IGBC AP CERTIFICATE This is to confirm that "GJIMT" performed a detailed Green Audit of their campus during the 2022-2023 academic year and submitted all required data and credentials for evaluation. Based on the report submitted, the campus's actions and measures have been verified and found to be satisfactory. The efforts made by staff and students in the areas of environment and sustainability are much appreciated and encouraged ER. R.K. Sharma MIE, FIV Green Building Accreditated Professional For R.K. Electricals and Energy Audit Services Date 10/8/23 BEENDENER AND SERVICES PORTE 10/8/23 BEENDENER AND SERVICES PORTING ENERGY AND THE SHIPE End Reg. Where & O's marching energy





ANIVOTI | Institute of Management

## **GREEN AUDIT REPORT**



## **Gian Jyoti Institute of Management** and Technology, Phase 2, Mohali

## **CONDUCTED BY:**

## **R.K. ELECTRICALS & ENERGY AUDIT SERVICES** (An ISO Co.)

Er. R. K. Sharma MIE, FIV BEE's Energy Auditor (EA-10080) MoP, Gol HP Govt. Emp Energy Auditor, DoE, Shimla **Green Building Accredited Professional (IGBC)** Govt. Regd. Valuer & Chartered Engineer M: 09501332233 E-Mail: er.rakesh50@ymail.com

## 2022-23





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## ACKNOWLEDGEMENTS

**R.K. ELECTRICALS & ENERGY AUDIT SERVICES** places on record its sincere thanks to the management of "**Gian Joyti Institute of Management & Technology, Mohali**" for entrusting the project of Green audit of the building of GJIMT, Mohali particularly: -

Dr. J S Bedi: Chairman

Dr. Aneet Bedi: Director

We express our thanks to the following: Prof. Gurdeepak Singh: Director International Studies Assistant Prof. Sh. Sanjay Gupta Assistant Prof. Sh. Vivek Sharma Without whose constant support, we could not have carried out this audit.

ER. R.K, Sharma MIE, FIV

BEE's C/ Energy Auditor (EA-10080) MoP, Gol



## **1. EXECUTIVE SUMMARY**

ER. R.K, Sharma MIE, FIV BEE's C/ Energy Auditor (EA-10080) MoP, GoI was entrusted the Green audit of GJIMT. The management of the campus is conscious to improve sustainability and complementary to its Green Policy. The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity Keeping in view these issues in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards.

GJIMT aims to minimize the environmental impact of its operations and move towards restoring environmental integrity, promote social justice, equity and diversity, contribute to human health and maintain its financial viability.

As part of its commitment to sustainability, GJIMT developed a Sustainability Policy and Sustainability Strategy and is now developing a series of Sustainability Action Plans on energy and greenhouse, water, transport and waste to support implementation of the Policy and Strategy.

This document deals with Green Audit of GJIMT, Mohali for the year 2023-2024



## **2. THE BRIEF DESCRIPTION OF PREMISES**

**Project Title:** Green Audit of the building of the Gian Jyoti Institute of Management and Technology.

Client: Director, Gian Jyoti Institute of Management and Technology, Mohali

Contact Person: Mr. Sanjay Gupta (Asst Prof.)

Date of Audit: 23 & 24 May 2023

Source: Data collection from the staff & Physical verification/Inspection

Date of report: 19.06.2023; Report Number: RKS/GA-26/2023



## **3. INTRODUCTION**

**3.1.** Gian Jyoti Institute of Management & Technology (GJIMT) was established under the aegis of Gian Jyoti Educational Society (GJES) in the year 1998. GJIMT is an ISO 9001:2008 certified. approved by All India. Council of Technical Education (AICTE), New Delhi and affiliated to IKG Punjab Technical University (PTU), Kapurthala. Being Best Colleges in Mohali & North India's premier destination in the fields of management and computer applications, located in the heart of Mohali City, GJIMT has been setting milestones in academics and placements.

GJIMT imparts holistic management and technical education to nurture and develop human resources globally. standards, capable of serving the industry and society productively. Hence, a conscious effort made to give latest and practical exposure to its students of *MBA*, *MCA*, *BBA*, *BCA* & *B.Com* programs.

GJIMT has maintained the Top B-Schools of the country rankings for more than a decade now in surveys conducted by the various prestigious publications like Business Standard (2017), Outlook (2016) and Bureaucracy Today (2015). These surveys have been carried out on various parameters involving academics, pedagogy, infrastructure, training, and placement.

The Institute aims to make value addition to the professional skills of its students from day one by introducing the Employment Readiness Program (ERP). GJIMT maintains strong. industry connections that help students to get industry exposure before their final placements.

**3.2.** Green Analysis can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyses environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. Through Green Audit, one gets direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Analysis. Green auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards

#### 3.3 Utility of Green Audit

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. The audit team will study an organization's environmental effects in a systematic and documented manner and will Produce a green audit report.



## **4. OBJECTIVE OF THE STUDY**

The main objective of the green analysis is to promote the Environment Management and Conservation in the university Campus. The purpose of the analysis is to identify, quantify, describe and prioritize the framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Analysis are:

- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requiring high cost and To bring out a present status report on environmental compliance
- To introduce and aware students to real concerns of environment and its Sustainability.
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use of the campus.

## 5. METHODOLOGY

Methodology adopted for achieving the desired objectives viz: physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following area to summarize the present status of environment management in the campus:

- I. Geographical Metrological parameters
- II. Water consumption and management
- III. Electricity consumption and management
- IV. Air quality assessment and management
- V. Sound pollution monitoring
- VI. Waste management
- VII. Biodiversity status of the campus



## 6. GEOGRAPHICAL AND METROLOGICAL PARAMETERS

Mohali, with Latitude: 29.983 Longitude: 75.083 is located at about 5 KM from state capital Chandigarh and is a prominent district headquarter city of Punjab. In Mohali, during the entire year, the rain falls for about 95 days and records up to 850mm.

The district lies in the South-western region of the State and is near the Shivalik ranges in the North of the state. The city is well connected by road to Chandigarh both by road and rail and also with prominent places like Delhi, Amritsar, Jalandhar, Ludhiana, Patiala, Ambala, Jammu etc.

#### 6.1. Weather Bins

This area has a humid subtropical climate characterized by a seasonal rhythm: hot summers, cold winters, good amount of rainfall and great variation in temperature. Mohali weather by month weather averages:

During the three months of monsoon season from July to September, the moist air of oceanic origin penetrates the district and causes high humidity, cloudiness and good monsoon rainfall. The period from October to November constitutes the post monsoon season. The cold weather season prevails from December to February followed by the hot weather season or Pre-monsoon season which ends up to the last week of June.

#### 6.1.1. Rain fall

The normal annual rainfall of Mohali District is about 850mm in 60 days which is unevenly distributed over the district. The southwest monsoon sets in the last week of June and withdraws towards end of September and contributes about 80% of annual rainfall. July and August are therainiest months. The remaining 20% of the annual rainfall occurs during none of the year in the form of thunderstorms and western disturbances. Rainfall in the district increases from southwest to northeast. Therefore, climatically, the district is very hot in summer and frequently scorchingheat is in full swing. The climate of Mohali district can be classified as tropical steppe, semi-arid and hot which is mainly dry except in rainy months and characterized by intensely hot summer and cold winter. During three months of monsoon season from July to September, the moist air of oceanic origin penetrates the district and causes high humidity, cloudiness and good monsoon



## 7. WATER CONSUMPTION AND MANAGEMENT

#### 7.1. Water extraction and Storage

The College gets water for drinking and other purposes from the supply line of Municipal Corporation which is duly metered. The water is stored in underground tanks initially after which it is pumped up to overhead tanks using electric motor – pump sets.



Motor – Pump sets transporting water from underground tanks to overhead water tanks



GJIMT extracts water for consumption from MC's metered supply line



Sr.No.	Name	Quantity (Nos)	Capacity HP/KW	Location
1	Mono Block Pump	2	1 HP Each	In corridor between main building and parking area.

#### **Details of Pumps installed in University Campus**

#### 7.2 Drinking water and quality

Reverse Osmosis Plant - Reverse osmosis (RO) is a membrane separation process, driven by a pressure gradient, in which the membrane separates the solvent (generally water) from other components of a solution. The membrane configuration is usually crossflow. The campus has provided purified R.O. drinking water to all the students and staff residing on the campus by setting up the R.O plant. In addition to drinking purpose, R.O water is provided to the hostel mess for cooking foods.

At GJIMT Campus, RO units have been installed at various locations along with Water coolers so that faculty, staff and students can have access to clean drinking water. The RO systems are serviced regularly from authorized agencies.



Measured pH value and TDS Value of filtered drinking water

Auditors checked the quality of the drinking water after it is treated from RO Plant by taking a sample and found the quality water which is as under:



#### Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

SR NO.	Particulars of checked item	Value	Remarks
1	Sample of drinking water for testing PH Value	7.8	Good
2	Sample of drinking water for testing TDS (total dissolved solids) Value	130 ppm	Good

Findings:

1. The PH value of safe drinking water lies between 6.5 & 8.5 Tested the sample of drinking water and found to be 7.8 which is Neutral PH value for safe drinking water

2. The TDS value of safe drinking water is less than 300 ppm The TDS value of tested sample found to be 130 which is good and safe for drinking water

#### 7.3 Water Conservation

**GJIMT** has developed for the various water-use categories in the office buildings and for monitoring and operational procedures. They are grouped according to indoor water use, outdoor water use, and monitoring and operational procedures.



Fig: Automatic sensor-based Water urinals being used in building of GJIMT



#### 7.4.1. Use of Efficient Water Urinals/Fixtures

- Low water use urinals: Use of the standard systems urinals. Water is applied automatically through a continuous drip-feeding system or by automated flushing at a set frequency; 24x7.Waterconsumption varies with the system model at an average of 4 litres per flush.
- Smart flush systems: Now a days smart flush system using 0.8 litres per flush have also been launched.
- Waterless urinals: There are various technologies available for waterless urinals. In oil barrier technology, the urinals operate using an oil wall between the urine and the atmosphere, preventing odour from escaping.
- In another technology, the barrier has been replaced by a seal with a collapsible silicone tube that closes after the fluid has passed through it, to prevent gases from flowing into the room.
- Other system uses biological blocks which include microbial spores and

Surfactants which can be placed into any urinal, thus eliminating water use

#### Other Areas which need attention for water conservation include

- 1. Identifying and Fixing Leaks
- 2. Review Leakages periodically& take corrective measures
- 3. Re-use Water
- 4. Recycle water

#### 7.4.2. Identifying and Fixing Leaks

The hidden water leaks can cause loss of considerable water and energy without anyone being aware of it. A small leak can amount to large volumes of water loss. Leaks become larger with time, and they



can lead to other equipment failure. Fix that leaky pipe, toilet, faucet, or roof top tank to save considerable amount of money and water.

#### 7.4.3. Review Leakages periodically & take corrective measures

Regular maintenance of the toilets should be carried out. Test for leaks and make necessary repairs promptly. Keep the toilet in working order by periodically inspecting and replacing flappers and other defective parts.

#### 7.4.4. Rain Water Harvesting and conservation

One of the mediums of harvesting rainwater is providing the incoming rainwater directly to the ground. This will increase the ground water level of the location and also helps in achieving the ground water at same or at less level than the existing level,

#### 7.4.5. Rain fall

The normal annual rainfall of Mohali District is 408 mm in 20 days which is unevenly distributed over the district. The southwest monsoon sets in the last week of June and withdraws towards end of September and contributes about 82% of annual rainfall. July and August are the rainiest months. The remaining 18% of the annual rainfall occurs during the rest of the year in the form of thunderstorms and western disturbances. Rainfall in the district increases from southwest to northeast. It is the nearest to the Tar Desert of Rajasthan and far away from the Major rivers lines that run through the state. Therefore, climatically, the district is very hot in summer and frequently scorching heat is in full swing. The climate of Mohali district can be classified as tropical steppe, semi-arid and hot which is mainly dry except in rainy months and characterized by intensely hot summer and cold winter.

During the three months of monsoon season from July to September, the moist air of oceanic origin penetrates the district and causes high humidity, cloudiness and good monsoon rainfall. The period from October to November constitutes the post monsoon season. The cold weather season prevails from December to February followed by the hot weather season or Premonsoon season which ends up to the last week of June.



	•			•	•			U	•			
Avg. Temperature	12 °C	15.2 °C	20.5 °C	27.1 °C	31 °C	31.5 °C	28.8 °C	27.7 °C	26.7 °C	23.7 °C	18.8 °C	13.9 °C
°C (°F)	(53.7) °F	(59.3) °F	(68.8) °F	(80.8) °F	(87.9) °F	(88.7) °F	(83.8) °F	(81.9) °F	(80) °F	(74.7) °F	(65.8) °F	(57) °F
Min. Temperature	6.4 °C	8.8 °C	12.8 °C	18.4 °C	22.9 °C	25.6 °C	25.5 °C	24.7 °C	22.4 °C	17 °C	12.2 °C	7.9 °C
°C (°F)	(43.5) °F	(47.9) °F	(55.1) °F	(65.1) °F	(73.2) °F	(78) °F	(77.8) °F	(76.4) °F	(72.3) °F	(62.6) °F	(54) °F	(46.2) °F
Max. Temperature	18.3 °C	21.6 °C	27.7 °C	34.8 °C	38.1 °C	36.8 °C	32.4 °C	31.2 °C	31.2 °C	30.5 °C	26 °C	20.8 °C
°C (°F)	(64.9) °F	(70.9) °F	(81.8) °F	(94.7) °F	°F	(98.3) °F	(90.3) °F	(88.2) °F	(88.1) °F	(87) °F	(78.8) °F	(69.4) °F
Precipitation / Rainfall	40	50	39	25	28	89	195	193	100	14	6	13
mm (in)	(1)	(1)	(1)	(0)	(1)	(3)	(7)	(7)	(3)	(0)	(0)	(0)
Humidity(%)	73%	65%	50%	30%	30%	46%	75%	80%	73%	55%	56%	66%
Rainy days (d)	3	4	4	4	5	8	16	16	8	1	1	1
avg. Sun hours (hours)	8.4	9.4	10.6	11.6	12.2	11.8	10.2	9.6	9.8	10.1	9.4	8.7

#### Yearly Weather Scenario of Mohali Area

January February March April May June July August September October November December

The hot season lasts for 2.6 months, from April 22 to July 8, with an average daily high temperature above 36°C. The hottest month of the year in Mohali is June, with an average high of 40°C and low of 27°C.

The cool season lasts for 2.6 months, from December 3 to February 21, with an average daily high temperature below 24°C. The coldest month of the year in Mohali is January, with an average low of 9.5°c and high of 20.5°C.





#### Average Temperature of Mohali Area



#### Climate graph // Weather by Month Mohali



**7.4.6. Rain water Harvesting:** GJIMT has constructed one rain water harvesting tank near main block of college campus which can store up to 5000 Lts of rain water which can be used for landscape irrigation.

#### UNDERGROUND RAINWATER HARVESTING TANK CONSTRUCTED IN GJIMT





#### **Installed By: -Bantair India Private Limited**

Year	Average Rainfall
2022	730 mm

Thus, it is observed that after rain water harvesting and recharging system i.e., Installation of recharge wells / rain water harvesting pits for recharging groundwater tables is completed, the arrested water can be utilized for landscape irrigation in campus.



D

## 8. ELECTRICITY CONSUMPTION AND MANAGEMENT

Gian Jyoti College of Engineering and Management, Mohali draws power from PSPCL through dedicated feeder at 11 KV. The campus has two transformers of 315 KVA to step down the voltage from 11 KV to 433V.

#### 8.1. Detail electricity billing using Solar power

MONTH	SOLAR GENERATION	SOLAR EXPORT	UTILITY CONSUMPTIO N	NET UTILITY CONSUMPTI ON	NET SOLAR CONSUMPTIO N	TOTAL CONSUMP TION
	KWH	KWH	KWH	КМН	KWH	КШН
22.MAR- 21.APR	24946	6556	14548	7992	18390	26382
21.APR- 19 MAY	18840	1963	22412	20449	16877	37326
19. MAY- 20. JUNE	26852	1300	33716	32416	25552	57968
21.JUN- 18. JUL	19736	3248	15640	12392	16488	28880
18.JULY- 22.AUG	25276	3232	29688	26456	22044	48500
22.AUG- 30. SEPT	26024	2224	51292	49068	23800	72868
30.SEPT- 21.OCT	15070	2436	15356	12920	12634	25554
21. OCT- 22. NOV	20108	11256	-2228	-13484	8852	-4632
22.NOV- 22.DEC	16756	9116	8380	-736	7640	6904
22.DEC- 21.JAN	11467	6124	10628	4504	5343	9847
21. JAN- 22. FEB	19913	8644	10248	1604	11269	12873
22.FEB- 22.MAR	20217	9708	7504	-2204	10509	8305
TOTAL	245205	65807	217184	151377	179398	330775

Thus,54% saving in energy by using solar power in the campus





#### 8.2 Energy conservation measures

GJIMT has installed 200 KWp capacity power plant for use of Renewable energy Resources



Solar Power plant (200 KWP) installed in campus





#### 8.3. Findings & Comments

As seen from the above table, only 47% of electricity power purchased from the utility and 53% power consumed which is generated by solar power plant installed in the GJIMT

**The authorities of GJIMT** is very conscious about energy conservation and has already replaced conventional lighting with LED lighting and some street lights and Geysers with solar street lights and solar water heaters and installed 200 Kw solar plant to facilitate and promote energy efficiency in the campus.





Solar Inverters installed to convert Solar energy generated by solar panels into useful energy for utilization in campus.



## 9. AIR QUALITY ASSESMENT

#### 9.1. The Air Quality Index

The **Air Quality Index** (AQI) is an index for reporting daily air quality. It tells us how clean or polluted the air is, and what associated health effects might be a concern. The AQI focuses on health effects which may be experienced within a few hours or days after breathing polluted air.

#### 9.2. IN DOOR ENVIORONMENTAL QUALITY

Health and comfortable life are the topmost priority of every building user. Corresponding to1health and wellbeing, the quality of a built environment for its occupant inside a building isreferred to as indoor environmental quality. Indoor environmental quality involves noise disturbance, occupant density, indoor lighting, day lighting, ventilation, room temperature, cleanliness and indoor humidity. All these factors add up and form indoor environmental quality.

The AQI is divided into three categories. **CO2, TVOC & HCHO** Each category has health concerns. This is shown below in the table.

AQI Basics for Pollution						
CO2	туос	нсно	Description of Air Quality			
< 600 ppm	< .6mg/m3	< .0.08mg/m3	Air quality is excellent, and air pollution poses no risk.			
>600 < 1000 ppm	>0.6 < 1.6mg/m3	>0.08 < 0.12mg/m3	Air quality is good. and air pollution poses no risk			
>1000 ppm	>1.6 mg/m3	>0.12 mg/m3	Air quality is not good. Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.			



(Plant & Machinery) Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

Sr No.	Location	CO2 (PPM)	TVOC (mg/m3)	HCHO (mg/m3)	Temperature in ∘C	Relative Humidity in %
1	Main Block GF	628	0.111	0.020	33	32
2	Park near Main gate	628	0.112	0.017	33	32
3	Parking Area (back of main building)	629	0.111	0.020	34	32

**9.3. Auditors measured** some air quality parameters at different locations in the buildings

From the above table, it is found that above all the parameters are within the comfortable limits. Also, the ventilation and day lighting are in good conditions

Index	Nitrogen Dioxide, Hourly mean (µg/m³)	Sulphur Dioxide, (µg/m³)	PM₂.5 Particles, 24 hour mean (μg/m³)	PM₁₀ Particles, 24 hour mean (μg/m³)
1	0–67	0–88	0–11	0–16
2	68–134	89–177	12–23	17–33
3	135–200	178–266	24–35	34–50
4	201–267	267–354	36–41	51–58
5	268–334	355–443	42–47	59–66
6	335–400	444–532	48–53	67–75
7	401–467	533-710	54–58	76-83
8	468-534	711-887	59–64	84–91
9	535-600	888–1064	65–70	92–100
10	≥ 601	≥ 1065	≥ 71	≥ 101



Energy Audits Valuation (Plant & Machinery) Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

AQI	Air Pollution Level	Health Implications	Cautionary Statement (for PM2.5)
0 - 50	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	None
51 -100	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
101-150	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion
201-300	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
300+	Hazardous	Health alert: everyone may experience more serious health effects	Everyone should avoid all outdoor exertion





#### Auditors also measured the outdoor quality of air which has been depicted below

Measuring Air Quality Index and Other Environmental Parameters

2.5 and PM 10 parameters are not healthy and hence pollution control measures are advised.



ant & Machinary) Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

## **10. SOUND POLLUTION MONITORING**

The human ear is constantly being assailed by man-made sounds from all sides, and there remain few places in populous areas where relative quiet prevails. There are two basic properties of sound, (1) loudness and (2) frequency. Loudness is the strength of sensation of sound perceived by the individual. It is measured in terms of Decibels. Just audible sound is about 10 dB, a whisper about 20 dB, library place 30 dB, normal conversation about 35-60 dB, heavy street traffic 60-75 dB, boiler factories 120 dB, jet planes during take-off is about 150 dB, rocket engine about 180 dB The loudest sound a person can stand without much discomfort is about 80 dB Sounds beyond 80 dB can be regarded as pollutant as it harms hearing system. The WHO has fixed 45 dB as the safe noise level for a city to avoid sleep disturbances. For international standards a noise level up to 65 dB is considered tolerable. Frequency is defined as the number of vibrations per second. It is denoted in Hertz (Hz). Sound pollution is another important parameter that is considered for green auditing of the Campus. Different sites were chosen for the monitoring purpose



#### The Auditors measured sound level at different location as under:



Interior (Plant & Machinery) Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

S.No ·	Description	db (Min)
1	Administration block Lobby area GF	66.9
2	Administration block FF (Conf Hall)	55
3	Outdoor (Near Main Gate)	75
4	First Floor Corridor	78

#### Findings: Sound level found satisfactory

### **11. WASTE MANAGEMENT**

Waste management includes the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

Waste can be solid, liquid, or gas, each type has different methods of disposal and management. Waste management deals with all types of waste, including industrial, biological and household. In some cases, waste can pose a threat to human health. Waste is produced by human activity, for example, the extraction and processing of raw materials. Waste management is intended to reduce adverse effects of waste on human health, the environment or aesthetics.

Waste management practices are not uniform among countries (developed and developing nations) regions (urban and rural areas), and residential and industrial sectors can all take different approaches.

3R (reduce, reuse and recycle) waste management initiatives had positive effects on people's attitudes about resources, waste management and consciousness of the need to avoid waste, but these initiatives did not affect recycling and waste management behaviour. A voluntary approach-only cannot bring about behavioural change. Incentive measures showed a greater positive effect on waste reduction to landfills. Nevertheless, the demonstration projects helped to increase the overall campus recycling from 10 to 12 per cent.



#### 11.1. Dust Bins & Lifting of Waste

GJIMT has placed waste bins for proper segregation of solid wastes in the different locations of the campus. About 20 nos. of Diplast Make dustbins of capacity 20 liters have been placed at various locations so that staff and students can easily put their trash in them.



#### 11.2. Kitchen Waste

The Canteen in GJIMT, Management runs for all the students, Staff and supporting Staff and has a policy of zero food waste policy. It has created awareness for the same through posters in the canteen. The food waste log is maintained daily and makes sure people produce less food waste and as a community GJIMT excels in reducing food waste.

For taking care of Solid waste (Dry and Wet) from various buildings, kitchens, canteens, hostels etc., GJIMT management has tie up for lifting garbage and waste from campus with a local Municipal contractor. The waste collection vehicle of this contractor visits the campus on a daily basis for collection of waste which is already separated in Green and Blue dustbins (separate for dry and wet waste). Approximate



Mechinary Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali



waste collection tunes to 150-200 Quintals per day

Waste Collection by Authorized person from GJIMT Campus for proper disposal

#### 1.3. Sewage Disposal

Since GJIMT campus is located within municipal limits of Mohali City, it has proper Sewage pipeline through which sewage waste is passed off to Municipal Corporation's sewage plant and same is billed to GJIMT.



## **12. BIODIVERSITY IN CAMPUS**

#### Introduction

GJIMT campus has lush green area, hence, is rich in biodiversity. To conserve this biodiversity, it is important to understand the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden, we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the university premises and their interrelationship.

#### 12.1. Objectives:

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

Documentation of the Landscape area use

Documentation of the floral diversity of the area, its trees, herbs, shrubs and climbers.

Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and butterflies.

#### 12.2. Method of Study

Brief methodology for the floral and faunal survey is given below:

- The total area was surveyed by walking during the daytime.
- Sampling was done mostly in random manner
- Surveys were conducted for the maximum possible hours in the daytime.
- Tree species were documented through physical verification.



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For faunal species we emphasized mainly direct sighting. Also, the call of various birds and amphibians and nesting of some faunal species were considered as direct evidence.

Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollow sand leaf litter and among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight. Active invertebrates like insects require more active search. For larger winged insects like butterflies, random samplings were carried out and point sampling was also done.

#### 12.3. Landscape Use

The baseline landscape consumption is calculated as 12.5 Litres/m2/day. Whereas the actual landscape requirement is done as per the plantation species/trees/turf grass. Also, during the actual calculation the annual impending rainwater is also considered.

However, as part of landscape demand is catered with the treated water from STP. Hence, the treated water is reduced from the total landscape demand for more feasible solution.

LOCATION	AREA (SQ FT)
Front of Main Campus	2500
Parking Side	9000
Ground Side	90000
TOTAL	1,01,500



The total landscape area 101500 Sq ft in the campus premises utilize sprinklers and natural ditches to irrigate the green area Land scape watering schedule

In Summer season – Alternate days

Others-Twice week irrigation



## GPS Map Camera



Sahibzada Ajit Singh Nagar, चंडीगढ़, India SENIOR WING, GIAN JYOTI GLOBAL SCHOOL, Phase 2, Sector 54, Sahibzada Ajit Singh Nagar, चंडीगढ़ 160059, India Lat 30.724512° Long 76.726578° 01/06/23 01:10 PM GMT +05:30

How Much & F	low Often	Seasonal Frequency - Days Between Waterings					erings		
Water to the outer edge of the plant's canopy and to the depth indicated. Watering frequency will vary depending on season, plant type, weather and soil.		Spri Mar -	ing May	Sum May	mer - Oct	Fc Oct	all - Dec	Winter Dec - Mar	Water This Deeply (Typical Root Depth)
	Desert adapted	14-30	days	7-21	days	14-30	days	30-60 days	24-36 inches
Trees	High water use	7-12	days	7-10	days	7-12	days	14-30 days	24-36 inches
220-0121011	Desert adapted	14-30	days	7-21	days	14-30	days	30-45 days	18-24 inches
Shrubs	High water use	7-10	days	5-7	days	7-10	days	10-14 days	18-24 inches
Groundcovers &	Desert adapted	14-30	days	7-21	days	14-30	days	21-45 days	8-12 inches
Vines	High water use	7-10	days	2-5	days	7-10	days	10-14 days	8-12 inches
Cacti and Succulen	ts	21-45	days	14-30	days	21-45	days	if needed	8-12 inches
Annuals		3-7	days	2-5	days	3-7	days	5-10 days	8-12 inches
Warm Season Grass		4-14	days	3-6	days	6-21	days	15-30 days	6-10 inches
Cool Season Grass		3-7	days	nor	ne	3-10	days	7-14 days	6-10 inches

The best irrigation system is sprinkler, which is one of effective way to save water, better yield and possibility of using soluble fertilizers and chemicals clogging of sprinkler nozzles due to sediment laden water RK's Energy Audits Valuation (Plant & Machinery) Project Title: Green Audit of Gian Jyoti Institute of Management & Technology, Mohali

#### 12.4. Findings

Matching with the green and sustainable practices, the university campus has facilities for proper sewage disposal, RO drinking water points, solid waste management system and separate parking facilities for 2 and 4 wheelers. Around 60 percent of the total campus area is covered with lush green lawns & plantations covering more than 410 plants & tree species, thus giving adequate oxygen to the students.

#### 12.5. Faunal Species

The list of Fauna indicates that the university campus is significantly rich in faunal diversity. A significant number of bird nests can be seen at many places. Faunal groups with species number



12.6. List of Butterflies

No.	Common Name	Scientific Name
1	Common Rose	Pachliopta aristolochiae
2	Lime Butterfly	Papitto demolish
3	Tailed Jay	Grapheme agamemnon
4	Small Grass Yellow	Furema Brigitte
5	Common Grass Yellow	Eurema hecabe
6	Common Quaker	Neopithecops Zamora
7	Dark Grass Blue	Zizeeria karsandra
8	Indian Wanderer	Pareronia hippie



9	Lemon Emmigrant	Catopsila Pomona
10	Mottled Emmigrant	Catopsila pyranthe

#### 12.7. List of Birds

No.	Common Name	Scientific Name
1	House Crow	Corvus splendens
2	House Sparrow	Passer domesticus
3	Common Iora	Aegithrna tipsia
4	Common Kingfisher	Alcedo atthis
5	Common Myna	Acridotheres tristis
6	Common Pigeon	Colnmba livia
7	Common Sandpiper	Actitis hypoleucos
8	Common Tailorbird	Orthotomus sutortus
9	Coppersmith Barbet	Megalaima haemacephala
10	Common Hawk Cuckoo	Hierococcyx varlus
11	Common Hoopoe	Upupa epops

#### 12.7. List of Amphibians

No.	Common Name	Scientific Name
1	Frog	Enphldctis cyanophlyctis
2	Indian Toad	Duttaphrynus melanostictus

1.	Birds	15
2.	Reptiles	1
3.	Amphibians	2
4.	Butterflies	22

#### 12.8. Floral species:

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. The most diverse group is tree total 374 trees list as below:

TYPES OF PLANT SPECIES				
Sr.No	Species name	Quantity		
Potted Plants				
1	Areca Palm	30		
2	Chandni Dwarf	25		



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3	Ficus Panda	30	
4	Vinca	30	
5	Zinia	45	
	SHRUBS		
6	Bottle Brush	10	
7	Hamelia	10	
8	Bougainvillea	15	
9	Hibiscus	20	
10	Caner	10	
11	Pulmeria Alba	10	
TREES			
12	Silver Oak	50	
13	Chakrasia	50	
14	Cajurina	25	
15	Amla, Neem, Gulmohar and Papdi	25	
16	Palm and Others	25	

Besides above, there are some plants / Flowers

#### List of Grasses

No.	Common Name	Scientific Name
1	Common Carpet grass	Axo nopus sp.
2	Durba	Cynodon dcatyl on

#### Findings:

The biodiversity status of GJIMT campus found satisfactory.

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#### **GREEN CAMPUS POLICY OF GJIMT, MOHALI IS AS UNDER:**



Ref No. GIIMT/409488/23

Dated: 03.06.2023

#### **Green/Environmental Policy**

GIIMT. Mohali is an adobe of knowledge and a beacon beam of enlightenment. This renowned institute of higher education mainly focuses on Information Technology and. Management studies. GIIMT is located amidst lush green environment making it pollution free and an eco-friendly campus. 40% of the campus under its 'Green Initiative 'has been dedicated to playgrounds, lawns and gardens. Huge part of campus area has been kept in its natural form and acts as a natural habitat for biodiversity with a large variety of species of herbs, shrubs and trees.

#### OUR VISION

Our vision is to be an Institute of Excellence providing beyond-the-classroom stimulating experiences that are holistic and responsive to the current needs of the Global Society.

#### OUR MISSION

- a) Impart holistic management & technical education
- b) Nurture and develop human resources of global standards
- c) Serve the industry and society productively
- d) Inculcating sense of honesty , morality, transparency and integrity

#### **Objectives of the Policy**

- To protect and conserve ecological systems and resources in institute.
- To ensure judicious use of environmental resources.
- To integrate environmental concerns into policies and plans for social development.
- To conduct environmental audits.
- To minimize the use of paper work.

#### Building Careers since 1998

MBA	Master of Business Administration
MCA	Master of Computer Applications
BBA	Bachelor of Business Administration
BCA	Bachelor of Computer Applications
B.Com (Hons)	Bachelor of Commerce (Honours)

Phase-2, Mohali Sector 54, Chandigarh Phone: 0172-2264566 Email: gjimt@gjimt.ac.in Web: www.gjimt.ac.in







Aspire, Achieve, Ascend by AICTE & Alfillated to IKG Punjab Technical University Waste Management Processes Institute strives to have a minimal impact on the environment and is dedicated to reduce and manage the waste generated by the institute specific procedure there by catering to solid and liquid waste management : by following o Systematically engage with 3R's of environment friendliness i.e. Reduce, Reuse and o Collect paper wastage produced on campus and collaborate with scrap dealers for o Reduce use of paper by supporting digitization of attendance and internal assessment records along with the entire admission process through NPF software. o Reduce requirements of printed books by updating the e-books and e-journals collection. Encourage the students and teachers to use emails, MS-Teams and whatsapp groups for office work, examination, attendance, weekly report and E-contents etc. Minimize the use of water by maintain leak proof water fixtures and timely repairing water leakage from tapes/pipes/flush. Dr. Aneet Bedi Dr. Gurdeepak Singh DireDirector **Director (Intl. Studies)** Gian Jyoti Institute of Management & Technology Phase+2, Mohall 30 Mr. Sanjay Gupta Mr. Vivek Sharma Asst. Professor & Convener Asst. Professor **Green Campus Club** Building Careers since 1998 Phase-2, Mohali Master of Business Administration MEA 1 Sector 54, Chandigarh Master of Computer Applications MCA Phone: 0172-2264566 BBA **Bachelor of Business Administration** Email: gjimt@gjimt.ac.in **Bachelor of Computer Applications** BCA B.Com.(Hons) | Bachelor of Commerce (Honours) Web; www.gjimt.ac.in

## Expenditure Summary incurred on tree plantation activities / green initiatives taken in last year (Aug-2022 to April-2023)

S.NO	Name of Activity	Expenditure (Average)
1	Salary of Gardeners	Rs. 360000
2	Cost of Purchase of Plants/ Trees	Rs. 18000
3	Cost of Manure	Rs. 2800
4	Miscellaneous (Tractor, Trolley, Diesel & Maintenance cost)	Rs. 60000

Average Annual Expenditure: Rs. 6,69,600/- (Rupees six lakh sixty-nine thousand and six hundred only)





## **13. RECOMMENDATIONS**

- The college campus is no doubt bio diversified but more plantations especially medicinal plantations are required in the campus. Plantation of fruit plants will attract more birds.
- The Green Monitoring Team should consist of members from teaching staff, nonteaching staff, and students and if possible, try to include some local interested people.
- The prolific use of insecticides/pesticides should be checked as these harmful chemicals are detrimental and instrumental for killing of insects/butterflies which are natural prey for the birds.
- > Enact stricter laws for single use plastic.
- Sound and air quality monitoring be done on regular basis, especially during crop harvesting season as this area is prone to pollution caused by burning of crop residue by farmers.
- More scope of Rainwater harvesting be proposed for the campus.
- Balance conventional lighting be replaced with LED lighting.
- More awareness camps be organized by college students and staff in nearby Villages for subtle (crop residue) management.
- Management may consider installing solar water heaters in canteens, mess and harness renewable Solar energy.



## **14. PROGRAMME AND INITIATIVES**

Programme and Initiatives taken by GJIMT Management and Students for promotion of Green and clean Environment in and around the Campus







Environmental & health awareness drives are conducted on regular basis in campus by staff and students









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Tree Plantation and Clean India Drives Are conducted in and in nearby areas of GJIMT Campus by Staff and students



Anti-Pollution and Water conservation drives are regularly conducted by GJIMT students and staff



जीतन्त्र संगण औरत. मी. मी. बीडिट, अडमत असे सरन्द्र श्रीमत धार्थी हु म्लाईंड अस मर्बेडन हु वर्गरश ਰੇਤਣ ਦਾ ਪਣ ਸ਼ਬਦੇ ਹੋਏ। बेंग है, क्षेत्र, तथा, 11 इसनी - बेंग, थे, बेंग, बहुत, हुए दियांगराज - 'हे चेंटित, जपार कडे चेमरा सेवेत site, and distant shall save the site find save finder spreak of savet all for he de

ਅੰਸੋਸੀਏਟ ਪ੍ਰੋਫੈਸਰ ਡਾ. ਕਰਮਿੰਦਰ ਸਿੰਘ होनर क्षेत्र प्रसर्ग महत गर्हात केल्ला ਜੋਤੀ ਦੇ ਡਾਇਰੈਕਟਰ ਡਾ. ਅਟੀਤ ਬੇਦੀ ਈ ਅਰਕਾਈ ਵਿਚ ਕਰਵਾਏ ਰਹੇ ਵਿਸ ਸੰਮੀਨਾਰ ਵਿਚ ਪਾਣੀ ਗੁਰਾਉਣ ਲਈ ਦੇਸ਼ - ਇਸਨਾ ਸੰਸੀ ਗਰਿਸ਼ਨ ਸਮਸ਼ ਦੇ 250 ਦੇ - ਜੱਖਣ ਦਾ ਪਣ ਦੀ ਇਸਨ ਇਸਨਾ ਇਸ

ਸੀਮੀਨਾਰ ਦੌਰਾਨ ਸਹੁੰ ਚੁੱਕਦੇ ਹੋਏ ਵਾਚਰ ਵਿਦਿਆਰਥੀ ਤੇ ਪਤਵੰਤੇ।



ਅਜੀ ਜ਼ਿੰਦਗੀ ਦੇ ਸ਼ੋਤ ਲਾਫ਼ ਪੈਣ ਵਾਲੇ

ਪਾਣੀ ਨੇ ਲਗਾਤਾਰ ਗਵਾ ਜਹੇ ਹਾ। ਇਸ

स्वती ਉंश्लेज सहात हूँ दी संपादुब देव विद्येताः। बिसिबि सिरं हीका कारहीक



#### 11<sup>th</sup> July 2019

NCC wing of Gian Jyoti Institute of Management and Technology organized a seminar on the theme "Save Water Save Generation- Mega Pollution Awareness Pakhwada" under the banner of 3PB (INDP.) COY NCC, Ropar today at its campus in Phase-2, Mohali. Dr. Karminderjit Singh Ghuman, Associate Professor, LM Thapar School of Management, Thapar University, Patiala was the guest speaker on the ocassion. Dr. Aneet Bedi, Director, Gian Jyoti Institute of Management and Technology presided over the event.



### 30<sup>th</sup> July 2019

Gian Jyoti Institute of Management and Technology organized a 'Tree Plantation Drive' under the initiative of Govt. of Punjab "Ghar Ghar Hariyali Yojana at its Campus in Phase-2, Mohali. Sh. Balbir Singh Sidhu, Health and Family Welfare and Labour, Minister was the Chief Guest on this occasion.

Sh. Balbir Singh Sidhu, Health and Family Welfare and Labour Minister speaking on the occasion said that now a days pollution has become the biggest problem in the Punjab and to counter this we need to plant as many as plants that we can. Because only fresh air, trees and save our lives from the sides effects of Pollution. So this is the moral duty of each one of us to plant trees and save their mother land.



Go to settings to a

#### Tree Plantation drive being organized in GJIMT Campus



## **15. CONCLUSION**

Considering the diversity of GJIMT, there is significant environmental research both by faculty and students. Environmental awareness initiatives are substantial. The installation of solar power plant and solar water heater system are noteworthy. Besides, the environmental awareness program initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of strategic management using ecofriendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development

For R.K. Electricals and Energy Audit Services

(END OF THE REPORT)



# 16. CREDENTIALS IN R/O "R.K. ELECTRICALS AND ENERGY AUDIT SERVICES"

16.1. Certificate ISO50001:2018(Energy Management Services)



#### 16.2. Certificate ISO 9001:2015(Quality Management System)



#### 16.3. Certificate ISO 14001:2015 (Environmental Management System)

listration Sertificate of 9 This is to Certify that Environmental Management System of R.K. ELECTRICALS & ENERGY AUDIT SERVICES PROGRESSIVE SOCIETY, 1131, SECTOR 50 B, CHANDIGARH - 160047, INDIA. has been assessed and found to conform to the requirements of ISO 14001:2015 for the following scope : DEALS IN ENERGY MANAGEMENT, ENERGY, ENVIRONMENT & GREEN AUDITS, THERMOGRAPHY OF ELECTRIC EQUIPMENT AND ELECTRIC INSTALLATIONS OF BUILDINGS & INSTITUTIONS AND INDUSTRIES. : 22EEHU10 Certificate No Initial Registration Date : 01/07/2022 Issuance Date : 01/07/2022 Date of Expiry : 30/06/2025 1st Surve, Due : 01/06/2023 2nd Surve. Due : 01/06/2024 Magnitude Management Services Pvt. Ltd. 8-55, Lower Ground Floor, Sector 02, Noida-201301, U.P. India mail: infixammscertification.com, website: www.mmscertification.com Certificate Merification: Plane Rescheek the validing of certificate as http://www.m Certificate is the property of Magnitude Management Services Per, Ltd. and shall be teners, miniscerrification, cam at Active Cilen

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#### 16.4. Certificate EA-10080 (Energy Auditor Certificate MoP, Gol)



#### 16.5. Certificate of IGBC Accredited Professional (IGBC India)



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