

**Report**  
**On**  
**Energy Audit**  
**At**  
**Godavari Foundation's Godavari Institute Of Management &**  
**Research, Jalgaon**  
**(Year 2021-22)**



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## **Acknowledgement**

We at Nutan Urja Solutions, Pune, express our sincere gratitude to the management of Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon for awarding us the assignment of Energy Audit of their college premises.

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.

We hope that the recommendations stated in this report will be useful and worthy of discussions to take things forward to help implementation of energy conservation measures through energy savings. While we have made every attempt to adhere to high quality standards, in both data collection and analysis through the report, we would welcome your suggestions so as to improve upon this report further.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the Energy Consumption & mitigate the CO<sub>2</sub> emissions. College consumes Energy in the form of Electrical Energy used for various gadgets, Office & other facilities.

### 1. Present Energy Consumption

In the following Table, we present the details of Energy Consumption.

**Table no 2.1: Details of energy consumption**

<b>Sr no</b>	<b>Parameter</b>	<b>Energy consumed, (Units)</b>	<b>CO<sub>2</sub> Emission (MT)</b>
1	Maximum	4,078	3.26
2	Minimum	-	-
3	Average	1,866	1.49
4	Total	22,390	17.91

### 2. Energy Conservation Projects already installed

1. Usage of STAR Rated ACs at new installations
2. Usage of LED lights at some indoor locations
3. Usage of LED Lights for outdoor lighting.

### 3. Key Observations

1. Usage of LED lights.
2. Usage of star rated equipment.
3. Maintained a good power factor.

### 4. Percentage of Usage of LED Lighting

The College has various Types of Light fittings, namely: LED, FTL. The percentage of Annual LED Lighting Usage to Annual Lighting requirement works out to be 36 %.



## 5. Recommendations

**Table no 1: Recommendations for energy savings**

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
1	Replacement of 134 Nos T-8 fittings with 20W LED fittings	2,680	29,480	85,894	35
2	Replacement of 101 Nos Old Ceiling Fans with STAR rating fans	1,313	14,443	219,574	182
3	Replacement of 12 Nos Old 1.5 TR Acs with STAR rating Acs	12,000	132,000	634,500	58
4	Installation of 10kW grid connected PV panel	15,000	165,000	500,000	36
	<b>Total</b>	<b>30,993</b>	<b>340,923</b>	<b>1,439,968</b>	<b>51</b>

## 6. Notes & Assumptions

1. Daily working hours-10 Nos
2. Annual working Days-300 Nos
3. Average Rate of Electrical Energy : **Rs 11/- per kWh**

## **Abbreviations**

CFL : Compact Fluorescent Lamp

FTL : Fluorescent Tube Light

LED : Light Emitting Diode

V : Voltage

I : Current

kW : Kilo- Watt

kWh : kilo-Watt Hour

kVA : Active Power

## **1. Introduction**

Godavari Foundation's Godavari Institute of Management and Research is established in 2001 to impart high quality education in the field of Management and Research. The institute is dynamic, vibrant & growth oriented under the guidance of Dr. Ulhas V. Patil, Ex. M.P. Jalgaon who is founder president of Godavari Foundation. GIMR is approved by AICTE, New Delhi & affiliated to North Maharashtra University, Jalgaon.

The institute has dedicated young & highly qualified regular faculty & is assisted by distinguished visiting faculty from industry & professionals. The Institute is also has a panel of eminent management experts and senior practicing managers from diverse fields of management. The Institutional efforts are directed towards extensive interaction with the industry & corporate world so as to assist our students in their placement programmes.

### **1.1 Objectives**

1. To study present level of Energy Consumption
2. To Study Electrical Consumption
3. To assess the various equipment/facilities from Energy efficiency aspect
4. To study various measures to reduce the Energy Consumption

### **1.2 Audit Methodology:**

1. Study of connected load
2. Study of various Electrical parameters
3. To prepare the Report with various Encon measures with payback analysis

### 1.3 General Details of College

**Table No-1.1: Details of college**

<b>No</b>	<b>Head</b>	<b>Particulars</b>
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.

## 2. Study of connected load

In this chapter, we present details of various connected electrical equipment and electrical load.

**Table No-2.1: Location wise study of Electrical fittings in various buildings**

No	Location	FTL (40W )	LED tube (20W )	LED bulb (12W)	Computer s (65W)	Fans	1.5T R Star rated AC	1.5T R old Acs
	<b>Ground Floor</b>							
1	Class room 1	3	3			6	3	
2	Class room 2	3	3			6	3	
4	Computer lab 1	5			20	2		2
5	Computer lab 2			4	16	2		1
6	Computer lab 3			4	18	2		1
7	Research Center	4		4	2	5		2
8	Girls common room	1	2			2		1
9	Toilet	3						
10	Boys common room	1	2			2		
11	Sports room	2				1		
12	Passage	6	6					
13	Director office	2		11				2
14	Auditorium	15				12		
15	Reception			20	1	4		
16	Admin office	4			5	4		
17	Cancellor room	2			1	1		
	<b>First Floor</b>							
18	Conference room	2	7		2	8		
19	Staff room	14			14	7		

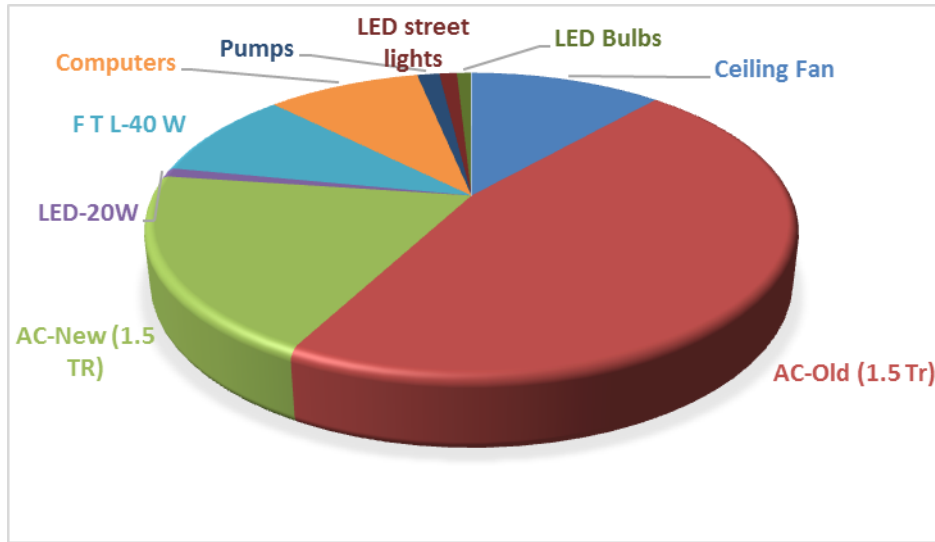
20	Tutorial room 1	4				4		
21	Tutorial room 2	4				4		
22	Tutorial room 3	4				4		
23	Passage	8	4					
24	Class room 3	9				5		
25	Class room 4	9				5		
26	Library	29			2	15		3
	<b>Total</b>	<b>134</b>	<b>27</b>	<b>43</b>	<b>81</b>	<b>101</b>	<b>6</b>	<b>12</b>

Apart from above load, the school has pumps, LED street lights, LED focus street lights on streets and grounds. Individual fitting wise load is as under.

**Table No 2.2: Equipment wise Connected Load**

No	Equipment	Qty	Load, W/Unit	Load, kW
1	Ceiling Fan	101	65	6.6
2	AC-Old (1.5 Tr)	12	2200	26.4
3	AC-New (1.5 TR)	6	1838	11.0
4	LED-20W	27	20	0.5
5	F T L-40 W	134	40	5.4
6	Computers	81	65	5.3
7	Pumps			0.8
8	LED street lights	12	50	0.6
9	LED bulbs	43	12	0.5
	<b>Total</b>			<b>56.5</b>

Data can be represented in terms of PIE chart as under,



**Figure 2.1: Distribution of connected load.**

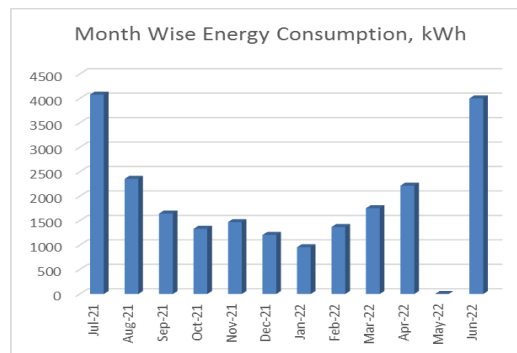
### 3. Study of Electrical Energy Consumption

In this chapter, electricity bills are studied for the analysis of electrical energy consumption.

**Table no 3.1: Summary of electricity bills**

No	Month	Energy (kWh)	Bill Amount (Rs)
1	Jun-22	4000	34235
2	May-22	0	384
3	Apr-22	2217	17169
4	Mar-22	1755	13964
5	Feb-22	1370	10757
6	Jan-22	957	7650
7	Dec-21	1208	9539
8	Nov-21	1471	11517
9	Oct-21	1333	10479
10	Sep-21	1646	12834
11	Aug-21	2355	18604
12	Jul-21	4078	31810
	<b>Total</b>	<b>22390</b>	<b>178942</b>

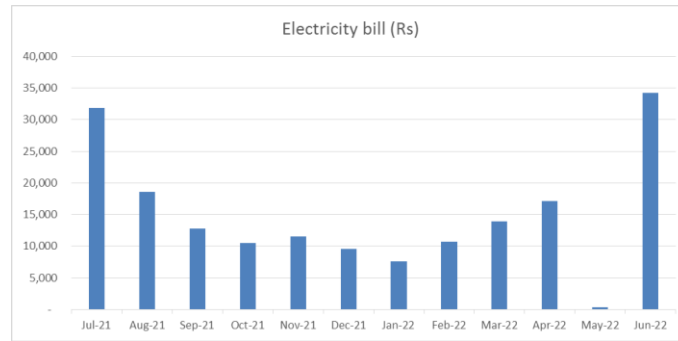
Variation in energy consumption is as follows,



**Figure 3.1: Month wise energy consumption**



Monthly variation in electricity bill is as follows,



**Figure 3.2: Month wise electricity bill**

Key observations of electricity bill are as follows,

**Table no 3.2: Key observations**

Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	4,078	3.26
2	Minimum	-	-
3	Average	1,866	1.49
4	Total	22,390	17.91

## 4. Carbon Foot printing

1. A **Carbon Foot print** is defined as the Total Greenhouse Gas emissions (CO<sub>2</sub> emissions), emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various form of Electrical Energy used by the College for performing its day to day activities

### 2. Basis for computation of CO<sub>2</sub> Emissions:

The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy is as under

- 1 Unit (kWh) of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere.

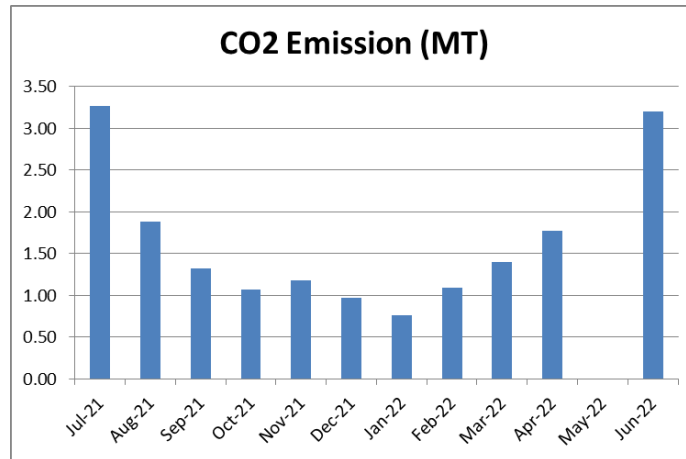
Based on the above Data we compute the CO<sub>2</sub> emissions which are being released in to the atmosphere by the College due to its Day to Day operations

We herewith furnish the details of various forms of Energy consumption as under

**Table 4.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	4,000	3.2
2	May-22	-	0.0
3	Apr-22	2,217	1.8
4	Mar-22	1,755	1.4
5	Feb-22	1,370	1.1
6	Jan-22	957	0.8
7	Dec-21	1,208	1.0
8	Nov-21	1,471	1.2
9	Oct-21	1,333	1.1
10	Sep-21	1,646	1.3
11	Aug-21	2,355	1.9
12	Jul-21	4,078	3.3
	<b>Total</b>	<b>22,390</b>	<b>17.9</b>

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 4.1: Month wise CO2 Emission**

## **5. Study of utilities**

### **5.1 Study of Lighting**

In the facility, the lighting system can be divided mainly in to parts, indoor lighting and outdoor lighting. There are 134 FTL fittings with Electronic/ magnetic chokes and 27 LEDs in indoor lightings. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. There are 43 number of LED bulbs. There are 12 No of LED street lights.

### **5.2 Air-conditioners**

In the facility, there are about 12 Nos. of 1.5 Tr old Air-conditioners. It is recommended to replace these Old ACs with BEE STAR Rated ACs. There is 6 nos of star rated new AC of 1.5Tr capacity.

### **5.3 Ceiling Fans**

At building facility, there are about 101 Nos Old Ceiling Fans, which consumed about 65 W of Electrical Energy. It is recommended to replace these old Fans with BEE STAR Rated Ceiling Fans.

### **5.4 Water Pumps**

There is 1Water pumps with 1HP capacity.

## 6. Study of usage of LED lighting

In this chapter we study the lighting system of college and compute the percentage of total load catered by LED lighting.

**Table 7.1: Total lighting load**

No	Particulars	Qty	Load, W/Unit	Load, kW
1	F T L-40 W	134	40	5.4
	<b>LED lighting load</b>			
1	LED tube	95	20	1.9
2	LED bulbs	43	12	0.5
3	LED street lights	<b>12</b>	<b>50</b>	0.6
	<b>Total LED lighting load</b>			<b>3.0</b>
	<b>Total Lighting load</b>			<b>8.4</b>

It can be seen that out of total lighting load 36% load is LED lighting load.

## 7. Energy conservation proposals

### 7.1 Replacement of Old T-8 FTLs with 20 W LED fittings

In the facility, there are about 134 Nos, T-8, FTL fittings with Electronic/magnetic chokes. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of T-8 fittings	134	Nos
2	Energy Demand of T-8 fitting	40	W/Unit
3	Energy Demand of 20 W LED fittin	20	W/Unit
4	Reduction in demad	20	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	10.72	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	2680	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	29480	Rs/Annum
11	Cost of 20 W LED Tube	641	Rs/Unit
12	Investment required	85894	Rs lump sum
13	Simple Payback period	35	Months

## 7.2 Replacement of old fans with STAR Rated fans

During the Audit, it was observed that there are 101 no of fans. It is recommended to replace these old fans with STAR Rated fans.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of Old Ceiling Fan fittings	101	Nos
2	Energy Demand of Old Ceiling Fan fitting	65	W/Unit
3	Energy Demand of STAR Rated Fan	52	W/Unit
4	Reduction in demad	13	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	5.252	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	1313	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	14443	Rs/Annum
11	Cost of STAR Rated Ceiling Fan	2174	Rs/unit
12	Investment required	219574	Rs lump sum
13	Simple Payback period	182	Months

### 7.3 Replacement of 1.5 TR Old ACs with STAR Rated ACs

During the Audit, it was observed that there are 12 Nos, of 1.5 TR old ACs. It is recommended to replace these old ACs with STAR Rated ACs.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of 1.5 TR Old ACs	12	Nos
2	Energy Demand of Old 1.5 TR AC	2.15	kW/Unit
3	Energy Demand of New AC	1.15	kW/Unit
4	Reduction in demad	1	kW/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	48	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	12000	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	132000	Rs/Annum
11	Cost of STAR Rated 1.5 TR AC	52875	Rs/unit
12	Investment required	634500	Rs lump sum
13	Simple Payback period	58	Months



#### 7.4 Installation of Solar PV panel

It is recommended to install 5 kW solar PV panel. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Installation of PV unit	10	kW
2	Energy saving	15000	kWh/Annum
3	Rate of electrical energy	11	Rs
4	Annual monetary savings	165000	Rs/ Annum
5	Investment required	500000	Rs lump sum
6	Simple payback period	36	Months

### 7.5 Summary of Savings

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
1	Replacement of 134 Nos T-8 fittings with 20W LED fittings	2,680	29,480	85,894	35
2	Replacement of 101 Nos Old Ceiling Fans with STAR rating fans	1,313	14,443	219,574	182
3	Replacement of 12 Nos Old 1.5 TR Acs with STAR rating Acs	12,000	132,000	634,500	58
4	Installation of 10kW grid connected PV panel	15,000	165,000	500,000	36
	<b>Total</b>	<b>30,993</b>	<b>340,923</b>	<b>1,439,968</b>	<b>51</b>

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## **Acknowledgement**

We at Nutan Urja Solutions, Pune wish to express our sincere gratitude to the management of Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon for assigning the work of Environmental Audit of college campus.

We appreciate the co-operation and support extended to our team members during the entire tenure of field study.

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.

We are also thankful to all other staff members who helped us during the Measurements at the field and for giving us the necessary inputs to carry out this vital exercise.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the dependency on Natural resources & reduce the pollution.

Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon consumes various resources for day to day operations, namely: Air, Water, Electrical Energy & LPG.

### 1. Various Pollution due to College Activities:

- Air pollution: Mainly CO<sub>2</sub> on account of Electricity & LPG Consumption
- Solid Waste: Bio degradable Kitchen Waste, Garden Waste
- Liquid Waste: Human liquid waste

### 2. Present Level of CO<sub>2</sub> Emissions:

Sr no	Parameter	Energy consumed, (Units)	CO <sub>2</sub> Emission (MT)
1	Maximum	4,078	3.26
2	Minimum	-	-
3	Average	1,866	1.49
4	Total	22,390	17.91

### 3. The various projects already implemented for Environmental Conservation:

- Usage of Energy Efficient BEE STAR Rated ACs
- Usage of Natural Day light in corridors
- Implementation of Bio Composting pit for disposal of Bio degradable waste
- Implementation of Rain Water Harvesting

### 4. Recommendations:

1. Installation of Bio Gas Generator Plant instead of Bio composting Plant.
2. Installation of Sewage treatment Plant to make campus a Zero Discharge campus

### **5. Notes & Assumptions:**

1. **1 kWh** of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere
2. 1 kWp Solar PV plant generates 5 kWh/day Electrical Energy for 300 days in an year.

## Abbreviations

AC	: Air conditioner
PES	: Progressive Education Society
CFL	: Compact Fluorescent Lamp
FTL	: Fluorescent Tube Light
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
Qty	: Quantity
W	: Watt
kW	: Kilo Watt
PF	: Power Factor
M D	: Maximum Demand
PC	: Personal Computer
MSEDCL	: Maharashtra State Electricity Distribution Company Ltd



## 1. Introduction

### 1.1 Important Definitions:

#### 1.1.1 Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

#### 1.1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

*According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

**1.1.3. Environmental Pollutant:** means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

#### 1.1.4. Relevant Environmental Laws in India: Table No-1:

1927	The Indian Forest Act
1972	The Wildlife Protection Act
1974	The Water (Prevention and Control of Pollution) Act
1977	The Water (Prevention & Control of Pollution) Cess Act
1980	The Forest (Conservation) Act
1981	The Air (Prevention and Control of Pollution) Act
1986	The Environment Protection Act
1991	The Public Liability Insurance Act
2002	The Biological Diversity Act
2010	The National Green Tribunal Act

#### 1.1.5. Some Important Environmental Rules in India: Table No-2:

1989	Hazardous Waste (Management and Handling) Rules
1989	Manufacture, Storage and Import of Hazardous Chemical Rules
2000	Municipal Solid Waste (Management and Handling) Rules
1998	The Biomedical Waste (Management and Handling) Rules
1999	The Environment (Siting for Industrial Projects) Rules
2000	Noise Pollution (Regulation and Control) Rules
2000	Ozone Depleting Substances (Regulation and Control) Rules

2011	E-waste (Management and Handling) Rules
2011	National Green Tribunal (Practices and Procedure) Rules
2011	Plastic Waste (Management and Handling) Rules

### 1.1.6 National Environmental Plans & Policy Documents: Table No-3:

1.	National Forest Policy, 1988
2.	National Water Policy, 2002
3.	National Environment Policy or NEP (2006)
4.	National Conservation Strategy and Policy Statement on Environment and Development, 1992
5.	Policy Statement for Abatement of Pollution (1992)
6.	National Action Plan on Climate Change
7.	Vision Statement on Environment and Human Health
8.	Technology Vision 2030 (The Energy Research Institute)
9.	Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency)
10.	The Road to Copenhagen; India's Position on Climate Change Issues (MoEF)

### 1.2 Objectives

1. To study present usage of Natural resources the College is consuming
2. To Study the present pollution sources
3. To study various measures to make the campus Self sustainable in respect of Natural resources
4. To suggest the various measures to reduce the pollution: Air, Water, Noise

### 1.3 Audit Methodology:

1. Study of College as System
2. Study of Electrical Energy Consumption
3. Study of CO2 emissions
4. Suggestions on usage of Renewable Energy

### 1.4 General Details of College

No	Head	Particulars
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.

## 2. Study of Consumption of Various Resources

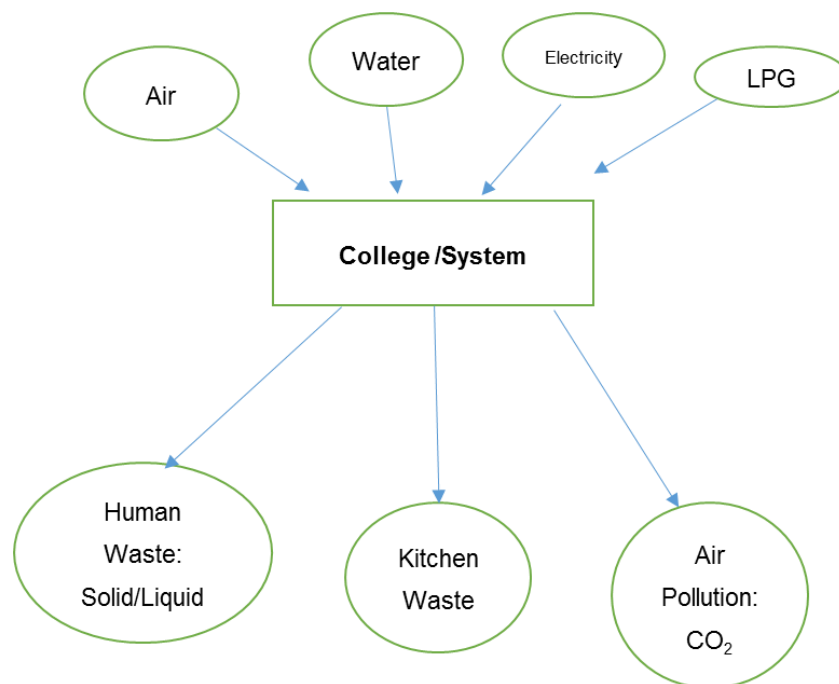
The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy
4. Liquefied Petroleum Gas

Also, college emits following pollutants to environment

1. Human Waste: Solid/ Liquid
2. Kitchen waste
3. Air pollution

We try to draw a schematic diagram for the College System & Environment as under.



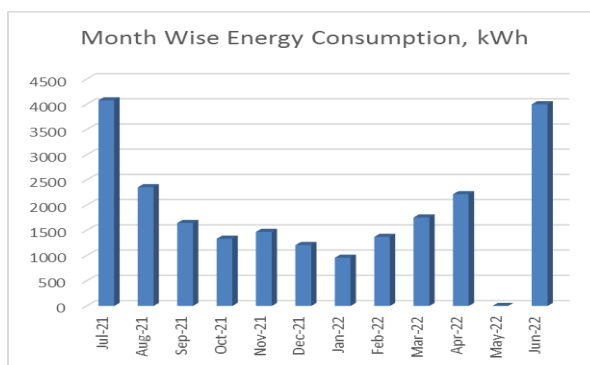
Now we compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy & LPG as under.

The calculation of electrical energy consumption by college can be given as,

**Table 2.1: Electrical Energy Consumption**

No	Month	Energy (kWh)
1	Jun-22	4000
2	May-22	0
3	Apr-22	2217
4	Mar-22	1755
5	Feb-22	1370
6	Jan-22	957
7	Dec-21	1208
8	Nov-21	1471
9	Oct-21	1333
10	Sep-21	1646
11	Aug-21	2355
12	Jul-21	4078
	<b>Total</b>	<b>22390</b>
	<b>Maximum</b>	4078
	<b>Minimum</b>	0
	<b>Average</b>	1866

**2.1 Variation of Monthly Electrical Energy Consumption**



**Figure 2.1 : Monthly Electrical Energy Consumption**

## 2.2 Key Inference drawn

From the above analysis, we present following important parameters:

**Table 2.2: Variation in Important Parameters**

No	Parameter/ Value	Energy Consumed, kWh
1	Maximum	4078
2	Minimum	0
3	Average	1866
4	Total	22390

### 3. Study of Environmental Pollution

In this Chapter, we present the various types of Pollution as under:

#### 3.1 Air Pollution

The College is using two forms of Energies, namely: Thermal in the form of LPG and Electrical Energy used for day to day operations of the College. The major pollutant on account of above Energy forms is the Carbon Di Oxide.

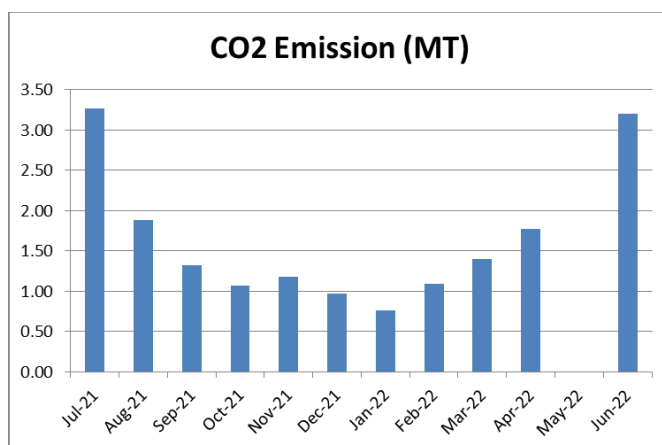
- 1 unit (kWh) of Electrical Energy emits 0.8 Kg of CO<sub>2</sub> in the atmosphere
- 1 Kg of LPG emits 3 Kg of CO<sub>2</sub> in the atmosphere

In the following Table, we present the CO<sub>2</sub> emissions.

**Table 3.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	4,000	3.2
2	May-22	-	0.0
3	Apr-22	2,217	1.8
4	Mar-22	1,755	1.4
5	Feb-22	1,370	1.1
6	Jan-22	957	0.8
7	Dec-21	1,208	1.0
8	Nov-21	1,471	1.2
9	Oct-21	1,333	1.1
10	Sep-21	1,646	1.3
11	Aug-21	2,355	1.9
12	Jul-21	4,078	3.3
	<b>Total</b>	<b>22,390</b>	<b>17.9</b>
	<b>Maximum</b>	4,078	3.26
	<b>Minimum</b>	-	-
	<b>Average</b>	1,866	1.49

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 2.1: CO2 emission due to usage of electrical energy.**

### 3.2 Study of Solid Waste Generation

The College has already installed a Bio composting Plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

#### Photograph of Bio Composting Pit



### 3.3 Study of Liquid Waste Generation

At present the Liquid Waste generated due to day to day operations is drained off to the municipal Corporation through a pipe.

### **3.4 Study of e-Waste Management:**

The internal communication is through emails and there is hardly any generation of e-Waste in the premises.



#### **4. Study of Rain Water Harvesting**

The College has already installed Rain Water Harvesting project, wherein the rain water falling on the terrace is collected and through pipes it is fed to underground Water Storage tank. This stored water is then reused for domestic purpose.



### 7.5 Summary of Savings

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
1	Replacement of 134 Nos T-8 fittings with 20W LED fittings	2,680	29,480	85,894	35
2	Replacement of 101 Nos Old Ceiling Fans with STAR rating fans	1,313	14,443	219,574	182
3	Replacement of 12 Nos Old 1.5 TR Acs with STAR rating Acs	12,000	132,000	634,500	58
4	Installation of 10kW grid connected PV panel	15,000	165,000	500,000	36
	<b>Total</b>	<b>30,993</b>	<b>340,923</b>	<b>1,439,968</b>	<b>51</b>



  
**DIRECTOR**  
 Godavari Institute of Management  
 & Research, Jalgaon

**Report**  
**On**  
**Energy Audit**  
**At**  
**Godavari Foundation's Godavari Institute Of Management &**  
**Research, Jalgaon**  
**(Year 2022-23)**



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We hope that the recommendations stated in this report will be useful and worthy of discussions to take things forward to help implementation of energy conservation measures through energy savings. While we have made every attempt to adhere to high quality standards, in both data collection and analysis through the report, we would welcome your suggestions so as to improve upon this report further.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the Energy Consumption & mitigate the CO<sub>2</sub> emissions. College consumes Energy in the form of Electrical Energy used for various gadgets, Office & other facilities.

### 1. Present Energy Consumption

In the following Table, we present the details of Energy Consumption.

**Table no 2.1: Details of energy consumption**

Sr no	Parameter	Energy consumed, (Units)	CO <sub>2</sub> Emission (MT)
1	Maximum	5,011	4.01
2	Minimum	-	-
3	Average	1,971	1.58
4	Total	23,649	18.92

### 2. Energy Conservation Projects already installed

1. Usage of STAR Rated ACs at new installations
2. Usage of LED lights at some indoor locations
3. Usage of LED Lights for outdoor lighting.

### 3. Key Observations

1. Usage of LED lights.
2. Usage of star rated equipment.
3. Maintained a good power factor.

### 4. Percentage of Usage of LED Lighting

The College has various Types of Light fittings, namely: LED, FTL. The percentage of Annual LED Lighting Usage to Annual Lighting requirement works out to be 36 %.

## 5. Recommendations

**Table no 1: Recommendations for energy savings**

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
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## 6. Notes & Assumptions

1. Daily working hours-10 Nos
2. Annual working Days-300 Nos
3. Average Rate of Electrical Energy : **Rs 11/- per kWh**

## **Abbreviations**

CFL : Compact Fluorescent Lamp

FTL : Fluorescent Tube Light

LED : Light Emitting Diode

V : Voltage

I : Current

kW : Kilo- Watt

kWh : kilo-Watt Hour

kVA : Active Power



## **1. Introduction**

Godavari Foundation's Godavari Institute of Management and Research is established in 2001 to impart high quality education in the field of Management and Research. The institute is dynamic, vibrant & growth oriented under the guidance of Dr. Ulhas V. Patil, Ex. M.P. Jalgaon who is founder president of Godavari Foundation. GIMR is approved by AICTE, New Delhi & affiliated to North Maharashtra University, Jalgaon.

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### **1.1 Objectives**

1. To study present level of Energy Consumption
2. To Study Electrical Consumption
3. To assess the various equipment/facilities from Energy efficiency aspect
4. To study various measures to reduce the Energy Consumption

### **1.2 Audit Methodology:**

1. Study of connected load
2. Study of various Electrical parameters
3. To prepare the Report with various Encon measures with payback analysis

### 1.3 General Details of College

**Table No-1.1: Details of college**

<b>No</b>	<b>Head</b>	<b>Particulars</b>
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.

## 2. Study of connected load

In this chapter, we present details of various connected electrical equipment and electrical load.

**Table No-2.1: Location wise study of Electrical fittings in various buildings**

No	Location	FTL (40W )	LED tube (20W )	LED bulb (12W)	Computer s (65W)	Fans	1.5T R Star rated AC	1.5T R old Acs
	<b>Ground Floor</b>							
1	Class room 1	3	3			6	3	
2	Class room 2	3	3			6	3	
4	Computer lab 1	5			20	2		2
5	Computer lab 2			4	16	2		1
6	Computer lab 3			4	18	2		1
7	Research Center	4		4	2	5		2
8	Girls common room	1	2			2		1
9	Toilet	3						
10	Boys common room	1	2			2		
11	Sports room	2				1		
12	Passage	6	6					
13	Director office	2		11				2
14	Auditorium	15				12		
15	Reception			20	1	4		
16	Admin office	4			5	4		
17	Cancellor room	2			1	1		
	<b>First Floor</b>							
18	Conference room	2	7		2	8		
19	Staff room	14			14	7		

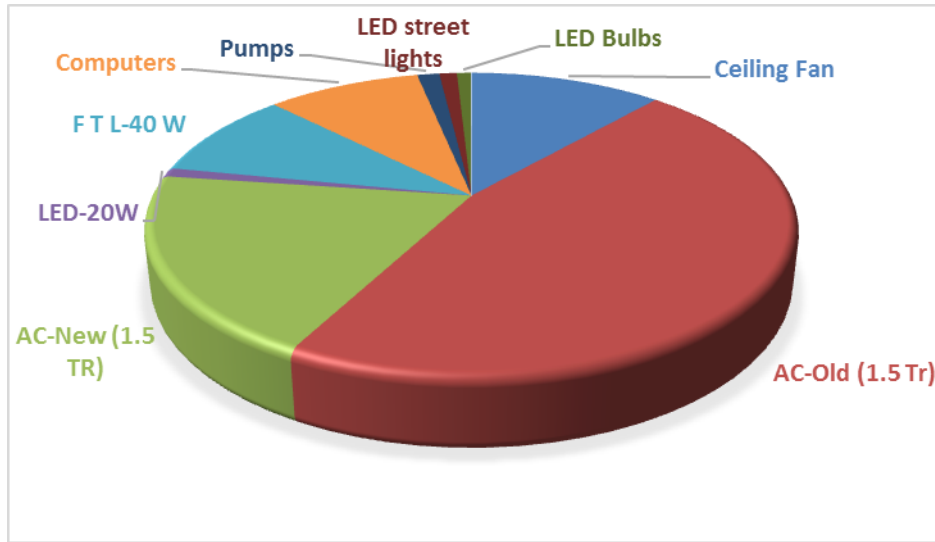
20	Tutorial room 1	4				4		
21	Tutorial room 2	4				4		
22	Tutorial room 3	4				4		
23	Passage	8	4					
24	Class room 3	9				5		
25	Class room 4	9				5		
26	Library	29			2	15		3
	<b>Total</b>	<b>134</b>	<b>27</b>	<b>43</b>	<b>81</b>	<b>101</b>	<b>6</b>	<b>12</b>

Apart from above load, the school has pumps, LED street lights, LED focus street lights on streets and grounds. Individual fitting wise load is as under.

**Table No 2.2: Equipment wise Connected Load**

No	Equipment	Qty	Load, W/Unit	Load, kW
1	Ceiling Fan	101	65	6.6
2	AC-Old (1.5 Tr)	12	2200	26.4
3	AC-New (1.5 TR)	6	1838	11.0
4	LED-20W	27	20	0.5
5	F T L-40 W	134	40	5.4
6	Computers	81	65	5.3
7	Pumps			0.8
8	LED street lights	12	50	0.6
9	LED bulbs	43	12	0.5
	<b>Total</b>			<b>56.5</b>

Data can be represented in terms of PIE chart as under,



**Figure 2.1: Distribution of connected load.**

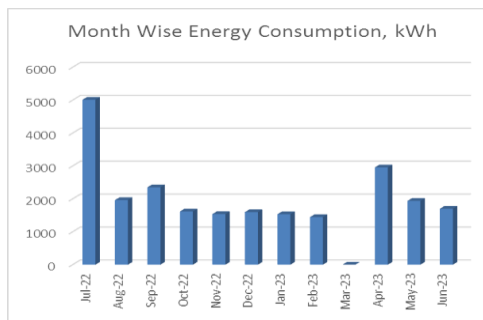
### 3. Study of Electrical Energy Consumption

In this chapter, electricity bills are studied for the analysis of electrical energy consumption.

**Table no 3.1: Summary of electricity bills**

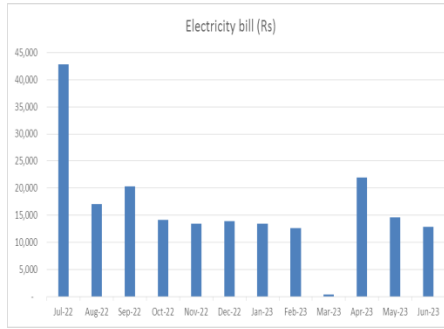
No	Month	Energy (kWh)	Bill Amount (Rs)
1	Jun-23	1700	12,833
2	May-23	1938	14,570
3	Apr-23	2957	22,000
4	Mar-23	0	384
5	Feb-23	1445	12,664
6	Jan-23	1534	13,416
7	Dec-22	1597	13,947
8	Nov-22	1537	13,441
9	Oct-22	1617	14,116
10	Sep-22	2351	20,313
11	Aug-22	1962	17,029
12	Jul-22	5011	42,771
	<b>Total</b>	<b>23649</b>	<b>197484</b>

Variation in energy consumption is as follows,



**Figure 3.1: Month wise energy consumption**

Monthly variation in electricity bill is as follows,



**Figure 3.2: Month wise electricity bill**

Key observations of electricity bill are as follows,

**Table no 3.2: Key observations**

Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	5,011	4.01
2	Minimum	-	-
3	Average	1,971	1.58
4	Total	23,649	18.92

## 4. Carbon Foot printing

1. A **Carbon Foot print** is defined as the Total Greenhouse Gas emissions (CO<sub>2</sub> emissions), emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various form of Electrical Energy used by the College for performing its day to day activities

### 2. Basis for computation of CO<sub>2</sub> Emissions:

The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy is as under

- 1 Unit (kWh) of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere.

Based on the above Data we compute the CO<sub>2</sub> emissions which are being released in to the atmosphere by the College due to its Day to Day operations

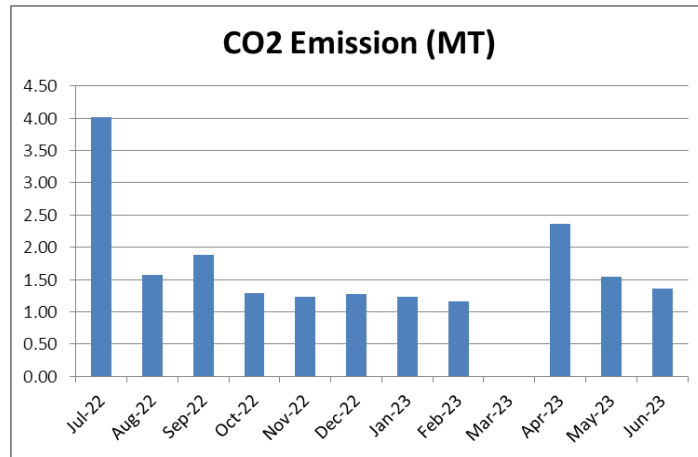
We herewith furnish the details of various forms of Energy consumption as under

**Table 4.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-23	1,700	1.4
2	May-23	1,938	1.6
3	Apr-23	2,957	2.4
4	Mar-23	-	0.0
5	Feb-23	1,445	1.2
6	Jan-23	1,534	1.2
7	Dec-22	1,597	1.3
8	Nov-22	1,537	1.2
9	Oct-22	1,617	1.3
10	Sep-22	2,351	1.9
11	Aug-22	1,962	1.6
12	Jul-22	5,011	4.0
	<b>Total</b>	<b>23,649</b>	<b>18.9</b>



In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 4.1: Month wise CO2 Emission**

## **5. Study of utilities**

### **5.1 Study of Lighting**

In the facility, the lighting system can be divided mainly in to parts, indoor lighting and outdoor lighting. There are 134 FTL fittings with Electronic/ magnetic chokes and 27 LEDs in indoor lightings. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. There are 43 number of LED bulbs. There are 12 No of LED street lights.

### **5.2 Air-conditioners**

In the facility, there are about 12 Nos. of 1.5 Tr old Air-conditioners. It is recommended to replace these Old ACs with BEE STAR Rated ACs. There is 6 nos of star rated new AC of 1.5Tr capacity.

### **5.3 Ceiling Fans**

At building facility, there are about 101 Nos Old Ceiling Fans, which consumed about 65 W of Electrical Energy. It is recommended to replace these old Fans with BEE STAR Rated Ceiling Fans.

### **5.4 Water Pumps**

There is 1Water pumps with 1HP capacity.

## 6. Study of usage of LED lighting

In this chapter we study the lighting system of college and compute the percentage of total load catered by LED lighting.

**Table 7.1: Total lighting load**

No	Particulars	Qty	Load, W/Unit	Load, kW
1	F T L-40 W	134	40	5.4
	<b>LED lighting load</b>			
1	LED tube	95	20	1.9
2	LED bulbs	43	12	0.5
3	LED street lights	<b>12</b>	<b>50</b>	0.6
	<b>Total LED lighting load</b>			<b>3.0</b>
	<b>Total Lighting load</b>			<b>8.4</b>

It can be seen that out of total lighting load 36% load is LED lighting load.

## 7. Energy conservation proposals

### 7.1 Replacement of Old T-8 FTLs with 20 W LED fittings

In the facility, there are about 134 Nos, T-8, FTL fittings with Electronic/magnetic chokes. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of T-8 fittings	134	Nos
2	Energy Demand of T-8 fitting	40	W/Unit
3	Energy Demand of 20 W LED fittin	20	W/Unit
4	Reduction in demad	20	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	10.72	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	2680	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	29480	Rs/Annum
11	Cost of 20 W LED Tube	641	Rs/Unit
12	Investment required	85894	Rs lump sum
13	Simple Payback period	35	Months

## 7.2 Replacement of old fans with STAR Rated fans

During the Audit, it was observed that there are 101 no of fans. It is recommended to replace these old fans with STAR Rated fans.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of Old Ceiling Fan fittings	101	Nos
2	Energy Demand of Old Ceiling Fan fitting	65	W/Unit
3	Energy Demand of STAR Rated Fan	52	W/Unit
4	Reduction in demad	13	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	5.252	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	1313	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	14443	Rs/Annum
11	Cost of STAR Rated Ceiling Fan	2174	Rs/unit
12	Investment required	219574	Rs lump sum
13	Simple Payback period	182	Months

### 7.3 Replacement of 1.5 TR Old ACs with STAR Rated ACs

During the Audit, it was observed that there are 12 Nos, of 1.5 TR old ACs. It is recommended to replace these old ACs with STAR Rated ACs.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of 1.5 TR Old ACs	12	Nos
2	Energy Demand of Old 1.5 TR AC	2.15	kW/Unit
3	Energy Demand of New AC	1.15	kW/Unit
4	Reduction in demad	1	kW/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	48	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	12000	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	132000	Rs/Annum
11	Cost of STAR Rated 1.5 TR AC	52875	Rs/unit
12	Investment required	634500	Rs lump sum
13	Simple Payback period	58	Months

#### 7.4 Installation of Solar PV panel

It is recommended to install 5 kW solar PV panel. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Installation of PV unit	10	kW
2	Energy saving	15000	kWh/Annum
3	Rate of electrical energy	11	Rs
4	Annual monetary savings	165000	Rs/ Annum
5	Investment required	500000	Rs lump sum
6	Simple payback period	36	Months

### 7.5 Summary of Savings

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
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1	Maximum	3,737	2.99
2	Minimum	-	-
3	Average	2,032	1.63
4	Total	24,381	19.50

### 2. Energy Conservation Projects already installed

1. Usage of STAR Rated ACs at new installations
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kWh : kilo-Watt Hour

kVA : Active Power

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### **1.2 Audit Methodology:**

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2. Study of various Electrical parameters
3. To prepare the Report with various Encon measures with payback analysis

### 1.3 General Details of College

**Table No-1.1: Details of college**

<b>No</b>	<b>Head</b>	<b>Particulars</b>
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.



## 2. Study of connected load

In this chapter, we present details of various connected electrical equipment and electrical load.

**Table No-2.1: Location wise study of Electrical fittings in various buildings**

No	Location	FTL (40W )	LED tube (20W )	LED bulb (12W)	Computer s (65W)	Fans	1.5T R Star rated AC	1.5T R old Acs
	<b>Ground Floor</b>							
1	Class room 1	3	3			6	3	
2	Class room 2	3	3			6	3	
4	Computer lab 1	5			20	2		2
5	Computer lab 2			4	16	2		1
6	Computer lab 3			4	18	2		1
7	Research Center	4		4	2	5		2
8	Girls common room	1	2			2		1
9	Toilet	3						
10	Boys common room	1	2			2		
11	Sports room	2				1		
12	Passage	6	6					
13	Director office	2		11				2
14	Auditorium	15				12		
15	Reception			20	1	4		
16	Admin office	4			5	4		
17	Cancellor room	2			1	1		
	<b>First Floor</b>							
18	Conference room	2	7		2	8		
19	Staff room	14			14	7		

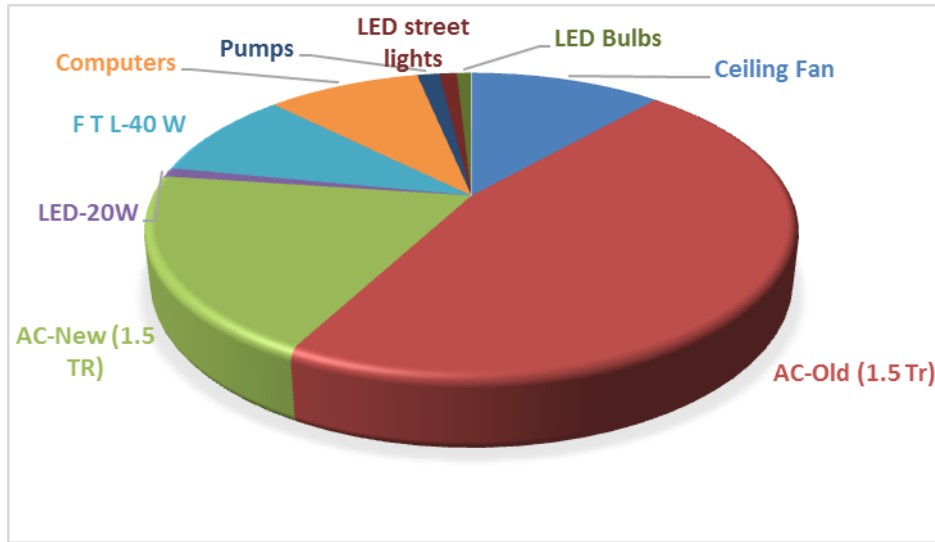
20	Tutorial room 1	4				4		
21	Tutorial room 2	4				4		
22	Tutorial room 3	4				4		
23	Passage	8	4					
24	Class room 3	9				5		
25	Class room 4	9				5		
26	Library	29			2	15		3
	<b>Total</b>	<b>134</b>	<b>27</b>	<b>43</b>	<b>81</b>	<b>101</b>	<b>6</b>	<b>12</b>

Apart from above load, the school has pumps, LED street lights, LED focus street lights on streets and grounds. Individual fitting wise load is as under.

**Table No 2.2: Equipment wise Connected Load**

No	Equipment	Qty	Load, W/Unit	Load, kW
1	Ceiling Fan	101	65	6.6
2	AC-Old (1.5 Tr)	12	2200	26.4
3	AC-New (1.5 TR)	6	1838	11.0
4	LED-20W	27	20	0.5
5	F T L-40 W	134	40	5.4
6	Computers	81	65	5.3
7	Pumps			0.8
8	LED street lights	12	50	0.6
9	LED bulbs	43	12	0.5
	<b>Total</b>			<b>56.5</b>

Data can be represented in terms of PIE chart as under,



**Figure 2.1: Distribution of connected load.**

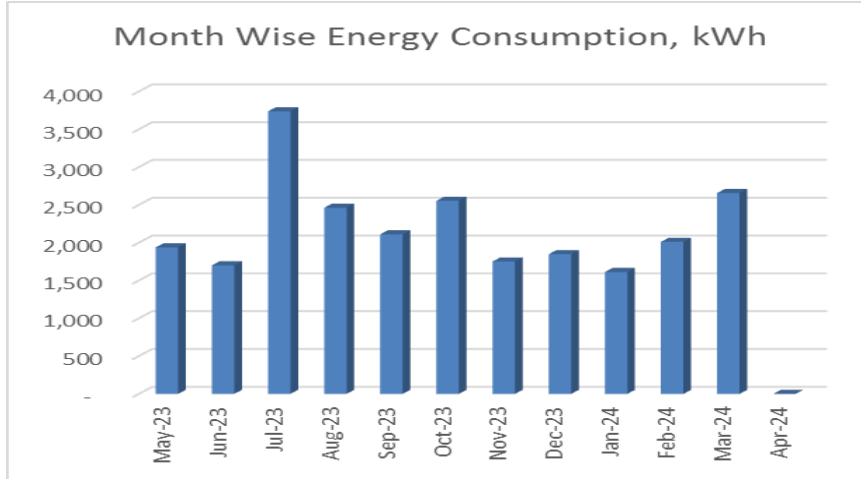
### 3. Study of Electrical Energy Consumption

In this chapter, electricity bills are studied for the analysis of electrical energy consumption.

**Table no 3.1: Summary of electricity bills**

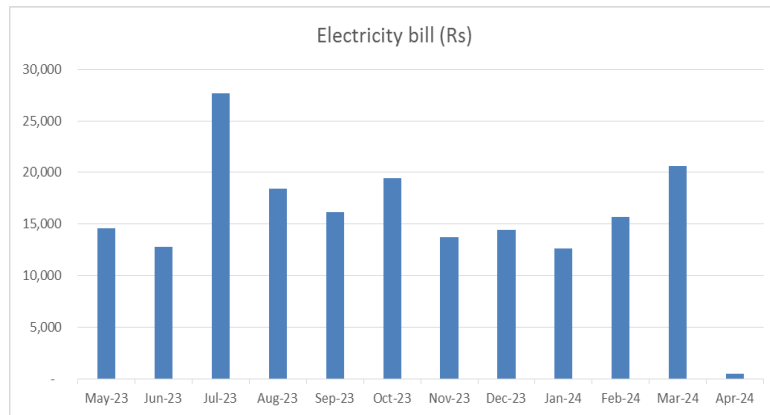
<b>No</b>	<b>Month</b>	<b>Energy (kWh)</b>	<b>Bill Amount (Rs)</b>
1	Apr-24	-	464
2	Mar-24	2,657	20,636
3	Feb-24	2,011	15,706
4	Jan-24	1,612	12,673
5	Dec-23	1,848	14,467
6	Nov-23	1,751	13,730
7	Oct-23	2,554	19,450
8	Sep-23	2,111	16,149
9	Aug-23	2,462	18,395
10	Jul-23	3,737	27,703
11	Jun-23	1,700	12,832
12	May-23	1,938	14,570
	<b>Total</b>	<b>24,381</b>	<b>186,775</b>

Variation in energy consumption is as follows,



**Figure 3.1: Month wise energy consumption**

Monthly variation in electricity bill is as follows,



**Figure 3.2: Month wise electricity bill**

Key observations of electricity bill are as follows,

**Table no 3.2: Key observations**

Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	5,011	4.01
2	Minimum	-	-
3	Average	1,971	1.58
4	Total	23,649	18.92

## 4. Carbon Foot printing

1. A **Carbon Foot print** is defined as the Total Greenhouse Gas emissions (CO<sub>2</sub> emissions), emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various form of Electrical Energy used by the College for performing its day to day activities

### 2. Basis for computation of CO<sub>2</sub> Emissions:

The basis of Calculation for CO<sub>2</sub> emissions due to Electrical Energy is as under

- 1 Unit (kWh) of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere.

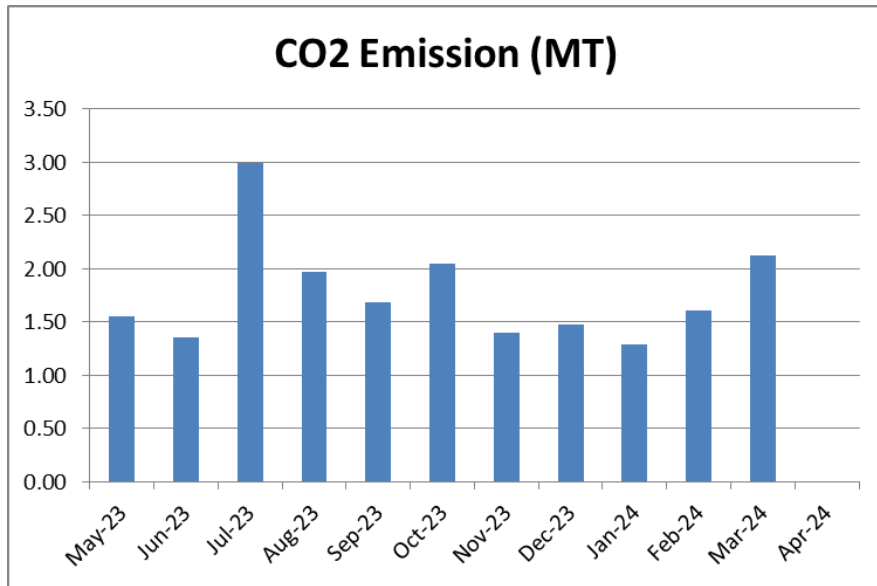
Based on the above Data we compute the CO<sub>2</sub> emissions which are being released in to the atmosphere by the College due to its Day to Day operations

We herewith furnish the details of various forms of Energy consumption as under

**Table 4.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Apr-24	-	0.0
2	Mar-24	2,657	2.1
3	Feb-24	2,011	1.6
4	Jan-24	1,612	1.3
5	Dec-23	1,848	1.5
6	Nov-23	1,751	1.4
7	Oct-23	2,554	2.0
8	Sep-23	2,111	1.7
9	Aug-23	2,462	2.0
10	Jul-23	3,737	3.0
11	Jun-23	1,700	1.4
12	May-23	1,938	1.6
	<b>Total</b>	<b>24,381</b>	<b>19.5</b>

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 4.1: Month wise CO2 Emission**

## **5. Study of utilities**

### **5.1 Study of Lighting**

In the facility, the lighting system can be divided mainly in to parts, indoor lighting and outdoor lighting. There are 134 FTL fittings with Electronic/ magnetic chokes and 27 LEDs in indoor lightings. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. There are 43 number of LED bulbs. There are 12 No of LED street lights.

### **5.2 Air-conditioners**

In the facility, there are about 12 Nos. of 1.5 Tr old Air-conditioners. It is recommended to replace these Old ACs with BEE STAR Rated ACs. There is 6 nos of star rated new AC of 1.5Tr capacity.

### **5.3 Ceiling Fans**

At building facility, there are about 101 Nos Old Ceiling Fans, which consumed about 65 W of Electrical Energy. It is recommended to replace these old Fans with BEE STAR Rated Ceiling Fans.

### **5.4 Water Pumps**

There is 1Water pumps with 1HP capacity.



## 6. Study of usage of LED lighting

In this chapter we study the lighting system of college and compute the percentage of total load catered by LED lighting.

**Table 7.1: Total lighting load**

No	Particulars	Qty	Load, W/Unit	Load, kW
1	F T L-40 W	134	40	5.4
	<b>LED lighting load</b>			
1	LED tube	95	20	1.9
2	LED bulbs	43	12	0.5
3	LED street lights	<b>12</b>	<b>50</b>	0.6
	<b>Total LED lighting load</b>			<b>3.0</b>
	<b>Total Lighting load</b>			<b>8.4</b>

It can be seen that out of total lighting load 36% load is LED lighting load.

## 7. Energy conservation proposals

### 7.1 Replacement of Old T-8 FTLs with 20 W LED fittings

In the facility, there are about 134 Nos, T-8, FTL fittings with Electronic/magnetic chokes. It is recommended to install the 20 W LED Tube light fittings in place of these old T-8 fittings. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of T-8 fittings	134	Nos
2	Energy Demand of T-8 fitting	40	W/Unit
3	Energy Demand of 20 W LED fittin	20	W/Unit
4	Reduction in demad	20	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	10.72	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	2680	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	29480	Rs/Annum
11	Cost of 20 W LED Tube	641	Rs/Unit
12	Investment required	85894	Rs lump sum
13	Simple Payback period	35	Months

## 7.2 Replacement of old fans with STAR Rated fans

During the Audit, it was observed that there are 101 no of fans. It is recommended to replace these old fans with STAR Rated fans.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of Old Ceiling Fan fittings	101	Nos
2	Energy Demand of Old Ceiling Fan fitting	65	W/Unit
3	Energy Demand of STAR Rated Fan	52	W/Unit
4	Reduction in demad	13	W/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	5.252	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	1313	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	14443	Rs/Annum
11	Cost of STAR Rated Ceiling Fan	2174	Rs/unit
12	Investment required	219574	Rs lump sum
13	Simple Payback period	182	Months

### 7.3 Replacement of 1.5 TR Old ACs with STAR Rated ACs

During the Audit, it was observed that there are 12 Nos, of 1.5 TR old ACs. It is recommended to replace these old ACs with STAR Rated ACs.

In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Present Qty of 1.5 TR Old ACs	12	Nos
2	Energy Demand of Old 1.5 TR AC	2.15	kW/Unit
3	Energy Demand of New AC	1.15	kW/Unit
4	Reduction in demad	1	kW/Unit
5	Average Daily Usage period	4	Hrs/Day
6	Daily saving in Energy	48	kWh/Day
7	Annual Working Days	250	Nos
8	Annual Energy Saving possible	12000	kWh/Annum
9	Rate of Electrical Energy	11	Rs/kWh
10	Annual Monetary saving	132000	Rs/Annum
11	Cost of STAR Rated 1.5 TR AC	52875	Rs/unit
12	Investment required	634500	Rs lump sum
13	Simple Payback period	58	Months

#### 7.4 Installation of Solar PV panel

It is recommended to install 5 kW solar PV panel. In the following Table, we present the savings, investment required & payback analysis.

No	Particulars	Value	Unit
1	Installation of PV unit	10	kW
2	Energy saving	15000	kWh/Annum
3	Rate of electrical energy	11	Rs
4	Annual monetary savings	165000	Rs/ Annum
5	Investment required	500000	Rs lump sum
6	Simple payback period	36	Months

## Summary of Savings

No	Recommendation	Annual Saving potential, kWh/Annum	Annual Monetary Gain, Rs.	Investment Required, Rs.	Payback period, Months
1	Replacement of 134 Nos T-8 fittings with 20W LED fittings	2,680	29,480	85,894	35
2	Replacement of 101 Nos Old Ceiling Fans with STAR rating fans	1,313	14,443	219,574	182
3	Replacement of 12 Nos Old 1.5 TR Acs with STAR rating Acs	12,000	132,000	634,500	58
4	Installation of 10kW grid connected PV panel	15,000	165,000	500,000	36
	<b>Total</b>	<b>30,993</b>	<b>340,923</b>	<b>1,439,968</b>	<b>51</b>



  
**DIRECTOR**  
**Godavari Institute of Management & Research, Jalgaon**



**Report**  
**On**  
**Environmental Audit**  
**At**  
**Godavari Foundation's Godavari Institute Of Management &**  
**Research, Jalgaon**  
**(Year 2021-22)**



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We are also thankful to all other staff members who helped us during the Measurements at the field and for giving us the necessary inputs to carry out this vital exercise.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the dependency on Natural resources & reduce the pollution.

Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon consumes various resources for day to day operations, namely: Air, Water, Electrical Energy & LPG.

### 1. Various Pollution due to College Activities:

- Air pollution: Mainly CO<sub>2</sub> on account of Electricity & LPG Consumption
- Solid Waste: Bio degradable Kitchen Waste, Garden Waste
- Liquid Waste: Human liquid waste

### 2. Present Level of CO<sub>2</sub> Emissions:

Sr no	Parameter	Energy consumed, (Units)	CO <sub>2</sub> Emission (MT)
1	Maximum	4,078	3.26
2	Minimum	-	-
3	Average	1,866	1.49
4	Total	22,390	17.91

### 3. The various projects already implemented for Environmental Conservation:

- Usage of Energy Efficient BEE STAR Rated ACs
- Usage of Natural Day light in corridors
- Implementation of Bio Composting pit for disposal of Bio degradable waste
- Implementation of Rain Water Harvesting

### 4. Recommendations:

1. Installation of Bio Gas Generator Plant instead of Bio composting Plant.
2. Installation of Sewage treatment Plant to make campus a Zero Discharge campus

### **5. Notes & Assumptions:**

1. **1 kWh** of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere
2. 1 kWp Solar PV plant generates 5 kWh/day Electrical Energy for 300 days in an year.

## Abbreviations

AC	: Air conditioner
PES	: Progressive Education Society
CFL	: Compact Fluorescent Lamp
FTL	: Fluorescent Tube Light
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
Qty	: Quantity
W	: Watt
kW	: Kilo Watt
PF	: Power Factor
M D	: Maximum Demand
PC	: Personal Computer
MSEDCL	: Maharashtra State Electricity Distribution Company Ltd

## 1. Introduction

### 1.1 Important Definitions:

#### 1.1.1 Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

#### 1.1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

*According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

**1.1.3. Environmental Pollutant:** means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

#### 1.1.4. Relevant Environmental Laws in India: Table No-1:

1927	The Indian Forest Act
1972	The Wildlife Protection Act
1974	The Water (Prevention and Control of Pollution) Act
1977	The Water (Prevention & Control of Pollution) Cess Act
1980	The Forest (Conservation) Act
1981	The Air (Prevention and Control of Pollution) Act
1986	The Environment Protection Act
1991	The Public Liability Insurance Act
2002	The Biological Diversity Act
2010	The National Green Tribunal Act

#### 1.1.5. Some Important Environmental Rules in India: Table No-2:

1989	Hazardous Waste (Management and Handling) Rules
1989	Manufacture, Storage and Import of Hazardous Chemical Rules
2000	Municipal Solid Waste (Management and Handling) Rules
1998	The Biomedical Waste (Management and Handling) Rules
1999	The Environment (Siting for Industrial Projects) Rules
2000	Noise Pollution (Regulation and Control) Rules
2000	Ozone Depleting Substances (Regulation and Control) Rules

2011	E-waste (Management and Handling) Rules
2011	National Green Tribunal (Practices and Procedure) Rules
2011	Plastic Waste (Management and Handling) Rules

### 1.1.6 National Environmental Plans & Policy Documents: Table No-3:

1.	National Forest Policy, 1988
2.	National Water Policy, 2002
3.	National Environment Policy or NEP (2006)
4.	National Conservation Strategy and Policy Statement on Environment and Development, 1992
5.	Policy Statement for Abatement of Pollution (1992)
6.	National Action Plan on Climate Change
7.	Vision Statement on Environment and Human Health
8.	Technology Vision 2030 (The Energy Research Institute)
9.	Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency)
10.	The Road to Copenhagen; India's Position on Climate Change Issues (MoEF)

### 1.2 Objectives

1. To study present usage of Natural resources the College is consuming
2. To Study the present pollution sources
3. To study various measures to make the campus Self sustainable in respect of Natural resources
4. To suggest the various measures to reduce the pollution: Air, Water, Noise

### 1.3 Audit Methodology:

1. Study of College as System
2. Study of Electrical Energy Consumption
3. Study of CO2 emissions
4. Suggestions on usage of Renewable Energy

### 1.4 General Details of College

No	Head	Particulars
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.

## 2. Study of Consumption of Various Resources

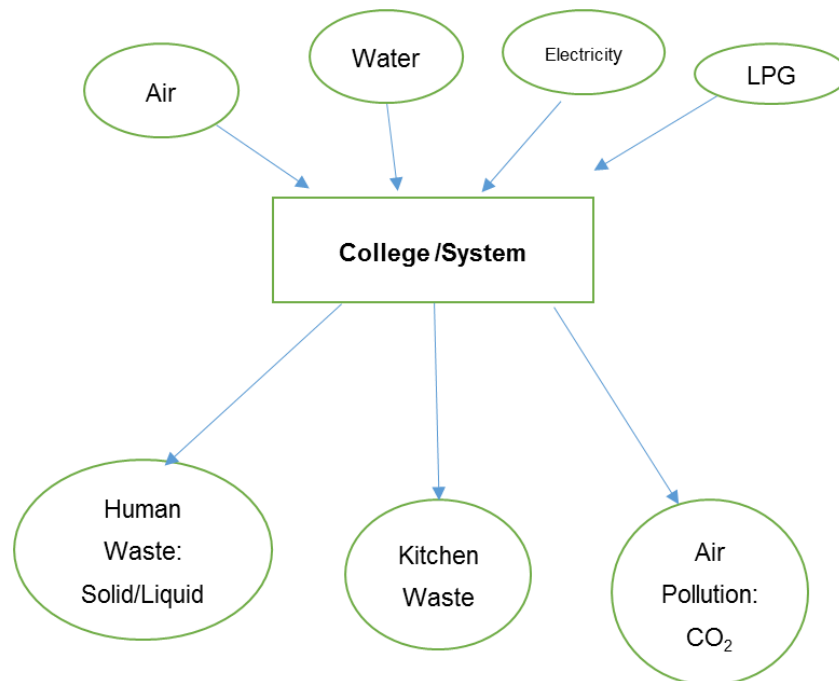
The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy
4. Liquefied Petroleum Gas

Also, college emits following pollutants to environment

1. Human Waste: Solid/ Liquid
2. Kitchen waste
3. Air pollution

We try to draw a schematic diagram for the College System & Environment as under.



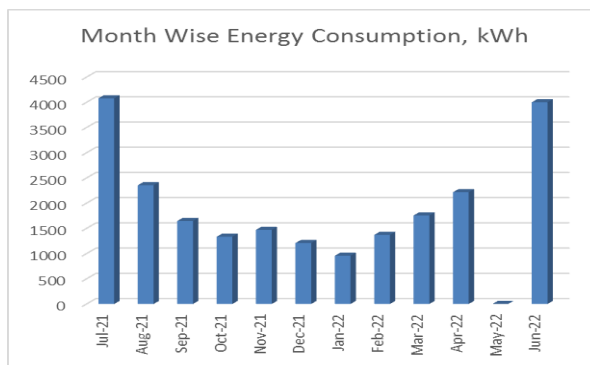
Now we compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy & LPG as under.

The calculation of electrical energy consumption by college can be given as,

**Table 2.1: Electrical Energy Consumption**

No	Month	Energy (kWh)
1	Jun-22	4000
2	May-22	0
3	Apr-22	2217
4	Mar-22	1755
5	Feb-22	1370
6	Jan-22	957
7	Dec-21	1208
8	Nov-21	1471
9	Oct-21	1333
10	Sep-21	1646
11	Aug-21	2355
12	Jul-21	4078
	<b>Total</b>	<b>22390</b>
	<b>Maximum</b>	4078
	<b>Minimum</b>	0
	<b>Average</b>	1866

**2.1 Variation of Monthly Electrical Energy Consumption**



**Figure 2.1 : Monthly Electrical Energy Consumption**



## 2.2 Key Inference drawn

From the above analysis, we present following important parameters:

**Table 2.2: Variation in Important Parameters**

No	Parameter/ Value	Energy Consumed, kWh
1	Maximum	4078
2	Minimum	0
3	Average	1866
4	Total	22390

### 3. Study of Environmental Pollution

In this Chapter, we present the various types of Pollution as under:

#### 3.1 Air Pollution

The College is using two forms of Energies, namely: Thermal in the form of LPG and Electrical Energy used for day to day operations of the College. The major pollutant on account of above Energy forms is the Carbon Di Oxide.

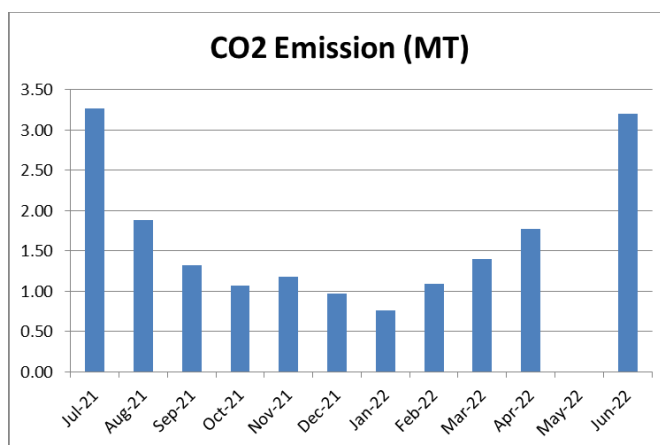
- 1 unit (kWh) of Electrical Energy emits 0.8 Kg of CO<sub>2</sub> in the atmosphere
- 1 Kg of LPG emits 3 Kg of CO<sub>2</sub> in the atmosphere

In the following Table, we present the CO<sub>2</sub> emissions.

**Table 3.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO2 Emissions, MT
1	Jun-22	4,000	3.2
2	May-22	-	0.0
3	Apr-22	2,217	1.8
4	Mar-22	1,755	1.4
5	Feb-22	1,370	1.1
6	Jan-22	957	0.8
7	Dec-21	1,208	1.0
8	Nov-21	1,471	1.2
9	Oct-21	1,333	1.1
10	Sep-21	1,646	1.3
11	Aug-21	2,355	1.9
12	Jul-21	4,078	3.3
	<b>Total</b>	<b>22,390</b>	<b>17.9</b>
	<b>Maximum</b>	4,078	3.26
	<b>Minimum</b>	-	-
	<b>Average</b>	1,866	1.49

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 2.1: CO2 emission due to usage of electrical energy.**

### 3.2 Study of Solid Waste Generation

The College has already installed a Bio composting Plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

#### Photograph of Bio Composting Pit



### 3.3 Study of Liquid Waste Generation

At present the Liquid Waste generated due to day to day operations is drained off to the municipal Corporation through a pipe.

### **3.4 Study of e-Waste Management:**

The internal communication is through emails and there is hardly any generation of e-Waste in the premises.

#### **4. Study of Rain Water Harvesting**

The College has already installed Rain Water Harvesting project, wherein the rain water falling on the terrace is collected and through pipes it is fed to underground Water Storage tank. This stored water is then reused for domestic purpose.



## 5. Recommendations

In order to reduce the dependency on Natural resources and also in order to reduce the various pollutions arising due to the day to day operations of the College we herewith recommend following recommendations.

- Installation of Bio Gas Generator Plant instead of Bio composting Plant.
- Installation of Sewage treatment Plant to make campus a Zero Discharge campus



  
DIRECTOR  
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& Research, Jalgaon



**Report**  
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**(Year 2022-23)**



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- Air pollution: Mainly CO<sub>2</sub> on account of Electricity & LPG Consumption
- Solid Waste: Bio degradable Kitchen Waste, Garden Waste
- Liquid Waste: Human liquid waste

### 2. Present Level of CO<sub>2</sub> Emissions:

Sr no	Parameter	Energy consumed, (Units)	CO <sub>2</sub> Emission (MT)
1	Maximum	5,011	4.01
2	Minimum	-	-
3	Average	1,971	1.58
4	Total	23,649	18.92

### 3. The various projects already implemented for Environmental Conservation:

- Usage of Energy Efficient BEE STAR Rated ACs
- Usage of Natural Day light in corridors
- Implementation of Bio Composting pit for disposal of Bio degradable waste
- Implementation of Rain Water Harvesting

### 4. Recommendations:

1. Installation of Bio Gas Generator Plant instead of Bio composting Plant.
2. Installation of Sewage treatment Plant to make campus a Zero Discharge campus

### **5. Notes & Assumptions:**

1. **1 kWh** of Electrical Energy releases **0.8 Kg of CO<sub>2</sub>** into atmosphere
2. 1 kWp Solar PV plant generates 5 kWh/day Electrical Energy for 300 days in an year.

## Abbreviations

AC	: Air conditioner
PES	: Progressive Education Society
CFL	: Compact Fluorescent Lamp
FTL	: Fluorescent Tube Light
LED	: Light Emitting Diode
kWh	: kilo-Watt Hour
Qty	: Quantity
W	: Watt
kW	: Kilo Watt
PF	: Power Factor
M D	: Maximum Demand
PC	: Personal Computer
MSEDCL	: Maharashtra State Electricity Distribution Company Ltd

## 1. Introduction

### 1.1 Important Definitions:

#### 1.1.1 Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

#### 1.1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

*According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment"*

**1.1.3. Environmental Pollutant:** means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

#### 1.1.4. Relevant Environmental Laws in India: Table No-1:

1927	The Indian Forest Act
1972	The Wildlife Protection Act
1974	The Water (Prevention and Control of Pollution) Act
1977	The Water (Prevention & Control of Pollution) Cess Act
1980	The Forest (Conservation) Act
1981	The Air (Prevention and Control of Pollution) Act
1986	The Environment Protection Act
1991	The Public Liability Insurance Act
2002	The Biological Diversity Act
2010	The National Green Tribunal Act

#### 1.1.5. Some Important Environmental Rules in India: Table No-2:

1989	Hazardous Waste (Management and Handling) Rules
1989	Manufacture, Storage and Import of Hazardous Chemical Rules
2000	Municipal Solid Waste (Management and Handling) Rules
1998	The Biomedical Waste (Management and Handling) Rules
1999	The Environment (Siting for Industrial Projects) Rules
2000	Noise Pollution (Regulation and Control) Rules
2000	Ozone Depleting Substances (Regulation and Control) Rules

2011	E-waste (Management and Handling) Rules
2011	National Green Tribunal (Practices and Procedure) Rules
2011	Plastic Waste (Management and Handling) Rules

### 1.1.6 National Environmental Plans & Policy Documents: Table No-3:

1.	National Forest Policy, 1988
2.	National Water Policy, 2002
3.	National Environment Policy or NEP (2006)
4.	National Conservation Strategy and Policy Statement on Environment and Development, 1992
5.	Policy Statement for Abatement of Pollution (1992)
6.	National Action Plan on Climate Change
7.	Vision Statement on Environment and Human Health
8.	Technology Vision 2030 (The Energy Research Institute)
9.	Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency)
10.	The Road to Copenhagen; India's Position on Climate Change Issues (MoEF)

### 1.2 Objectives

1. To study present usage of Natural resources the College is consuming
2. To Study the present pollution sources
3. To study various measures to make the campus Self sustainable in respect of Natural resources
4. To suggest the various measures to reduce the pollution: Air, Water, Noise

### 1.3 Audit Methodology:

1. Study of College as System
2. Study of Electrical Energy Consumption
3. Study of CO2 emissions
4. Suggestions on usage of Renewable Energy

### 1.4 General Details of College

No	Head	Particulars
1	Name of Institution	Godavari Foundation's Godavari Institute of Management and Research
2	Address	P-54, near Bharat Petroleum, Additional MIDC, Jalgaon, Maharashtra 425 003.
3	Affiliation	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.

## 2. Study of Consumption of Various Resources

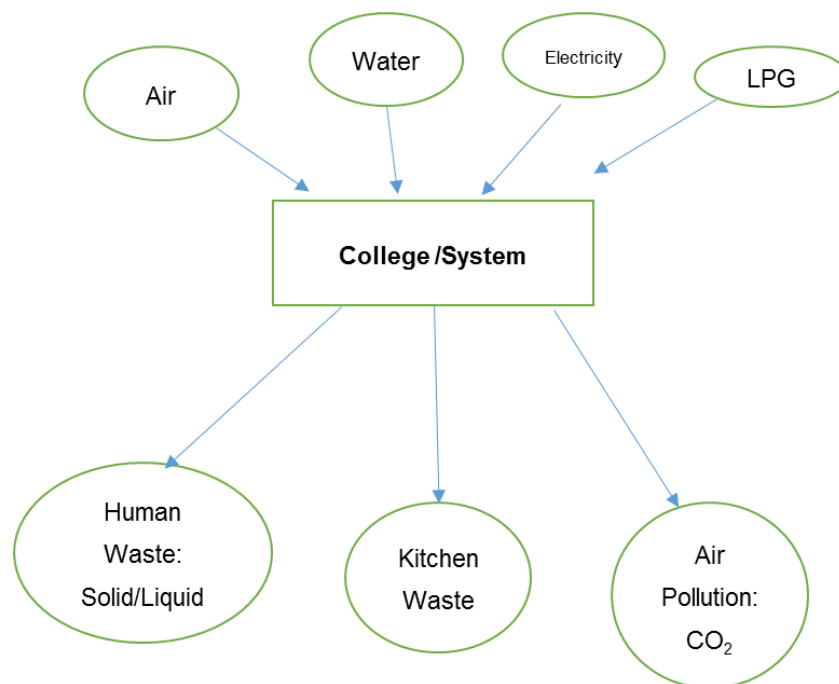
The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy
4. Liquefied Petroleum Gas

Also, college emits following pollutants to environment

1. Human Waste: Solid/ Liquid
2. Kitchen waste
3. Air pollution

We try to draw a schematic diagram for the College System & Environment as under.



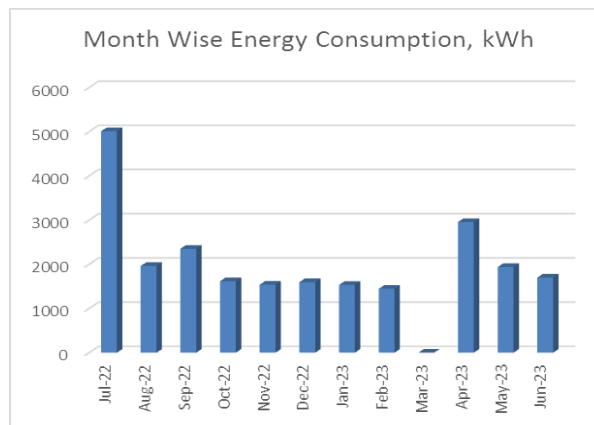
Now we compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy & LPG as under.

The calculation of electrical energy consumption by college can be given as,

**Table 2.1: Electrical Energy Consumption**

No	Month	Energy (kWh)
1	Jun-22	1700
2	May-22	1938
3	Apr-22	2957
4	Mar-22	0
5	Feb-22	1445
6	Jan-22	1534
7	Dec-21	1597
8	Nov-21	1537
9	Oct-21	1617
10	Sep-21	2351
11	Aug-21	1962
12	Jul-21	5011
	<b>Total</b>	<b>23649</b>
	<b>Maximum</b>	5011
	<b>Minimum</b>	0
	<b>Average</b>	1971

**2.1 Variation of Monthly Electrical Energy Consumption**



**Figure 2.1 : Monthly Electrical Energy Consumption**



## 2.2 Key Inference drawn

From the above analysis, we present following important parameters:

**Table 2.2: Variation in Important Parameters**

No	Parameter/ Value	Energy Consumed, kWh
1	Maximum	5,011
2	Minimum	-
3	Average	1,971
4	Total	23,649

### 3. Study of Environmental Pollution

In this Chapter, we present the various types of Pollution as under:

#### 3.1 Air Pollution

The College is using two forms of Energies, namely: Thermal in the form of LPG and Electrical Energy used for day to day operations of the College. The major pollutant on account of above Energy forms is the Carbon Di Oxide.

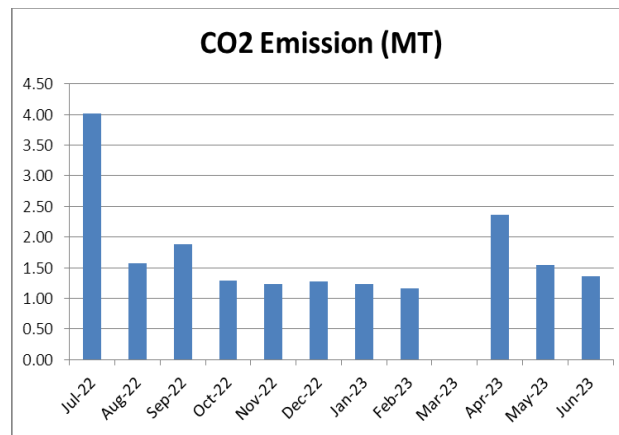
- 1 unit (kWh) of Electrical Energy emits 0.8 Kg of CO<sub>2</sub> in the atmosphere
- 1 Kg of LPG emits 3 Kg of CO<sub>2</sub> in the atmosphere

In the following Table, we present the CO<sub>2</sub> emissions.

**Table 3.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-23	1,700	1.4
2	May-23	1,938	1.6
3	Apr-23	2,957	2.4
4	Mar-23	-	0.0
5	Feb-23	1,445	1.2
6	Jan-23	1,534	1.2
7	Dec-22	1,597	1.3
8	Nov-22	1,537	1.2
9	Oct-22	1,617	1.3
10	Sep-22	2,351	1.9
11	Aug-22	1,962	1.6
12	Jul-22	5,011	4.0
	<b>Total</b>	<b>23,649</b>	<b>18.9</b>
	<b>Maximum</b>	5,011	4.01
	<b>Minimum</b>	-	-
	<b>Average</b>	1,971	1.58

In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 2.1: CO2 emission due to usage of electrical energy.**

### 3.2 Study of Solid Waste Generation

The College has already installed a Bio composting Plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

#### Photograph of Bio Composting Pit



### 3.3 Study of Liquid Waste Generation

At present the Liquid Waste generated due to day to day operations is drained off to the municipal Corporation through a pipe.

### **3.4 Study of e-Waste Management:**

The internal communication is through emails and there is hardly any generation of e-Waste in the premises.

#### **4. Study of Rain Water Harvesting**

The College has already installed Rain Water Harvesting project, wherein the rain water falling on the terrace is collected and through pipes it is fed to underground Water Storage tank. This stored water is then reused for domestic purpose.



## 5. Recommendations

In order to reduce the dependency on Natural resources and also in order to reduce the various pollutions arising due to the day to day operations of the College we herewith recommend following recommendations.

- Installation of Bio Gas Generator Plant instead of Bio composting Plant.
- Installation of Sewage treatment Plant to make campus a Zero Discharge campus

  
**DIRECTOR**  
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& Research, Jalgaon



**Report**  
**On**  
**Environmental Audit**  
**At**  
**Godavari Foundation's Godavari Institute Of Management &**  
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**(Year 2023-24)**



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## **Acknowledgement**

We at Nutan Urja Solutions, Pune wish to express our sincere gratitude to the management of Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon for assigning the work of Environmental Audit of college campus.

We appreciate the co-operation and support extended to our team members during the entire tenure of field study.

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.

We are also thankful to all other staff members who helped us during the Measurements at the field and for giving us the necessary inputs to carry out this vital exercise.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the dependency on Natural resources & reduce the pollution.

Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon consumes various resources for day to day operations, namely: Air, Water, Electrical Energy & LPG.

### 1. Various Pollution due to College Activities:

- Air pollution: Mainly CO<sub>2</sub> on account of Electricity & LPG Consumption
- Solid Waste: Bio degradable Kitchen Waste, Garden Waste
- Liquid Waste: Human liquid waste

### 2. Present Level of CO<sub>2</sub> Emissions:

Sr no	Parameter	Energy consumed, (Units)	CO <sub>2</sub> Emission (MT)
1	Maximum	3,737	3.0
2	Minimum	-	-
3	Average	2,032	1.6
4	Total	24,381	19.5

### 3. The various projects already implemented for Environmental Conservation:

- Usage of Energy Efficient BEE STAR Rated ACs
- Usage of Natural Day light in corridors
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## Abbreviations

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## 2. Study of Consumption of Various Resources

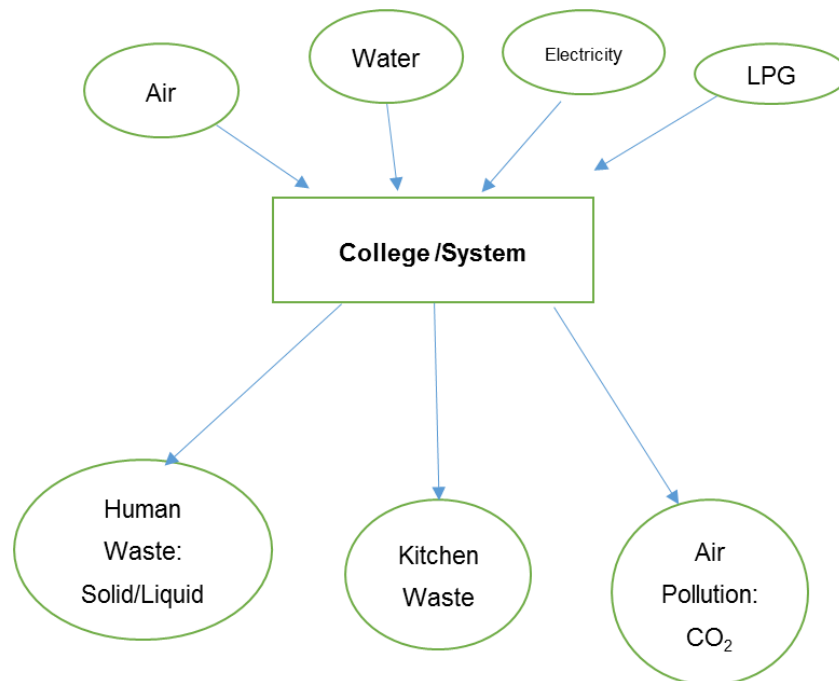
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Also, college emits following pollutants to environment

1. Human Waste: Solid/ Liquid
2. Kitchen waste
3. Air pollution

We try to draw a schematic diagram for the College System & Environment as under.



Now we compute the Generation of CO<sub>2</sub> on account of consumption of Electrical Energy & LPG as under.

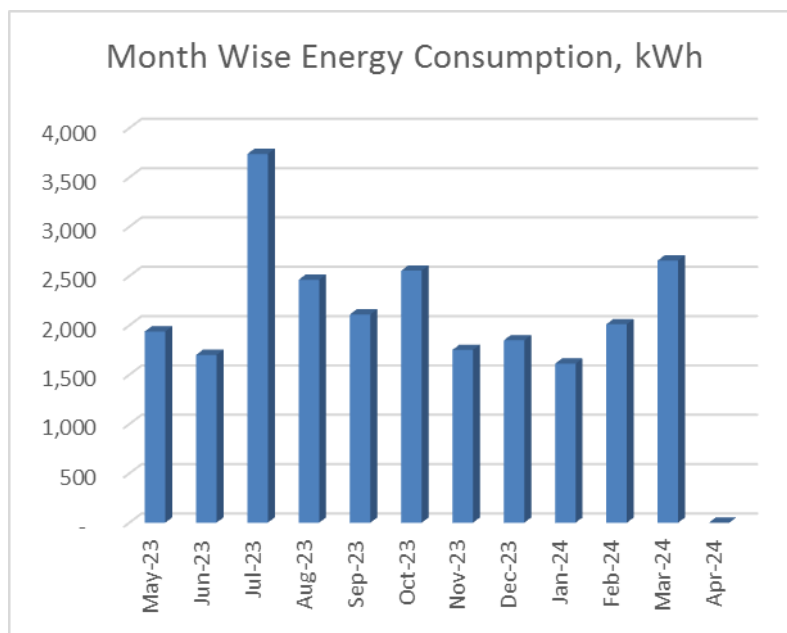
The calculation of electrical energy consumption by college can be given as,

**Table 2.1: Electrical Energy Consumption**

No	Month	Energy (kWh)
1	Apr-24	-
2	Mar-24	2,657
3	Feb-24	2,011
4	Jan-24	1,612
5	Dec-23	1,848
6	Nov-23	1,751
7	Oct-23	2,554
8	Sep-23	2,111
9	Aug-23	2,462
10	Jul-23	3,737
11	Jun-23	1,700
12	May-23	1,938
	<b>Total</b>	<b>24,381</b>
	Maximum	3,737
	Minimum	-
	Average	2,032



## 2.1 Variation of Monthly Electrical Energy Consumption



**Figure 2.1 : Monthly Electrical Energy Consumption**

## 2.2 Key Inference drawn

From the above analysis, we present following important parameters:

**Table 2.2: Variation in Important Parameters**

No	Parameter/ Value	Energy Consumed, kWh
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### 3. Study of Environmental Pollution

In this Chapter, we present the various types of Pollution as under:

#### 3.1 Air Pollution

The College is using two forms of Energies, namely: Thermal in the form of LPG and Electrical Energy used for day to day operations of the College. The major pollutant on account of above Energy forms is the Carbon Di Oxide.

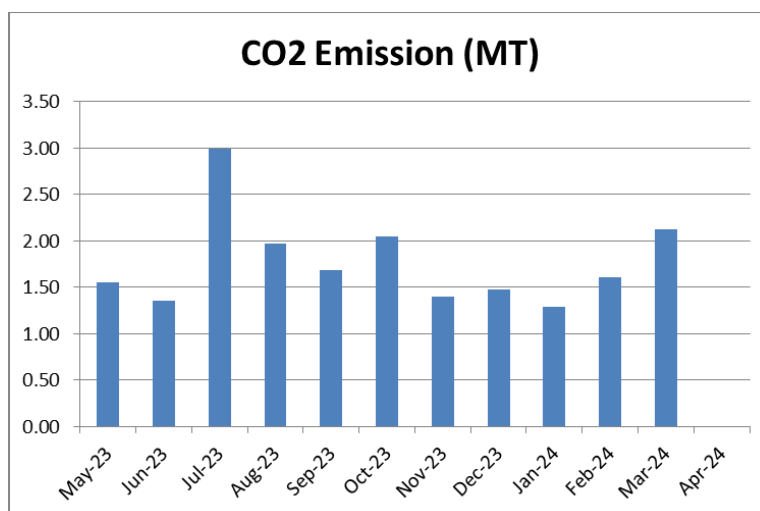
- 1 unit (kWh) of Electrical Energy emits 0.8 Kg of CO<sub>2</sub> in the atmosphere
- 1 Kg of LPG emits 3 Kg of CO<sub>2</sub> in the atmosphere

In the following Table, we present the CO<sub>2</sub> emissions.

**Table 3.1: Month wise Consumption of Electrical Energy & CO<sub>2</sub> Emissions:**

No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Apr-24	-	0.0
2	Mar-24	2,657	2.1
3	Feb-24	2,011	1.6
4	Jan-24	1,612	1.3
5	Dec-23	1,848	1.5
6	Nov-23	1,751	1.4
7	Oct-23	2,554	2.0
8	Sep-23	2,111	1.7
9	Aug-23	2,462	2.0
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	<b>Total</b>	<b>24,381</b>	<b>19.5</b>
	Maximum	3,737	3.0
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In the following Chart we present the CO2 emissions due to usage of Electrical Energy.



**Figure 2.1: CO2 emission due to usage of electrical energy.**

### 3.2 Study of Solid Waste Generation

The College has already installed a Bio composting Plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

#### Photograph of Bio Composting Pit



### 3.3 Study of Liquid Waste Generation

At present the Liquid Waste generated due to day to day operations is drained off to the municipal Corporation through a pipe.

### **3.4 Study of e-Waste Management:**

The internal communication is through emails and there is hardly any generation of e-Waste in the premises.

#### **4. Study of Rain Water Harvesting**

The College has already installed Rain Water Harvesting project, wherein the rain water falling on the terrace is collected and through pipes it is fed to underground Water Storage tank. This stored water is then reused for domestic purpose.




## 5. Recommendations

In order to reduce the dependency on Natural resources and also in order to reduce the various pollutions arising due to the day to day operations of the College we herewith recommend following recommendations.

- Installation of Bio Gas Generator Plant instead of Bio composting Plant.
- Installation of Sewage treatment Plant to make campus a Zero Discharge campus



  
DIRECTOR  
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& Research, Jalgaon



**Report  
On  
Green Audit  
At  
Godavari Foundation's Godavari Institute Of Management &  
Research, Jalgaon  
(Year 2021-22)**



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## **Acknowledgement**

We at Nutan Urja Solutions, Pune, express our sincere gratitude to the management of Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon for awarding us the assignment of Green Audit of their college premises.

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.

We hope that the recommendations stated in this report will be useful and worthy of discussions to take things forward to help implementation of energy conservation measures and green practices. While we have made every attempt to adhere to high quality standards, in both data collection and analysis through the report, we would welcome your suggestions so as to improve upon this report further.

## Executive Summary

Green Audit of Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon is conducted by Nutan Urja Solutions, Pune. Based On the audit field study, following important points can be presented.

### 1. Present Energy Consumption

Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon uses Electrical Energy as the source of Energy for various equipment in the college campus. In the following Table, we present the details of Energy Consumption.

**Table no 1: Details of energy consumption**

Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	4,078	3.26
2	Minimum	-	-
3	Average	1,866	1.49
4	Total	22,390	17.91

### 2. Various Measures Adopted for Energy Conservation

1. Usage of STAR Rated ACs at new installations
2. Usage of LED lights at some indoor locations
3. Usage of LED Lights for outdoor lighting.

### 3. Rain Water Harvesting

The College has installed the Rainwater harvesting project, to reduce dependency on municipal corporation water supply.

### 4. Waste Management

The College has already installed a Bio composting Plant, wherein, the bio-degradable waste is composted & is used as fertilizer for the garden.

The internal communication is through emails and hence there is hardly any generation of e-Waste in the premises.

### 5. Notes and Assumptions

1. Daily working hours-10 Nos

2. Annual working Days-250 Nos
3. Average Rate of Electrical Energy : **Rs 11/- per kWh**

## **Abbreviations**

CFL	:	Compact Fluorescent Lamp
FTL	:	Fluorescent Tube Light
LED	:	Light Emitting Diode
V	:	Voltage
I	:	Current
kW	:	Kilo- Watt
kWh	:	kilo-Watt Hour
kVA	:	Active Power

## **1. Introduction**

Godavari Foundation's Godavari Institute of Management and Research is established in 2001 to impart high quality education in the field of Management and Research. The institute is dynamic, vibrant & growth oriented under the guidance of Dr. Ulhas V. Patil, Ex. M.P. Jalgaon who is founder president of Godavari Foundation. GIMR is approved by AICTE, New Delhi & affiliated to North Maharashtra University, Jalgaon.

The institute has dedicated young & highly qualified regular faculty & is assisted by distinguished visiting faculty from industry & professionals. The Institute is also has a panel of eminent management experts and senior practicing managers from diverse fields of management. The Institutional efforts are directed towards extensive interaction with the industry & corporate world so as to assist our students in their placement programmes.

### **1.1 Objectives**

1. To study present level of Energy Consumption
2. To Study the present CO<sub>2</sub> emissions
3. To assess the various equipment/facilities from Energy efficiency aspect
4. To measure various Electrical parameters
5. To study Scope for usage of Renewable Energy
6. To study various measures to reduce the Energy Consumption

### **1.2 Audit methodology**

1. Study of connected load
2. Study of various Electrical parameters
3. To prepare the Report with various Encon measures with payback analysis

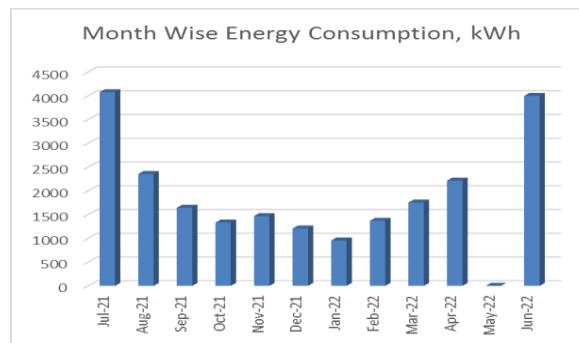
## 2. Study of Electrical Energy Consumption

In this chapter, electricity bills are studied for the analysis of electrical energy consumption.

**Table no 2.1: Summary of electricity bills**

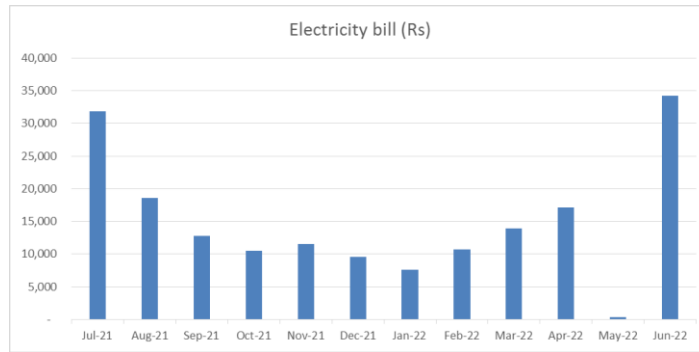
No	Month	Energy (kWh)	Bill Amount (Rs)
1	Jun-22	4000	34235
2	May-22	0	384
3	Apr-22	2217	17169
4	Mar-22	1755	13964
5	Feb-22	1370	10757
6	Jan-22	957	7650
7	Dec-21	1208	9539
8	Nov-21	1471	11517
9	Oct-21	1333	10479
10	Sep-21	1646	12834
11	Aug-21	2355	18604
12	Jul-21	4078	31810
	<b>Total</b>	<b>22390</b>	<b>178942</b>

Variation in energy consumption is as follows,



**Figure 2.1: Month wise energy consumption**

Monthly variation in electricity bill is as follows,



**Figure 2.2: Month wise electricity bill**

Key observations of electricity bill are as follows,

**Table no 2.2: Key observations**

Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	4,078	3.26
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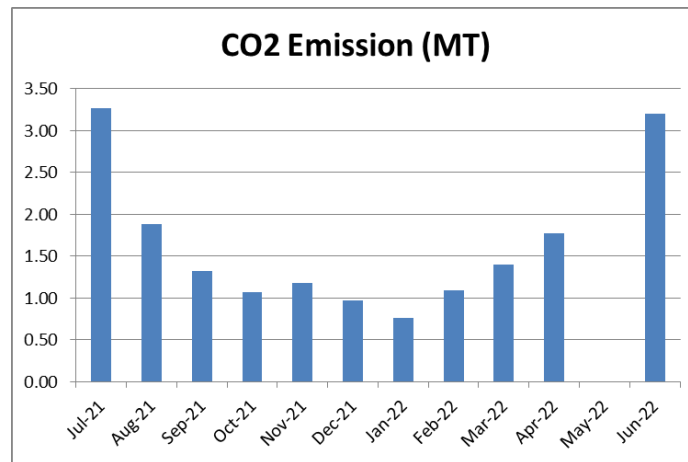
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No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-22	4,000	3.2
2	May-22	-	0.0
3	Apr-22	2,217	1.8
4	Mar-22	1,755	1.4
5	Feb-22	1,370	1.1
6	Jan-22	957	0.8
7	Dec-21	1,208	1.0
8	Nov-21	1,471	1.2
9	Oct-21	1,333	1.1
10	Sep-21	1,646	1.3
11	Aug-21	2,355	1.9
12	Jul-21	4,078	3.3
	<b>Total</b>	<b>22,390</b>	<b>17.9</b>

In the following Chart we present the CO<sub>2</sub> emissions due to usage of Electrical Energy.





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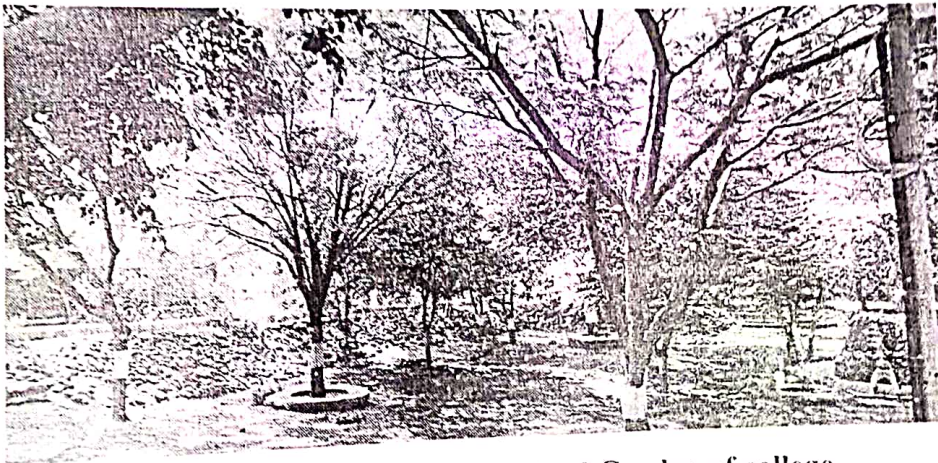


Figure 6.1: Beautiful maintained Garden of college



  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



**Report  
On  
Green Audit  
At  
Godavari Foundation's Godavari Institute Of Management &  
Research, Jalgaon  
(Year 2022-23)**



Prepared by  
**Nutan Urja Solutions**  
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Sr no	Parameter	Energy consumed, (Units)	CO2 Emission (MT)
1	Maximum	5,011	4.01
2	Minimum	-	-
3	Average	1,971	1.58
4	Total	23,649	18.92

### 2. Various Measures Adopted for Energy Conservation

1. Usage of STAR Rated ACs at new installations
2. Usage of LED lights at some indoor locations
3. Usage of LED Lights for outdoor lighting.

### 3. Rain Water Harvesting

The College has installed the Rainwater harvesting project, to reduce dependency on municipal corporation water supply.

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The internal communication is through emails and hence there is hardly any generation of e-Waste in the premises.

### 5. Notes and Assumptions

1. Daily working hours-10 Nos

2. Annual working Days-250 Nos
3. Average Rate of Electrical Energy : **Rs 11/- per kWh**

## **Abbreviations**

CFL	:	Compact Fluorescent Lamp
FTL	:	Fluorescent Tube Light
LED	:	Light Emitting Diode
V	:	Voltage
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kW	:	Kilo- Watt
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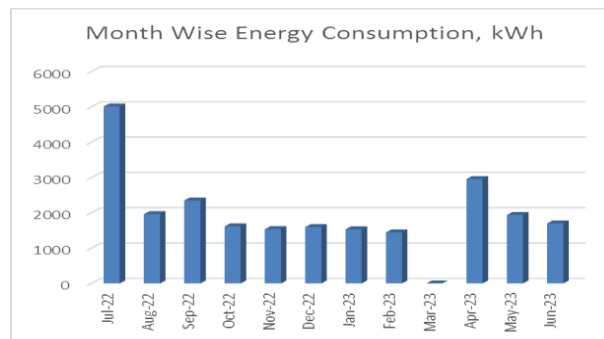
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In this chapter, electricity bills are studied for the analysis of electrical energy consumption.

**Table no 2.1: Summary of electricity bills**

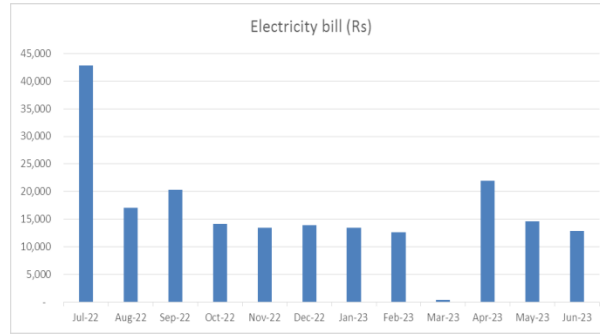
No	Month	Energy (kWh)	Bill Amount (Rs)
1	Jun-23	1700	12,833
2	May-23	1938	14,570
3	Apr-23	2957	22,000
4	Mar-23	0	384
5	Feb-23	1445	12,664
6	Jan-23	1534	13,416
7	Dec-22	1597	13,947
8	Nov-22	1537	13,441
9	Oct-22	1617	14,116
10	Sep-22	2351	20,313
11	Aug-22	1962	17,029
12	Jul-22	5011	42,771
	<b>Total</b>	<b>23649</b>	<b>197484</b>

Variation in energy consumption is as follows,



**Figure 2.1: Month wise energy consumption**

Monthly variation in electricity bill is as follows,



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Key observations of electricity bill are as follows,

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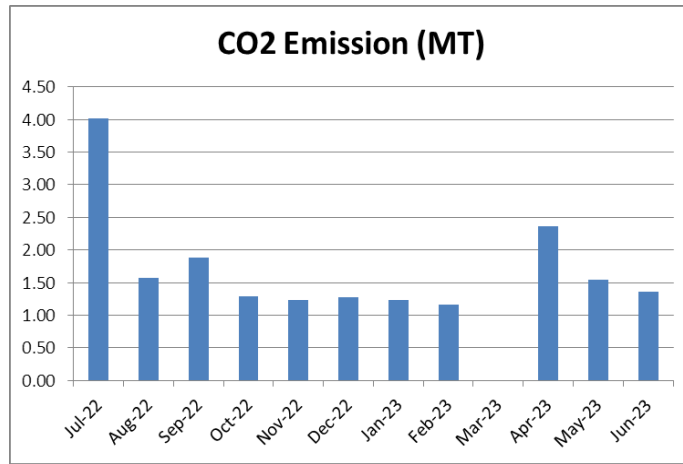
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No	Month	Energy Consumed, kWh	CO <sub>2</sub> Emissions, MT
1	Jun-23	1,700	1.4
2	May-23	1,938	1.6
3	Apr-23	2,957	2.4
4	Mar-23	-	0.0
5	Feb-23	1,445	1.2
6	Jan-23	1,534	1.2
7	Dec-22	1,597	1.3
8	Nov-22	1,537	1.2
9	Oct-22	1,617	1.3
10	Sep-22	2,351	1.9
11	Aug-22	1,962	1.6
12	Jul-22	5,011	4.0
	<b>Total</b>	<b>23,649</b>	<b>18.9</b>

In the following Chart we present the CO<sub>2</sub> emissions due to usage of Electrical Energy.



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**Report**  
**On**  
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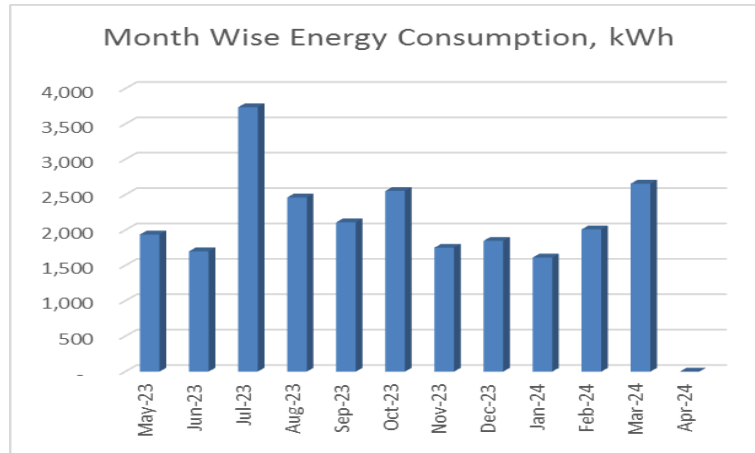
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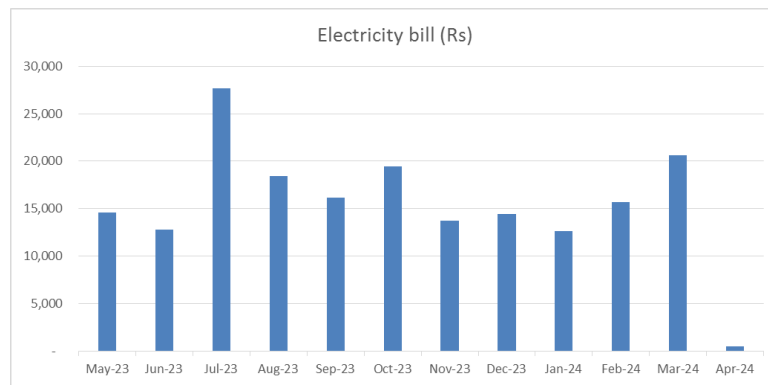
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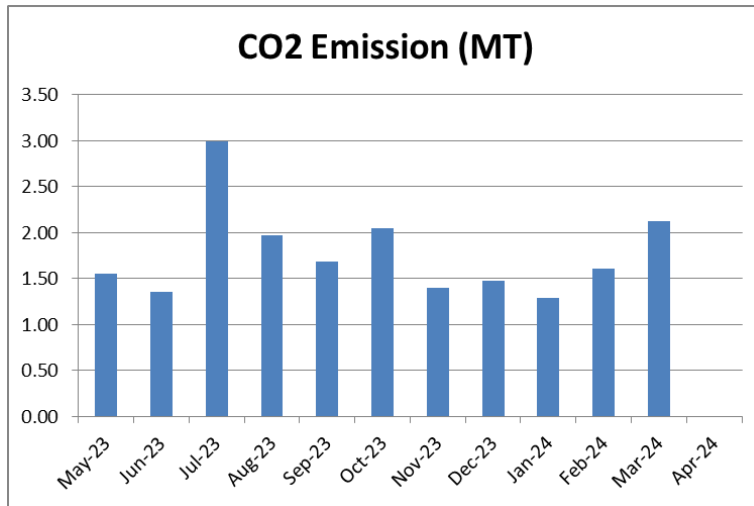
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# Nutan Urja Solutions

(ISO 9001:2015, ISO 50001:2018, ISO 14001:2015,  
ISO/ IEC 17020:2012)

A 703, Balaji Witefield, Near Sunni's World,  
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Phone: 83568 18381. Email: [nutanurja.solutions@gmail.com](mailto:nutanurja.solutions@gmail.com)



Date: 14/11/2022

## CERTIFICATE

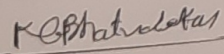
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- Usage of Energy Efficient BEE STAR Rated equipment

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green.

Nutan Urja Solutions,



K G Bhatwadekar,

Certified Energy Auditor,

EA - 22428





# Nutan Urja Solutions

A 703, Balaji Witefield, Near Sunni's World,

Sus Road, Sus, Pune 411 021

Phone: 83568 18381. Email: [nutanurja.solutions@gmail.com](mailto:nutanurja.solutions@gmail.com)

Date: 19/08/2023

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Date: 01/07/2024

## CERTIFICATE

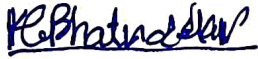
This is to certify that we have conducted Energy Audit at Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon as per the guidelines of Maharashtra Energy Development Agency ([www.mahaurja.com](http://www.mahaurja.com)) in the year 2023-24.

The College has already adopted **Energy Efficient** practices like:

- Usage of Energy Efficient LED Fittings
- Usage of Energy Efficient BEE STAR Rated equipment

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green.

Nutan Urja Solutions,



K G Bhatwadekar,

Certified Energy Auditor,

EA - 22428



  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon

# Nutan Urja Solutions

(ISO 9001:2015, ISO 50001:2018, ISO 14001:2015,  
ISO/ IEC 17020:2012)

A 703, Balaji Witfield, Near Sunni's World,

Sus Road, Sus, Pune 411 021

Phone: 83568 18381. Email:  
[nutanurja.solutions@gmail.com](mailto:nutanurja.solutions@gmail.com)



Date: 14/11/2022

## CERTIFICATE

This is to certify that we have conducted Environmental Audit at Godavari Foundation's Godavari Institute Of Management & Research, Jalgaon in the year 2021-22.

The College has already adopted following projects for making the campus **Energy Efficient**.

- Installation of Bio Composting Pit
- Installation of Rain Water Harvesting System

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Nutan Urja Solutions,

*K G Bhatwadekar*

K G Bhatwadekar,  
Certified Energy Auditor,  
EA – 22428



*[Signature]*  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



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Sus Road, Sus, Pune 411 021

Phone: 83568 18381. Email: [nutanurja.solutions@gmail.com](mailto:nutanurja.solutions@gmail.com)

Date: 19/08/2023

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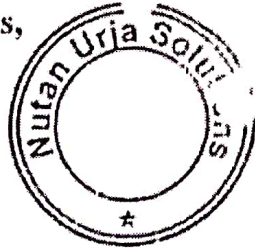
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*[Signature]*  
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Godavari Institute of Management  
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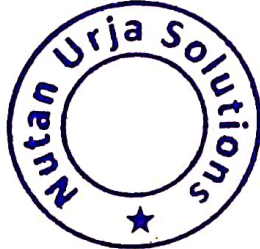
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K G Bhatwadekar,  
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EA – 22428

*P. M. W.*

**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



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(ISO 9001:2015, ISO 50001:2018, ISO 14001:2015,  
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Date: 14/11/2022

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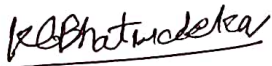
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- Installation of Bio composting pit
- Usage of Energy Efficient LED
- Usage of Energy Efficient BEE STAR Rated equipment

We appreciate the support of Management, involvement of faculty members and students in the process of making the campus Green.

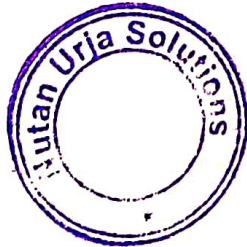
Nutan Urja Solutions,




K G Bhatwadekar,

Certified Energy Auditor,

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**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon

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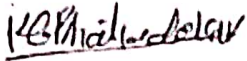
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DIRECTOR

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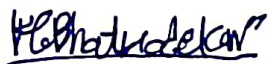
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**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon







Godavari Institute Of Management And Research Jalgaon



# World Environment Day 5<sup>th</sup> June

World Environment Day is celebrated every year on June 5<sup>th</sup>, 2024 to raise awareness about environmental issues and encourage global action to protect our planet. It works as a platform to promote environmental conservation and sustainable development practices worldwide. Each year, World Environment Day has a specific theme to focus attention on a particular environmental concern, such as biodiversity loss, plastic pollution, climate change, or sustainable consumption.

Godavari institute of management and research Jalgaon hosts a national-level poster competition for World Environment Day to engage people of all ages and backgrounds in raising awareness about environmental issues.

Godavari institute of management and research was organizing this competition to attract participants from across the nation, showcasing a wide range of perspectives on environmental conservation. It's an opportunity to highlight the importance of environmental stewardship and encourage sustainable practices through visual communication.

Participants could create posters that focus on themes like biodiversity conservation, climate change mitigation, renewable energy adoption, waste reduction, or any other pressing environmental issue. Judging criteria could include creativity, message clarity, relevance to the theme, and overall impact.

Overall, a national-level poster competition for World Environment Day can be a powerful way to mobilize people and promote a collective effort towards a healthier planet.

Participants from different regions of all over India are taking part in the competition. This diversity not only brings together a wide range of perspectives but also showcases the collective commitment towards environmental awareness and action across the nation. With 25 participants from various regions, the competition becomes a platform for cultural diversity and creativity in addressing environmental issues. Each participant's unique background and



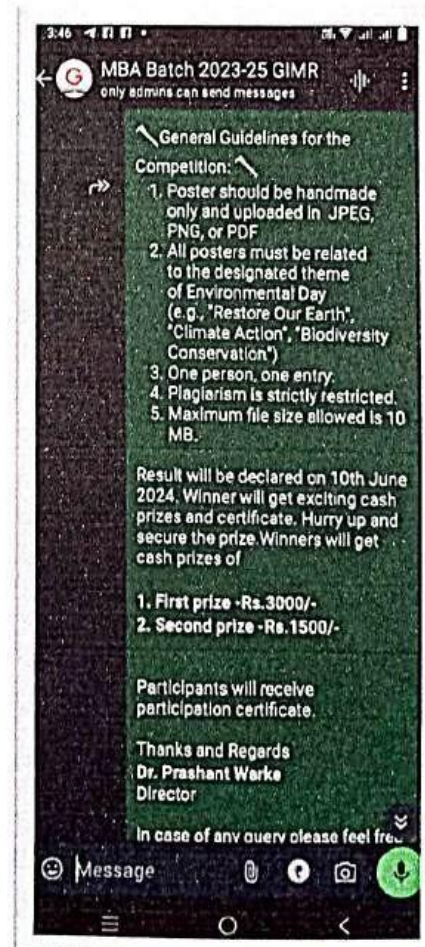


# Godavari Institute Of Management And Research Jalgaon

experiences can influence their artwork, bringing forth different interpretations and solutions to environmental challenges. National-level competition not only fosters healthy competition but also promotes collaboration and learning among participants. It's an opportunity to exchange ideas, learn from each other's perspectives, and inspire each other to make a positive impact on the environment. Participants are asked to submit their posters using a link provided in a Google Form. This approach is quite common for collecting digital content like posters for events because in this period students having holidays so that it is the easiest way to collect the posters online.

In this competition , first prize of Rs.3000 was given to Sneha Narad from GIMR Jalgaon and second prize of Rs.1500 was given to Anirban Maiti From COE ,Kolaghat(Kolkata) through RTGS to their bank.

Ultimately, initiatives like this poster competition play a crucial role in raising awareness, fostering creativity, and mobilizing collective action towards environmental conservation. It's a commendable effort to celebrate World Environment Day and inspire meaningful change nationwide.



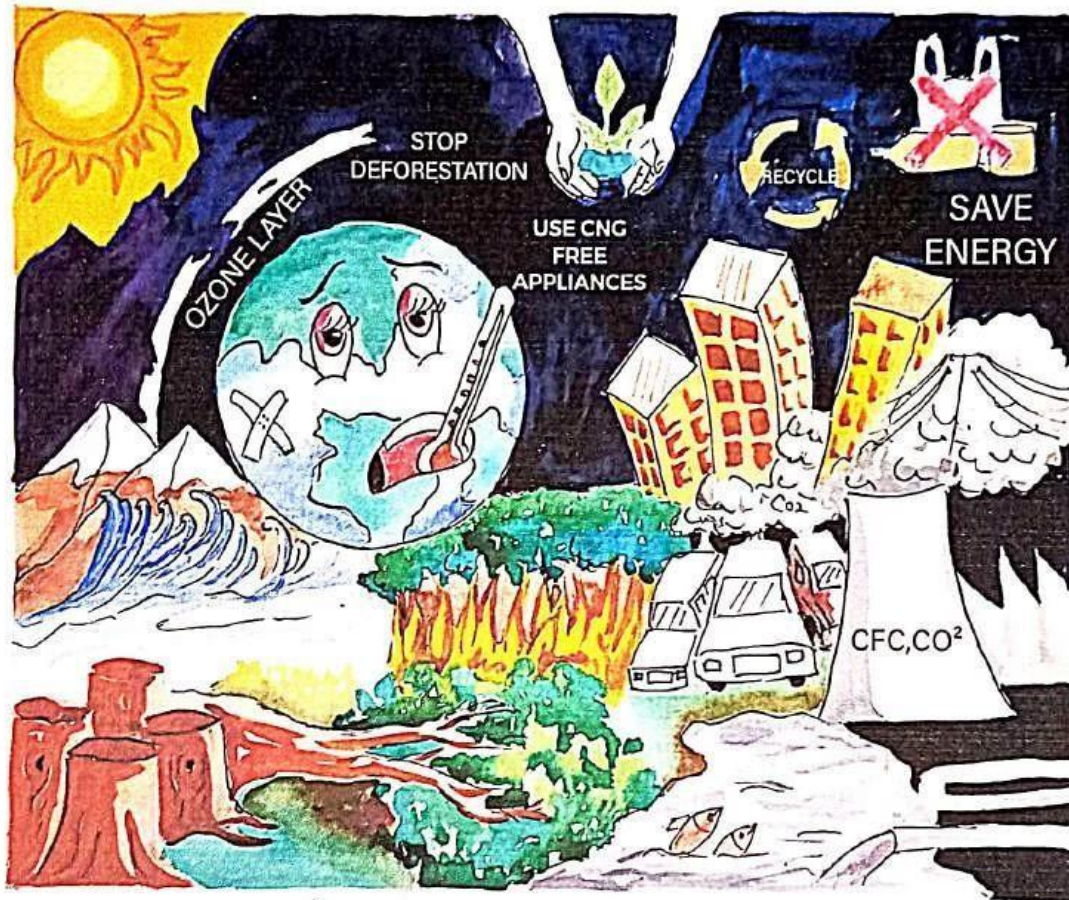
  
Director,

Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon





Godavari Institute Of Management And Research Jalgaon



Second Winner  
Anirban Maiti

  
Director,  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



# Environment day 2024

Godavri Institute of Management and Research Jalgaon

\* Indicates required question

1. Email \*

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2. Name of the Student \*

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3. Name of the college \*

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4. City \*

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5. RollNo \*

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DIRECTOR  
Godavri Institute of Management  
& Research, Jalgaon

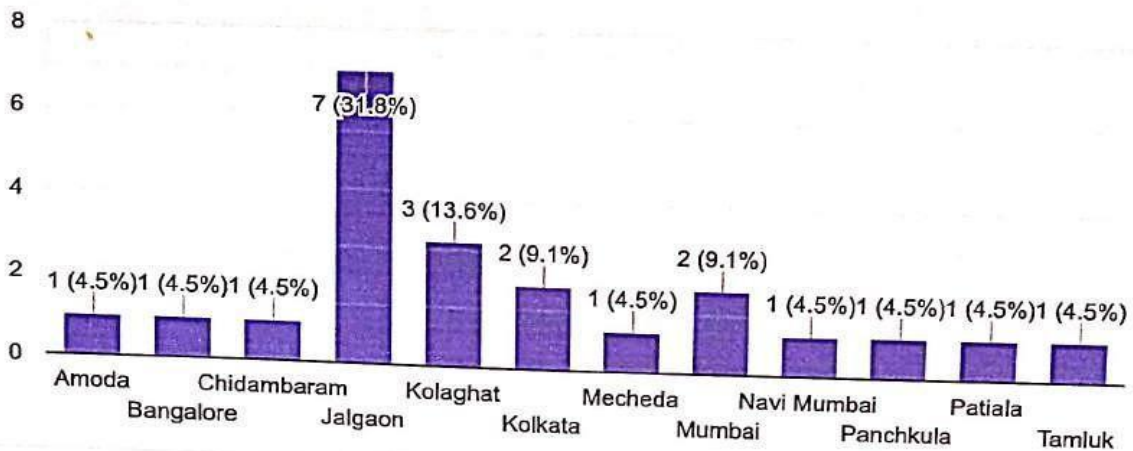


Dr Varsha Patil women's College of Computer Application

City

22 responses

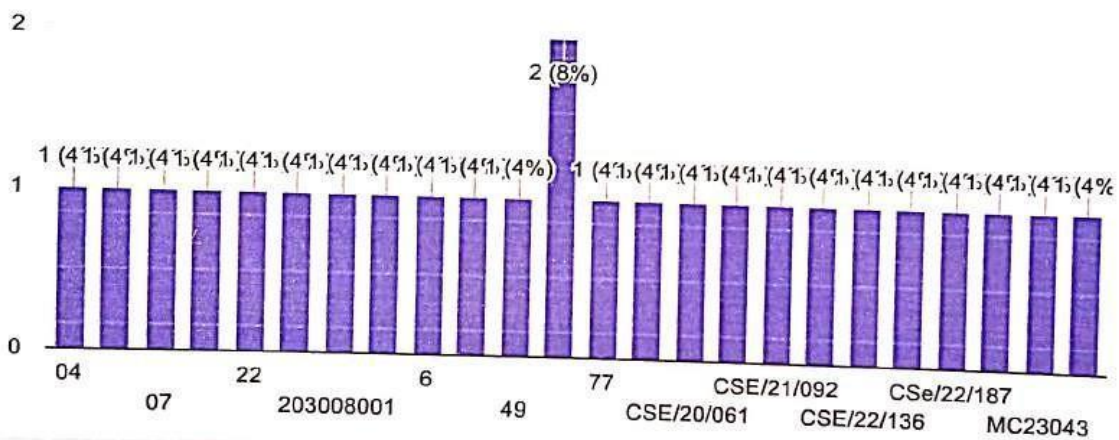
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RollNo

25 responses

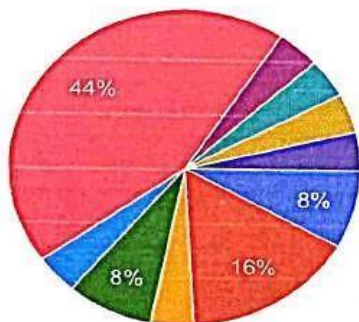
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Course

25 responses

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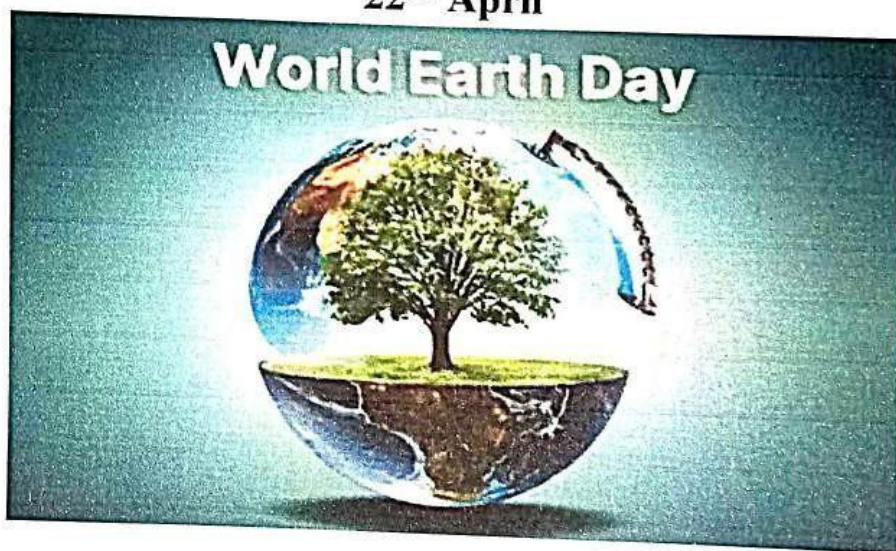
- BBA
- BCA
- B.Sc.
- MBA
- MCA
- MBA(HHM)
- Engineering
- Pharmacy

▲ 1/2 ▼



# World Earth Day

22<sup>nd</sup> April



Earth Day is indeed celebrated annually on April 22nd. It serves as a reminder of the importance of environmental conservation and sustainability. Each year on April 22, billions of people across the globe join together to raise awareness about environmental protection. Earth Day originated in the United States in 1970 and has since grown into a global event celebrated by millions of people in various countries around the world.

Each year, it adopts a specific theme to spotlight urgent environmental concerns. In 2024, the theme "Planet vs. Plastics" underscores the imperative for collaborative efforts to restore ecosystems, address climate change, and safeguard biodiversity. "Planet vs. Plastics" that would emphasize the urgent need to address the issue of plastic pollution and its impact on the environment. It focuses on raising awareness about the detrimental effects of plastic waste on ecosystems, wildlife, and human health, as well as promoting solutions to reduce plastic consumption, increase recycling efforts, and advocate for policies that minimize plastic pollution. This theme aligns with the global movement to combat plastic pollution and promote a more sustainable relationship with our planet.

On this occasion Godavari Institute of Management and Research organizes various activities like Seeds Collection Drive (Seed Activity), Plantation Activity in college campus and E waste







## Godavari Institute Of Management And Research Jalgaon

collection etc. BBA and BCA students gather for the tree plantation which done by students. All staff members are present for tree plantation.

Engaging youth and faculty members in activities focused on sustainable development is crucial for fostering a culture of environmental stewardship and responsibility. By involving the younger generation and educators in such initiatives, we can instill a sense of awareness, responsibility, and commitment to sustainable practices that can have a lasting impact on the future of our planet. These activities not only raise awareness about pressing environmental issues but also empower individuals to take action in their daily lives to reduce their ecological footprint and promote sustainability. Moreover, by involving youth and faculty members, we can tap into their creativity, innovation, and energy to develop new ideas, solutions, and initiatives for addressing environmental challenges. By nurturing their passion and enthusiasm for sustainability, we can inspire a new generation of environmental leaders who are committed to creating a more sustainable and resilient future for all.



  
Director,  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon







# JAL-JAGRUTI SAPTAH

16<sup>TH</sup> March-22<sup>nd</sup> March 2023

On 22<sup>nd</sup> March World water day is celebrated throughout the World. According to this Government of Maharashtra Announces 'Jal-Jagruti Saptah' from 16th March to 22nd March 2024 . Regarding this, Godavari Institute of Management and Research was organizes comprehensive and engaging set of activities for the "Jal-Jagruti Saptah" event which carried out during 16th March to 22nd March 2024 . During the weeklong event college organized Essay competition , Poetry competition and and poster presentation on this occasion.

Essay competition provides an opportunity for students to delve deeply into the topic of water conservation and management. Participants can explore various aspects of the issue, such as the importance of water, challenges faced in its conservation, innovative solutions, and the role of individuals and communities in water stewardship. This competition encourages critical thinking, research skills, and effective communication, empowering students to become advocates for sustainable water practices.

A poetry competition adds a creative dimension to the event, allowing participants to express their thoughts, emotions, and reflections on water through the art of poetry. Poetry has a unique ability to evoke empathy and inspire action, making it a powerful medium for raising awareness about environmental issues. Participants can explore themes such as the beauty of water, its significance in our lives, the impact of water scarcity, and the need for conservation efforts. This competition fosters artistic expression, imagination, and empathy among students, while also highlighting the importance of incorporating the arts in environmental education.

Poster presentation provides students with a platform to visually communicate key messages related to water conservation and management. Participants can create informative and visually appealing posters that highlight important facts, statistics, and messages about water conservation, sustainable practices, and the importance of protecting water resources. Poster presentations encourage creativity, research skills, and effective visual communication, while also serving as educational tools for raising awareness among the broader community. Incorporating these activities into the Jal-Jagruti Saptah event, the college fosters a holistic approach to water conservation education, catering to diverse interests and learning styles. These competitions empower students to engage deeply with the issue of water conservation, fostering a sense of responsibility and inspiring action towards a more sustainable future. Organizing



  
DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon



events like the Jal-Jagruti Saptah demonstrates a proactive approach towards addressing water-related issues and fostering a sense of responsibility among individuals and communities.

Also Dr. Prashant Warke sir take lecture on this week-long event about water conservation ,importance of water etc. Ms. Bhumika Nale's welcoming of Director Dr. Prashant Warke sets a positive tone for the Jal-Jagruti Saptah event. Welcoming dignitaries like Dr. Prashant Warke not only honors their presence but also acknowledges their expertise and leadership in the field of water management and research. As a director, Dr. Warke's involvement likely signals the institution's institutional support and leadership in promoting initiatives like the Jal-Jagruti Saptah.

Ms. Mansvi Pardeshi's speech on water reservation is a crucial aspect of the Jal-Jagruti Saptah event, as it sheds light on the importance of preserving water resources for future generations. Her speech likely addresses various facets of water reservation, including the need for effective policies, sustainable practices, and community involvement.

In her speech, Ms. Pardeshi may highlight the following points-

- Importance of Water Reservation
- Sustainable Water Management
- Role of Community Participation
- Challenges and Solutions

Mansvi Pardeshi's speech serves as a call to action, inspiring individuals and communities to actively participate in water reservation efforts and contribute to a more sustainable and water-secure future.

In the voice of Mr. Ganesh Wani, this poem would likely resonate deeply, drawing attention to the beauty, importance, and fragility of water, while also urging listeners to take action to preserve and protect this precious resource for generations to come

Dr. Prashant Warke's words encapsulate the gravity of the situation while inspiring hope and action among the attendees. His emphasis on collective responsibility and the importance of proactive measures underscores the urgency of addressing water-related challenge.

Ms. Bhumika concluded the program with a special word of thanks to our students whose dedication, creativity, and passion have brought life to this event. Your commitment to the cause of water conservation is truly commendable, and I am confident that your efforts will inspire many others to join the movement towards a sustainable future.

Ms. Bhumika Nale's vote of thanks acknowledges the contributions of all stakeholders involved in the event while inspiring continued commitment to the cause of water conservation.

  
Director,  
Dr. Prashant S. Warke

**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon







**DIRECTOR**  
 Godavari Institute of Management & Research, Jalgaon

Name - Sonawane Ashwini Devanand

Roll No. - 77.

Class - MBA II<sup>nd</sup>

Topic - Essay on Water  
Conservation.





## Essay on Water Conservation

"When the well is dry,  
we know the worth of water!"

- Benjamin Franklin.

Water, the elixir of life, is an invaluable resource that sustains all living beings on Earth. Yet, despite covering 71% of Earth's surface, only 2.5% of freshwater is available for human consumption. As population increases and climate change intensifies, securing this precious resource is becoming ever more critical. The world is facing an escalating water crisis due to over-exploitation, population and climate change.

The harsh truth of water scarcity is that more than two billion individuals worldwide do not have access to clean drinking water. If current trends continue, by the year 2025, two-third of the global population could experience water scarcity. The effect of climate change are significantly impacting precipitation patterns, resulting in more frequent occurrences of droughts & floods. Furthermore, population continues to render vast quantities of water unfit for consumption.

The consumption for water sources





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# Report on National Pollution Control Day & World Computer Literacy Day

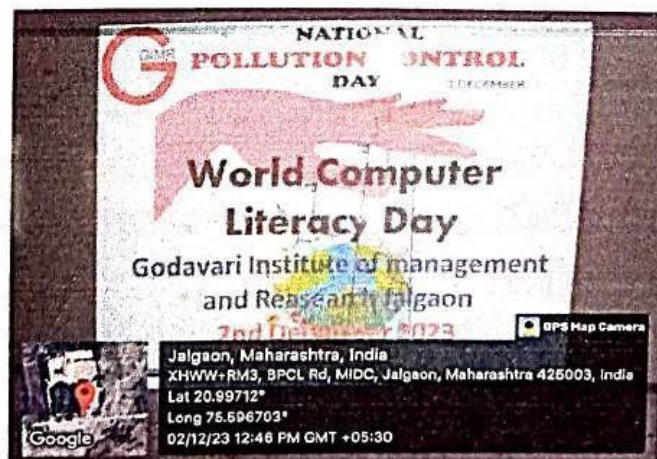
2<sup>nd</sup> December 2023

National Pollution Prevention Day is observed annually on December 2nd. In memory of the people who lost their lives in the 1984 Bhopal gas tragedy. The horrific industrial accident took place due to the leak of methyl isocyanate gas in the union carbide India limited (UCIL) pesticide plant on the night of December 2-3 thousands of people were killed due to the toxic gas spread. Bhopal gas tragedy is said to be one of the world's worst industrial disasters to date. The aftereffects of the tragedy were also very severe as increased cases of cancer and birth defects were reported. The Bhopal gas tragedy showed that the pollution and presence of toxic gases in the environment can be hazardous. The day also aims to spread awareness about the prevention of natural resources like air, soil, noise, and water pollution.

World computer Literacy day was first celebrate in 2001 to literate the people in computer. Most of people were unknown about the use of computer for this purpose every year on 2<sup>nd</sup> December world computer literacy day is celebrated.

Godavari institute of management and research organizes the day by compititon of making paper bags. The program was started with welcome speech by Mrs. Charushila Chaudhari. Hon. Director Prashant Warke , all staff members and students welcome made by charushila chaudhari. Also she told about the overall history about the day.

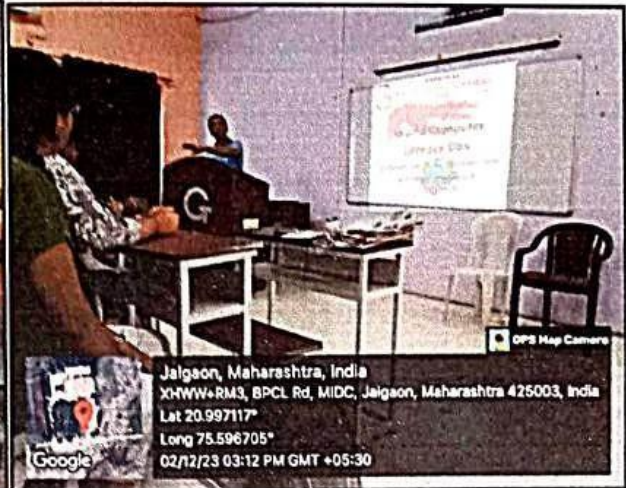
Dr.Prashant Warke explain the importance of the day that how human being polluted the environment, use of paper bags, disadvantages of using polthyne bags. In the last session Mrs.Tanvir Sayyed express vote of thanks. For this program, 30 students are present.



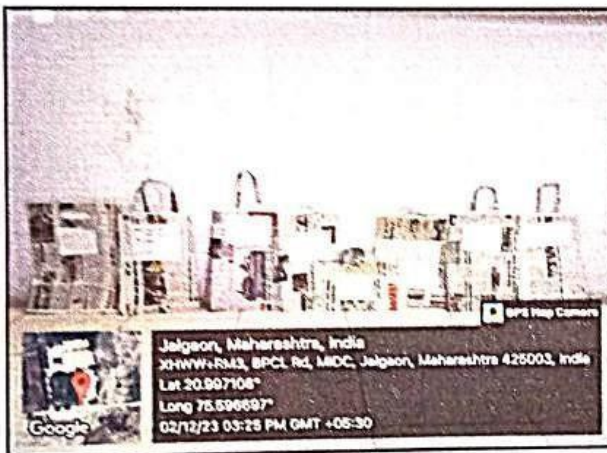
*P. Warke*  
DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon



# Godavari Institute of Management and Research, Jalgaon



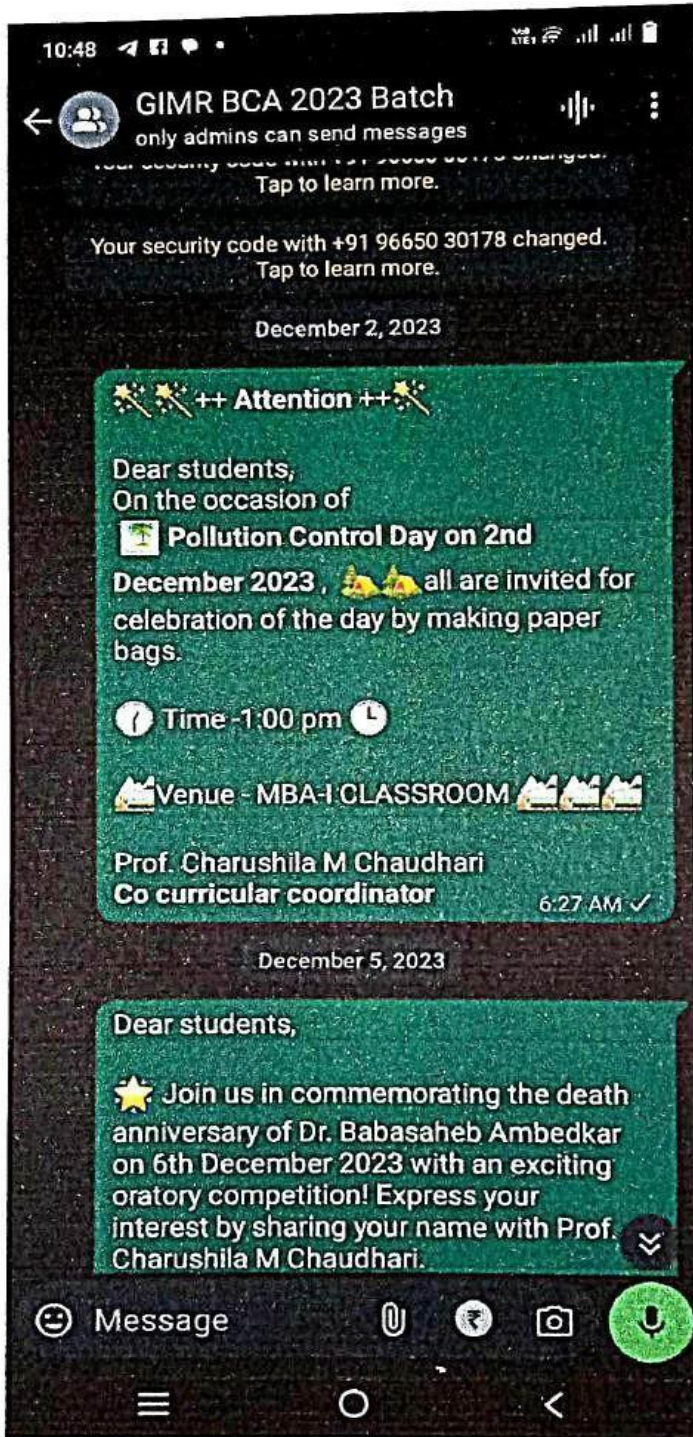
## Paper bags made by Students



  
**Director,**  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



# Notice

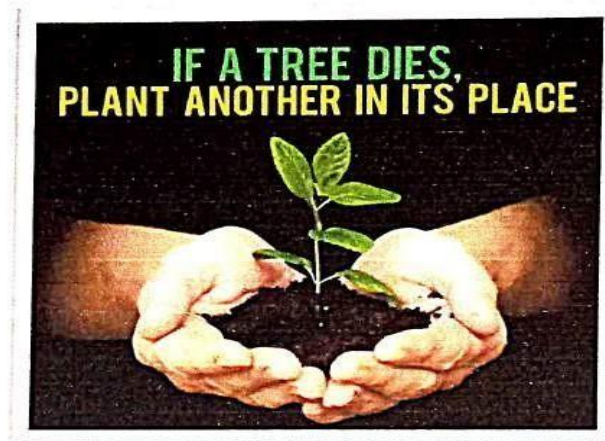


  
DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon

# Report on Tree plantation

**Held on:** 13 July 2023

**Venue:** GIMR campus



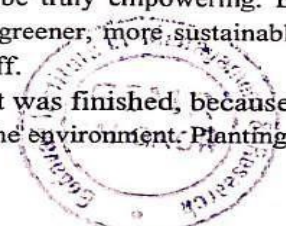
Deforestation became a major problem for increasing global warming rate. Trees play an extremely important part in regulating the temperature and making the weather conditions conducive to rainfall. Tree plantation is the best activity we can do on our special occasions. Humans always feel connected with nature when he is surrounded by greenery.

On 13 July 2023, Godavari Institute of management and Research jalgaon and Rotry Club Jalgaon Elite organized an event on "Tree Plantation". Honorable Director Dr. Prashant Warke and all staff members were present for the event.

The event was beginning with the welcoming of guest Honorable Mr. Ajit Mahajan member of rotary club elite of rotary club. Dr. Prashant Warke explained about the importance of plantation and has motivated staff to plant trees and conserve them every day. The event aimed to plant 10 – 15 trees around the campus in MIDC area Jalgaon.

Gathering after such motivational speeches must have infused everyone with a sense of purpose and responsibility. Moving towards the tree plantation site reflects a collective commitment to action, where words translate into tangible efforts for the environment. As you walk toward the planting area, envisioning the transformation those saplings will bring to the landscape and ecosystem can be truly empowering. Each step carries the weight of hope and determination, symbolizing the beginning of a greener, more sustainable future. Trees were planted by all Staff including Teaching and Administrative staff.

All were happy and experience proud after the tree plantation event was finished, because There's a unique satisfaction that comes from knowing you're contributing positively to the environment. Planting trees



  
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Godavari Institute of Management  
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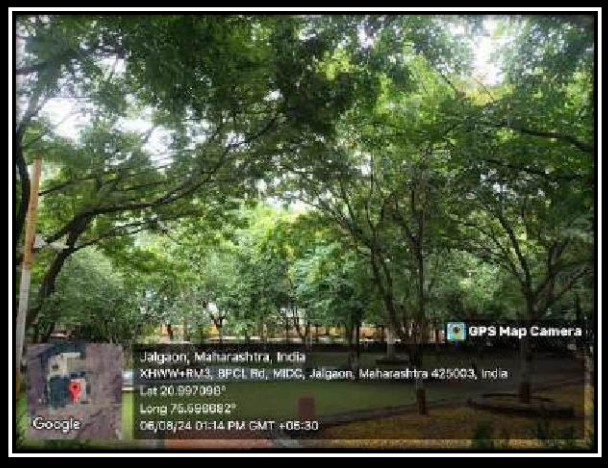
not only benefits nature but also has ripple effects on communities and future generations. It's a tangible way to make a difference and leave a lasting impact on the world around us. Plus, being out in nature, getting your hands dirty, and actively participating in conservation efforts can be incredibly fulfilling and rejuvenating. Keep up the fantastic work, and may your actions inspire others to join in caring for our planet.



  
Director,  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
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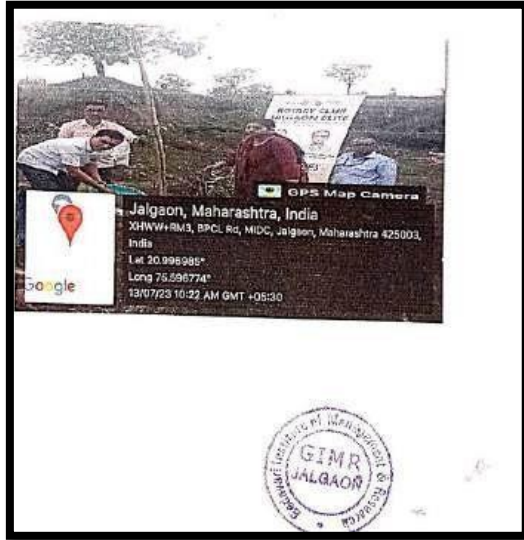


greenandcleancampus

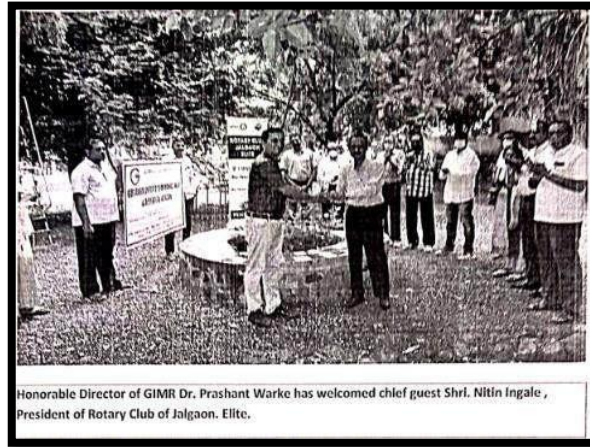


*Prashant S. Warke*  
**Director,**  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon

Treeplantation23-24



Treeplantation22-23





Godavari Institute of Management and Research, Jalgaon

# Energy Conservation Day

14<sup>th</sup> December

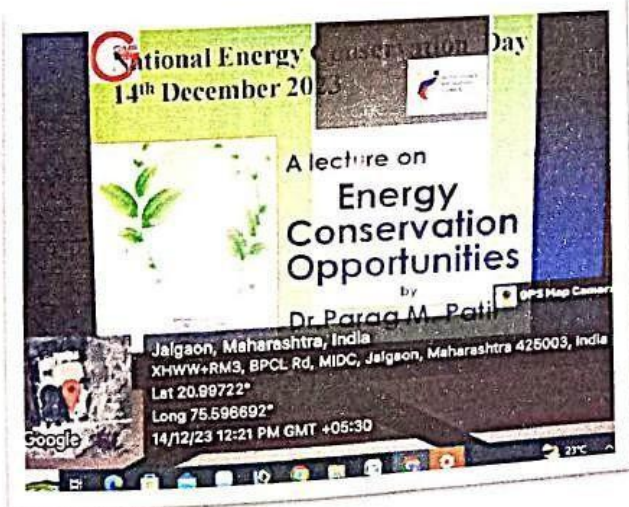
The National Energy Conservation Day is celebrated on December 14 every year, in order to spread the message on the importance of conserving energy and to showcase the achievements of the nation in energy efficiency and conservation. The National Energy Conservation Day being organized by the Bureau of Energy Efficiency (BEE), under Ministry of Power, Government of India, which is mandated as per the Energy Conservation Act 2001, to regulate and promote energy efficiency and its conservation in India.

National Energy Conservation Day 2023 Slogans are Save Energy, Save Money, Save Nation, Save the planet. Reduce, Reuse and Recycle the energy. More the energy is conserved more are the chances of saving the planet. Rock your world by saving energy.

On this day Godavari institute of management organizes guest lecture of Dr. Parag Patil Sir who is I/C Principal and HOD of Civil Dept govt. Polytechnic College Jalgaon on topic "Energy Conservation Opportunities" on zoom app.

Mrs. Charushila Chaudhari welcomes Dr. Parag Patil Sir in Zoom meet. He gave the useful information to students about the energy conservation and the opportunities of it. He told about the various types of energy conservation, how people apply the energy conservation. Also he told about the various schemes about the energy conservation. In all over program 90 students were present for the lecture.

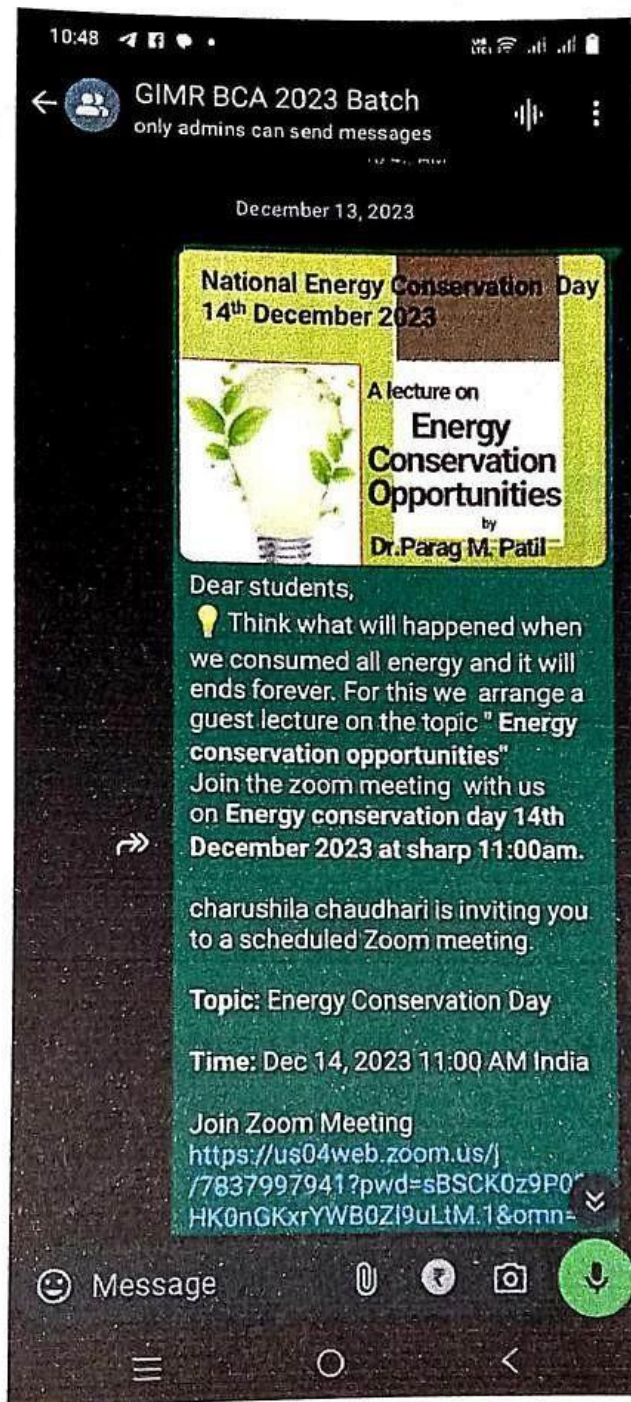
At the end of the program, Mrs. Charushila Chaudhari express vote of thanks towards Dr. Parag Patil sir and endever the program.



DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon



# Notice



*P. Patil*  
DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon

# Godavari Institute of Management and Research, Jalgaon



  
Director,  
Dr. Prashant S. Warke  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon



**GODAVARI FOUNDATIONS'**  
**GODAVARI INSTITUTE OF MANAGEMENT AND RESEARCH**  
**JALGAON.**

REPORT  
ON  
"MAHARASHTRA KRISHI DIN 2021" &  
"GIMR'S TREE PLANTATION PROGRAM 2021"

Date: 01/07/2021

Today, 1<sup>st</sup> July 2021, in GIMR "TREE PLANTATION PROGRAM" was held on occasion of "MAHARASHTRA KRISHI DIN". The event commenced at 10:30 a.m. On this occasion, GIMR has invited staff of Rotary Club of Jalgaon, Elite.

As we know trees greatly contribute to the Environment by providing oxygen, improving air quality, preserving soil. Being a tree oxygen provider it plays vital role in such a worst situation of pandemic environment.

On this auspicious day, honorable Director of GIMR has welcomed president of Rotary club of Jalgaon, Elite. Shri Nitin Ingle. It is to note here that Professor M. K. Godbole has welcomed secretary of Rotary club of Jalgaon, Elite. Shri. Sandip Asodekar. GIMR has extended vote of thanks to members of Rotary club of jalgaon, Elite. Namely,

1. Rtn. Laxmikant Maniyar
2. Rtn. Dr. Vaijayanti Padhye
3. Rtn. Rajiv Biyani
4. Rtn. Bhupendra Wani
5. Rtn. Sachin Patil
6. Rtn. Shriram Pardeshi
7. Rtn. Ajit Mahajan
8. Rtn. Chandan Kolhe



"TREE PLANTATION PROGRAM" was concluded by Prof. Ashwini Sonawane, Assistant Professor, GIMR. The Program on Tree Plantation Program was attended by faculty members, officers and staff, actively participated in the event.

  
DIRECTOR  
Godavari Institute of Management  
& Research, Jalgaon



**GIMR OFFICIAL**

Aafrin, Anubhuti, Bhagyashree, Gl...



**\*\*\*PROGRAM NOTICE\*\*\***

All Teaching and Non Teaching staff members are hereby informed that a program has been scheduled on **01/07/2021, at 10:30 am.** on the occasion of **Tree Plantation Program** in collaboration with **Rotary Club of Jalgaon Elite**

You are requested to attend it.

**Plant a tree and plant a hope for future**

Cordinator  
Prof. Ashwini Sonawane  
Co- curricular committee

3:43 pm ✓✓

Bhagyashree Maam GIMR

Yes mam

4:54 pm

Type a message





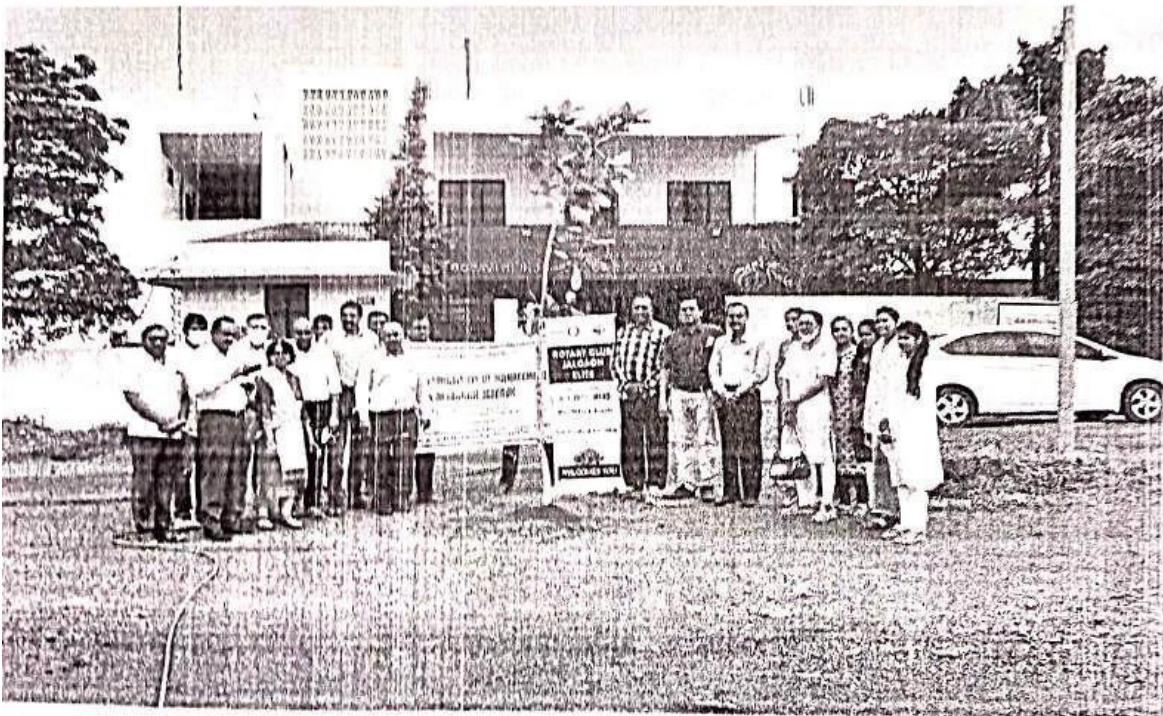
**MAHAKRISHI DIN 2021**

**GIMR'S TREE PLANTATION PROGRAM 2021**

**01 July 2021**



Honorable Director of GIMR Dr. Prashant Warke has welcomed chief guest Shri. Nitin Ingale , President of Rotary Club of Jalgaon. Elite.



Assembly of all Teaching staff with Director of institute and Members of Rotary Club of Jalgaon, Elite. On The occasion of "Tree Plantation Program."







*P. S. W.*  
**DIRECTOR**  
Godavari Institute of Management  
& Research, Jalgaon