



Global Group of Institutes

(Approved by AICTE, PCI and Affiliated to IKGPTU, Jalandhar)

SUPPORTING DOCUMENT FOR 7.2.1

Any Other Relevant Information

BEST PRACTICE 1

“IMPLEMENTATION OF GREEN INITIATIVES”

This document includes information regarding:

- The Green Campus, Energy and Environment Policy
- Green Cover in campus
- Use of Bicycles/ Battery Powered Vehicles
- Plastic-free Campus
- Restricted Entry of Automobiles
- Pedestrian-friendly Pathways
- Landscaping
- Solar Energy
- Rain Water Harvesting
- Waste Water Recycling

❖ **The Green Campus, Energy and Environment Policy**

Scope of the Policy: The Green Campus, Energy and Environment Policies will develop exciting new co-curricular and extracurricular practices that encourage students to take the lead in creating positive change. These initiatives call for a thorough review of all infrastructural, administrative functions from the standpoints of energy efficiency, sustainability and the environment. The focus areas of this policy are:

- **Clean Campus Initiatives**
- **Landscaping Initiatives**
- **Clean Air Initiatives**
 - Smoking Free Campus
- **Infrastructure**
 - Solar Power Plant
 - Installation of Energy Efficiency Equipment
 - Water Conservation through Rainwater Harvesting System
- **Waste Management processes**
 - Solid Waste Management
 - Liquid Waste Management
 - E-Waste Management
- **Awareness Initiatives**
- **Environment-centric Student Societies and Department Activities**
- **Plastic-Free Campus**

Objectives of the Policy:

- To protect and conserve ecological systems and resources within the campus.
- To ensure judicious use of environmental resources to meet the needs and aspirations of the present and future generations.
- To integrate environmental concerns into policies, plans and programmes for social development and outreach activities.
- To work with all stakeholders and the local community to raise awareness and seek the adoption of environmental good practice and the reduction of any adverse effects on the environment.

- To continuously improve our contribution to climate protection and adaptation to climate change and to the conservation of global resources.
- To continuously improve the efficient use of all resources, including energy and water, and to reduce consumption and the amount of waste produced, recovering and recycling waste where possible.
- To make the campus plastic free.

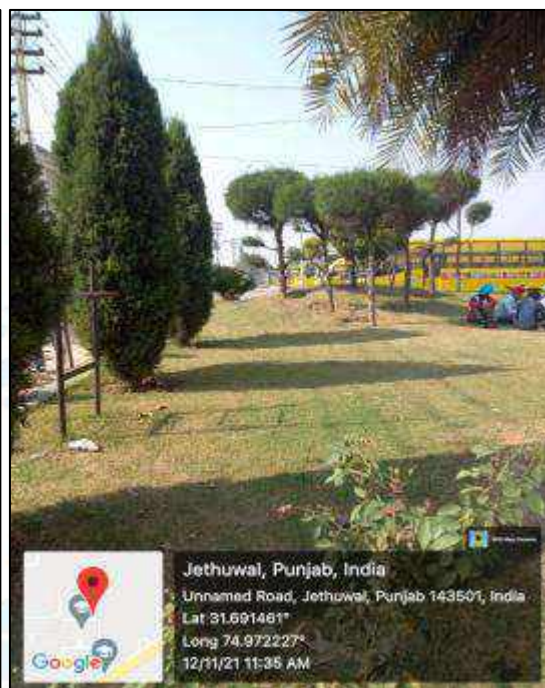
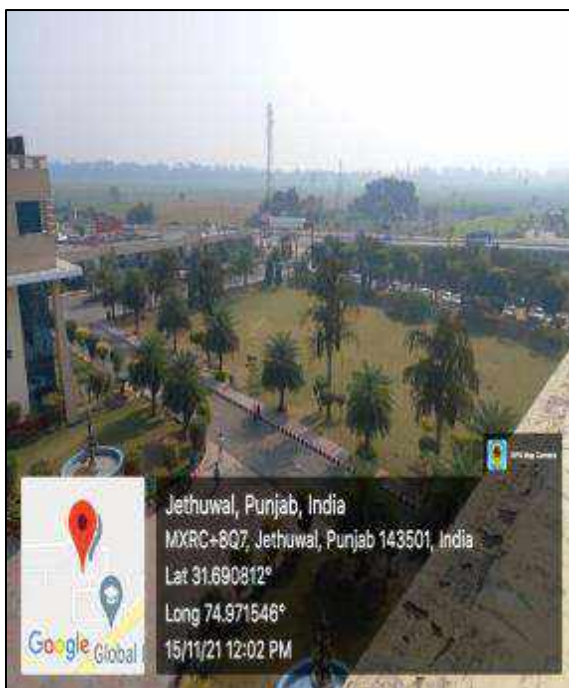
Policy:

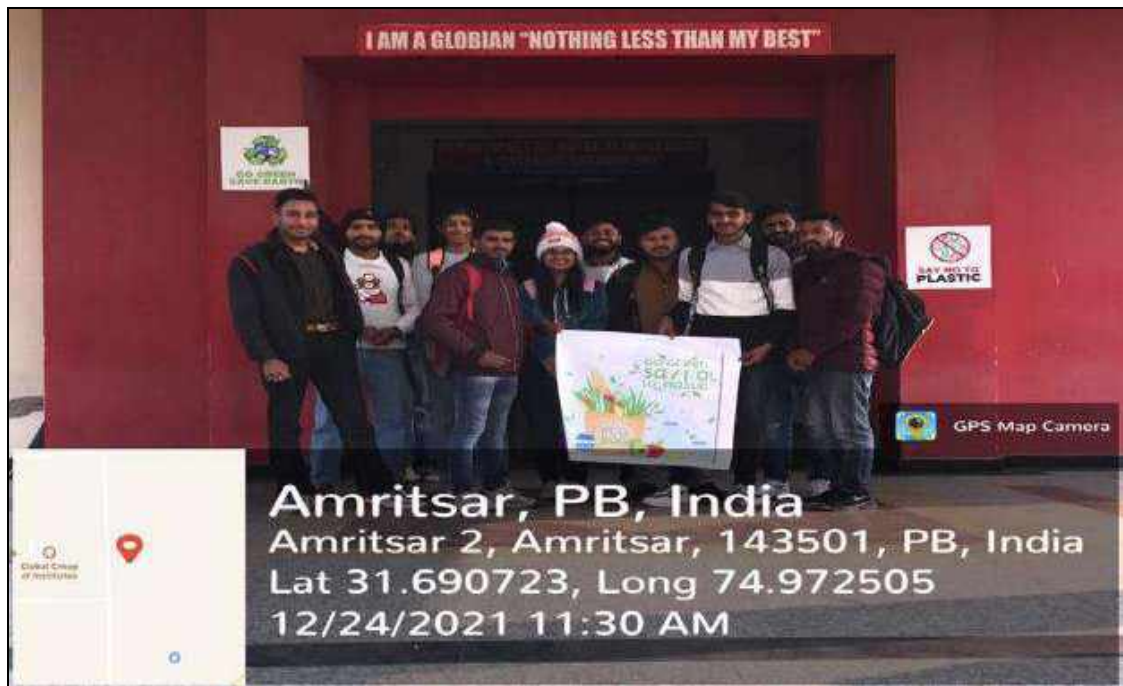
For Clean Campus Initiatives, GGI has pledged to actively coordinate cleanliness activities in the Institute and beyond the campus in accordance with the vision of “Swachh Bharat Abhiyan”. It commits to continue with this Programme. The broad vision is as follows:

1. Generating mass awareness on cleanliness and hygiene amongst students and staff members by holding regular cleanliness drives. The idea is to motivate them to contribute in a proactive manner.
2. Activities under ‘Swachh Bharat Abhiyan’ will be a key component of all the volunteers of the campus.
3. Staff Members will be encouraged to participate in the cleanliness drive in the campus.
4. Remove all kinds of waste material like broken furniture, unusable equipment etc.
5. Administer of the pledge by students and staff members to maintain cleanliness of the college campus and its surrounding areas on an annual basis.
6. Conduct workshops on the 3Rs: Reduce Reusing and Recycling of waste.
7. Commit to manage waste and maintain clean campus especially during institute’s events.

❖ Green Campus

Institutes have planted variety of Herbal, Medicinal, Fruit, Ornamental, and other value added trees for making the campus green. The responsibility for its maintenance and up-gradation lies with the Department of Agriculture. The description of plants has also been added so as to make an impact on the visitors about green bodies.





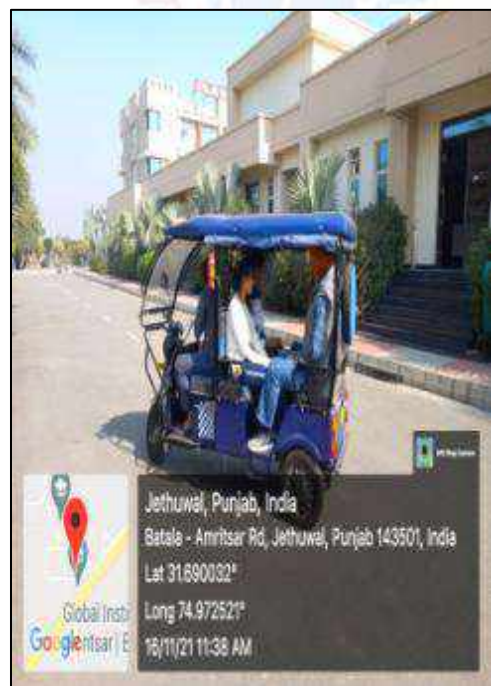
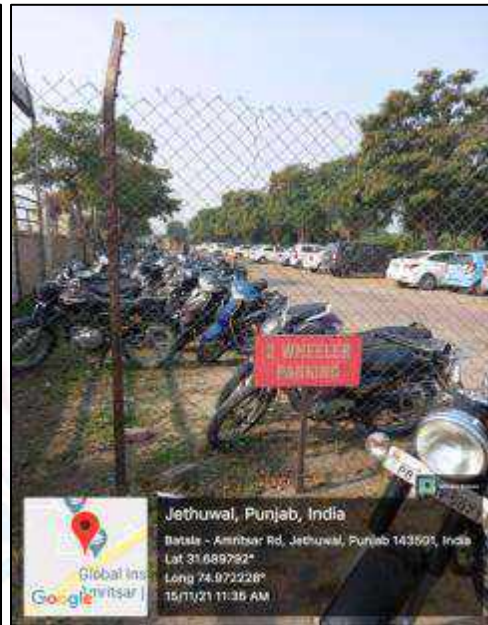
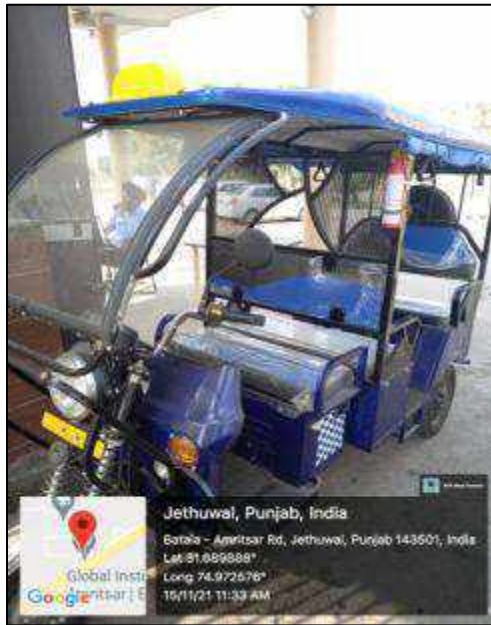
❖ Restricted Entry of Automobiles

To maintain the campus cleanliness, there are certain restrictions for entry of vehicles and there is a proper parking area in the campus.



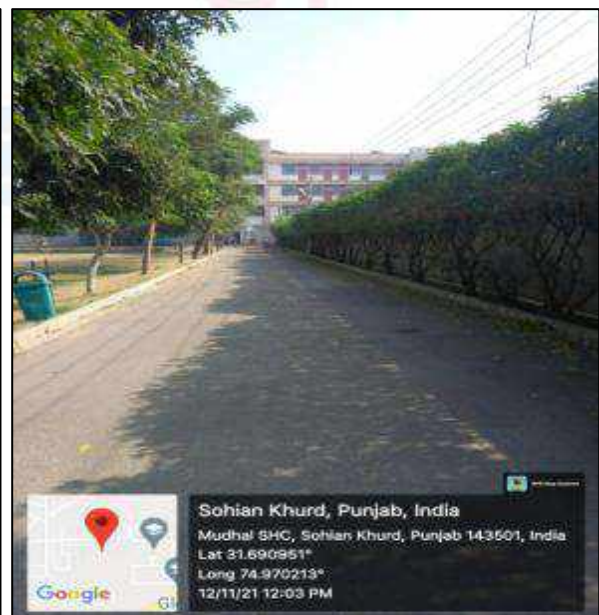
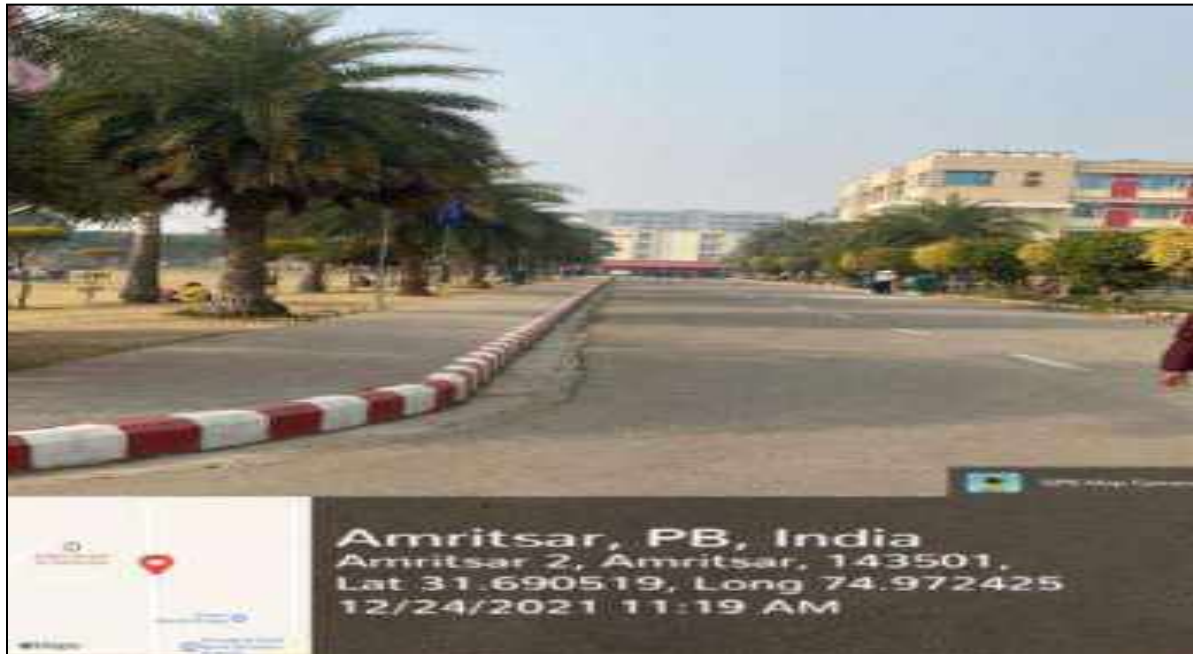
❖ Use of Bicycles/ Battery Powered Vehicles

To maintain the cleanliness of the campus and keep it pollution-free, there are certain restrictions for entry of vehicles.



❖ Pedestrian Friendly Pathways

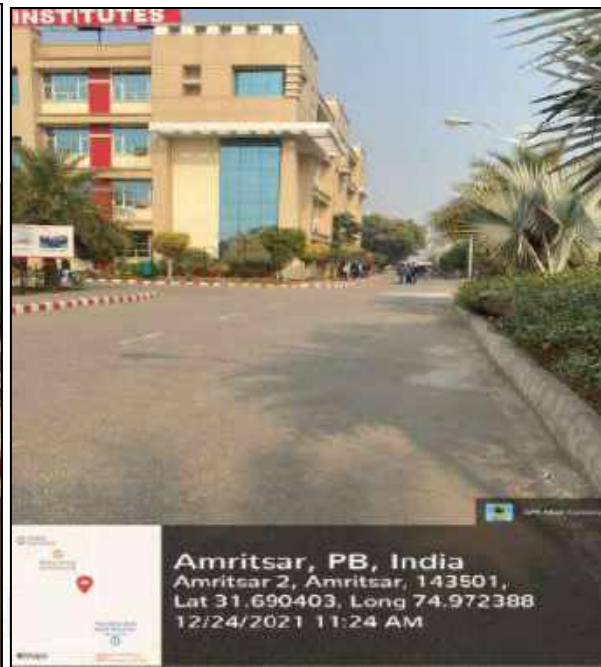
Beyond a parking point, visitors are allowed to follow a pedestrian friendly pathway or they can opt for a battery powered vehicles parked near Visitors Parking Area at the main entry gate.





Global Group of Institutes

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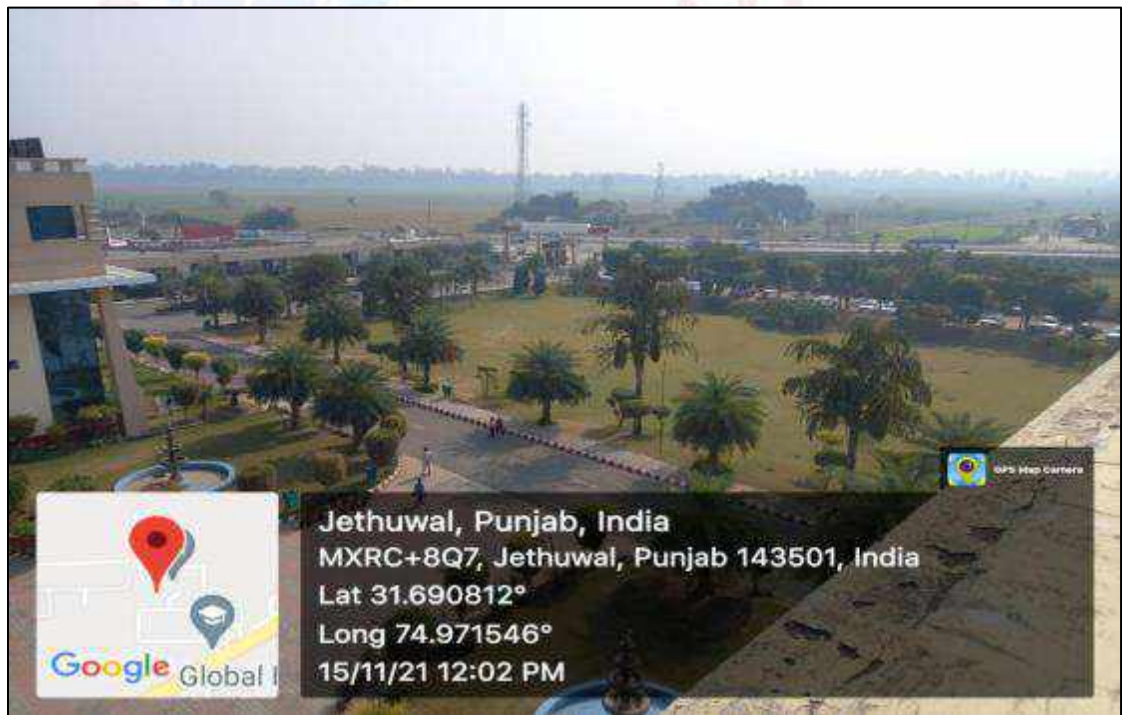
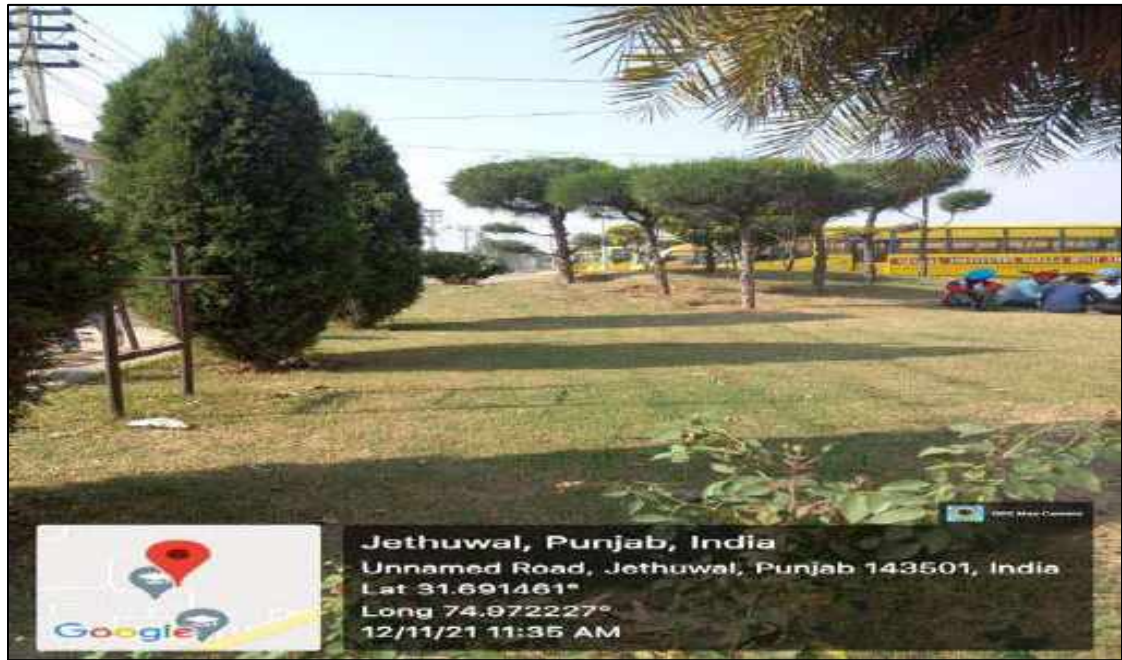
❖ Plastic Free Campus

The institutes have made a policy to limit use of non recyclable plastic in the campus. As such use of plastic disposable cups, glasses and plates etc. in the canteen and at other places has been banned.



❖ Landscaping with Trees and Plants

The campus is spread over 24 acres, having pollution free and lush green surroundings.

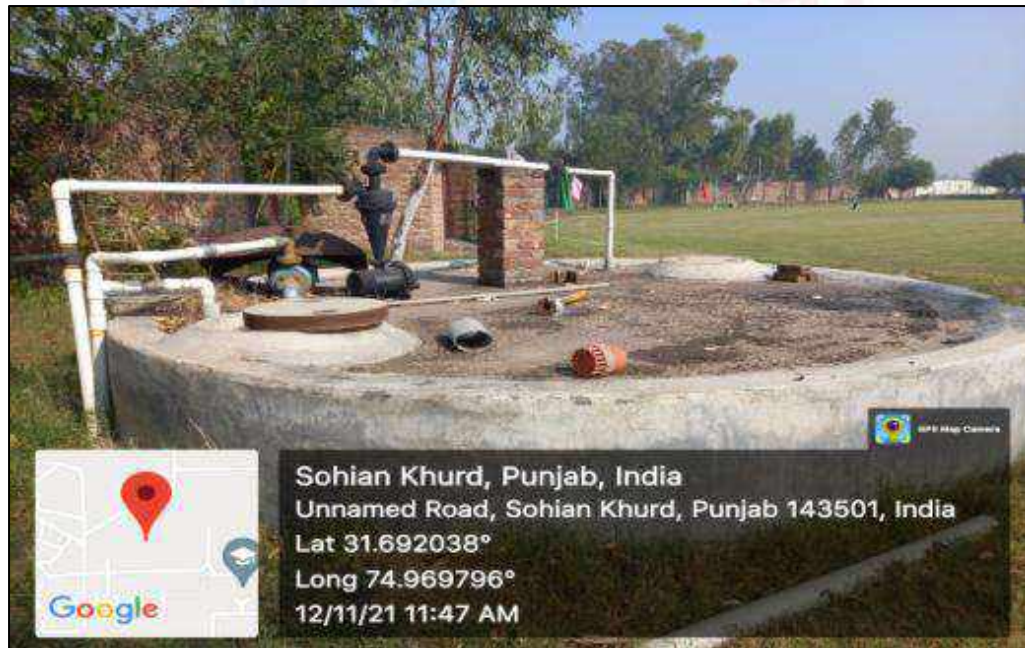
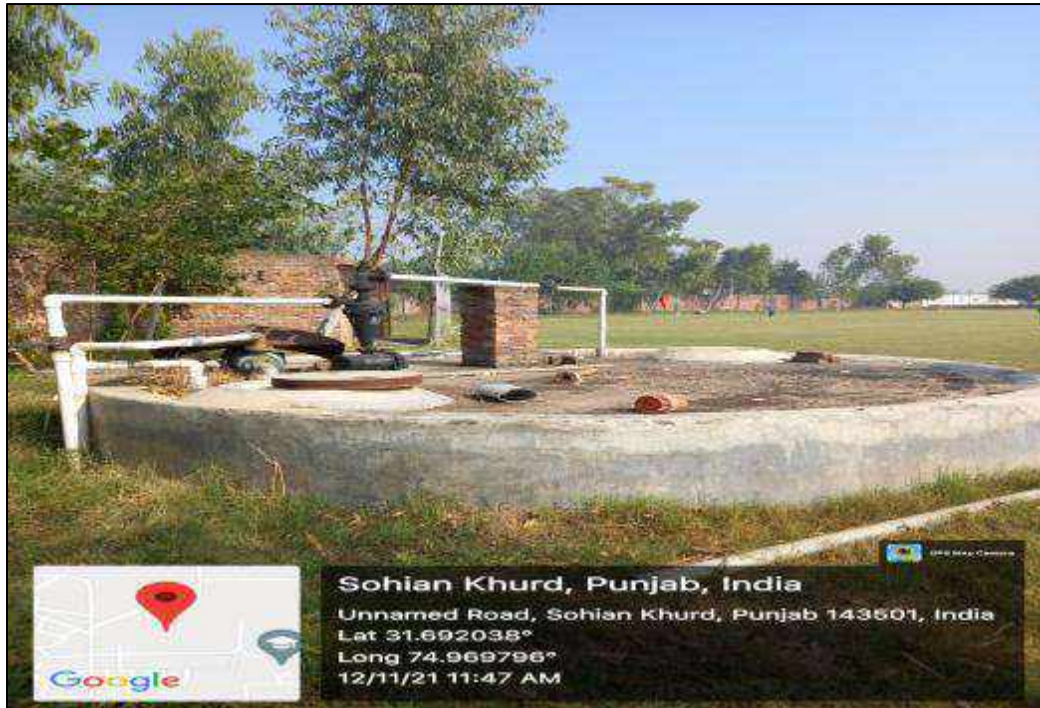


❖ Solar Energy-

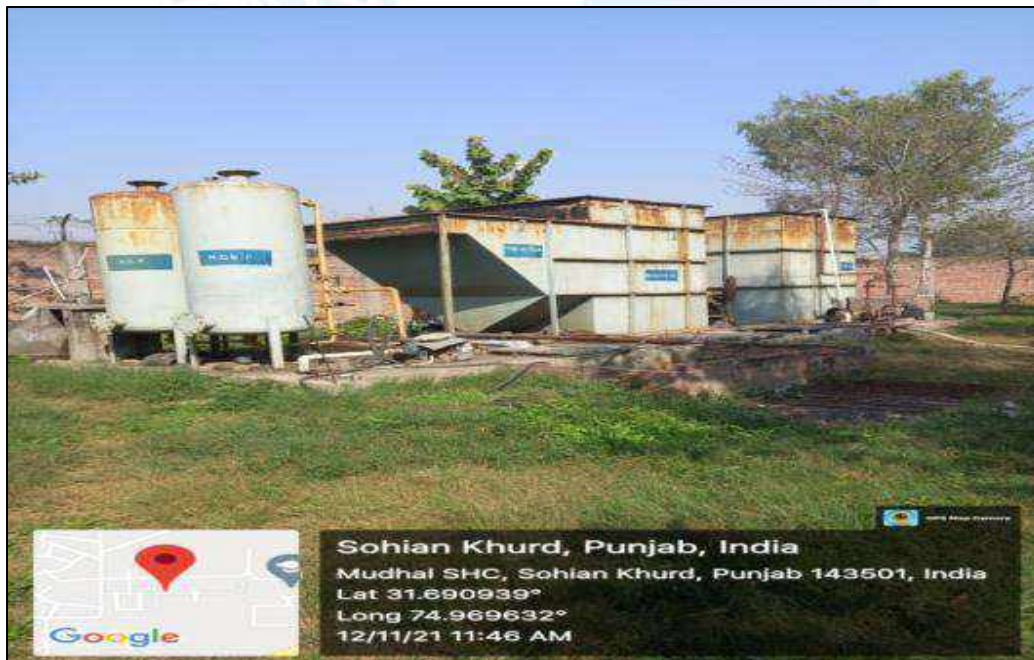
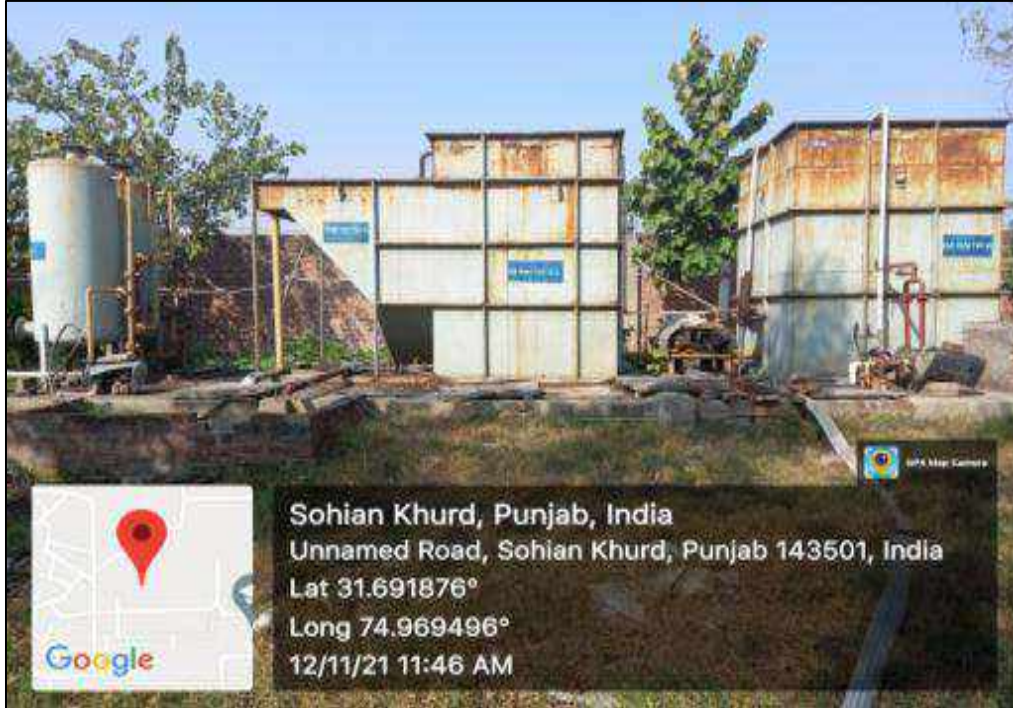
In a step towards environmental consciousness, Global Group of Institutes became first in the region among the self financed technical institutes to install a solar plant. We have installed 213 Kilowatts Roof Top Solar Power plant. It is expected to generate over 3,00,000 units per year. This will be catering to nearly 60 per cent of the institutes total power consumption. The installed solar power plant will reduce the carbon footprints emissions by 289845 Kgs annually. This initiative is not only a step towards reduced dependence on oil and fossil fuels rather a strong gesture in maintaining and protecting the green environment.



❖ Rain Water Harvesting



❖ Waste Water Recycling



Tax Invoice

J.P. ENTERPRISES
 GREEN CITY, 52 AKASH AVENUE
 NEAR BAJWA HOSPITAL GATE
 FATEHGARH CHURIAN ROAD, AMRITSAR
 GSTIN/UIN: 03FRQPS7573Q22H
 State Name : Punjab, Code : 03

Invoice No. 1	Dated 30-Aug-2019
Delivery Note	Mode/Terms of Payment
Supplier's Ref. 1	Other Reference(s)
Buyer's Order No.	Dated
Despatch Document No.	Delivery Note Date
Despatched through	Destination
Terms of Delivery	

Buyer:
Guru Har Rai Educational Society
 Sohian Khurd, Batala Road, Amritsar
 State Name : Punjab, Code : 03

Sl No.	Description of Services	HSN/SAC	Quantity	Rate	per	Amount
1	Housekeeping Manpower Services	3402				50,000.00
	OUTPUT CGST 9%				9 %	4,500.00
	OUTPUT SGST 9%				9 %	4,500.00
Total						₹ 59,000.00

Forwarded to A/c dept. for
 ha pl.

11.9.19

PAID
 A/c No. 10-001
 Chq No. 9357
 Amount 5002/-
 Date 24/9/19

Amount Chargeable (in words):

INR Fifty Nine Thousand Only

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
3402	50,000.00	9%	4,500.00	9%	4,500.00	9,000.00
Total	50,000.00		4,500.00		4,500.00	9,000.00

Tax Amount (in words) : INR Nine Thousand Only

CHALLAN AMOUNT = 59420
 CASH PAID 9400
 50020
 50000
 9000

PAID
 A/c No. 10-001
 Chq No. 000630
 Amount 9000/-
 Date 24/9/19

Declaration

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

for J.P. ENTERPRISES

Authorized Signatory

(04/9/19)
 LESS CHQ. = 50020
 9000

This is a Computer Generated Invoice

INVOICE

Hygiene Masters Vijay Nagar, Batala Road, Amritsar. +91 9888905481 +91 9888905483 E-mail : hygienemasters18@gmail.com	Invoice No.	Dated
	173	19-Feb-2021
	Delivery Note	Mode/Terms of Payment
	Supplier's Ref.	Other Reference(s)
Guru Har Rai Educational Society Amritsar	Buyer's Order No.	

Sl	Description of Goods	Quantity	Rate	per	Amount
1	PVC Tank Cleaning As Per Service Reports	72 Tank	400.00		28,800.00
		Total	72 Tank		28,800.00

Rs. Twenty Eight Thousand Eight Hundred Only

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

This is a Computer Generated Invoice

PAID
A/c No. 461324 Date 17/2/21
Chg. Rs. 28800

Vikram

RECEIPT

2

Receipt No : 226 0010846

EUREKA FORBES LIMITED

Red Cross Bhawan Mall Road Ludhiana - 141027.

Date : 08/10/21

GSTIN No : 03AAACE5767F1ZU CIN NO - U27109WB1931PLC007010

PAN NO : AAACE5767F

Name M/S. Global - Insti-488

Address Batala Road. Verkh. ASR

Customer Code:

GSTIN No:

E-Mail:

Telephone No:

Received with thanks the sum of Rs ₹ 4445/- (Amount in words) Four thousand four hundred and forty five

₹ 4445/- in cash/cheque/DD/Card/Net Payment No. ₹ 4445/-

dated 08/10/21 Drawn on 08/10/21 being full and final payment for the

Sale of Spares. *Cheque/DD Subject to realisation.



Description	Quantity	Rate	Batch No
1) Classic = 10' Grelle + Block	1 + 1	450 + 400	
2) Classic + = 10' Grelle + Dual Grelle + PIP	1 + 1 + 1	450 + 600 + 120	
Service Charge	1	505	
Service Charge	1	525	Total
<u>10 + 10</u>			<u>4445/-</u>
3) Classic = 10' Grelle + Block	1 + 1	450 + 400	
Service Charge	1	525	
<u>10 + 10</u>			<u>4445/-</u>

Original - Customer

PAID 1001 08/10/21
Regd. Office : 7, Chakraborty Road (South) Kolkata - 700 025. India

Signature



TAX INVOICE
EUREKA FORBES LIMITED
HOUSE NO. 16 SHIV NAGAR, BATALA ROAD
AMRITSAR 143001
www.eurekaforbes.com

Original for Recipient

GSTIN: 03AAACE5767F1ZU PAN: AAACE5767F CIN: U27109MH1931PLC353890
GST Principal Place of Business: RED CROSS BHAWAN MALL ROAD LUDHIANA 141027
Name of State: Punjab State Code: 03
Tax is Payable on Reverse Charge (Yes/No): No
Invoice No : IN22PB0001310 Ref No : 821386692 Invoice Date : 08.05.2021
IRN No :

Mode of Transport:
Veh No:
Place of Supply: 03 - Punjab
Ack No :
Ack Date :

Details of Receiver(Billed to) : 8001169900
Name: Guru har rai Educational Society
Address: 11 CHANDI FARM AKASH AVENUE , FC ROAD
AMRITSAR 143001
Name of State: Punjab
State Code : 03
GSTIN/Unique ID:
PO Number and Date :

Details of Consignee(Shipped to) : 8001169900
Name: Guru har rai Educational Society
Address: 11 CHANDI FARM AKASH AVENUE , FC ROAD
AMRITSAR 143001
Name of State: Punjab
State Code : 03
GSTIN/Unique ID:
PO Number and Date :

S. No	Description Of Service	SAC code	Qty	Unit	Rate	Total(Base Price)	Discount / Abatement	Taxable Amount	CGST Rate	CGST Amount	SGST Rate	SGST Amount
1	Maint & repair services of electrical household appliances INCLE15C12 Dr. AG CLASSIC +(EA) -12 MTH COMP. AMC For AMC Period From 08.05.2021 To 07.05.2022	998715	1	NOS	2500.00	2500.00	0	2500.00	9%	225.00	9%	225.00
	Total Amount					2500.00	0.00	2500.00		225.00		225.00

Invoice Total(In Words): TWO THOUSAND NINE HUNDRED FIFTY AND ZERO PAISE Only.

Invoice Total 2950.00

Execution Partner: 0000062951-SIKANDER SINGH

TERMS AND CONDITION OF SALE

1. In case of AMC refer contract receipt for AMC terms.
2. Payment by "Account Payee" Cheques / Drafts only in the name of Eureka Forbes Limited.
3. Payment received beyond due date will attract interest @ 18% P.A for the period of delay.
4. Concessional rate of Tax charged or exemption from charging tax will apply only if the appropriate declaration / form(s) is /are received along with P.O , otherwise the buyer is liable to pay full tax.
5. Subject to Mumbai jurisdiction

We certify that the particulars given above are true and the amount indicated represents the price actually charged for the service and there is no flow of additional consideration directly or indirectly from the buyer for this transaction.



PAID
A/c No. 1501
Chq No. 1644
Amount 2950/-
Date 31/05/21
Syoh

RECEIPT

Receipt No : 226

0010831

EUREKA FORBES LIMITED
Red Cross Bhawan Mall Road Ludhiana - 141027.

Date : 27/10/21

GSTIN No : 03AAACE5767F1ZU CIN NO - U27109WB1931PLC007010

PAN NO : AAACE5767F

Name H/s. Global Insulator.
Address Batala Road. ASR

Customer Code:

GSTIN No :

E-Mail:

Telephone No :

Received with thanks the sum of Rs 7,730/- (Amount in words) Seven thousand Seven
Hundred thirty only 3 in cash/cheque/DD/Card/Net Payment No. _____
dated _____ Drawn on _____ being full and final payment for the

Sale of Spares. *Cheque/DD Subject to realisation.



Description

Quantity

Rate

Batch No

1.) Hi Flo - PCB + Guelle + Keptor, 1+1+1 1945 + 450 + 945
Service charge 1 525 = 3865/2

2.) Hi Flo - PCB + Guelle + Keptor, 1+1+1 1945 + 450 + 945
Service charge 1 525 = 3865/2

PAID

Total 2

7,730/-

Page 1 of 1

Original - Customer
13311

Regd. Office : 7, Chakraborty Road (South), Kolkata - 700 025, India

Rajit Singh

ENERGY AUDIT REPORT
for
GLOBAL GROUP OF INSTITUTIONS
AMRITSAR

PREFACE

Data collection for energy audit of the Global Group of Institutions was carried out by the team during November-December,2021. This audit was conducted to seek opportunities to improve the energy efficiency of the campus. Reduction of energy consumption while maintaining or improving human comfort, health and safety were of primary concern. Beyond simply identifying the energy consumption pattern, this audit sought to identify the most energy efficient appliances. Moreover, some daily practices relating common appliances have been provided which may help reducing the energy consumption.

The report accounts for the energy consumption patterns of the academic area, central facilities and hostels based on actual survey and detailed analysis during the audit. The work encompasses the area wise consumption traced using suitable equipments. The analysis was carried out with software MS-Excel. The report compiles a list of possible actions to conserve and efficiently access the available scarce resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff would follow the recommendations in the best possible way.

The report is based on certain generalizations and approximations wherever necessary. The views expressed may not reflect the general opinion. They merely represent the opinion of the team guided by the interviews of consumers.

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1. INTRODUCTION

Global Group of Institutes were founded by Dr B S Chandi and Dr Akashdeep Singh Chandi, who had the vision for creating a truly world class institutes which would cater to the needs of Indian and Overseas Industry, Research and Educational Institutions. Global Group of Institutes have tremendously grown since their inception in 2008 and are well known for imparting the Quality Education in the region.

Global Group of Institutes have always been led from the front by prominent academicians as Directors, and it is evident from the fact that previous Directors contributed for long periods at bench mark Institutes of the Country including ISRO, IIT, NIT etc. The institutes offer Undergraduate and Post Graduate Programmes and Doctoral Programmes in the field of Engineering, Management, Pharmacy and Computer Applications. These institutes are approved by All India Council for Technical Education, Pharmacy Council of India and affiliated with IKG-Punjab Technical University Jalandhar/ PSBTE & IT Chandigarh.

We have undergone accreditation of highest level like NAAC which ensures the balance between high academic quality and professional relevance and the needs of the corporate world are well integrated into programmes, activities and processes.

Following Institutes have been merged and renamed as Global Group of Institutes as per AICTE 2019-2020

- 1.Global Institute of Management & Emerging Technologies (Estd 2008, For B.Tech, M.Tech, MBA & MCA)
- 2.Global Institute of Management (Estd 2008, for MBA, BBA, BCA, B.Com(Hons), Airlines Tourism, Hotel Management, Agriculture, MLS)
- 3.Global Polytechnic College (Estd 2013, for ME, CE, EE, CSE)
- 4.Global Institute of Pharmacy (Estd 2018 for Pharmacy)

1.1 OBJECTIVE OF ENERGY AUDIT EXERCISE

The objective of Energy Audit is to promote the idea of Energy Conservation in the Campus of Global Group of Institutions Campus, Amritsar. The purpose of the energy audit is to identify,

quantify, describe and prioritize cost saving measures relating to energy use in the Hostels, Departments and Institute Central Facilities.

The work eligible for Energy Audit Study should be directed towards:

- Identification of areas of energy wastage and estimation of energy saving potential in Hostels, Departments and Institute Central Facilities.
- Suggesting cost-effective measures to improve the efficiency of energy use.
- Estimation of implementation costs and payback periods for each recommended action.
- Documenting results & vital information generated through these activities.
- Identification of possible usages of co-generation, renewable sources of energy (say Solar Energy) and recommendations for implementation, wherever possible, with cost benefit analysis.

1.2 ANALYSIS OF AREA OF USE

Identifying where energy is used is useful because it identifies which areas the audit should focus on and raises awareness of energy use and cost. The results of the analysis can be used in the review of management structures and procedures for controlling energy use.

Analysis of energy use can be done by installing sub meters in different plant locations to pinpoint actual energy usage per area. This is a good source data for allocating energy use. The plant manager can also list all equipment used and the corresponding operating hours. With this information, spreadsheet can be created and charts useful for analysis may be generated.

Important Points to Consider When Collecting Load Data:

- a. **Usage** – The usage of the equipments in terms of hours per day and days per year can be collected from key persons in Hostels, departments etc. It is important to ensure the accuracy of this data because much of the potential for energy savings lies on wise allocation of the equipment's operating hours.
- b. **Actual power consumed** – Actual power consumption is measured by Wattmeter.
- c. **Supplementary Information** – Some other supplementary information are also collected such as state of insulation in case of ACs or availability of natural light etc.

1.3 IDENTIFICATION OF TARGET AREAS

Opportunities for energy savings can range from the simplest, such as lighting retrofits, to the most complex such as the installation of a cogeneration plant. After the preliminary identification of opportunities, more time should be spent on those which have shorter payback periods.

1.4 COST BENEFIT ANALYSIS

The identified energy conservation opportunities should be analyzed in terms of the costs of implementing the project versus the benefits that can be gained. Say for example, if we wish to install a heat plate exchanger to recover waste heat, we must calculate the total cost of installation and compare that with the savings derived from recovering waste heat.

1.5 ACTION PLAN TO SET IMPLEMENTATION PRIORITY

After passing the cost benefit test, an action plan should be developed to ensure that the opportunities identified are implemented. The action plan should include all the major steps for implementing the opportunity as well as the people responsible. Furthermore, there should be a plan for monitoring the results.

2. ENERGY AUDIT METHODOLOGY

The methodology adopted for this audit was a three step process comprising of:

1. **Data Collection** – In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, interviewing key persons, and measurements.
2. **Data Analysis** - Detailed analysis of data collected was done using MS-Excel. The database generated by MS-Excel was used for producing graphical representations.
3. **Recommendation** – On the basis of results of data analysis and observations, some steps for reducing power consumption without affecting the comfort and satisfaction were recommended along with their cost analysis.

2.1 DATA COLLECTION

For suggesting any corrective measures to reduce power consumption, it is first necessary to know the power consumption pattern in detail. For this, the exhaustive data collection exercise was performed at all the departments, academic centers, hostels, and other supporting entities such as library, computer centre etc.

Following steps were taken for data collection:

- The team went to each department, centre, hostels etc.
- Information about the general electrical appliances was collected by observation and interviewing.
- The power consumption of appliances, rated power was used (CFL for example).
- The details of usage of the appliances were collected by interviewing key persons e.g. Warden (in case of hostels), caretaker (in case of departments) etc.
- Light intensity was measured using lux meters at the places where light intensity was either very low or very high.

- In case of Air Conditioning, insulation was checked by visual inspection.

Approximations and generalizations were done at places with lack of information.

2.2 DATA ANALYSIS

In data analysis, the data collected is processed to draw significant conclusions to pinpoint loopholes and identify the areas to focus upon. Analysis of the power consumption observations obtained was used to obtain the power consumption pattern and also to get the information about the points where electric power is wasted.

2.3 RECOMMENDATION

Energy as well as cost analysis of different appliances were performed and recommendations were made based on the capital cost recovery time.

Following were the steps involved in this process:

- The capital cost involved in replacing an appliance and/or process was estimated. The energy saving by the move was calculated in terms of price of energy per year.
- These two costs were compared to calculate the capital cost recovery time which is defined as the total time by which the saving in energy bill balances the capital cost involved.

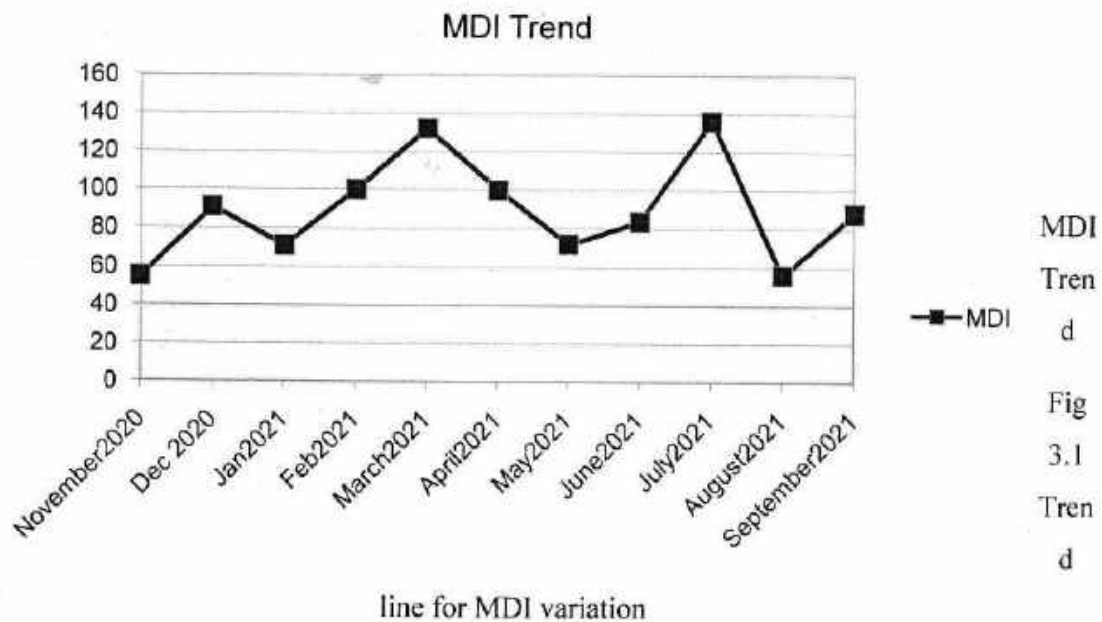
If capital cost recovery time is less than the product life, the move can be supported. Some other recommendations were also made which are based on lighting intensity, AC insulation etc.

3. ANALYSIS OF POWER CONSUMPTION

With the use of MS-Excel, we have analyzed the power consumption by equipment, application as well as location. Here is the summary of the analysis presented in form of charts for better understanding.

3.1 OVERALL CAMPUS

There are 3 hostels, 11 academic departments, 1 academic center, and supporting infrastructures like central library, computer center, and administrative block (Main Building) in Global Institutions campus. The campus has a connected load of 495kVA and Contract demand of 550kVA. The consumption detail for last 12 months are shown graphically below. The first figure shows the variation of Maximum demand over the last year.



The following figure shows the trend line for kWh consumption.

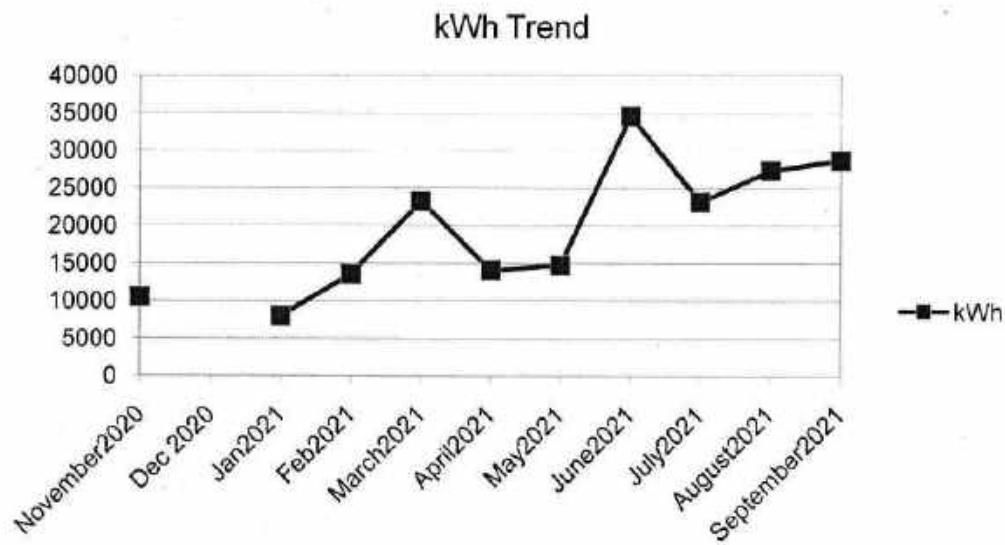


Fig 3.2 Trend line for kWh consumption

The following figure shows trend line for kVAh consumption

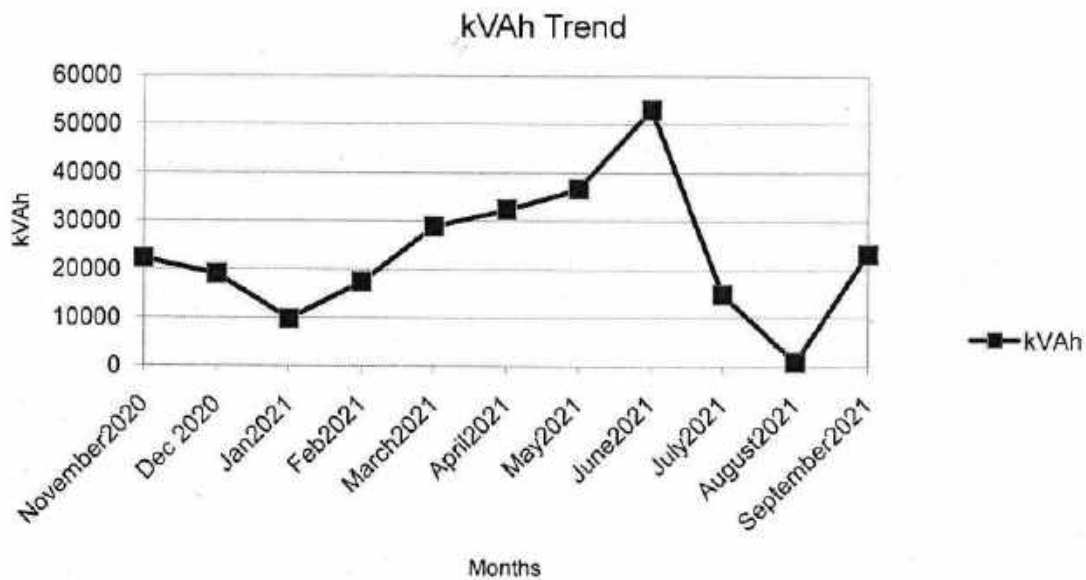


Fig 3.3 Trend line for kVAh consumption

The area wise consumption for one month is as given by the bar chart below:

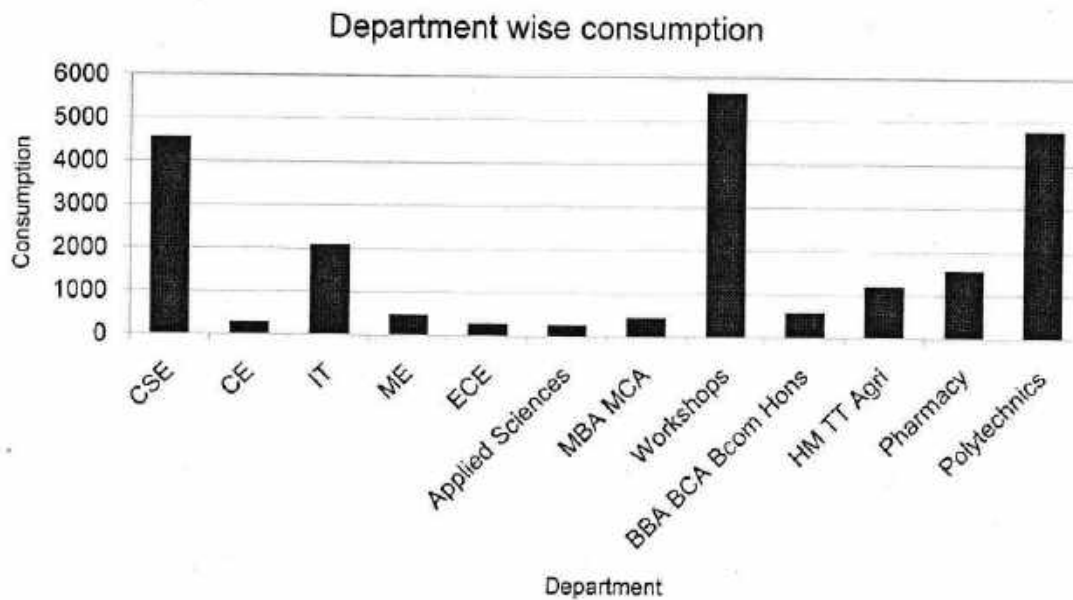


Fig 3.4 Department wise consumption

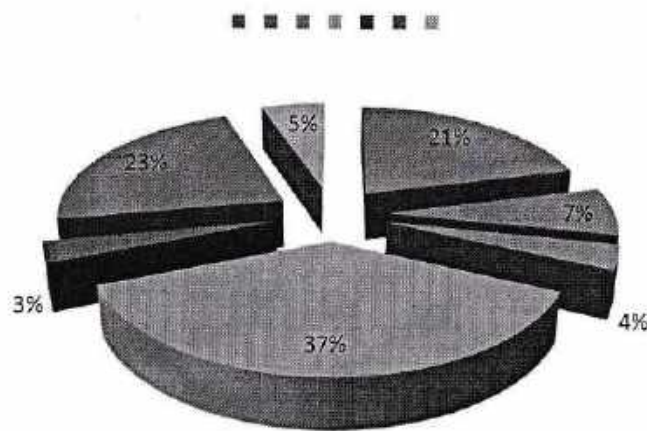
From the above it is seen that workshops are using the highest amount of power followed by Computer Science department (CSE).

A point to note in the above chart is the higher consumption of CSE and IT as compared to other departments which in itself explains how ACs and Computers affect the consumption distribution. Small consumption of other departments is due to their small size. Classrooms have higher consumption because of having higher lighting and fan load. In the workshop, Machine Shop and Welding Shop are the maximum power consuming workshops due to Arc Welding sets and other machines.

3.1.1 LOCATION WISE ANALYSIS OF CAMPUS:

The location wise distribution of power consumption in the campus has been shown in the following chart

Location Wise consumption Pattern of overall Campus



As the chart suggests, major power consuming areas are central facilities (23%) and rooms in hostels (37%). After that there are laboratories (21%), classrooms (7%), toilets (5%), other offices (4%), mess (3%).

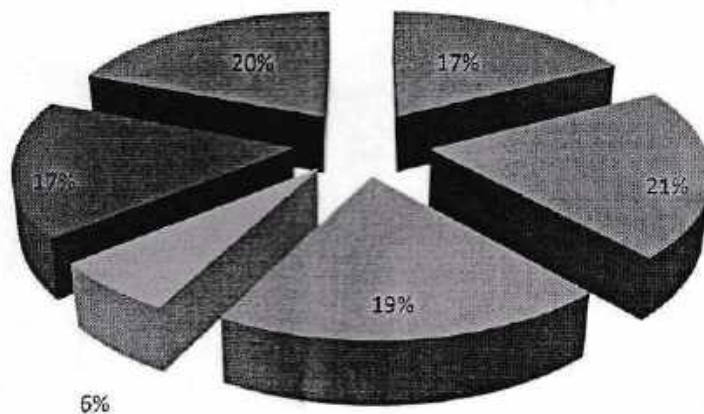
Laboratories with 21% share in power consumption are very important area to focus for improving energy efficiency of the campus. In case of computer labs, wise use of computers and ACs is required to reduce the consumption. In other labs also, wise use of lighting and other appliances can largely reduce the consumption.

Rooms in hostels are major contributor to energy inefficiency due to poor practices. Also, for new hostels to come, it is advised that LED tube lights should be used for lighting and star rated/BLDC fans should be used. Corridors and toilets are the areas where automation can be used to reduce the consumption largely.

3.1.2 APPLICATION WISE ANALYSIS OF CAMPUS:

Application wise analysis of overall campus has been carried out to find out the application areas with relatively higher power consumption. The results of the application wise analysis of power consumption in Global Institutions campus have been summarized in the following chart

Application wise consumption pattern of overall campus



It's quite clear from the chart that maximum power is wasted in comfort applications (16%) such as room coolers, air conditioners, room heaters etc. To reduce the consumption in these applications, awareness about the energy conservation is very important and effective step.

Lighting with 21% of total power consumption is an application where energy efficiency can be achieved very easily by replacing old appliances by new efficient ones.

Office applications include computers, printers, scanners, Xerox machines etc. and contribute as high as 17% of total consumption. Replacing CRT monitors by LCD monitors can drastically reduce consumption of this application area.

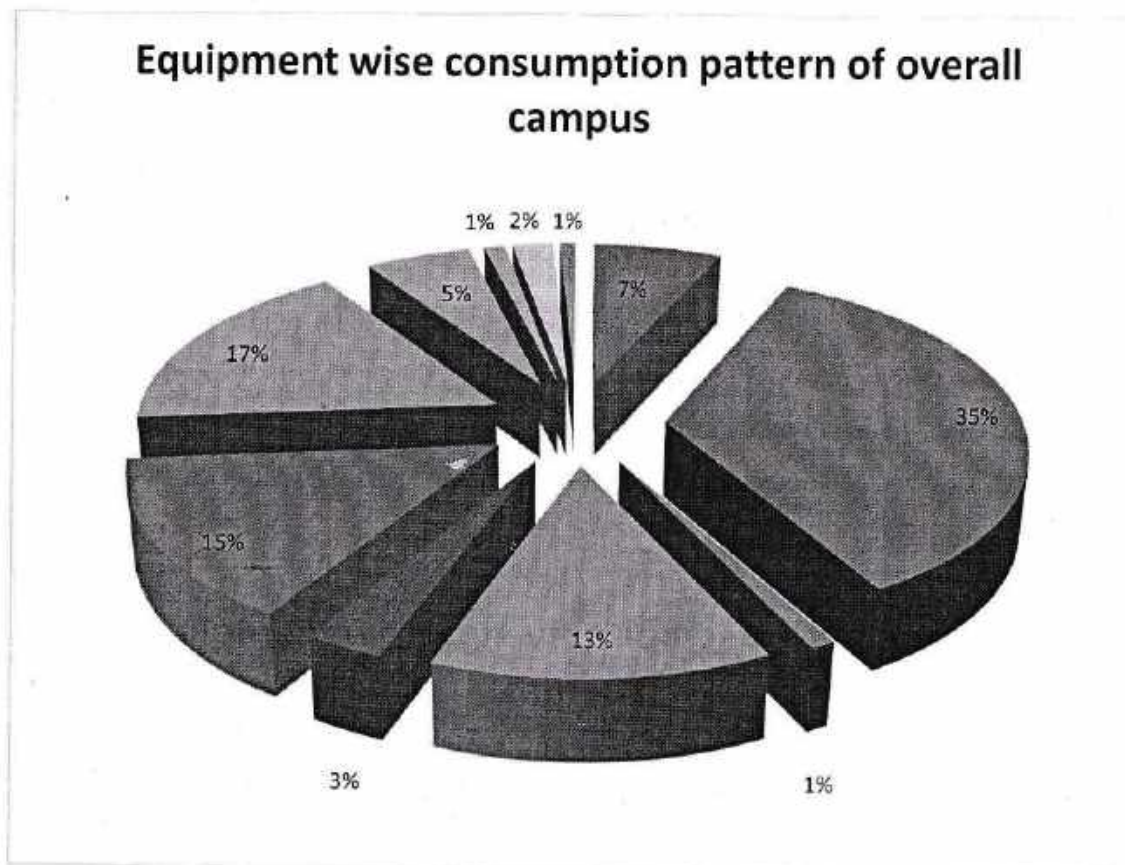
Air circulation appliances (fans) having share of 17%, are also among major culprits in energy inefficiency.

Washing/bathing/cleaning include geysers, water coolers, water purifiers etc. accounting for 6% of total consumption.

Others include various load on power plugs which has a share of 20% of load.

3.1.3 EQUIPMENT WISE ANALYSIS OF CAMPUS:

Equipment wise analysis has been performed in order to identify the equipments, within same application area, which consume more power as compared to others. During equipment wise analysis of the overall campus, the equipments with power consumption less than 1% of total power consumption of the campus were ignored so as to make the analysis results simple and easy to observe. Following chart summarizes the results of equipment wise analysis of power consumption



AC consumes 17% of total power. For lighting, dominant appliance is the conventional Ballast[Choke] tube light with 13% share and relatively efficient electronic Ballast[Choke] tube lights and T5 lamps have negligible share. CFL has 3% share in total power consumption.

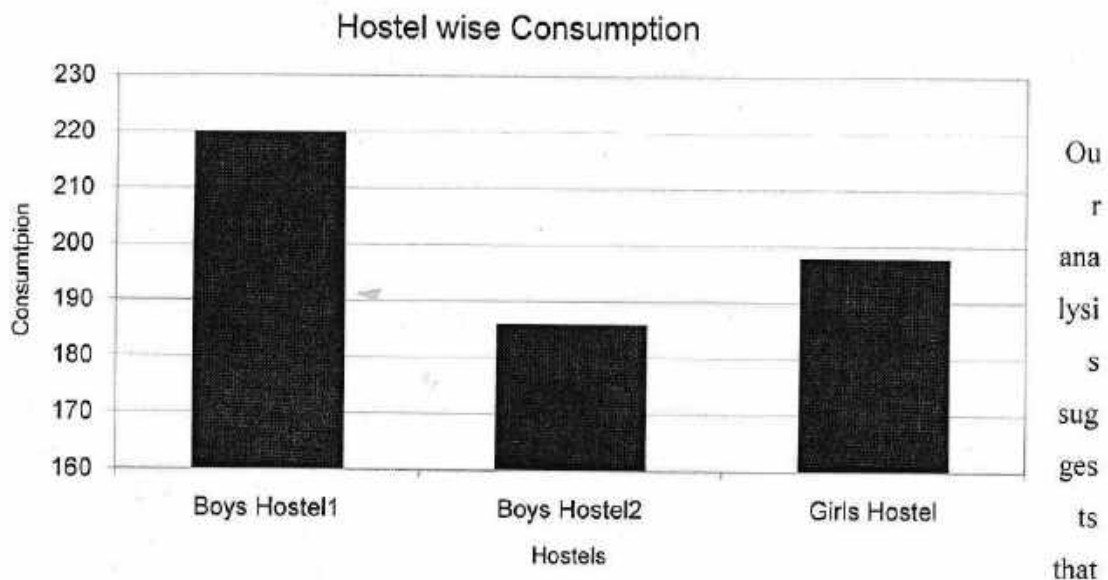
Computers also have a contribution of 15% to total power consumption.

Resistance regulated fans have 42% share (35% new fans and 7% old fans) and electronic regulated fans and efficient wall fans have negligible share in total power consumption.

Geysers with 5% share in total consumption are another significant contributor. Water coolers (2%) and refrigerators (1%) and washing machine(1%) are other significant appliances.

3.2 HOSTELS

There are in all 3 hostels in Global Institutions, Amritsar. Out of these, 2 are for boys and 1 for girls. All hostels have capacities ranging from 100 to 200 seats. Most of the rooms are single seated, but some hostels have four seated rooms as well. In single seated rooms, one tube light and one ceiling fan has been provided while in four seated rooms, two tube lights and two ceiling fans are provided. In addition, each hostel has a mess.

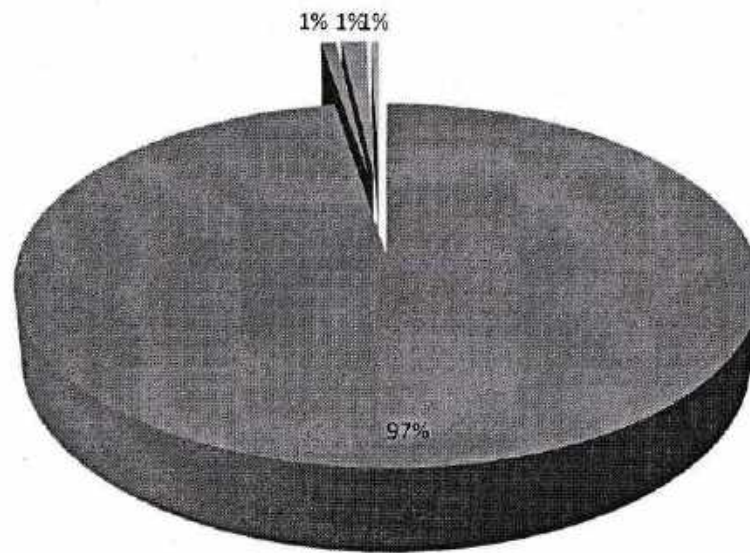


boys Hostel no. 2 has relatively less consumption as compared to other hostels. This may be due to average occupancy, occupancy during vacations, architecture or practices.

3.2.1 LOCATION WISE ANALYSIS OF BUILDINGS:

The location wise analysis of all buildings done together suggests that maximum power consumption after rooms is in toilets. The reason is mostly poor practices. It is a general complaint of all supervisors that students DO NOT switch off the geyser after use. High consumption of mess is not a surprise as they use a number of other appliances in addition to general appliances in their kitchen.

Location wise consumption pattern of hostels



The rooms, consuming 97% of total consumption, have major role in reducing total energy consumption, just by using better practices. Some students don't switch off the lights and/or fans even when they are not in room. Most students keep their computer/laptop in standby mode all the time. Lots of power is wasted due to these poor practices.

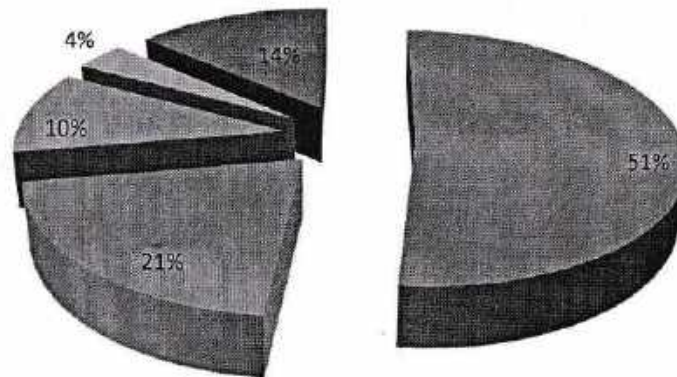
Toilets are also a major area to focus upon, from energy conservation point of view. Power consumption here can largely be reduced by simply using geyser a little more wisely. In lighting of toilets also, there is large potential of saving by using automation so that the light is not switched on all the time.

Mess, though having smaller share in power consumption than above two, have large potential for saving electric energy. Motion sensors can be utilized to automatically switch off the lights when there is no motion in the corridors. Messes are more or less using electricity wisely and have very low potential for reducing energy consumption (except in the case, LPG replaces electricity completely for cooking purpose.)

3.2.2 APPLICATION WISE ANALYSIS OF HOSTELS

Application wise analysis helps to pinpoint the application areas to attain maximum savings with minimum efforts. Application wise analysis of hostels indicates that air circulation consumes more than 50% of the total power.

Application wise consumption pattern of hostels



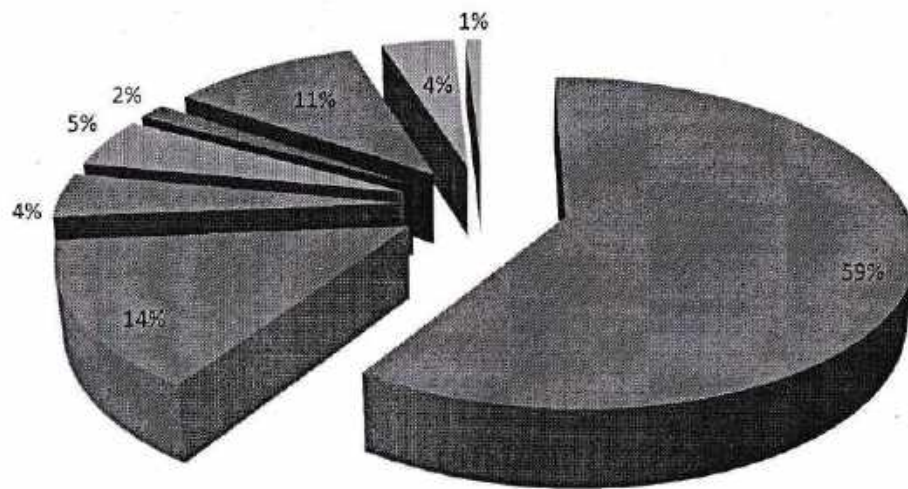
Washing/Bathing/Cleaning comprises of geysers, washing machines etc. Here energy efficiency mostly requires good practices.

Then are the air circulation comprising of fans, ACs and coolers etc. In this category, replacing old appliances by new ones can be very helpful to energy efficiency. For example, resistance regulators of fans may be replaced by efficient electronic regulators. Next is lighting which consists of tube lights, CFLs, Incandescent light bulbs, halogen lamps etc. Here also, energy efficient appliances can be used to reduce energy consumption.. Others (power plug load) are having significant consumption share and offer very small space for reducing consumption.

3.2.3 EQUIPMENT WISE ANALYSIS OF HOSTELS:

Considering the viability of representation, the appliances having power consumption less than 1% have been ignored while doing equipment wise analysis of Hostels.

Equipment wise consumption pattern of hostels

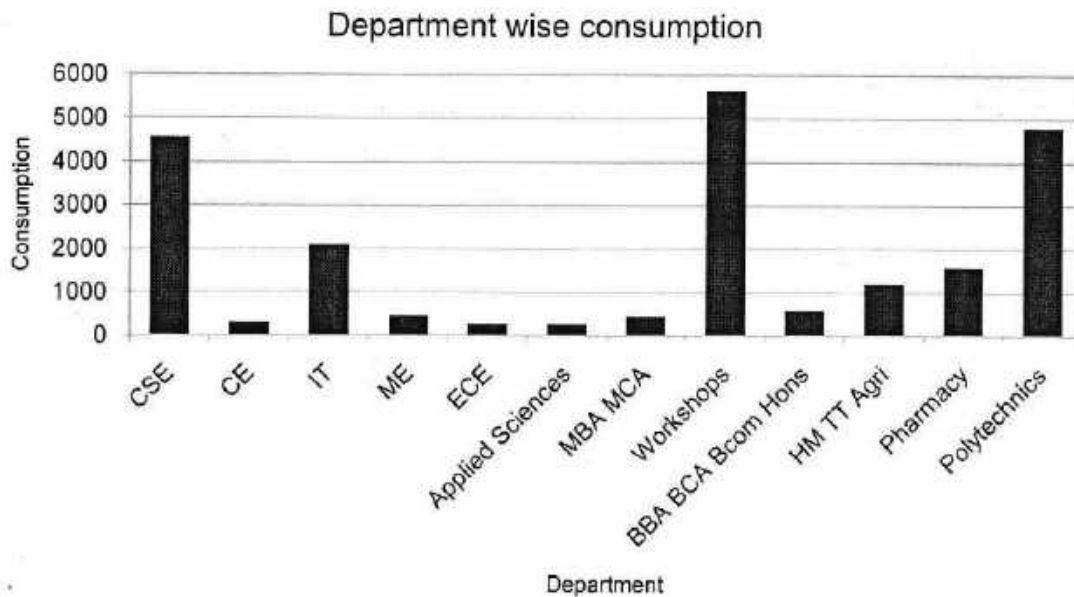


Fans and Tube lights are maximum power consuming appliances accounting for 59% and 14% of total consumption. Geysers account for 11% of total consumption. Consumption in water coolers is 4% of the total power consumption. All other devices have not that much significant consumption.

3.3 DEPARTMENTS

Global Institutions has 11 academic departments. Each department has laboratories, classrooms, faculty rooms, and central facilities.

Following bar graph gives the total power consumption estimates of different departments:



Above chart shows the Workshops followed by Department of Computer science Engineering and IT is the maximum power consuming department. The other departments follow as shown above.

3.3.1 LOCATION WISE ANALYSIS OF DEPARTMENTS:

Location wise analysis of power consumption in departments points to a surprising fact that in spite of ignoring the special equipments installed in the laboratories and taking into account only general appliances, laboratories comprise nearly half of total power consumption of the departments. The chart below summarizes the results of location wise analysis of departments:

Location wise consumption pattern of departments

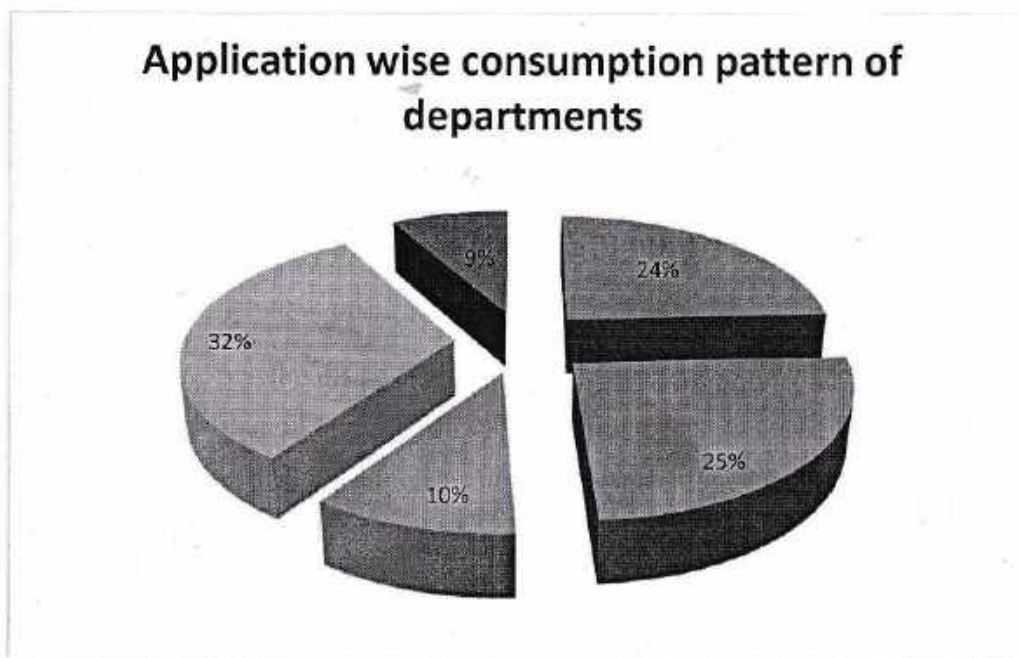


So, laboratories consume 66% of total power consumed in the departments. This is partly because laboratories are large in number and partly because all the appliances are on for the entire duration a laboratory is open. Many of the labs are air conditioned.

Faculty offices come second with 11% of total power consumption in departments. It is important to note here that since the audit has been conducted in the months of February and March. Classrooms consume 22%, corridors 1%.

3.3.2 APPLICATION WISE ANALYSIS OF DEPARTMENTS

Results of application wise analysis hint at excessive use of ACs, room coolers, room heaters etc in departments. Also the office appliances (which include computers, printers, scanners etc.) contribute largely to the total power consumption in the departments. The distribution of power consumption by different application would be clearer from the distribution pie chart given below



Comfort applications are consuming large power (25%). This clearly indicates that the ACs and heaters are not used wisely.

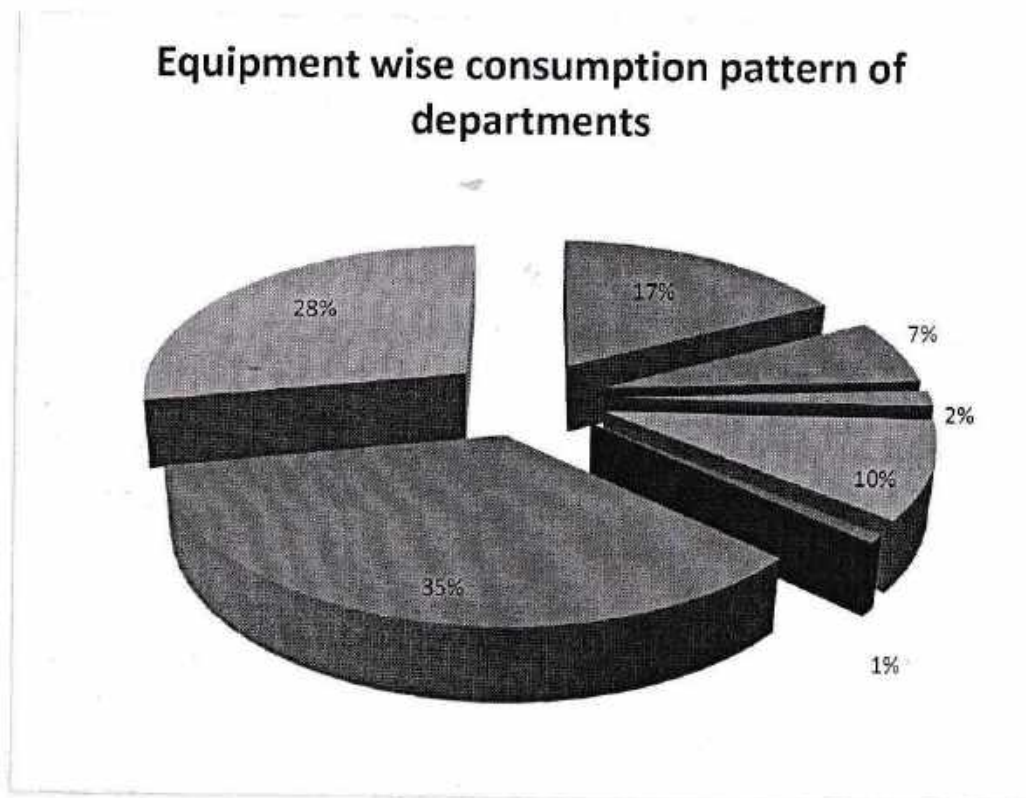
Office applications (32%) come second and its contribution is not a surprise due to large number of computers in departments.

Air Circulation (24%) is third in the list. It can be brought down further by using modern efficient appliances and automation.

Lighting have a share of 10%, and electrical accessories have 9% share in total consumption. Others are insignificant.

3.3.3 Equipment wise Analysis of Departments:

Following chart has been generated from the equipment wise analysis of power consumption in departments (ignoring the equipments having power consumption less than 1% of total power consumption):



AC is the second maximum power consuming appliance making up to 28% of total power consumption of the departments.

Computers account for maximum consumption of 35% of total power consumption in departments. 7% in computers with CRT monitor.

Conventional Ballast[Choke] tube lights have 10% share in total power consumption in departments, CFLs have 1%, electronic Ballast[Choke] tube lights have negligible share in total power consumed in departments.

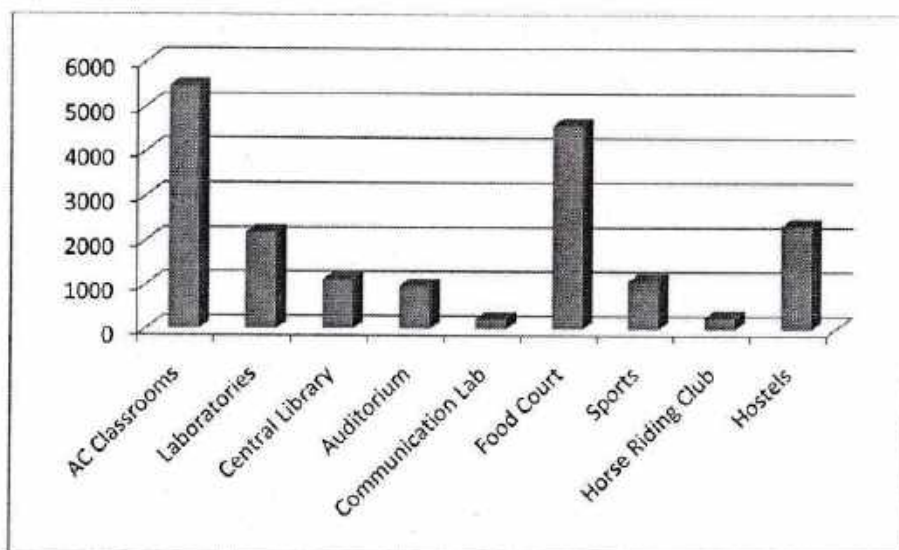
26% of total consumption is in fans (17% in old fans and 7% in new fans).

3.4 INSTITUTE CENTRAL FACILITIES

The energy audit of following units has been conducted and analyzed under Institute Central Facilities:

1. AC Classrooms
2. Laboratories
3. Central Library
4. Auditorium
5. Communication Lab
6. Food Court
7. Sports
8. Horse Riding Club
9. Hostels

Following bar chart gives an estimation of total power consumption in different Institute central facilities

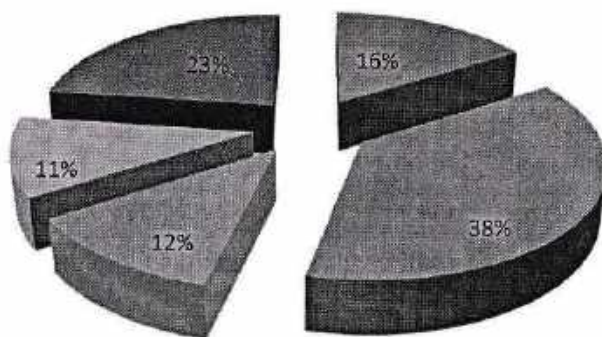


As the bar chart suggests, AC Classrooms are the largest power consuming unit among the institute central facilities. This is followed by food court and hostels in that order.

3.4.1 APPLICATION WISE ANALYSIS OF INSTITUTE CENTRAL FACILITIES:

Application wise analysis of power consumption in Institute Central Facilities indicates the domination of comfort (AC, room cooler, room heater etc.) and office (computer, printer, scanner, xerox machine etc.) appliances in these units and others include Refrigerator, water cooler, coffee machine and power plug load. Following chart gives the distribution of power consumption among different application areas in Institute Central facilities:

Application wise analysis of institute central facilities



Comfort has a maximum of 38% share in total power consumption. Most of the places in the Institute Central Facilities are air conditioned and also their usages are relatively higher. For example, Central Library remains open for larger part of day and the study room also remains open for 12 hours.

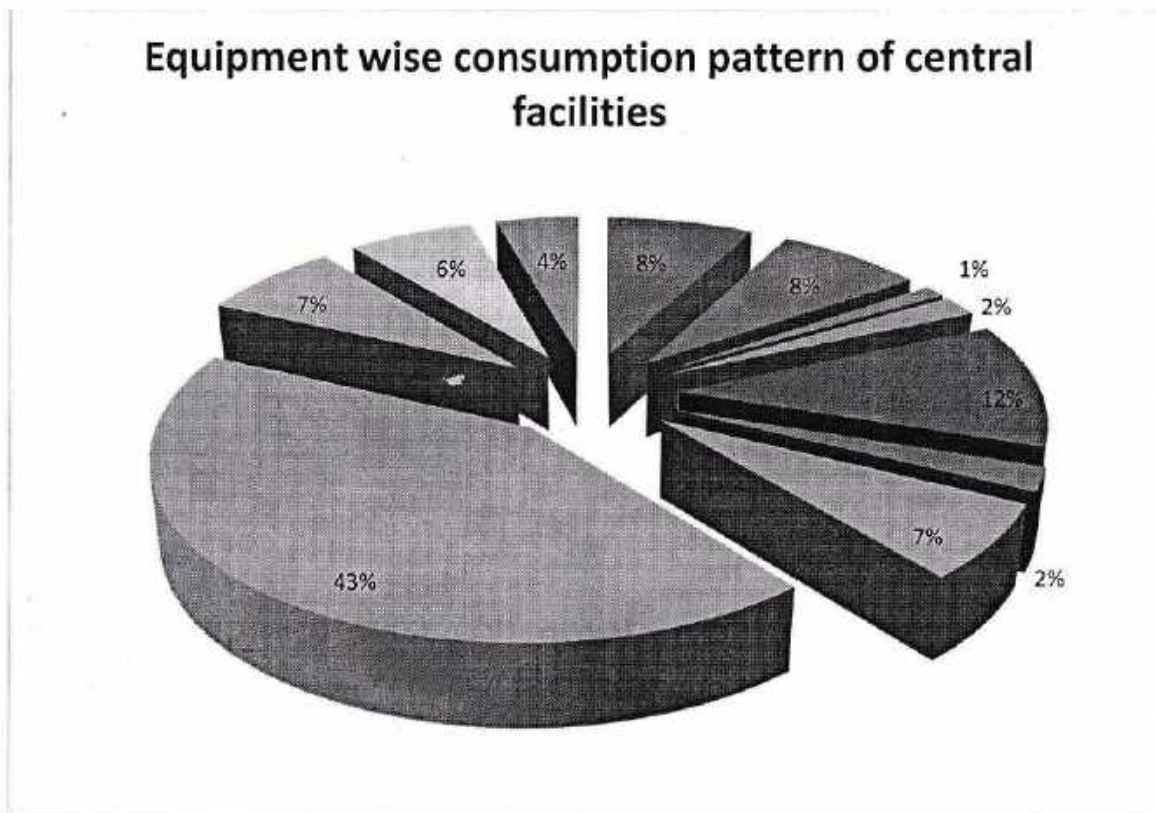
Office appliances have a share of 11% and dominant in this is the consumption of computers. During the data collection, most of the computers in Library, Computer Center as well as in offices were found to be in standby mode.

Lighting accounts for 12% of the total power consumption in Institute Central Facilities. Here dominant lighting appliance shifts from conventional tube lights to CFLs. Except in the administrative block, most of the places in Institute Central Facilities use CFLs for lighting.

The per cent consumption of air circulation appliances is as low as 16% due to use of old fans. Other major loads share 23% of the total power.

3.4.2 EQUIPMENT WISE ANALYSIS OF INSTITUTE CENTRAL FACILITIES:

Equipment wise analysis of power consumption in Institute Central Facilities makes the picture clearer. Following chart summarizes the results



It is important to state here that this equipment wise analysis has been carried out by ignoring a large number of appliances having consumption less than 1% to make the analysis work simpler.

ACs are found to be consuming as much as 43% of the total power consumption in Institute Central Facilities.

Computers account for 7% of total power consumption in Institute Central facilities.

CFLs and conventional tube lights have shares of 2% and 12% respectively in the total power consumption of Institute Central facilities.

Fans account only for 19% (8% new and 8% old) power consumption.

3.5 STREETS

Sodium Vapor lamps are dominant lighting source in the streets. Following table summarizes the street lighting details:

CATEGORY	Power (W)	No	hr/day	day/yr	total power(kWh)
Tubelight	40	16	10	365	2336
Sodium Vapour Lamp	250	26	7	365	16607.5
Total					18943.5

4. RECOMMENDATIONS FOR BETTER ENERGY EFFICIENCY

Based on the analysis of the power consumption data, certain steps have been recommended for improving energy efficiency of the campus. Complete cost analysis of implementation of recommended measures has been performed wherever necessary. Also, a number of general measures for energy efficiency have been listed. Described below are some important recommendations for better energy efficiency:

4.1 REPLACING CONVENTIONAL BALLAST[CHOKER] FTLs WITH LED FTLs:

Dominant light source at most places in the campus is traditional 40W FTLs with conventional Ballast[Choke] which consumes 14-16W. As per our data collection, the campus has in total 1214 conventional Ballast[Choke] FTLs. If these conventional Ballast[Choke]s are replaced by LED FTLs, 28W power can be saved per FTL.

Total No. of conventional Ballast[Choke] FTLs in Campus = 1214

Average Power of conventional Ballast[Choke] FTL = 56W

Average Power of LED FTL = 28W

Power saved per FTL = $(56-28)W = 28W$

Total Power saving = $1214 \times 28W = 33992W = 33.992kW$

Average Use of FTL per year = $270 \times 7h = 1890h$

Total Energy saved per year = $33.992 \times 1890 kWh = 64244.88kWh$

Saving in Rs. Per year = $64244.88 \times 7 = Rs. 449714.16$

Average Cost of Replacing each FTL = Rs. 300

Total Cost of Replacing all Conventional Ballast[Choke] FTLs = $300 \times 1214 = Rs. 364200$

Capital Cost Recovery time = $364200 / 449714.16 = 0.8 \text{ yr}$

Hence, the capital cost recovery time for replacing all conventional Ballast[Choke] FTLs of the campus is around 0.8 years

4.2 REPLACING OLD FANS WITH NEW FANS

Most of the buildings in college campus are very old fans. According to the data collected, there are a total of 1130 old fans. A saving of 42 W per fan can be obtained by replacing the old fans with new ones.

Cost Analysis of Replacing old fans with new fans

Total no. of old fans in campus = 1130

Average power of old fan = 70W

Average power of new fan = 28W

Power saved per fan = 42W

Total Power saving = $1130 \times 42 = 47.46 \text{ kW}$

Average use of fans per year = $200 \times 8 = 1600 \text{ hrs}$

Total Energy saved per year = $47.46 \times 1600 = 75936 \text{ kWh}$

Saving in Rs. Per year = Rs 531552

Average Cost of Replacing per fan = Rs 2800

Total Cost of Replacing all fans = Rs 3164000

Capital Cost Recovery time = 5.95yrs

Hence, the capital cost recovery time for replacing all old fans is approx 5.95 years.

4.4 REPLACING GEYSERS BY SOLAR WATER HEATING SYSTEM:

Geyser is the device with one of the highest consumption in hostels. It is the appliance where maximum power is wasted. Heating water by electricity is the most inefficient way to heat water. Alternatively, heating water for bathing can be accomplished by solar water heating system.

Cost Analysis of Replacing Geysers by SWHS

Cost of a domestic SWHS = Rs. 17000

Capacity of the SWHS = 100LPD

Average Capacity of Geyser = 50L

No of geysers one SWHS can be used to replace = 2

Average power of Geysers = 2kW

Average use per year = $5 \times 180\text{h} = 900\text{h}$

Energy saved per year by replacing Geysers by SWHS = $2 \times 2 \times 900\text{kWh} = 3600\text{kWh}$

Saving in Rs. Per year = $3600 \times 7 = \text{Rs. } 25200$

Capital Cost Recovery time = $(17000)/(25200) = 0.67 \text{ yr}$

Hence, the capital cost recovery time for replacing geysers by SWHS is 0.67 years. So, the step of replacing geysers by SWHS will not only help in increasing energy efficiency, but also will reduce the cost of bathing water.

4.5 USE OF MOTION SENSORS IN CORRIDORS AND TOILETS:

Corridors and toilets have large potential of saving energy by use of automation tools. Motion sensors can be used there to automatically switch on the light when there is any movement and switch off the light when there is no movement. This can greatly reduce the total load in corridors and toilets.

Cost analysis of Installing Motion Sensors in a Typical Corridor:

Average number of tube lights in a corridor = 4

Average power of the tube lights = 60W

Average number of motion sensors required = 3

Average reduction in usage per day by motion sensor = 4h

Total energy saved in corridor per year = $(4 \times 60 \times 4 \times 365)/1000 = 350.4 \text{ kWh}$

Saving in Rs. Per year = $350.4 \times 7 = \text{Rs. } 2452.8$

Cost of installation per motion sensor = Rs. 250

Total cost of installing motion sensors in a corridor = $3 \times 250 = \text{Rs. } 750$ Capital

Cost Recovery Time = $(750/2452.8) = 0.3 \text{ yr}$

Hence, the capital cost recovery time for installing motion sensors in corridors is 0.3 years. Toilets are also having comparable capital cost recovery time. Hence, this is a highly recommended step to largely reduce the consumption in corridors and toilets.

4.7 BETTER PRACTICES FOR AC:

The institute has in total 124 ACs which make a very large part of total energy consumption of the campus. But, at many places it was found that AC is not used with best recommended practices. Even simple things, such as insulation, are not taken care of. Window panes were found broken at many places. Also, at certain places ACs were found to be used without keeping curtains. These poor practices account for increase in AC load and thus consumption.

Summarized below are some guidelines for most efficient use of ACs:

Proper Insulation – Good quality insulation must be maintained in the air conditioned rooms by keeping all doors and windows closed properly so as to prevent cool air go out and hot air come in.

Curtains – Always keep curtains on windows to prevent direct sunlight inside the room to avoid heating of cooled air. This reduces AC load significantly.

Maintenance – Proper maintenance and cleaning of ACs is required at regular intervals to make it work at highest efficiency. Any dirt in filter may reduce efficiency of ACs very significantly.

Operating – The ACs should be switched on 15 minutes before actual use and should be switched off before leaving the room.

4.8 USE OF MASTER SWITCH OUTSIDE EACH ROOM:

Installation of a master switch outside a room can make it easy for a person to switch off all the appliances of a room in case someone forgets to switch off while leaving the room. This can help improving energy efficiency

Appliance	Number	Annual Savings (kWHr)	Annual Savings (Rs.)	Capital Investment (Rs.)	Payback Period (yrs)
Ballast[Choke]	1214	64244.88	449714.16	364200	0.8
Fan	1130	75936	531552	3164000	5.95
Geysers	2	3600	9720	25200	0.67
Motion Sensors	3	292	788.4	2452.8	0.30

5. EQUIPMENTS AND SOFTWARE USED

We would like to list here the equipments and software used in the project to make the measurements and analyze the data.

5.1 DIGITAL LUXMETER

Digital Luxmeters are the devices used to measure luminosity level. Luminosity measurements were performed at critical points.

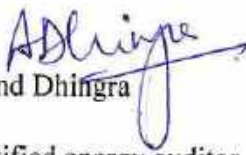
5.2 ENERGY ANALYZER

Enercon make energy analyzer was used. This helps to capture the waveforms, current and voltage variations.

5.3 MS-Excel

Datasheets were made in MS excel. . Thereafter equipment wise analysis, application wise analysis and location wise analysis was performed. This data was then exported into excel file for graphical representation.

The above audit report has been prepared under my supervision and based on data gathered and provided by Global Group of Institutions


Dr. Arvind Dhingra
BEE certified energy auditor

EA-5531



SPRECO RECYCLING

(Punjab Pollution Control Board authorized E-waste Recycler)
Deals in: Waste of Electronic & Electrical Equipments

Corporate Office-SCO 13, Opp. Govt. High School, Mohinder Ganj
Road, Rajpura, Patiala (PB)-140401

Processing Plant- D-45, Industrial Focal Point, Raikot, Ludhiana

HELPLINES : 083604-33051, 090412-99968

Email: sprecorecycling@rediffmail.com

Website : www.sprecorecycling.com

MEMBERSHIP AND E-WASTE OFF TAKE AGREEMENT

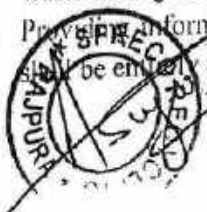
This agreement is made on 20th DECEMBER, 2021 between SPRECO RECYCLING, D-45, Industrial Focal Point, Raikot, Ludhiana-141106 (Punjab) here in after called Operator, Recycler, E- WASTE RECYCLING through its Managing Partner, Mr. Amanjot Singh.

AND

Global Group of Institutes, 11th KM Stone, Sohian Khurd, Amritsar – Jammu Highway, AMRITSAR - 143501, (Punjab) here in after called Generator through its Campus Director, Dr. M.S. Saini.

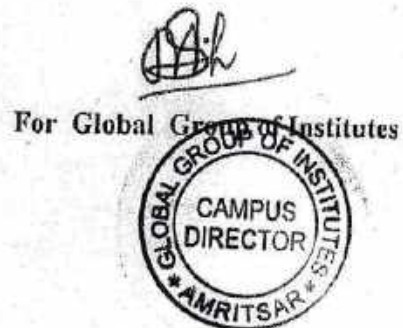
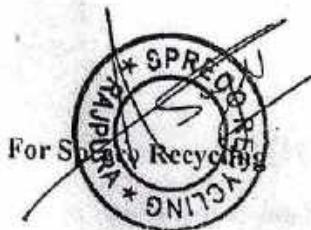
Whereas

1. SPRECO RECYCLING is engaged in collection of E-Waste and recycling.
2. The Generator desires to get its E-waste, being generated at the production units mentioned above as per the requirement of Punjab Pollution Control Board to be collected by the authorized recycler, to which the recycler has agreed on the terms and conditions in this agreement.
3. The generator shall not sell the E-waste to any other person or bill to any other person. In case the generator sells the E-waste to any other person other than Spreco Recycling, the present agreement shall be CANCELLED.
4. The generator shall ensure that the E-waste is packaged in a manner which enables it suitable for storage and transport and the labeling and packaging shall be easily visible and be able to withstand physical conditions and climate factors, such packaging and labeling should be in full compliance of the rules.
5. Through this agreement, Spreco Recycling commits to providing E-waste collection services to the said generator.
6. Spreco Recycling shall provide the generator with all the details of the E-waste material that will be lifted from generator site whenever desired by the generator.
7. Spreco Recycling is also liable in disposing off material as per the regulations laid under E-waste management and handling rules, 2011.
8. Providing information to Spreco Recycling regarding the generation of any kind of E-waste shall be the generator responsibility over course of this agreement.



9. This agreement shall be valid for ONE (1) Year starting from 20/12/2021 to 19/12/2022.
10. This agreement may be modified or amended only by writing, duly executed by or on behalf of the parties hereto.
11. A person lifting the E-waste should have an Authorization letter.

IN WITNESS WHEREOF the Parties hereto have executed this Agreement the day and year first here in above written.



Place: Wd. House

Date: 20/12/21

RBMSS



RELIABLE BUSINESS MANAGEMENT SUPPORT SYSTEM

IC-1/103; ESSEL TOWER; MG ROAD - GURGAON - 122009

PHONE: 9811801520; 0124-4111520

E-MAIL: RMMADHEKLAR@GMAIL.COM

05-NOV-2021

RELIABLE BUSINESS MANAGEMENT SUPPORT SYSTEM

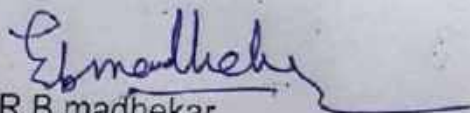
Certificate for Green Audit

This is to certify that Global Group of Institutes, 11th Km Stone, Sohian Khurd, Amritsar-Jammu Highway, NH-54, Amritsar - 143501, has adopted good practices to maintain good environment for saving mother earth.

We have successfully completed Green Audit for the whole campus for Academic Year 2021-22.

The activities and measures carried out by the Institutes have been verified and found to be good.

The efforts put by Faculty, Staff and Students towards minimizing waste for preservation of Environment is highly appreciable.


R.B. madhekar

CEO - RBMSS

RBMSS



Vikas Scrap Store

We Deals In All Types Of Scraps

M:- 97808-94392, 70097-45381

Ref. VSS/2019/01/SW

Dated 01.08.2019

To

The Campus Director,
Global Group of Institutes,
Amritsar.

Subject: Acknowledgement receipt of solid waste.

Respected Sir,

The undersigned hereby acknowledges receipt of solid waste material as described and further acknowledges that all solid waste items have been received.

1.	Name of Collector	Vikas Scrap Store, (VSS, Ram Nagar Colony, Majitha Road, Amritsar.
2.	Date of Authorization/ Registration	1st August, 2019
3.	Validity of Authorization/ Registration	31 st August, 2024
4.	Type of waste	All types of solid wastes from the campus.

Signed and sealed this on 1st August, 2019.



ISO 14001:2015



Certificate Of Registration

WRG Certifications hereby certifies that the Environment Management System of:

GLOBAL GROUP OF INSTITUTES (MANAGED BY GURU HAR RAI EDUCATIONAL SOCIETY)

11th Km Stone, Sohian Khurd, Batala Road, Amritsar, Punjab (India)

has been assessed and found to operate in compliance and meets the requirement of following standard

ISO 14001:2015 (EMS)

for the scope of:

Providing Degree / Diploma in Engineering, Computer Applications, Management, Pharmacy, Para-Medical, Agriculture, Hotel Management & Tourism Management

Initial date of certification : Sep 02, 2019
Current date of certification : Sep 02, 2019
Date of expiry : Sep 01, 2022

(Subject to surveillance mark present)

1st Surveillance Date : Aug 2020



2nd Surveillance Date : Aug 2021



Certificate No. : EMS-MMXXI-9-10067
NACE Code : N-85.12



Registry information can be found at: www.wrgcert.com/register

This certificate remains the property of American International Accreditation Organization - Bureau of Accredited Registrars, (AIAO-BAR) & World Registrar Group Certification, (WRG Certifications). This certificate is valid for three years from the date of its issuance. Must be returned, if certificate is withdrawn. Compliance & Accreditation by AIAO-BAR, www.aiao-bar.org. Registration No. - AIAO-BAR-0325131



ISO 14001



Certificate of Registration

This is to certify that the Quality Management System of

GLOBAL GROUP OF INSTITUTES

(MANAGED BY GURU HAR RAI EDUCATIONAL SOCIETY)

11TH KM STONE, SOHIAN KHURD, BATALA ROAD,
AMRITSAR, PUNJAB (INDIA)

has been successfully assessed &
conforms with the following standard

ISO 9001:2015

Scope of Certification

PROVIDING DEGREE / DIPLOMA IN ENGINEERING, COMPUTER APPLICATIONS,
MANAGEMENT, PHARMACY, PARA-MEDICAL, AGRICULTURE, HOTEL
MANAGEMENT & TOURISM MANAGEMENT

Certificate No.: SMS/QMS/J21/3106

Initial Registration Date : 27-10-2021

Issue Date : 27-10-2021

Surveillance 1 Audit Date : 27-09-2022

Expiry Date : 26-10-2024

Surveillance 2 Audit Date : 27-09-2023

UAF is Member of International Accreditation Forum (IAF)



Accreditation No.

CB-MS-2809

(Accredited by United Accreditation Foundation (UAF),
400 North Center DR, STE 202, Norfolk, VA 23502, United States of America)

To Check Certification Status:

www.uafaccreditation.org & www.saaracertification.com



Signature of Director



SAARA MANAGEMENT SYSTEM PRIVATE LIMITED

F-7, Top Floor, Main Road, Kalkaji, New Delhi-110019, India

E-mail: saaranspl@gmail.com Website: www.saaracertification.com

THE VALIDITY OF CERTIFICATE IS SUBJECT TO REGULAR SURVEILLANCE AUDIT ON OR BEFORE ABOVE MENTIONED DATES AND IS
VALID ONLY AFTER THE SUCCESSFUL COMPLETION OF SURVEILLANCE AUDIT



Certificate of Registration

*This is to certify that
The Management Systems*

Of

**GLOBAL INSTITUTE OF MANAGEMENT
AND EMERGING TECHNOLOGIES**

(MANAGED BY GURU HAR RAI EDUCATIONAL SOCIETY)

at

**11TH KM STONE, SOHIAN KHURD,
BATALA ROAD, AMRITSAR (PUNJAB)
(INDIA)**

Has been found to conform to the Environmental Management System Standard:

ISO 14001:2015

This certificate is valid for the following Product or Service ranges:

**ENGINEERING AND MANAGEMENT EDUCATION
AS PER AICTE AND UNIVERSITY NORMS**

CERTIFICATE NO. : PCMS/EMS/1125-2016

ISSUED ON : 02/09/2016

VALIDITY DATE : 01/09/2019

1ST SURVEILLANCE DUE ON: 02/08/2017

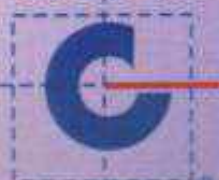
2ND SURVEILLANCE DUE ON: 02/08/2018

THE VALIDITY OF CERTIFICATE IS SUBJECT TO REGULAR SURVEILLANCE AUDIT ON OR BEFORE ABOVE MENTIONED DATES AND IT'S ONLY VALID AFTER SUCCESSFUL SURVEILLANCE WITH CONTINUATION LETTER ISSUED BY PCMS

AUTHORISED BY
CHAIRMAN / DIRECTOR



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THIS IS SINGLE SITE CERTIFICATION
WEBSITE - WWW.PCMSINDIA.COM
E-MAIL - PCMS@PCMSINDIA.COM

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