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W/sq.m	ILER	kWh/Year
1	Staff Room	Led (36W*3), LED (18W*1), LED.B (9W*1)	135	248.0	73.07	1.83	281.88
2	Room-80	Led (18W*1)	18	133.0	71.39	1.98	37.58
3	Room-81	Led (18W*1)	18	182.0	75.23	2.09	37.58
4	Room-82	Led (36W*3)	108	165.0	49.74	1.24	225.50
5	Room-83	Led (36W*4)	144	185.0	41.66	1.04	300.67
6	Room-84	Led (36W*4)	144	180.0	40.76	1.13	300.67
7	Room-85	Led (18W*3), T.B (36W*4)	198	239.0	79.50	1.73	413.42
8	Room-86	Led (18W*3), LED (36W*4)	198	175.0	58.21	1.27	413.42
9	Room-87	Led (18W*3), LED (36W*4)	198	205.0	68.19	1.48	413.42
10	Room-88	Led (36W*4)	144	206.0	91.90	2.00	300.67
11	Room-89	Led (18W*3), T.B (36W*4)	198	274.0	91.14	1.98	413.42
12	Room-90	Led (18W*3), LED (36W*1)	90	214.0	156.60	3.40	187.92
13	Room-76	Led (18W*2)	36	215.0	177.73	4.13	75.17
14	Room-77	Led (18W*3), T.B (36W*6)	270	260.0	60.65	1.41	563.76
15	Room-78	Led (18W*5), T.B (36W*1)	126	173.0	107.11	2.33	263.09
	Total		2025				4228.20

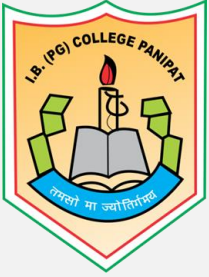


• BBA, BCA, Canteen Block

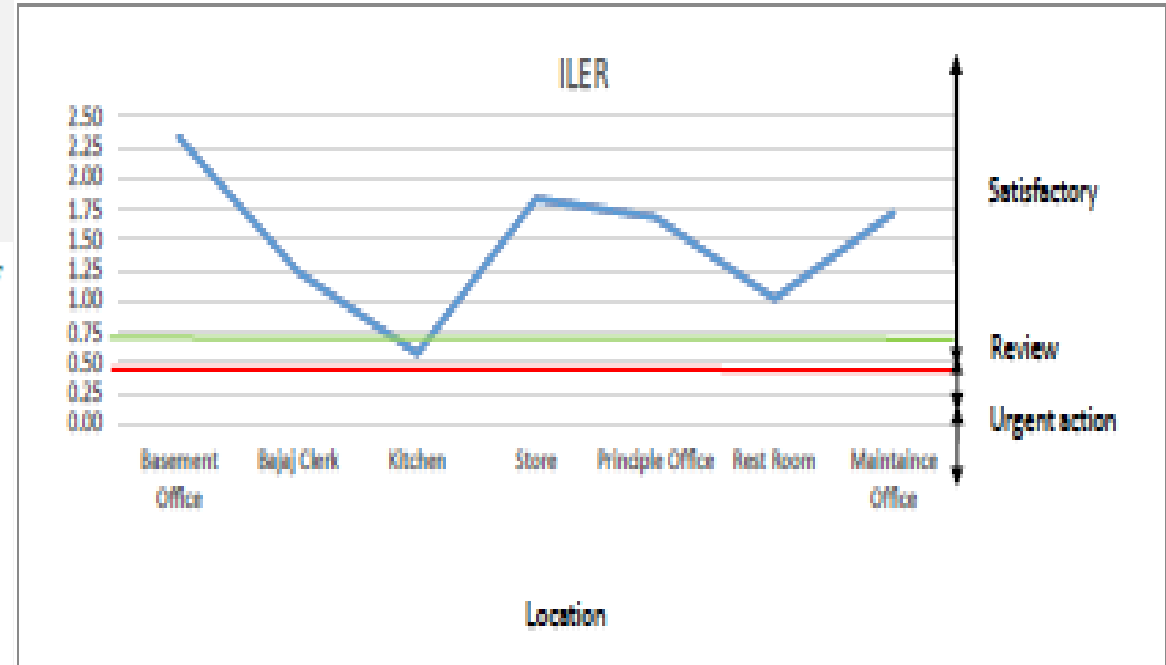
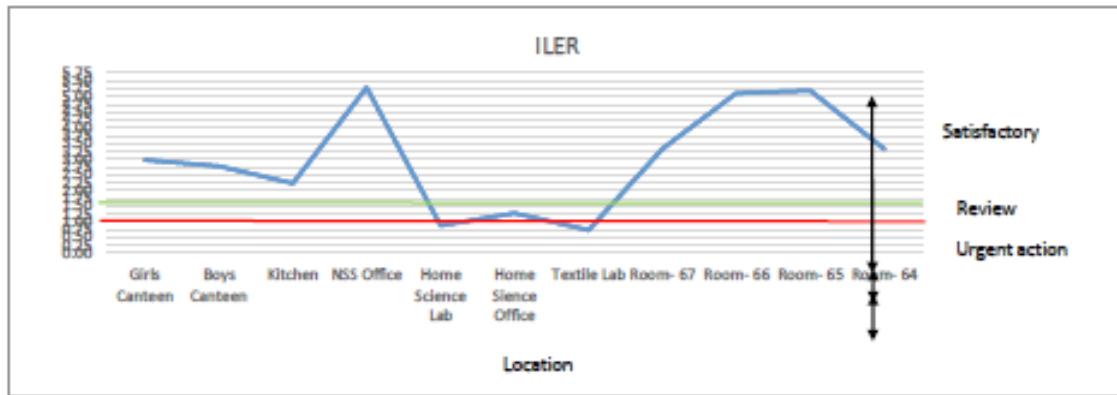
S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W/sq.m	ILER	kWh/Year
1	Girls Canteen	Led (18W*5)	90	120.0	142.60	2.97	187.92
2	Boys Canteen	Led (18W*6)	108	136.0	132.94	2.77	225.50
3	Kitchen	Led (18W*1), T.B (36W*1)	54	182.0	88.93	2.22	112.75
4	NSS Office	Led (18W*2), LED.B (9W*1)	45	233.0	227.25	5.28	93.96
5	Home Science Lab	T.B (36W*4), LED (18W*6), CFL (9W*1)	261	143.0	40.29	0.88	544.97
6	Home Sience Office	Led (18W*2)	36	191.0	45.84	1.27	75.17
7	Textile Lab	Led (18W*9), T.B (36W*9)	486	265.0	33.65	0.73	1014.77
8	Room-67	Led (18W*3)	54	167.0	143.29	3.33	112.75
9	Room-66	Led (18W*3)	54	265.0	204.18	5.10	112.75
10	Room-65	Led (18W*3)	54	275.0	207.32	5.18	112.75
11	Room-64	Led (18W*3)	54	170.0	132.85	3.32	112.75
	Total		1296				2706.05

PGS Energy Services Pvt. Ltd.

31



Green & Energy Audit – I.B. COLLEGE, PANIPAT



• Principal Office

S. No.	Location	No. of Luminaries	Wattage	Avg. Lux	Lux/W/sq.m	ILER	kWh/year
1	Basement Office	Led (18W*5), T.B (36W*1)	126	162.0	100.44	2.34	263.09
2	Bajaj Clerk	Led (18W*2)	36	190.0	44.67	1.24	75.17
3	Kitchen	T.B (36W*2)	72	175.0	20.57	0.57	150.34
4	Store	Led (18W*1), LED.B (9W*1)	27	185.0	66.04	1.83	56.38
5	Principle Office	Led (18W*6)	108	186.0	72.33	1.68	225.50
6	Rest Room	Led (18W*2), LED (15W*2), LED.B (9W*1)	75	225.0	36.69	1.02	156.60
7	Maintenance Office	Led (18W*2), T.B (36W*1)	72	230.0	61.84	1.72	150.34
	Total		516				1077.41



4

4. Water Audit

A. Water Audit			
S.N.	Item	Value	
1	What are the different sources of water supply to the building? Municipal Supply/ Ground Water/ Tanker	Ground Water	
2	Is there a raw water treatment plant on site?	Yes/ NO	NO
3	Is there a wastewater treatment plant on site?	Yes/ NO	NO
4	Provide water quality test reports for portable and treated water specifying the following parameters		
	Parameter	Acceptable limit	Drinking Water Treated/ recycled water
	Total hardness (as CaCO ₃) (mg/litre)	200	248
	Total dissolved solids (mg/litre)	Max. 100	412
	Chlorides as chlorine (mg/litre)	250	63.98
	Colour (hazen)	5	
	Turbidity (NTU)	1	
	Alkalinity (mg/l)	200	196
	Calcium (as Ca), mg/litre	20-75	51.3
	Boron (mg/litre)	<2	Not available
	Sulphates (as SO ₄) (mg/litre)		46.2
	Nitrates (as NO ₃) (mg/litre)		12.6
	Conductivity at 25 °C (uS/cm)	<300	Not available
	pH	6.5-8.5	7.2
	Anionic (mg/litre) detergents as MBAS		Not available
	Arsenic (mg/litre)		Not available
	Iron (mg/litre)	1	Not available
	Fluorides (mg/litre)		0.65
	Cyanide (mg/litre)	Absent	Absent
	Chromium (mg/litre)	Absent	Absent
Total Coli forms (CFU/100ml)	Absent	Absent	
Escherichia coli (CGU/100ml)	Absent	Absent	
Chemical Oxygen Demand (COD) (mg/L)	4.5		
Biochemical Oxygen Demand (BOD) (mg/L)	Max. 30		
Oil & Grease (mg/L)	0		
Total Suspended Solids (TSS) (mg/L)	Max. 100		
Total Coliform Bacteria (MPN/100ml)	<2 to 1600		

Test Report of Drinking Water



HARYANA TEST HOUSE
& Consultancy Services
GOVT. RECOGNISED LABORATORY

REGISTRATION / APPROVAL: MOEF / FSSAI / BIS / ISO 9001, 14001, 45001 Certified Lab.

TEST REPORT

Report No.: HTH/WT/1011/006 M.A. No.: HTH/1001/0000000000 Party's Ref. No.: N/A Booking Date: 22/03/2022 Period of Testing: 22/03/2022 to 17/04/2022 Reporting Date: 22/03/2022	Sample No.: 1 Sample Name: Drinking Water Sample Sample Ref. No.: 1 Sample Location: 1 Requested by: 1 Reporting Date by: 1
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TEST RESULTS

S. No.	Parameter's	Units	Result	Acceptable Limits	Standard/Code's	Method of Analysis
Drinking - Chemical - Green Water						
Chemical and Physical Parameters						
1	pH		7.2	6.5-8.5	IS 10500	IS 10500 (P-44) 1999
2	Total Dissolved Solids (TDS)	mg/l	412	500 mg/l	IS 10500	IS 10500 (P-44) 1999
Chemical and Physical Parameters as Substances and Available as a Guide to Consumers						
1	Total Hardness (as CaCO ₃)	mg/l	248	500 mg/l	IS 10500	IS 10500 (P-44) 1999
2	Calcium (as Ca)	mg/l	51.3	75	IS 10500	IS 10500 (P-44) 1999
3	Magnesium (as Mg)	mg/l	46.2	30	IS 10500	IS 10500 (P-44) 1999
4	Chloride (as Cl)	mg/l	63.98	250	IS 10500	IS 10500 (P-44) 1999
5	Sulphate (as SO ₄)	mg/l	46.2	400	IS 10500	IS 10500 (P-44) 1999
6	Nitrate (as NO ₃)	mg/l	12.6	50	IS 10500	IS 10500 (P-44) 1999
7	Fluoride (as F)	mg/l	0.65	1.5	IS 10500	IS 10500 (P-44) 1999
8	Total Alkalinity (as CaCO ₃)	mg/l	196	300	IS 10500	IS 10500 (P-44) 1999
Drinking - Biological - Green Water						
1	Coliform	Per 100 ml	Absent	500	IS 10500	IS 10500 (P-44) 1999
2	E. coli	Per 100 ml	Absent	0	IS 10500	IS 10500 (P-44) 1999

Approved by: *[Signature]*
 Manager (ENR)
 Haryana Test House & Consultancy Services

Page No. 1 of 2

Rain Water Harvesting structures inside the campus

The College campus have three pits of Rain Harvesting for Water conservation.



Solid Waste Audit			
S.N.	Item		
1	Total quantity of waste generated (kg/day)		8 KG
2	Are multi-coloured bins provided for waste segregation at source?	Yes/NO	Yes
3	Is there a provision of space for hygienic storage of segregated waste?	Yes/NO	Yes
4	If answered 'yes' for '3', please provided details for the storage space for the following type of waste:		
	1. Biodegradable	Yes- 13' x 13' x 4'	
	2. Recyclable	Lab - 23' x 23'	
	3. Inert and miscellaneous	10' x 8' x 3'	
	4. Hazardous	NA	
5	Quantity of waste generated (Kg) This data should be collected for at least 2 representative days in a week.	Type of waste (Kg)	
	a. Biodegradable	3 Kg	
	b. Recyclable	2 Kg	
	c. Inert and miscellaneous	3 Kg	
	d. Hazardous	NA	
6	Is there a treatment plant for biodegradable waste?	Yes/NO	Yes
7	If answered 'yes' for '6' then provide the following details		
	1. Type of plant	Vermicompost Plant	
	2. Capacity	13' x 13' x 4'	
8	Provide a narrative (max. 250 words) on how each type of waste generated by the building is being weighed and disposed. Also specify procedure adopted for e-waste disposal	<p>Type of Solid Waste generated: -</p> <p>Inside the campus, solid wastes are generated in the form of glass, polythene, thermacol, paper, food waste (peels of fruits & vegetables, left portion of food). These are segregated into a set of 3 dustbins.</p> <p>Dustbins sets: - Yellow - Only Paper Blue - Food waste - peels of fruits & vegetables, left portion of food. Red - Glass, polythene, thermacol</p> <p>Weight of waste generated per day: - Glass - 200 gm. Inert - 3kg. Polybags and poly cover - 1.5 kg. Thermacol - 1.3 kg. Paper - 2 kg. Eatables - 1 kg. Biodegradable & Recyclable - 5 kg. Leaves of plants - 2 kg. (Varies according to season)</p> <p>Disposal of Waste:- Polythene's , glass & thermacol are picked up by workers of Nagar Nigam, Panipat.</p>	



Paper waste is recycled and converted into paper pulp which is used to make different useful products (paper mould -Art) - sent to nearby paper plants
Peels of fruits & vegetables are used to make bio enzyme. This bio enzyme is used as a fertilizer. Different types of bio enzymes are prepared like orange bio enzyme, banana, mango, lemon.
Food waste & tree leaves are used for Vermi- Composting plant. Fertilizer or compost made after decay & decomposition of food waste is used as a fertilizer for garden plants from the College campus.

E-waste generated from the College:-

1. Computer parts
2. CCTV Cameras
3. Battery
4. Generator part
5. UPS, Power Cables, Printers

All the E-Waste generated from the College are collected at one place and at the end of the year it is sold to "Educo-E-Waste plant", Samalkha. In this plant all the e-waste is recycled accordingly by taking into consideration the importance of environmental protection. It is environment tally safe disposal method of e-waste management by the company. For this certificate is provided to a College by the company.

Provisions of space for Segregated waste at Laboratory building



6

6. RESULTS AND CONCLUSION

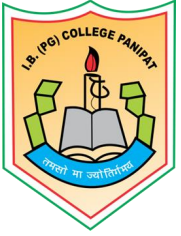
The total energy consumption as per the EB bill, Transformer recording, D/G generation and all utility consumption are as below:

- Electricity consumption as per EB (May 22-Apr 23) = 105689 kWh/year
- Solar Generation = 56980 kWh/year
- DG power generation (22-23) = 4988 kWh/year
- All utility consumption (during audit) = 116798.2 kWh/year

The decreased power consumption of transformer during audit when compared to the all-utility consumption was due to non-operation of utilities during recording. Therefore, energy consumption as per EB bill and as per all utilities has been taken into consideration for EPI analysis.

$$\text{Energy Performance Index, EPI (kWh/ annum/m}^2\text{)} = \frac{\text{Total Energy consumption (}\frac{\text{kWh}}{\text{year}}\text{)}}{\text{Total builtup area (m}^2\text{)}}$$

Particulars	EPI (kWh/annum/m ²)
As per EB bill + DG	= (105689 + 4988)/ 4488
	= 24.66 kWh/ annum/m ²

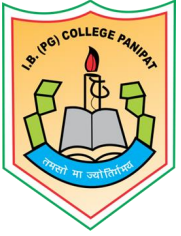


Energy-Efficient Upgrades

- **Ordinary lights have been replaced by LED lights to reduce consumption of electricity.**

By replacing ordinary lights with LED lights, our college demonstrates its commitment to energy conservation, cost efficiency, and sustainable practices. It sets an example for students and the community, encouraging them to embrace energy-efficient technologies and contribute to a greener future.



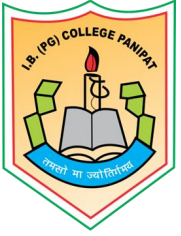


Energy-Efficient Upgrades

3 stars – 5 stars Air Conditioning systems are installed in the college to minimize the electricity consumption

- 5-star rated ACs are highly energy-efficient, consuming significantly less electricity compared to lower-rated models.
- By using 5-star rated ACs, the college reduces its carbon footprint and contributes to environmental sustainability.
- Lower energy consumption means lower greenhouse gas emissions, supporting the college's eco-friendly initiatives.



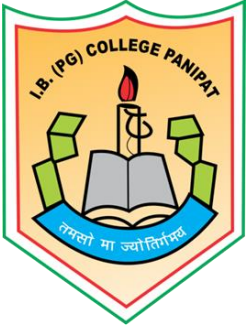


Behavioral Change Campaigns

Energy Conservation Initiative

The most important form of energy we use in the campus is electricity. Even after adopting all the necessary steps to conserve and minimize the loss of electricity, we have gone one step ahead and have spread the message among our students and faculty to help us in saving electricity. On Every switch Board of the college the energy saving message is displayed: "SWITCH OFF THE LIGHTS AND FANS WHEN NOT IN USE" .





Implementing Clean Energy Solutions

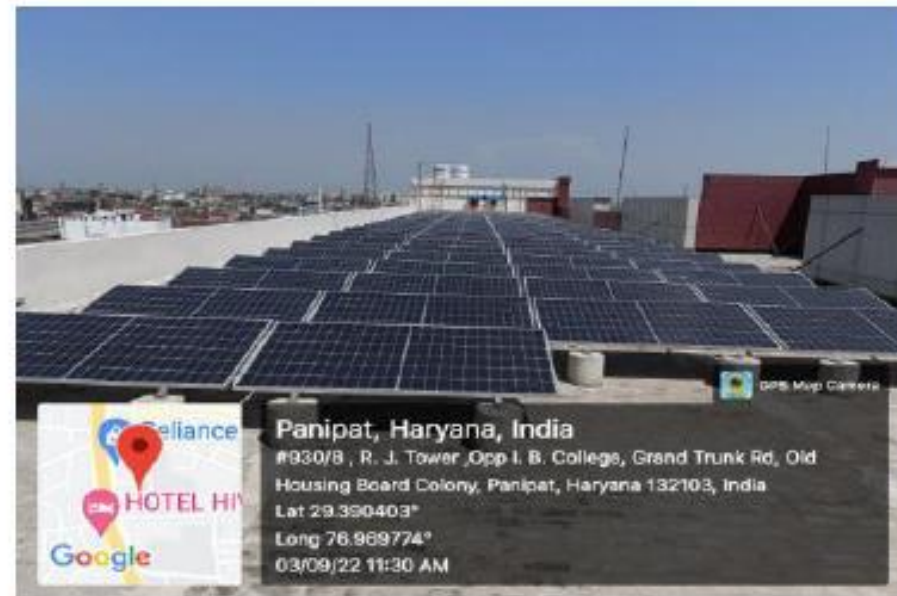
To reduce the carbon emission, grid-based solar power plant of capacity 50kW has been installed in the college.

Solar power is a renewable energy source, meaning it is derived from sunlight, which is abundant and inexhaustible. By harnessing solar energy, the college reduces its reliance on fossil fuels, promoting environmental sustainability. Solar power generation produces no greenhouse gases emissions, air pollutants, or harmful by-products, unlike traditional fossil fuel-based energy sources. It helps mitigate the college's carbon footprint, contributing to a cleaner and greener environment.

College has its own dedicated transformer & power factor to reduce transmission losses.



Implementing Clean Energy Solutions



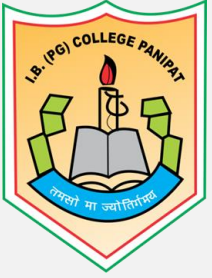
TATA POWER SOLAR

Tata Power Solar Systems Limited
 Plot No. 254, Survey No. 127 & 137, Industrial Area, Baramasanda - (Jangri Link Road, Bangalore Karnataka 560 105)
 Tel.: 08067714606, GSTIN: 29AAACT486U1Z2, PAN No: AAAC1486UJ State Code: 29

SRN :
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 03339be4f05ce902bec9429d7dc621
 d543

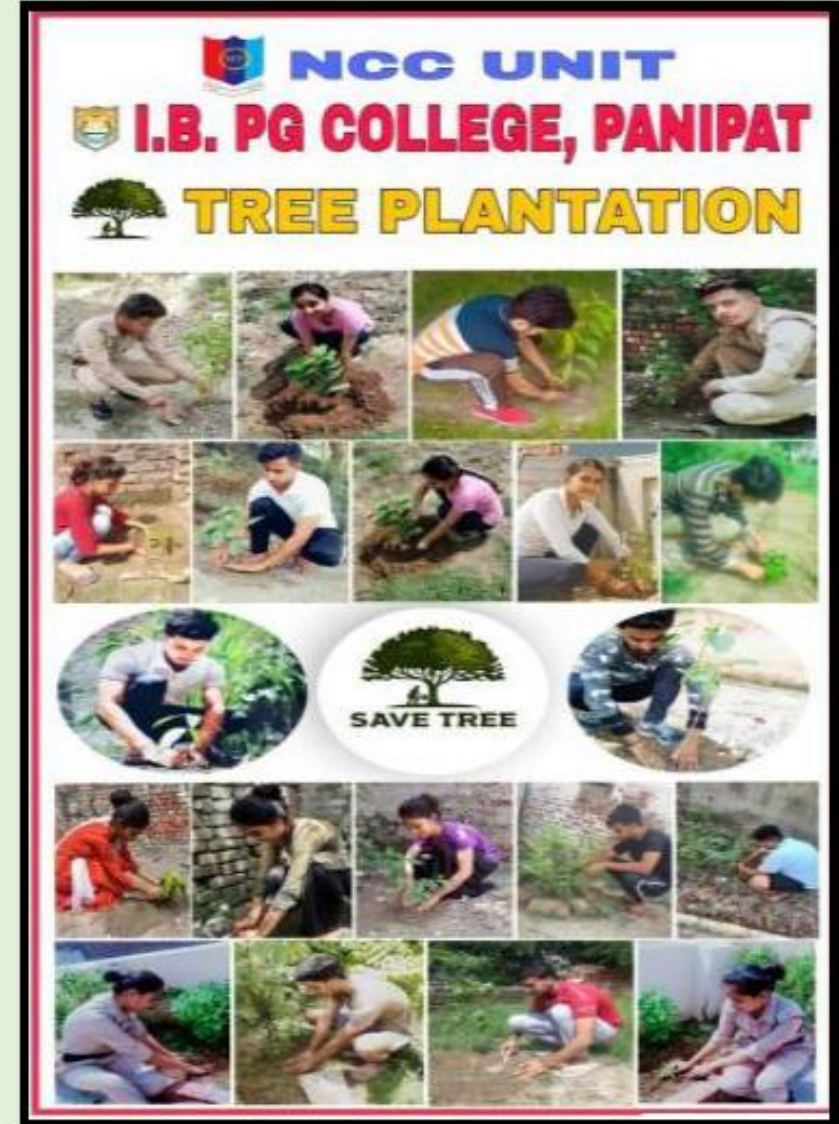


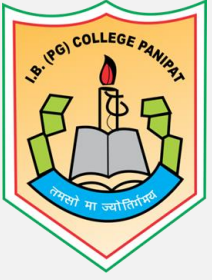
SL No	Item	Description	Qty	UOM	Value/ Unit	Tax Value, INC Disc	CGST Amount	IGST Amount
1	800008441	PV PANEL, 300W, 144-CELL MONO CR. DU	03.000	EA	13,334.82	12,30,894.26		
						3% on 70% value 18% on 20% value		43,678.34 66,486.27
		Flight: 0.00 Insurance						
				Subtotal		12,30,894.26	0	0
Total Less Subsidy Amt TPD Down payment								13,40,382.87 0.00 0.00
TCS is calculated above Threshold limit on PAN base. Amount in Words: THIRTEEN LAKH FORTY THOUSAND THREE HUNDRED EIGHTY TWO RUPEES EIGHTY SEVEN PAISE ONLY.							Net total Amount	13,40,382.87



Education and Awareness

Environmental Sciences is a compulsory subjects for students of all streams.

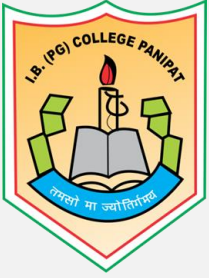






Education and Awareness

Hawan ceremonies






Education and Awareness

 आई. बी. स्नातकोत्तर महाविद्यालय 

जी.टी. रोड, पानीपत-132103 (हरियाणा)
Estd. 1956 Website : ibpgcollegepanipat.com, Email: principalibcollege@gmail.com Estd. 1956



 **POSTER MAKING COMPETITION**
ON
ENERGY CONSERVATION
Celebrate National
Energy Conservation Day on 14.12.2021

An Initiative by:-
Department of Environment Studies

- ♦ Submit your Posters on chart paper on or before 12.12.2021.
- ♦ Participants can use any type of Colors to decorate Posters.
- ♦ E-Certificates for All Participants .

Dr. Ajay Kumar Garg
Principal

Prof. Anjali Gupta
Convener

Project Eklavya
A Tribal Rights Awareness Initiative

**A TALK ON TWELFTH FIVE YEAR PLAN FOR
JANJATI AREAS AT
IB (PG) COLLEGE, PANIPAT**

Coordinators: Dr. Ajay Kumar Garg (Principal cum Patron)
Prof. Anjali Gupta (Dept. of Environmental Studies)

 **Sabrina Bath**
Member, Think India Tribal Rights Forum
Member, Project Eklavya

7th August, 2021 ; 11:00 A.M.



Education and Awareness

दैनिक
भास्कर

पानीपत भास्कर 15-12-2020

दैनिक भास्कर

पृथ्वी पर ऊर्जा की सीमित आपूर्ति है, इसका संरक्षण करना हमारी जिम्मेदारी : प्राचार्य

भास्कर न्यूज़ | पानीपत

आईबी पीजी कॉलेज में सोमवार को राष्ट्रीय ऊर्जा संरक्षण दिवस मनाया गया। पर्यावरण विभाग की ओर से विद्यार्थियों को ऊर्जा संरक्षण के बारे में जागरूक करने के उद्देश्य से एक दिवसीय सेमिनार का आयोजन किया। पर्यावरण विभाग की सहायक प्रोफेसर अंजलि गुप्ता मुख्य वक्ता रहीं।

कॉलेज प्राचार्य डॉ. अजय कुमार गर्ग ने ऊर्जा के संरक्षण के उपाय और ऊर्जा का कम से कम इस्तेमाल कैसे कर सकते हैं इस बारे में विस्तार से जानकारी दी। उन्होंने बताया कि ऊर्जा संरक्षण ये आज के समय की मांग है। सभी के सहयोग से ही ऊर्जा का संरक्षण किया जा सकता है। हमारे पास पृथ्वी पर ऊर्जा की सीमित आपूर्ति

है। इसे पुनर्जीवित करने में बहुत समय लगता है। इसलिए हमारी भावी पीढ़ियों को ऊर्जा का संरक्षण करना आवश्यक है। पूरे भारत में राष्ट्रीय ऊर्जा संरक्षण दिवस लोगों द्वारा हर साल 14 दिसम्बर को मनाया जाता है। भारत में ऊर्जा संरक्षण अधिनियम 2001 में ऊर्जा दक्षता ब्यूरो (बीईई) द्वारा स्थापित किया गया। ऊर्जा दक्षता ब्यूरो एक संवैधानिक निकाय है। जो भारत सरकार के अंतर्गत आता है और ऊर्जा का उपयोग कम करने के लिए नीतियों और रणनीतियों के विकास में मदद करता है। प्रो. अंजली गुप्ता ने बताया कि ऊर्जा का संरक्षण करके हम देश के विकास में अपना योगदान दे सकते हैं। इस अवसर पर डॉ. शशि प्रभा, प्रो. अश्वनी गुप्ता, प्रो. अजमेर और अमित आदि मौजूद रही।

अमर उजाला

my
city

सेमिनार में बोले वक्ता, समय की है मांग सभी के सहयोग से ही ऊर्जा का संरक्षण

संवाद न्यूज़ एजेंसी

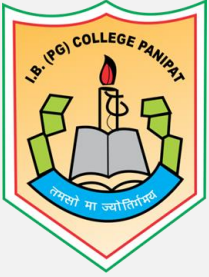
पानीपत। आईबी महाविद्यालय में राष्ट्रीय ऊर्जा संरक्षण दिवस मनाया गया। इस उपलक्ष्य में पर्यावरण विभाग की ओर से प्रथम वर्ष के विद्यार्थियों के लिए सेमिनार का आयोजन किया गया। इस सेमिनार के आयोजन का मुख्य उद्देश्य विद्यार्थियों को ऊर्जा संरक्षण के बारे में जागरूक करना था।

पर्यावरण विभाग की सहायक प्रोफेसर अंजलि गुप्ता ने सेमिनार के मुख्य वक्ता आईबी कॉलेज के प्राचार्य डॉ. अजय कुमार गर्ग का विधिवत स्वागत किया। डॉ. अजय कुमार गर्ग ने कहा कि ऊर्जा के संरक्षण के उपाय तथा ऊर्जा का कम से कम इस्तेमाल कैसे कर सकते हैं, समझाया। ऊर्जा संरक्षण आज



के समय की मांग है तथा सभी के सहभाग से ही ऊर्जा का संरक्षण किया जा सकता है। हमारे पास पृथ्वी पर ऊर्जा की सीमित आपूर्ति है और इसे पुनर्जीवित करने में बहुत समय लगता है। इसलिए हमारी भावी पीढ़ियों को इसे उपलब्ध कराने के लिए ऊर्जा का संरक्षण करना आवश्यक है। पूरे भारत में राष्ट्रीय ऊर्जा संरक्षण दिवस लोगों द्वारा हर साल 14 दिसंबर को मनाया जाता है। भारत में

ऊर्जा संरक्षण अधिनियम वर्ष 2001 में ऊर्जा दक्षता ब्यूरो द्वारा निष्पादित किया गया। ऊर्जा दक्षता ब्यूरो एक संवैधानिक निकाय है जो भारत सरकार के अंतर्गत आता है और ऊर्जा का उपयोग कम करने के लिए नीतियों और रणनीतियों के विकास में मदद करता है। इस सेमिनार की आयोजक प्रो. अंजली गुप्ता, पर्यावरण विभाग रही जिन्होंने विद्यार्थियों को बताया कि किस तरह से ऊर्जा का संरक्षण करके हम देश के विकास में अपना योगदान दे सकते हैं। अंत में उन्होंने प्राचार्य डॉ. अजय गर्ग का धन्यवाद किया। इस सेमिनार के आयोजन को सफल बनाने में डॉ. शशि प्रभा, प्रो. अश्वनी गुप्ता तथा प्रो. अजमेर एवं अमित (टेक्निकल स्टाफ) ने मुख्य भूमिका निभाई।



I.B.(PG) COLLEGE, PANIPAT



Energy and Carbon Policy

of

I.B. (PG) College, Panipat

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I.B.(PG) COLLEGE, PANIPAT

2

Energy And Carbon Policy

Introduction

We, at I.B.(PG) College, acknowledge our roles and responsibilities towards addressing energy consumption and carbon emissions. There is urgent need to promote sustainable practices, reduce greenhouse gas emissions, and mitigate the impacts of climate change and to sensitize the community on ways and means of energy saving and conservation. This policy is crucial in combating climate change and ensuring a sustainable future by reducing reliance on fossil fuels and promoting environmentally friendly practices across various sectors.

The Eco Club of the college plays a vital role in mobilizing students and the community to promote the prudent and efficient use of energy sources and resources. The club aims to achieve continual improvement in energy and carbon performance.

Objectives

In alignment with global initiatives, the college has outlined specific strategies to accomplish this goal:

Raise awareness: The Eco Club will create awareness among students and the wider community about the responsible and judicious use of energy resources at all levels. The focus will be on promoting efficient utilization of resources and emphasizing energy preservation and conservation.

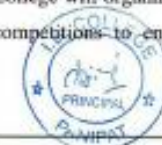
Campus improvement: The college will work towards enhancing the campus environment while reducing energy expenditure. This will involve adopting innovative methods and utilizing energy-saving devices such as LED lights and star-rated appliances. Additionally, efforts will be made to improve the physical infrastructure of the college to optimize energy usage.

Counselling sessions: Faculty and staff members will receive counselling sessions on the efficient use of air conditioners, room heaters, personal computers, printers, and other electrical appliances. The aim is to promote responsible and energy-efficient usage.

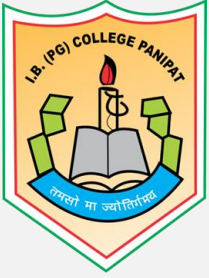
Awareness displays: The college will set up displays across the campus to raise awareness among students and staff about energy conservation and carbon reduction. These displays will serve as visual reminders of the importance of sustainable practices.

Promotion of sustainable commuting: Students who commute to college using bicycles will be recognized and motivated. Faculty and staff will be encouraged and facilitated to utilize public transportation or carpooling options, reducing the carbon footprint associated with commuting.

Student engagement activities: The college will organize various activities like quiz contests, essay writing competitions, and slogan writing competitions to engage students and raise awareness about energy conservation.



Energy and Carbon Policy



I.B.(PG) COLLEGE, PANIPAT

3

Certificate courses and project work: The college will introduce certificate courses on energy use and conservation, enrolling both college students and students from adopted schools. They will also be involved in project work related to energy-related issues in collaboration with local MSME units.

Partnerships and collaborations: The college will work in partnership with regulatory services authorities, suppliers, contractors, and all relevant stakeholders to understand and initiate improvement projects in line with energy and carbon reduction goals.

Energy measurement and reporting: The college will conduct energy audits to measure, monitor, and report both direct and indirect energy usage and carbon emissions. This will be done in accordance with internationally recognized protocols.

The energy-and-carbon policy will be made available to all students and stakeholders as per requirement. It will be reviewed every three years to ensure its suitability and updated as necessary to reflect evolving best practices and goals. By implementing these measures, the college aims to create a culture of energy consciousness, minimize environmental impact, and contribute to global sustainability initiatives. The active involvement of the Eco Club and the entire college community will be instrumental in achieving these objectives.


PRINCIPAL
Principal
I.B. (PG) College, Panipat
Energy and Carbon Policy