The International Centre of Excellence in Engineering and Management (ICEEM)

ELECTRICAL AUDIT

The International Centre of Excellence in Engineering and Management (ICEEM)

Approved by,
Incubation Centre,
Nutan Mahavidyalaya, Selu

2022-23

Introduction:

The International Centre of Excellence in Engineering and Management Aurangabad was established in the year 2011. The ICEEM is recognized by the NAAC and approved by AICTE. The university offers various courses in multiple fields at The college received a "B" grade from the NAAC in 2017and was granted "B" grade in 2017.. The college has excellent, highly qualified & dedicated faculties with good infrastructure, disciplines and competent administration with the track of good results in all the disciplines.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory from the academic year 2016-17 onwards that all Higher Educational Institutions should submit an annual Energy Audit Report. Also it is our responsibility to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures. In view of the NAAC circular regarding Green Auditing, the College Management decided to conduct an external Green Evaluation by a competent Green Auditor along with a Green Audit Assessment Team headed by Dr. C. S Padmavat, Campus Director, International Centre of Excellence in Engineering and Management Aurangabad.

Objectives:

- To determine the electricity consumption in the campus.
- To increase the renewable energy sources in the campus area.
- To assess whether the measures implemented by International Center of Excellence in Engineering & Management, Aurangabad has helped to reduce the Carbon Footprint.
- To assess whether non-academic activities of the Institution support to Collection, recovery, reuse and recycling of solid wastes etc. which is harmful to the environment.
- Suggestions & recommendations to improve the Green Campus status of the institution.

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Team Members:

The following are the members of the Green Audit Team.

Sr. No	Name of Faculty	Designation
1	Dr. C. S. Padmavat	Campus Director
2	Prof. H. L. Jadhav	Director
3	Prof. V. B. Shikhare	HOD Civil
4	Prof. S. S. Rathod	HOD, EEE
5	Prof. S. G. Tathe	Coordinator
6	Prof. S. Gawande	Faculty of Civil

Energy Consumption in the Campus

There are five (5) number of electricity meters in the campus. There brief information as follows:

Sr. No	Meter No	Place in Campus
1	X1862084	Main Transformer
2	21083916	Main Transformer
3	7124816	Wing C
4	20062158	Workshop Main Panel
5	450446	Canteen

Sr. No	Name of Particulars	Total No.
1	Total No. of Electrical fans.	309
2	Exhaust fans	11
3	Air Conditioner	7
4	Total No. of Tubes	192
5	Total No. of LED lamps	159
6	Street LED focus	21
7	Total No. of CFL lamps	34

	8 Water Motor	5 HP 1 3 HP 1 15 HP 2 1 HP 1 0.5 HP 8
9	RO Motor	1
10	Water Cooler	8
11	No. of Computer	320
12	No. of Printers	15
13	Xerox Machine	2
14	Inverter	0
15	LCD TV	1
16	Smart Board	2
17	LCD Projectors	15
18	Generator	1

Average Electricity Consumption / Month= 8333 unit

Use of Renewable Energy: There are 93 Solar units are working. Each one has 540 W power. Therefore, total Power receive from solar energy is 50 kW .

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Roof Top Solar

Water Heater

CARBON FOOTPRINT REDUCTION

Carbon footprint *is historically defined as the total set of greenhouse gas emissions caused by an individual, event, organization or product, expressed as carbon dioxide equivalent.*

1. Installing energy-efficient lighting system

The Institution has reduced CO2 emissions indirectly by replacing high energy-consuming electric bulbs with energy-efficient CFL/LED Lamps & tubes lighting systems. To understand the carbon emission reduction, it is appropriate to compare the units of electricity consumed between incandescent lamps and CFL.

The brief explanations of the above statement is as follows

Total no. of incandescent lamps used earlier 50 Average energy consumption by an incandescent lamp 60 W

Energy consumed by lamp is 60X50=3000 watt per hour.

Energy consumed by 50 lamps for 6 hr/day 15 kW hr or 15 units

We consider 300 days in a year then 15 kW hrX300 4500 kW hr /year Energy consumption of 50 lamps for 300 days/year 4500 kW hr or 4500 units.

50 incandescent lamps are replaced with 50 CFL

Average energy consumption by CFL lamp 15W

Energy consumed by CFL is 15X50= 750 Watt per hour

Energy consumed by 50 CFL for 5 hr/day 750 X5 = 3.750 kW hr per day

Energy consumption of 50 CFL for 300 days/year 1125 kW hr or 1125 units.

Energy saved by CFL for 300 days/year 4500-1125=3375 kW hr or 3375 Units

Carbon Footprint reduction analysis

1 incandescent bulb consumes 90 units of energy; 1 CFL bulb consumes 22.5 units of energy.

First, it is appropriate to analyses the carbon emission due to consumption of 4500 units of electricity by 50 incandescent lamps per year. The standard tool of analysis employed in this Green Audit is coal equivalent of electricity.

0.538 kg of coal is required to produce 1 unit of electricity.

Total units of electricity consumed by 50 incandescent lamps 4500 units.

Coal equivalent of 4500 units (4500 x 0.538 kg coal) = 2421 kg or 2.4 tonnes.

1 kg coal emits 2.86 kg CO: into the atmosphere. At this rate, 2421 kg coal emits (2421 x 2.86) = 6924 kg or 6.9 tonnes of CO2.

The following are the CO_2 reduction measures adopted in the Institution.

CFL

50 incandescent lamps were replaced with 50 CFL which consume 1125 units of electricity. At this rate the coal equivalent (1125 x 0.538 kg) 605.25 kg or 0.61 tonnes.

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LED lamps in the campus

The Institution has installed 159 LED tube lights in the College campus. The power consumption and carbon footprint reduction are discussed below.

Formula for energy consumption

A 100-W bulb left on for 10 hr consumes 100×10 1000 W hr. i.e. 1 kW hr, which is 1 unit. Similarly a 10-W bulb left on for 100 hr leads to the consumption of 1 unit of electricity. The Institution procured 20-W bulbs numbering 159, which had been fixed in the renovated campus.

Average power consumption analysis

Assumption

On average, a bulb is on for 5 hours per day. The bulbs burn for 300 days in a year. The remaining 65 days are considered holidays. Based on the above information, the total units of power consumed by 159 LED bulbs for 1 year at the rate of 5 hours per day is Watt rating of bulb x unit hour x quantity of bulbs x No. of days = Total units or kW hr. 20 W x 5 hr x 159 x 300 = 47,70,000 W, which is 4770 units of electricity.

It is appropriate here to calculate the quantity of coal required to generate 4770 units of electricity.

0.538 kg coal is required to produce 1 unit of electricity. Hence, the total quantity of coal required to produce 4770 units of electricity is 4770 ×0.538 kg 2566.26 kg.

Carbon reduction through this measure is based on the calculation that 1 kg coal emits 2.86 kg of CO

Hence CO2 emitted by 2566.26 kg of coal (2566.26 x 2.86) 7339.50 kg.

The real carbon reduction value can be assessed if the energy consumption of 159 LED lights is compared with that of 159 incandescent bulbs. One incandescent bulb consumes 90 units of electricity. Therefore, 159 bulbs consume 14310 units.

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But 159 LED bulbs consume only 4770 units of electricity. Replacement value in favor of carbon. emission is (14310 - 4770)= 9540 units of electricity.

Coal required for generating 9540 units of electricity (9540 X 0.538kg)= 5056.2 kg .

Based on the calculation that 1 kg coal emits 2.86 kg CO_2, the total quantity of CO2 emitted by 5056.2 kg coal (5056.2 X 2.86)= 14460.73 kg or 14.5 tonnes.

Carbon footprint reduction through installation of 159 LED lamps per year is 14460.73 kg or 14.5 tonnes of CO2.

Solar Energy for electricity

Solar energy is the most feasible and viable green energy available around the globe. Its viability is very high in tropical countries like India. Ninety Three solar panels were installed on the terrace of the college building where light intensity is very high. Each panel produces 540 W of electricity. However, the panels will function effectively only for about 10 months per year (300 days). Monsoon and clouds prevent sun's rays for more than 2 months. At this rate, the 93 panels produce electricity to the tune of 540 W x 93 x 300 days 15066 KW. which is equivalent to 15066 units of electricity per year. This solar power PV power system is connected to the college grid via a solar string inverter. The 15060- kW power generated per year

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from this solar panel, the coal equivalent (15066 x 0.538) = 8105.50 kg coal. The CO2 equivalent is 8105.5 x 2.86 = 23181.73 kg.

Solar energy for Water heater

In campus there is women's Hostel in which consisting 33 rooms. Each room 3 girls are living to getherly. If we use a geyser of 10 liters capacity, it has power consumption 1500 watt per hour. Therefore 16 x 1500 = 24000 w hr is required.

Total power consumed in year is 24 kwhr X 300 days = 7200 kwhr or 7200 units/year Instead of this we have used solar water heater for women's Hostel. Therefore, Coal required for generating 7200 units of electricity (7200 X 0.538~kg)=3873.6~kg.

Based on the calculation that 1 kg coal emits 2.86 kg CO2, the total quantity of CO2 emitted by 3873.6 kg coal (3873.6 X 2.86)=11078.491 or 11.07 tones.

Carbon footprint reduction through installation of Solar Water heater per year is 11078.49 kg or 11.07 tones of CO2.

Solar Water heater

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Campus Plantations:

Our total campus area is 44500 sq. M. out of which plantation covered area 10045.58 sq. M. Generally trees absorb CO2 and emit Oxygen, which is very useful for us. Therefore this plantation plays important role in reduction of CO2 from environment.

Suggestions & Recommendations:

- Increases the use of CFL/LED lamps
- Use the solar inverter.
- Use the instruments which operates on solar energy
- Increase the number of plants which reduces the greenhouse effect.

Coordinator

Prof. S. G. Tathe

Campus Director

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2022-23

Environmental Audit

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Environmental Audit

Environmental auditing is a systematic, documented, periodic and objective process in assessing an organization's activities and services in relation to:

- Assessing compliance with relevant statutory and internal requirements
- Facilitating management control of environmental practices
- Promoting good environmental management
- Maintaining credibility with the public
- Raising staff awareness and enforcing commitment to departmental environmental policy
- Exploring improvement opportunities
- Establishing the performance baseline for developing an Environmental Management System (EMS)

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INTERNATIONAL CENTRE OF EXCELLENCE IN ENGINEERING AND MANAGEMENT (ICEEM)

Introduction

2017 saw the founding of the International Centre of Excellence in Engineering and Management in Aurangabad. The AICTE has approved the ICEEM, and the NAAC has acknowledged it. The institution provides a range of courses at different program levels in a variety of subjects. Undergraduate and graduate courses are offered by ICEEM. The college received a "B" grade from the NAAC in 2017and was granted another "B" grade in 2017. Excellent, highly qualified, and committed faculty members, along with a disciplined administration, adequate facilities, and a track record of success in all disciplines, comprise this college.

Since the academic year 2016–17, all higher education institutions are required by the National Assessment and Accreditation Council, New Delhi (NAAC) to submit an annual Energy Audit.

The officials are aware that the institution has a lot of work ahead of it in terms of maintaining its green campus. Through this audit conducted by the appropriate authorities, the institution hopes to assess its current state of affairs as well as its future strategy for preserving and improving the environment through appropriate actions taken to maintain the campus's green spaces. Environmental Audit primarily employs eight factors as a basis; the college uses these indicators to assess its current state of strength.

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Indicator-1 Campus Energy Power

Goal: To encourage efficient use of promotion of energy in a proper manner

Benchmark: Total consumption of energy for College office, Laboratories, Library, and Play ground etc. does not Exceed **12,000** Units/month/meter.

Observation Procedure:

1	**The number of Electrical Meters in the campus are counted**
2	**The average electricity consumption in Units is calculated**
3	**The electrical appliances available in campus area have been observed.**
4	**We have also observed the types of electrical appliances in the campus.**
5	**The available electrical appliances and the power saving appliances have been observed.**

Observations of Electric Meters and Electricity consumption

The number of electricity meters in the campus are = 05

Average Electricity Consumption per month

Total usage of energy for academic year (in Units) Average 8333 units / month

Year 2022-23

Total usage in the academic year = 100007 units

Since 2011 the college has employed several measures to save energy including;

- The use of CFL lamps and LED lamps in the college office, class rooms and laboratories
- Computers and other equipment's are put on power-saving mode.
- The Solar are installed in the campus
- The two solar water heaters were installed on ladies and boys hostel.

These missions have helped to reduce the overall energy consumption in campus. The college authorities have adopted several measures to inculcate the value of energy conservation among the staff members and students. This results in reduction of electric meters from 05

Generator is also used as alternative source whenever needed.

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Details of Electrical particulars working in the campus

Sr. No	Name of Particulars	Total No.
1	Total No. of Electrical fans.	309
2	Exhaust fans	11
3	Air Conditioner	7
4	Total No. of Tubes	192
5	Total No. of LED lamps	159
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Recommendations:	
The college should employ several measures to save energy including:	
1	Using renewable energy sources like solar power more often will help cut down on electricity usage.
2	Two central double switch systems are used to manage electricity waste. One is situated at the nearby office center board, and the other is located in the hall and labs. This allows for the timely turning off of the lights and fans in each wing and level.
3	By using stickers of switch off power. These initiatives had helped to reduce the Overall energy consumption in campus.
4	For the purpose to preserve energy, the college needs upgrade its monitoring cell.
5	Every staff member and students should take care of it to minimize the use of energy by means of its use only when it is required. In non-working hours everybody is expected to switch off the light and fans.

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Indicator II: Use of Renewable Energy

Goal: Encourage purchasing and / or production of renewable energy.

The Practice:

It has been demonstrated that solar energy is an excellent way to conserve power. Depending on how these devices collect, process, and distribute solar energy, solar technologies can be roughly classified as either passive or active. Monocrystalline panels and solar thermal collectors are examples of active solar methods. Buildings may be made more passively solar by aligning them with the sun, using materials that have favorable thermal mass or light-dispersing qualities, and creating areas with natural air circulation. One source of energy for heaters, fans, and lighting is solar energy. The college plans to switch to solar energy in the near future in order to utilize less power.

The key to energy conservation on campus is minimal energy use. College has installed 93 solar panel. The capacity of 50KW. Therefore, total unit generated in academic year

1	Do you have solar street lights in your campus?	No
2	Do you have solar lights in your college building?	No
3	Do you have solar inverters in your college?	No
4	Do you have solar DP in your college campus?	Yes
5	Do you have solar cookers in your college?	No
6	Do you have solar motor pumps in your college?	No
7	Do you have solar heater in your college campus?	yes

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Solar Panel

Solar Water Heater

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Recommendations:	
1	In order to reduce the amount of power used in traditional energy sources, colleges could consider implementing non-conventional energy sources on campus, such as solar inverters, solar pumps, and solar cookers.
2	Solar motor pump should be used for garden irrigation.
3	The central double switch system, which has one at the center board (the nearby office) and another in the hall and laboratories, controls the wasting of electricity by allowing the lights and fans in each wing and floor to be turned off on time.
4	Through the use of power-off stickers. The overall amount of energy consumed on campus has decreased because to these measures. Employees and pupils were inspired to conserve energy. In an emergency, a generator is also employed as a backup supply.

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Indicator III: Roof Water Harvesting

Rainwater harvesting first of all increases water security. It is the perfect solution to meet water requirements especially in the areas which do not have sufficient water resources. It helps in improving the quality of the ground water and increasing the level of the ground water. It reduces the loss of top layer of the soil. If we capture the water directly, we need not to depend much on the water storage dams.

Goal: To use rain water for the well.

The Practice: The most important part of the rain water harvesting is the storage system. The storage system is designed in a proper manner so that there will be adequate water storage in the well.

The institution has enacted the projects of Roof water harvesting. The project of roof water harvesting is in operation. It is setup on the top of the hostel building. Rain water which precipitates on roof is collected through pipes and filtered it in bore well. Roof Water Harvesting is observed to be very beneficial to conserve the wastage of water into water use. The water is used in campus for Drinking, in laboratories, urinals, laboratories and gardening.

1	Whether the institution has installed roof water harvesting unit at Yes college campus?	yes
	If yes, give the details -	
	The institution has installed total Roof Water Harvesting units at college campus.	
	Provide the total requirement of water per day in campus	
2	Provide the total requirement of water per day in campus	

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Total area used for roof water harvesting unit		
Sr. No	**Area used for roof water harvesting**	**Sq. feet**
1	College Building	116046.6
Total		116046.44
		10784.94 Sq. M

Total Requirement of water per day in campus is given below:

Academic Year	Consumption of water / day for drinking and sanitation	Consumption of water / day for gardening	Total consumption / day	Total annual usage of water By considering 272 days working
2022-23	6 lit Per person X strength of students & Staff (697) = 4182 litres 100 Students in hostel x 135 litre per person =13500	15000	32682	8,889,504 litre (2,348,358.51 Gallon)

Detailed calculation of RHW is given below:

A	**(catchment area of building where Roof water harvesting is done)**	10784 Sq. M
R	**Inches of rain or Annual rain fall in a area in m.m.**	710 mm
G	**Total amount of collected rain water**	4,593,984 G
	G = (A) x (R) x 600 gallons / 1000	(1213602.18 litre)
	G = 10784 x710 x 600/1000"	

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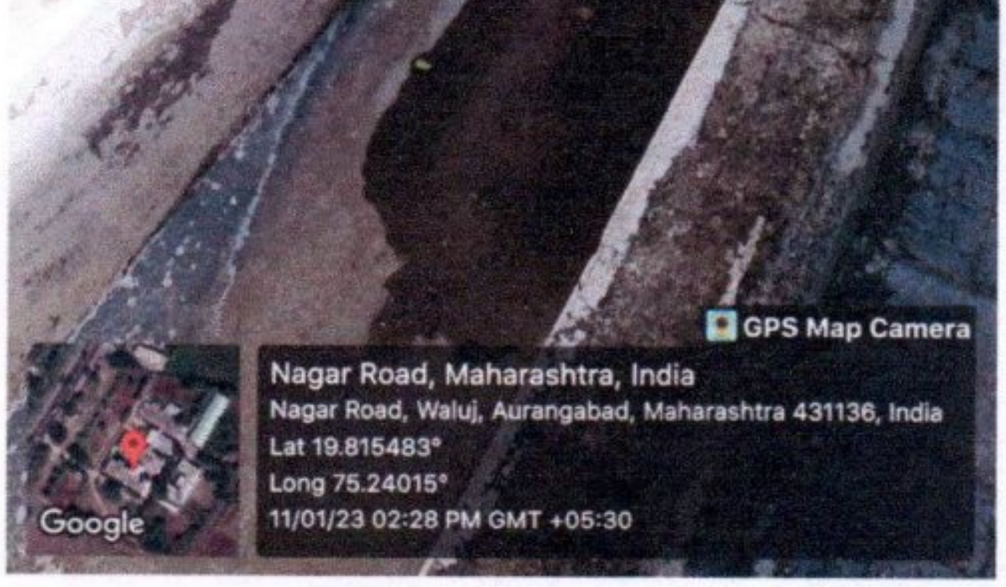
Conclusion		
1	**Total usage of water in the college per annum**	2,348,358.51
2	**Total amount of collected rain water per annum**	4,593,984
3	**% age of water conserved**	48.88 %

Recommendations:	
1	**Rainwater harvesting should be done on each building**
2	**Provide information and take feedback on water use of campus users.**



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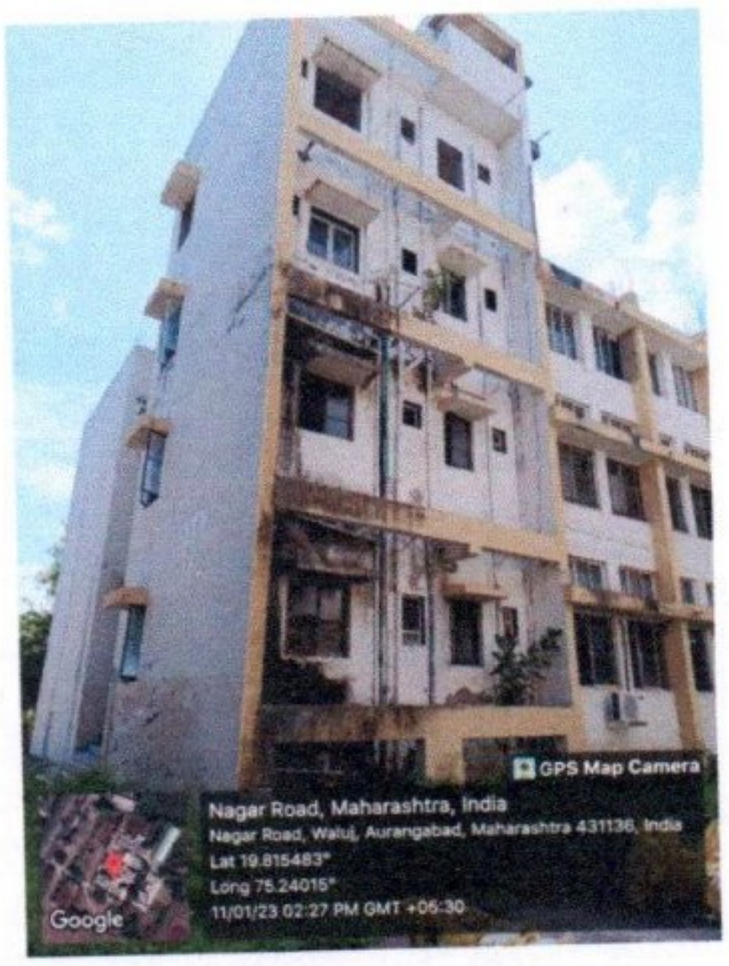

Water Distribution and Collection

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Indicator IV : Check Dam Construction

Goal : To collect and utilize the rain water

The Practice:

In order to have sufficient water availability in the college campus, check dam has been constructed in the college premises. The main purpose of it is to collect the rain water and re-use it for the college premises. It is a practice just like Roof Water Harvesting. It has been proved to be very beneficial to increase the water availability. The length of this check dam is 13.6 mts., width is 11.5 mts. its area is 156 Sq. Mt. depths of 2.8 mts having volume of 440 cumec (440,000 liters). It will definitely help to provide adequate water storage in the college premises.

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Indicator V: Efforts for Carbon Neutrality

Goal: To internalize in our activities the expenses linked with climate change damages caused by carbon emissions.

The Practice:

Carbon neutrality is the practice of balancing carbon dioxide released into the atmosphere from the combustion of fossil fuels with renewable energy that generates a comparable amount of useful energy, thereby compensating for carbon emissions, or using only renewable energies that emit no carbon dioxide (this is known as a post-carbon economy).

The college has planted trees to offset 100% of the carbon dioxide produced into the atmosphere. This method has finally shown to be beneficial in balancing released carbon dioxide. It is only the first step; in the near future, the college aims to plant more trees in order to achieve greater results in terms of carbon management.

The College has undertaken the following measures to achieve carbon neutrality: planting on accessible land, solar energy coverage of specified areas, bicycling day, no-vehicle day, increased emphasis on usage, one bike for two people, and so on.

Plantation for reducing carbon

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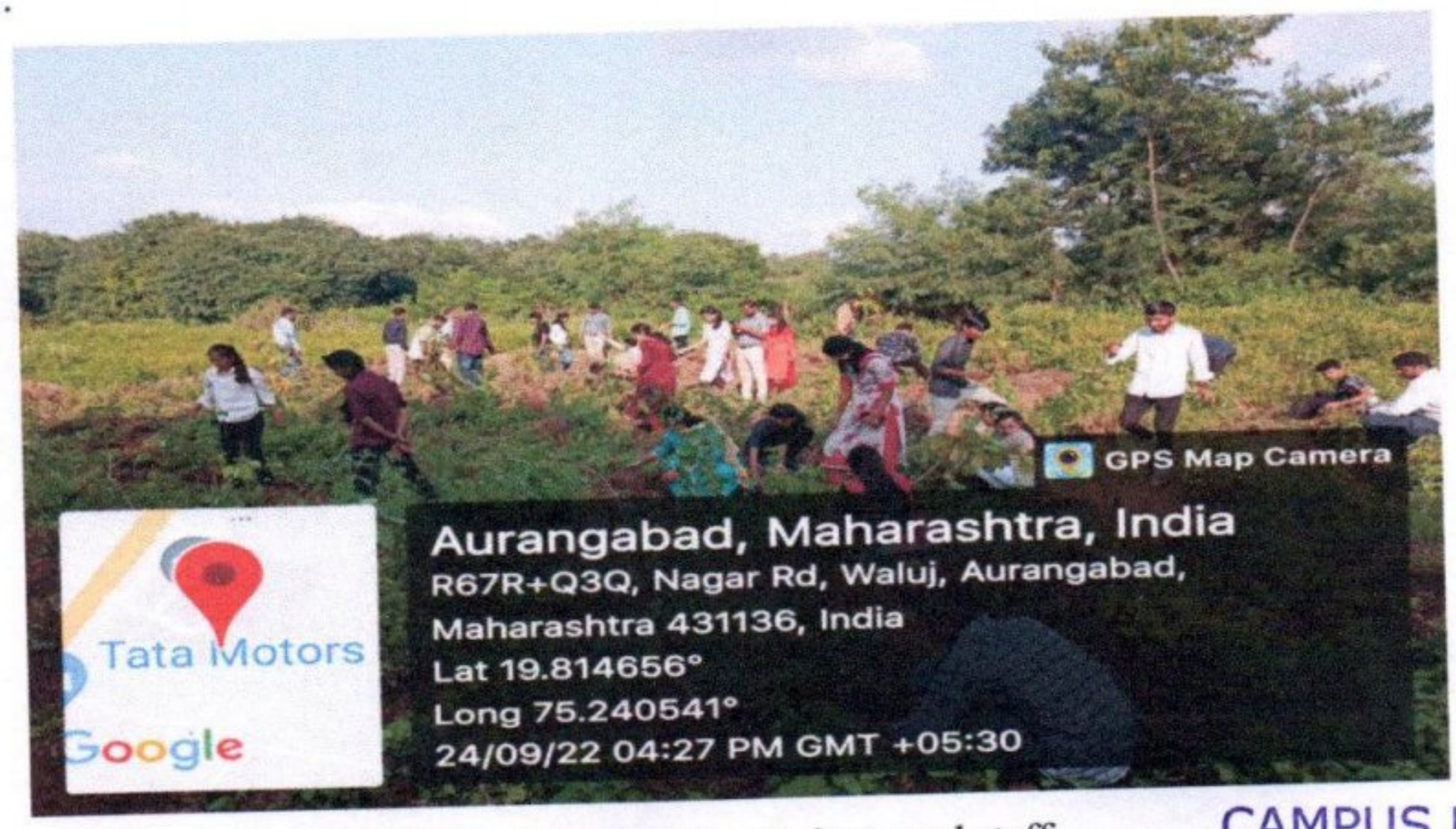
Indicator IV: Campus Plantation

Tree plantation means planting trees and plants. The purpose of tree plantation is to save the endangered environment and to beautify our campus and life. Trees are valuable gifts of nature. They are known as the best friends of human beings. They benefit us in various ways. The lives of men and other animals and insects are inconceivable without the existence of trees in the world.

Trees absorb carbon dioxide and give us oxygen without which no living being can live. Trees give us shade, medicine, food, fruits, furniture, fuel etc. Trees also keep the weather cool and cause rainfall. They also bind soil and thus prevent erosion. Trees are part and parcel of our life. So, it is our duty to plant more trees and takes care of them in order to maintain balance between man and nature. To make the country economically developed and to save the globe from green house effect, we should plant trees on a large scale.

The Practice:

The purpose of tree plantation is to beautiful surrounding that ultimately results in a sort of creativity. It is very useful in educational surrounding where the outside atmosphere creates a different type of impact on the youth and makes him active learner instead of being a passive receptor.



Tree Plantation by students and staff

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Sr. No.	Description of area for particulars	Area occupied for particulars in meters (in %)
1	ICEEM Engineering college, Aurangabad Total Campus area	**44500 Sq. M (100 %)**
2	Built up area	**13669.4 Sq. M (30.72 %)**
3	Total Open space	**30830.6 Sq. M (69.28 %)**
4	Total Play Ground	**5850 Sq. M (13.14 %)**
5	Check Dam	**156 Sq. M (0.35 %)**
6	Total Plantation covered	**9631.58 Sq .M (14.87 %)**
7	Total Lawn area	**414 Sq. M (0.93 %)**
9	Total Green covered in college campus	**10045.58 (22.57 %)**

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The following table gives a clear indication of different types of trees available in the college campus.

Common Name	Botanical Name	Family	No. of Plants
Amba	Mangifera indica L.	Anacardaceae	85
Neem	Azadirachta	mahogany	52
Wad	Ficus benghalensis L.	Moraceae	6
Pimpal	Ficus religosa L.	Moraceae	11
Jambhul	Syzygium cumini L.	Myrtaceae	22
Jamb	Psidium guayava L.	Myrataceae	25
Sitaphal	Annnona reticulata L.	Annonaceae	52
Leamon	Citrus limon (L.)	Rutaceae	25
Shevaga	Moringa oleifera	Moringaceae	27
Badam	*Prunus dulcis*	Rosaceae	4
Curry Leaves	Murraya Rutaceae	Rutaceae	45
Kardali	Canna indica	-	25
Bael	Aegle marmelos L.	Rutaceae	1
Mahua	-	Sapotaceae	1
Chinch	Tamarindus indica L	Fabaceae	52
Tad	Borassus flabellifer	Arecaceae	10
Aapta	Fabaceae	Bauhinia racemosa	25
Sag	Salvia officinalis	Lamiaceae	3
Ber	Ziziphs mauritiana L.	Rhamnacea	45
Avala	Pinaceae	Abies pindrow	6
Ganare	Nerium oleander,	Apocynaceae	10
Ashoka	Saraca asoca	legume	25
Palm	Roystonea regia	Arecaceae	11
Sadafuli	Catharanthus roseus	Apocynaceae	15
Jaswand	Hibiscus rosa-sinensis	Malvaceae	17
Chafa	Plumeria	Apocynaceae	13
Tulsi	Ocimum tenuiflorum	Lamiaceae	05

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Total no. of Trees, Shrubs, Ornamental Plants in Campus

Sr. No.	Type	Total Number
01	Trees	617
02	Shrubs	2123
03	Ornamental Plants	56

Conclusion	
1	Total green covered in college campus is about 22.57%

Recommendations:	
1	22.57% green cover is not sufficient to keep campus environment healthy at least 30% more land is required to maintain greenery as per the environmental norms.
2	The institution has land but the low rainfall in the last couple of years has resulted in this fact. However, the institution is expected to have sufficient greenery available in the near future
3.	"Trees like Neem, Peepal and Babul and plants like honey plants and Tulsi give out maximum oxygen and absorb pollutants from environment
4.	Endangered and Threatened species of the area should be conserved.

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Indicator VII: Solid Waste Management

Goal: Minimize the impacts of solid waste use by means of dumping

The Practice:

In college campuses, solid waste management is crucial for maintaining cleanliness and sustainability. The process begins with segregating the solid waste into decomposable and non-decomposable categories. Non-decomposable waste is further sorted into polythene bags and other materials, which are sold to vendors for recycling. Items like broken glass, plastic, rubber, and other materials are disposed of in municipal bins for eventual recycling. Organic waste is directed to decomposing pits where it undergoes natural decomposition. This systematic approach ensures that waste is managed efficiently, with a focus on reducing environmental impact and promoting recycling practices within the college campus.

01	Is there any mechanism developed by the institution regarding solid waste management?	Yes
02	How Classification of Solid waste generated in the college campus is done? First the solid waste generated in college campus is separated in to two parts 01. Decomposable solid waste 02. Non decomposable solid waste.	
03	How do the institute dispose off the non decomposable waste? The non decomposable waste generated in college is collected by municipal dump van.	
04	Whether the decomposable waste is properly treated?	Yes
05	What is the management mechanism of decomposable waste ? The college has constructed One decomposition pits for the disposal of decomposable waste and dump the decomposable wastes in decomposition pits and twin drum machine.	

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Compost Fertilizer Unit:

Compost fertilizer is prepared form plant litter of the college campus. This compost is used as fertilizer for plants of college garden. Compost is a key ingredient in organic farming. At the simplest level, twin drum composter having capacity of 400 liter use for efficient and continuous composting.

The twin drum design allows for a continuous composting process. Here's how it generally works:

Loading: Organic waste materials, such as kitchen scraps, yard waste, and other compostable materials, are added to one of the drums.

Rotation: The drums are manually rotated or may have a crank or motorized mechanism to turn them. Regular rotation helps mix the composting materials, ensuring adequate aeration and accelerating decomposition.

Composting: Inside the drums, microorganisms break down the organic matter into compost. The heat generated during this process helps speed up decomposition. The constant mixing provided by drum rotation ensures that oxygen is distributed throughout the compost, promoting aerobic decomposition.

Turning: As the composting materials break down, they reduce in volume. When one drum is full and the contents have decomposed sufficiently, the compost can be emptied out.

Continuous Operation: While one drum is being filled and its contents are composting, the other drum can be used to start the composting process anew. This allows for a continuous cycle of composting, with one drum in the loading phase while the other is actively decomposing.

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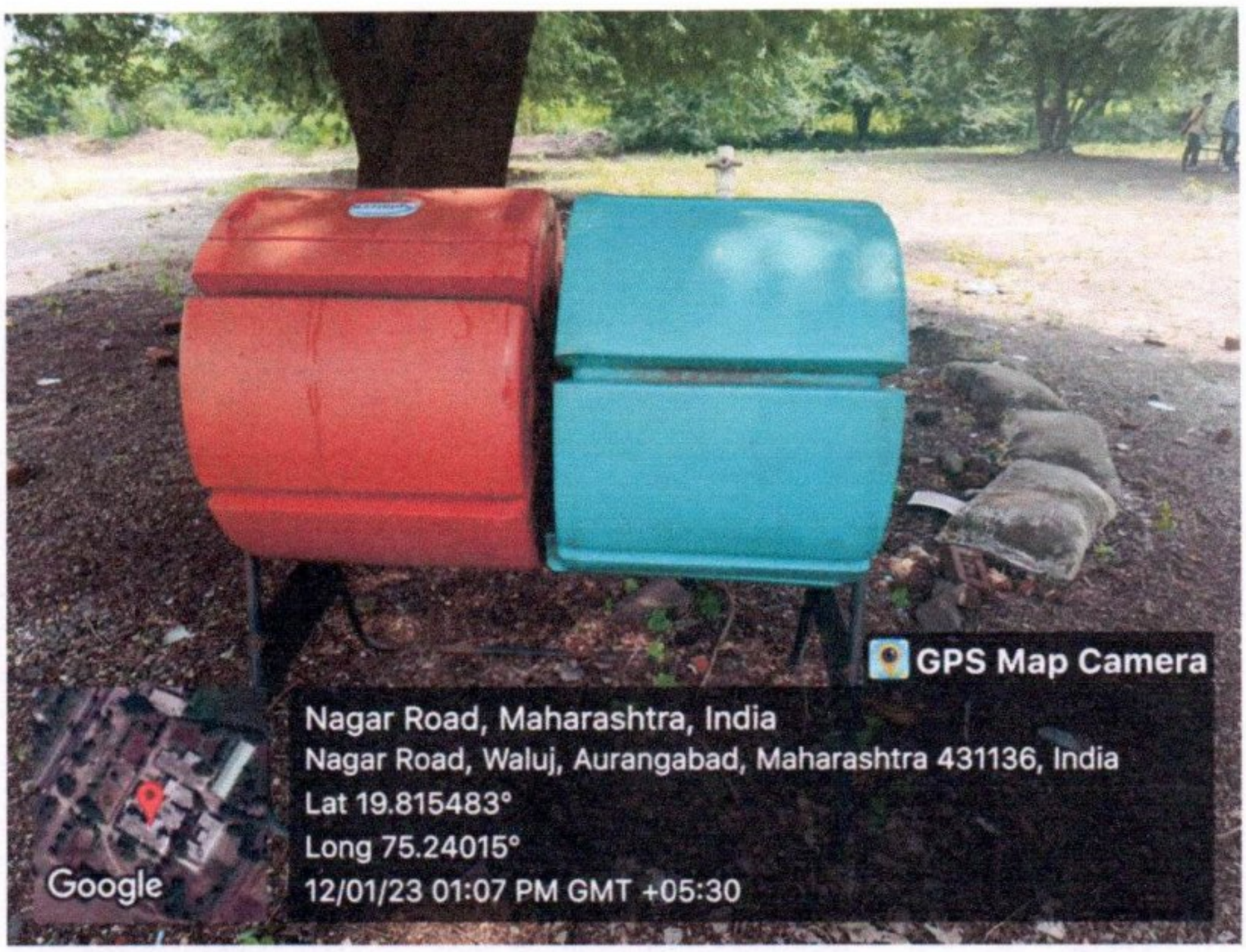

Twin Drum composter

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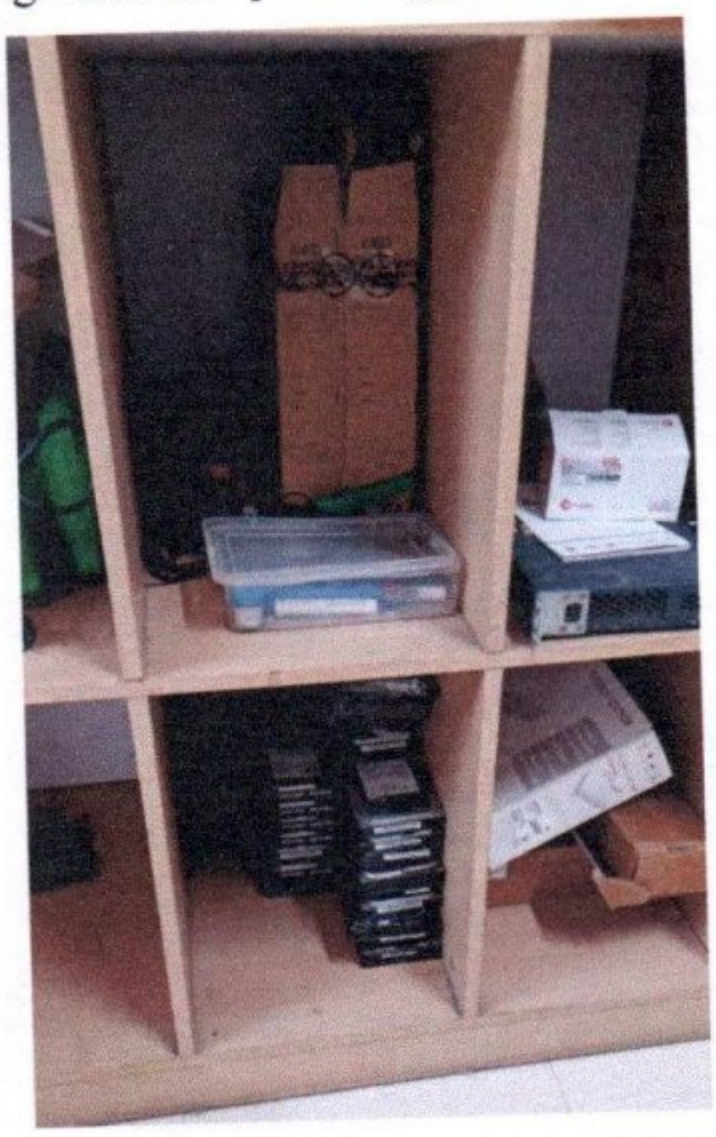
Telephone : 0240 - 2558101 to 10 | **Telefax** 0240 - 2558111
Website : www.iceemabad.com | **E-mail :** director@iceemabad.com

E-Waste:

E-waste reuse refers to the practice of extending the lifespan of electronic devices and components by refurbishing or repurposing them for secondary use. Instead of disposing of electronic equipment when it reaches the end of its primary use, e-waste reuse aims to extract further value from these products.

That equipment that are not in use are categorized and arranged on a rack to allow students to see a specific component in a computer. This kind of organization and visualization improves the student's academic understanding while also providing practical information.



Arrange E-waste

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Indicator VIII: Conservation of Environment

Goal: To Create an atmosphere of awareness and sense of responsibility on campus regarding environmental issues. Engage students, faculty, staff and administration in cooperative analysis and response to these issues.

Performance:

Conservation of the environment in college settings is crucial for sustainability. It educates students on environmental issues, promotes eco-friendly practices, and encourages research on conservation. Colleges play a significant role in shaping future environmental leaders and fostering a culture of environmental responsibility.

The college organize tree plantation every year in this year college participate and achieve certification of 'Vishav Vikrmi Vruksha Ropan Sohala' in this program college student, staff and non teaching plant tree in college premises as well as their homes. This program run under the 75th Azadi ka hind mahostav.

The college is having following practice as the part of 'Green Practice.'

1. Environmental Day Celebration
2. Tree Plantation
3. Earth day celebration.
4. The college is having following practice as the part of 'Green Practice.'

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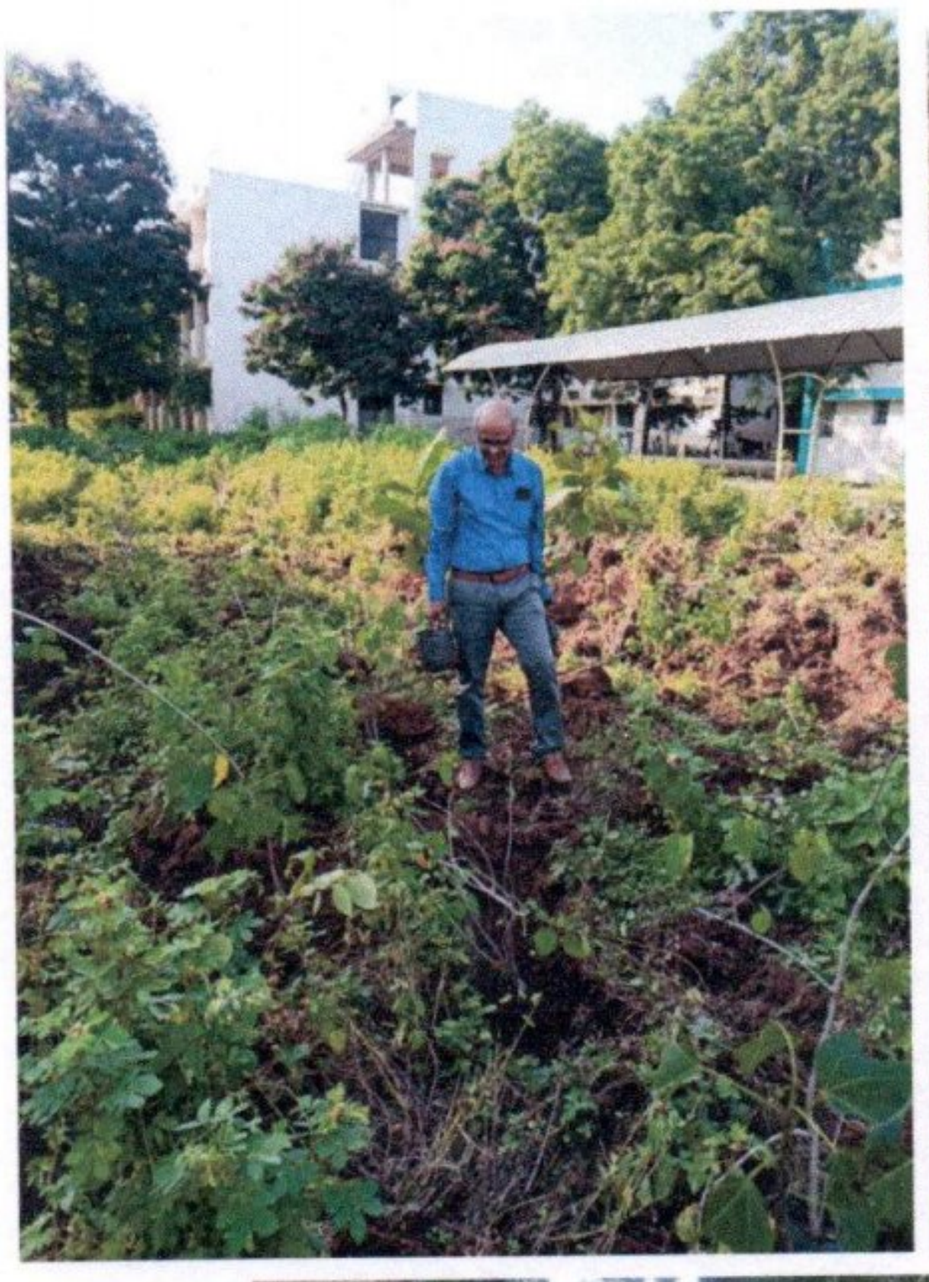
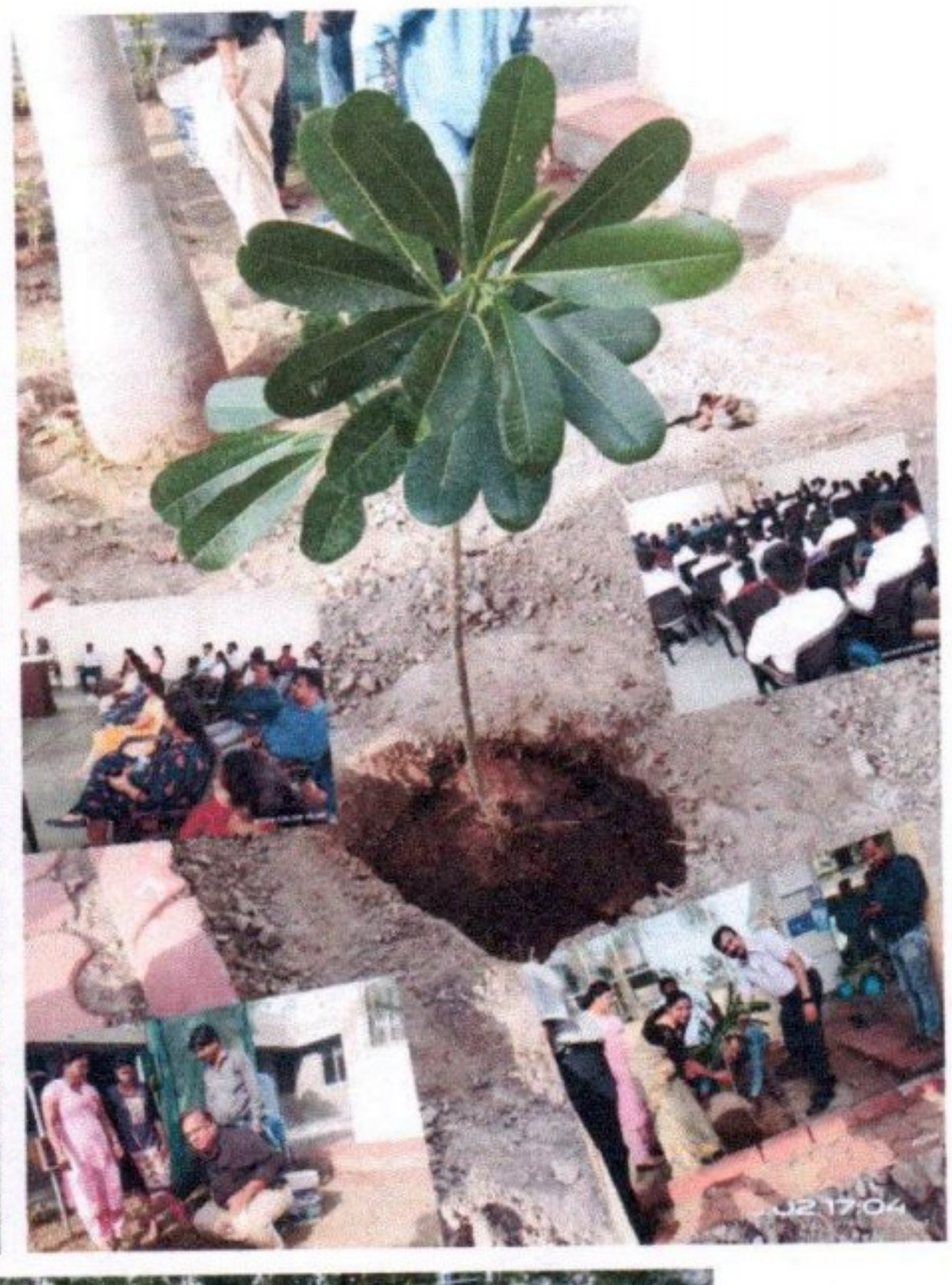
Photos





Tree Plantation

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वंदे मातरम्

आज़ादी का अमृत महोत्सव

अमृत महोत्सवी स्वातंत्र्य दिनानिमित्त
"सण स्वातंत्र्याचा सण वृक्षारोपणाचा" या उपक्रमाअंतर्गत
१ लाख परिवारांमध्ये १ तासात १ लाखापेक्षा जास्त वृक्षांचा

।। विश्व विक्रमी वृक्षारोपण सोहळा ।।

सन्मानपत्र

भारतीय स्वातंत्र्याच्या अमृत महोत्सवानिमीत्त स्वातंत्र्यदिनी १५ ऑगस्ट २०२२ रोजी छ.संभाजीनगर (औ.बाद) येथे आयोजीत विश्व विक्रमी वृक्षारोपण सोहळ्यामध्ये

ICEEM College, Aurangabad

आपण सहपरिवार सहभाग नोंदवला. आपल्या सहभागामुळे शहराच्या पर्यावरण संवर्धनात मोलाची मदत झाली. लोकसहभागातून सुरु झालेल्या या वृक्षरोपणाच्या चळवळीमध्ये आपल्या सक्रीय सहभागामुळे विश्वविक्रम झाला. पर्यावरण रक्षणासाठी केलेल्या आपल्या या कार्याची दखल घेऊन वर्ल्ड रेकॉर्ड इंडिया बुक व शहरातील सर्व पर्यावरण प्रेमींच्या वतीने केंद्रीय पर्यावरण राज्य मंत्री श्री.अश्विनी कुमार चौबे यांच्या शुभहस्ते आपणांस सन्मानीत करण्यात येत आहे. यापुढेही आपण पर्यावरण व निसर्ग संवर्धनासाठी सतत सक्रीय योगदान द्याल असा आम्हांला विश्वास आहे.

धन्यवाद....

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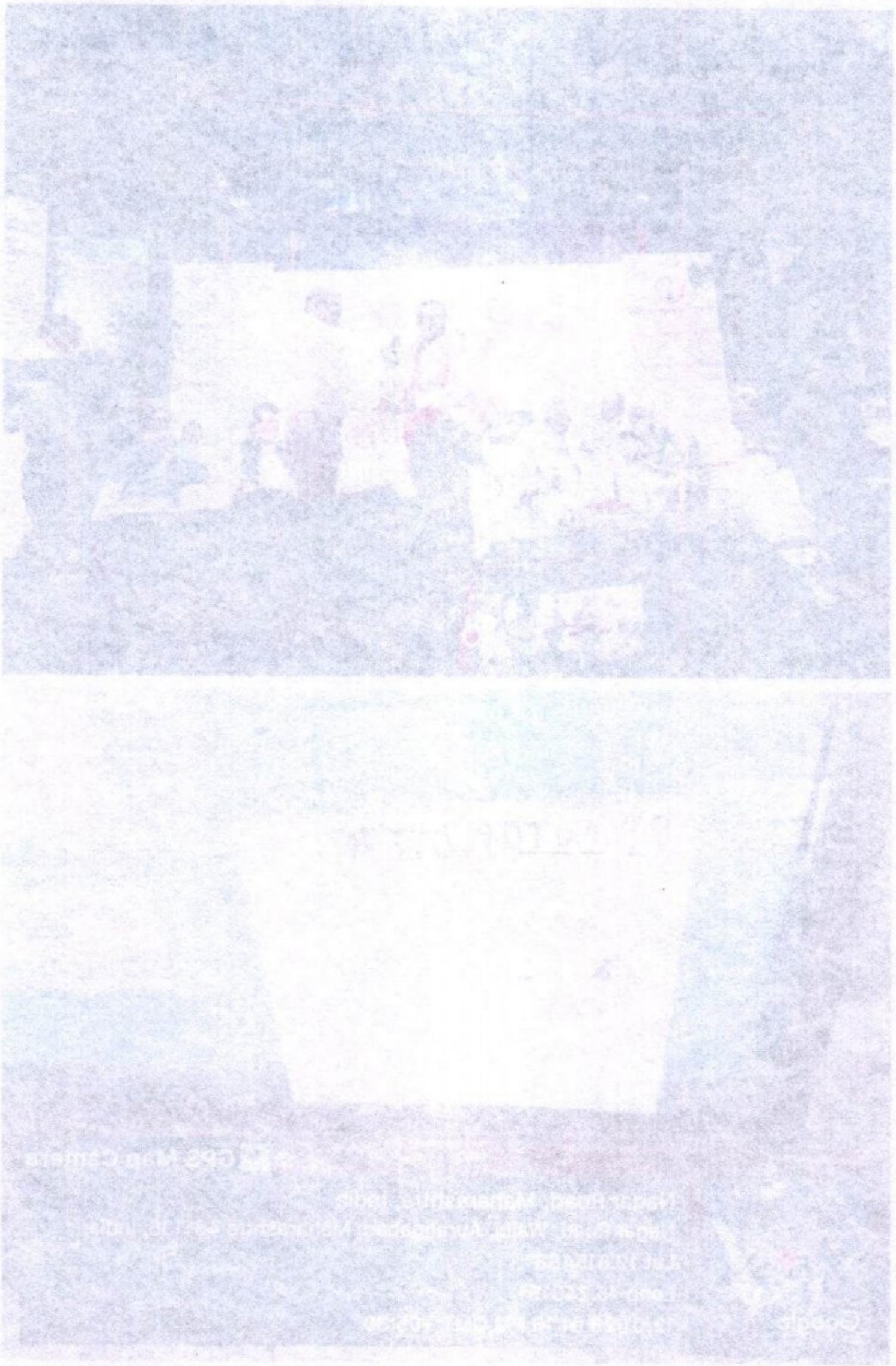

High Priority Recommendations	
➢	Improve the College's monitoring and reporting of water and energy usage and provide better feedback and information to campus users. Continue working towards composting the post-consumer food waste generated in the campus.
➢	Continue working to collect and use for composting the amount of leaf fall and sprayed on campus ground.
➢	With regards to the concerns mentioned in this report, the College should consider adopting specific goals and targets in its pursuit of sustainability.
➢	To identify existing efforts to make the College a more environmental friendly.

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Declaration by the Head of the Institution

I am aware that the above information provided by the college will be validated by the Environmental Audit Committee during the visit & it is true.

Date:

Campus Director

Report Prepared By

I have prepared the Environmental Audit Report. The information incorporated in the report is as per the college record.

Prof. M.P. Kale

Head of Humanities and Sciences

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IIRW'S
INTERNATIONAL CENTRE OF EXCELLENCE IN ENGINEERING AND MANAGEMENT (ICEEM)
NAAC ACCREDITED

"Outcome of Energy Audit"

Samsquare Consultancy, Pune has been entrusted with the task of conducting Energy Audit & Energy Management study for the International Centre of Excellence in Engineering and Management (ICEEM), Aurangabad. The field work and data collections were carried out in January, 2020.

The study encompassed the examination of the existing pattern of energy use in the college and identification of areas where energy & monetary savings could be achieved by employing suitable techno-economic measures. As per the report given by samsquare consultancy the Running maximum Demand (kVA) of the college varies from 57.5 kVA to 115 kVA. The sanction load was 198 kW.It is advisable to reduce the sanctioned load of 198 kW high tensions to low tension load. This will be helpful in reducing the fixed cost in electricity bill.

As per the suggestion by samsquare agency observation the college reduces the load capacity and introduces the solar system coordination with Mahavitaran. The current demand (kVA) of college varies from 63 kVA to 25.2 kVA. Also sanction load reduce 198 kW to 50 kW.

It was decided to go for 50 kW sanction load from MSEDCL & 50 kW load using by solar energy mean total 100 kw. This is helpful for reducing carbon footprint and saving the energy.

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DETAILED

ENERGY AUDIT REPORT

International Center of Excellence
In
Engineering & Management

Aurangabad

Conducted By

SAMSQUARE CONSULTANCY, PUNE

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List of Abbreviations

DEA	Detailed Energy Audit
DPR	Detailed Project Report
kWh	Kilo Watt Hour
EE	Energy Efficiency
EEM	Energy Efficiency Measures
MD	Maximum Demand
CD	Contract Demand

- **Units and Measures**

°C	Centigrade
CFM	Cubic Feet per minute
MU	Million Units
HP	Horse Power
kW	Kilo Watt
MmWC	Milli meter of water column
MJ	Mega Joule
RPM	Revolutions per minute
T or MT	Tons

- **Conversion Factors**

1 MTOE	10,000,000 Kcal
1 kWh	860 Kcal
Emission Factors	
Electricity	0.89 kg CO_2/kWh
Diesel	3.070 kg per kg of Diesel
Pet Coke	2.93 Kg per Kg of Pet Coke

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EXECUTIVE SUMMARY

i

Name of the College	International Center Of Excellence In Engineering & Management
District	Aurangabad (Maharashtra)
Date of Incorporation of College	2011
Name of the contact person	Dr C.S. Padmavat --Principal
Email id of Contact Person	
Telephone of Contact Person	+91 9146385999
Address of College	Gut No 4, CIDCO Mahanagar, Opp. MIDC-Waluj Water TreatmentPlant,PandharpurAurangabad-431139 Maharashtra , India
Area Of College	
Total No Students	
Total No of Class Rooms	60
Number of Trees	68
Trust Name	

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Introduction of College

International Center Of Excellence In Engineering & Management (ICEEM) is a private engineering college located in Aurangabad district of Maharashtra. The college is approved by AICTE, New Delhi; Recognized by DTE, (Govt, of Maharashtra) and Affiliated to Dr. Babasaheb Ambedkar Marathawada University, (Aurangabad).

- ICEEM Campus is advantageously located on Aurangabad - Pune highway, one of the fastest growing Industrial hubs of India.
- ICEEM offers undergraduate courses of engineering in four branches and MBA program
- ICEEM has collaboration with the local industries for providing appropriate training and short term courses for employees and designing and undertaking research work

Department: ICEEM has following academic departments-

- Mechanical Engineering
- Civil Engineering
- Electronics & Telecommunication Engineering
- Computer Science & Engineering
- Sciences & Humanities

Admission Procedure: Admissions are done as per the procedure of Directorate of Technical Education (DTE) Mumbai.

Key Features & Facilities Offered

- AICTE Approval Letter
- Magnificent building with all facilities
- **Rich Library** with reference books and journals
- Separate reading room
- Gymnasium equipped with latest gadgets
- Various boards and academic committees to develop the hidden talent in the students
- Special arrangement of water cooler
- Good infrastructural facilities.
- Library facility.
- Mentor system.
- Trustworthy management which gives confidence to the parents.
- Good and transparent administration.
- Well qualified teaching staff.
- Helpful nature of management, staff members and non-teaching staff.
- Centrally located campus.
- Career guidance and competitive counseling center.
- Sympathetic attitude towards poor students

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- **Hostel-** ICEEM provides accommodation facility for 100 students
- **Computer Facilities:** There are total 417 computers with P-iv specification, 26 software and 12 mbps internet facilities
- **Classrooms-** There is total 60 classrooms/tutorial rooms available in the campus with all teaching facilities

Scholarship: ICEEM offers following scholarships-

- Institute Level Scholarship for Non-Scholarship Students
- Merit Scholarship Based on Qualifying Exam Score
- Institute is Offering Earn and Learn Scheme for Needy Students

The objective of the audit was to study the energy consumption pattern of the facility, and

1. To identify the areas where potential for energy/cost saving exists
2. To Identify Areas to Promote Green Energy Technologies
3. Reduce Carbon Foot Prints (Green House Gases)
4. Introduction of New Energy Saving Technologies to the Institute

ICEEM College uses

a. Electricity from MSEDCL

b. Electricity from Diesel Generator in case of Emergency

Electrical energy is used for various applications, like:

- Computers
- Lighting
- Air-Conditioning
- Fans
- Mechanical Workshop Equipment

Table 1—Estimated Annual Energy Consumption

S.No	Name of Location	Source of Energy	Unit of Measurement	Annual Consumption	Annual Cost (Rs)	Annual Energy Consumption (MTOE)	Annual GHG Emission ($t\text{-}CO_2$)
1	ICEEM, Aurangabad	MSEDCL	KWH	110773	1861315	9.53	98.59
	Total	MSEDCL	KWH	110773	1861315	9.53	98.59

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Table No 2—Summary of New Technology and Energy Efficiency Measures identified during Detailed Energy Audit

Sl. No	New Technology and Energy Efficiency Measures	Estimated Annual Energy Savings	Estimated Investment	Monetary Savings	Simple Payback	Emission Reduction	Eq. Energy Saving
		Electricity (kWh)	(Rs.)	(Rs. /Yr)	(Months)	(Tons of CO2)	(TOE/yr)
1.	Installation of Photovoltaic Solar Panel- (30 KW)	43200	1350000	749952	20	38.45	3.72
2.	AMC For Air Conditioners (7 Nos) (Regularly Used)	2430	10000	42082	4	2.2	0.21
3.	Replacement of Existing Fans with BLDC Fans	18225	897500	316386	34	16.22	1.57
4.	Replacement of Tubes with LED	3291	153000	57131	32	2.92	0.29
5	Installation of Level Sensor in Overhead Tank	1822	20000	31638	8	1.62	0.16
A	Reducing the Contract Demand from 115 KVA to 60 KVA (Last 12 Month Avg—32)			120144	-	-	-
B	Power Factor improvement from 0.95 to 1		75000	39506	17	-	-
	Total Conservation Measures	68968	2505500	1314757	23	61.41	5.95

Table 1 : Comparison of Pre & Post Implementation Energy Conservation Measures

S. No	Parameters	Unit	Baseline (Before Implementation)	To be (Post Implementation)	Difference	% Change
1	Electrical Energy Used in Plant	KWH/Year	110773	41805	68968	62.3
2	Energy Cost	Lakh Rs/Year	1861315	546558	1314757	70.6
3	Overall Energy Consumption	MTOE/Yr	9.53	3.58	5.95	62.4
4	Overall CO_2 Emission (Green House Gas Reduction)	tCO_2/Year	98.58	37.17	61.41	62.3

Additional Energy Saving Measures Recommended --

1.0 Separate switches to be provided for individual Tube Lights and Fans

2.0 Section wise Energy Meters to be provided. This will help in giving the Energy saving Targets and new measures

3.0 Water Leakages and spillages to be arrested to save both water and Electrical Energy.

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CHAPTER 1

INTRODUCTION TO ENERGY AUDIT

1.1 General

The ICEEM College entrusted the work of conducting a Detailed Energy Audit of campus at Aurangabad with the main objectives as below:

- ✓ To study the present pattern of energy consumption
- ✓ To identify potential areas for energy optimization
- ✓ To recommend energy conservation proposals with cost benefit analysis.
- ✓ Areas to use Greeen Energy Technology in Campus
- ✓ Areas to reduce Green House Gases

1.2 Scope of Work, Methodology and Approach

Scope of work and methodology were as per the proposal .While undertaking data collection, field trials and their analysis, due care was always taken to avoid abnormal situations so as to generate normal/representative pattern of energy consumption at the facility.

1.2.1 Approach to Energy Audit

We focused our attention on energy management and optimization of energy efficiency of the systems, sub systems and equipments. The key to such performance evaluation lies in the sound knowledge of performance of equipments and system as a whole.

1.2.2 Energy Audit

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The objective of Energy Audit is to balance the total energy inputs with its use and to identify the energy conservation opportunities in the stream.

Energy Audit also gives focused attention to energy cost and cost involved in achieving higher performance with technical and financial analysis. The best alternative is selected on financial analysis basis.

1.2.3 Energy Audit Methodology

Energy Audit Study is divided into following four steps

Historical Data Analysis

The historical data analysis involves establishment of energy consumption pattern to establish base line data on energy consumption and its variation with change in production volumes.

Actual measurement and data analysis

This step involves actual site measurement and field trials using various portable measurement instruments. It also involves input to output analysis to establish actual operating equipment efficiency and finding out losses in the system.

Identification and evaluation of Energy Conservation Opportunities

This step involves evaluation of energy conservation opportunities identified during the energy audit. It gives potential of energy saving and investment required to implement the proposed modifications with payback period. All recommendations for reducing losses in the system are backed with its cost benefit analysis

The Detailed Energy Audit carried out by SAMSQUARE CONSULTANCY on 18th Feb 2020.

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Chapter 2.0
Energy Used and Consumption Details

2.1 Energy Use

The Energy/Fuels used by the College including utilities:-

Table 4: Energy used & their annual unit rate

Sl. No.	Fuel / Energy	Source	Unit Rate (Annual Value)
1.	Electricity	MSEDCL	17.36

Unit rate has been taken as weighted average Value, on the annual basis.

2.2 Electricity

Electrical energy is used for basically

1. Lighting
2. Fans
3. Computers
4. Air Conditioners
5. Water Pump

Details of monthly consumption data for College is tabulated in Table .

Incomer supply Voltage - 11 kV

Single Phase --230 V.

Table 5—Electricity Billing Details for the College

Meter No.	055-X1093145	**Tariff**	146 HT-IX B
Contract Demand	115	**50% OF Contract Demand**	57.5

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Table 6-- MSEDCL Bill Analysis for the College

Month	KWH	KVA MD	Billing MD (Min 50% of CD)--115	Additional MD Charges Paid	Average	BILLED PF	Bill Amount	PF Incentive	PF Incentive Lost	RS/UNIT
				Rs 391/MD	PF					
Mar.19	10006	32	58	9100	0.945	0.945	160325	0	5544	16.02289
April.19	10926	44	58	5474	0.95	0.95	174538	2860	3276	15.97456
May.19	12606	43	58	5865	0.968	0.968	196535	4502	2450	15.59059
June.19	11594	42	58	6256	0.965	0.965	182089	4383	2066	15.70545
Juy.19	10722	33	58	9775	0.951	0.951	138039	2860	2000	12.87437
Aug.19	8916	26	58	12512	0.944	0.944	137519	2860	1994	15.42384
Sept.19	9148	31	58	10557	0.972	0.972	172540	4065	2055	18.86095
Oct.19	5141	27	58	12121	0.948	0.948	139006	2860	2048	27.03871
Nov.19	8626	28	58	11730	0.937	0.937	149109	0	5161	17.286
Dec-19	8220	26	58	12512	0.94	0.94	143317	0	4961	17.43516
Jan-20	7522	25	58	12903	0.943	0.943	134842	0	4669	17.92635
Feb-20	7346	29	58	11339	0.956	0.956	133456	547	3282	18.17
Total	110773			120144			1861315	24937	39506	
Avg./month	9231.08	32.17	58	9041.7	0.95	0.95	155109.6	2078.08	3292.17	17.36

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Remarks and Analysis:

1 Average unit rate is Rs 17.36

2 Average Power Factor Maintained is 0.95 which need to be improved to 1.. PF Incentive lost is Rs 39506

3 Contract Demand can be lowered if there are no major expansion projects in the college as total additional charges paid last year is Rs 120144.

4 Also College can change Tariff from HT to LT

Chapter 3

Historical Data Analysis of the College

3.1 Monthly Unit KWH Consumption of the College

Month	KWH
Mar.19	10006
April.19	10926
May.19	12606
June.19	11594
Juy.19	10722
Aug.19	8916
Sept.19	9148
Oct.19	5141
Nov.19	8626
Dec-19	8220
Jan-20	7522
Feb-20	7346

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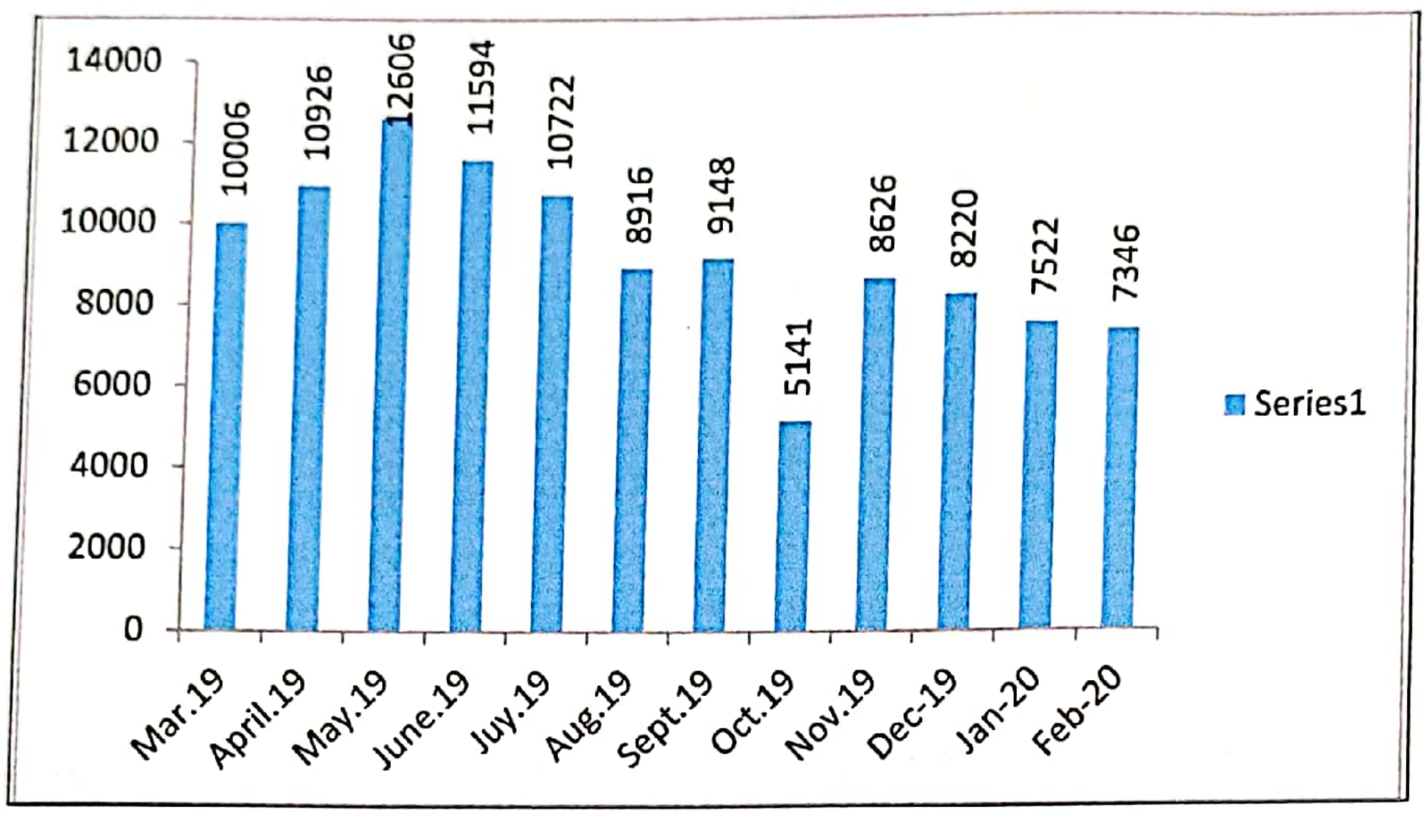
Graph No 1—Monthly Units consumption KWH for the College



Yearly Unit Consumption is 110773 Units. Average Units consumption per month is 9231 Units

Highest unit's consumption is in the summer months because of AC loads.

3.2 Monthly Energy Bill Cost for the College

Mar.19	160325
April.19	174538
May.19	196535
June.19	182089
Juy.19	138039
Aug.19	137519
Sept.19	172540
Oct.19	139006
Nov.19	149109
Dec-19	143317
Jan-20	134842
Feb-20	133456

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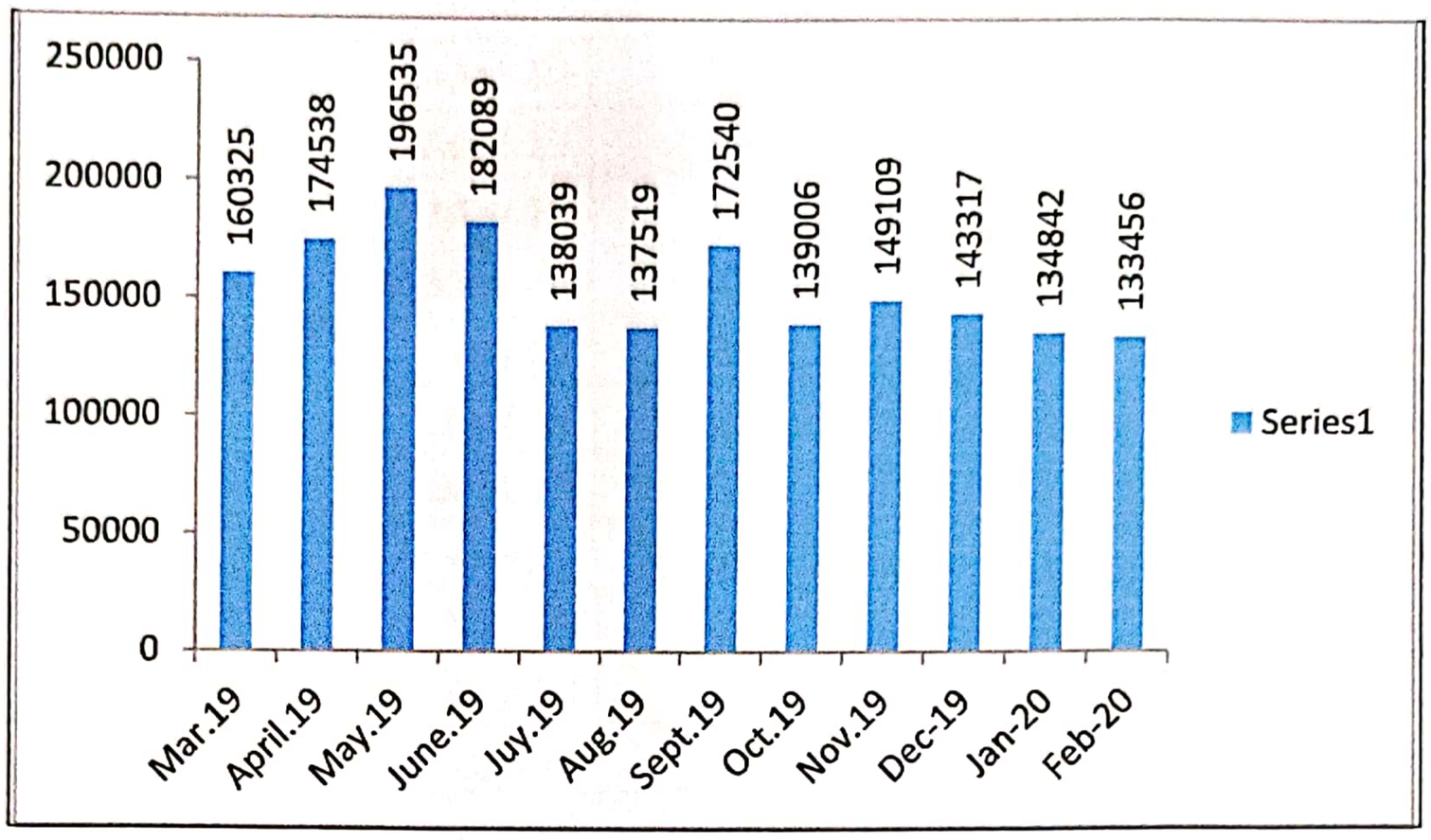
Graph No 2—Monthly Energy Bill of the College in Rs

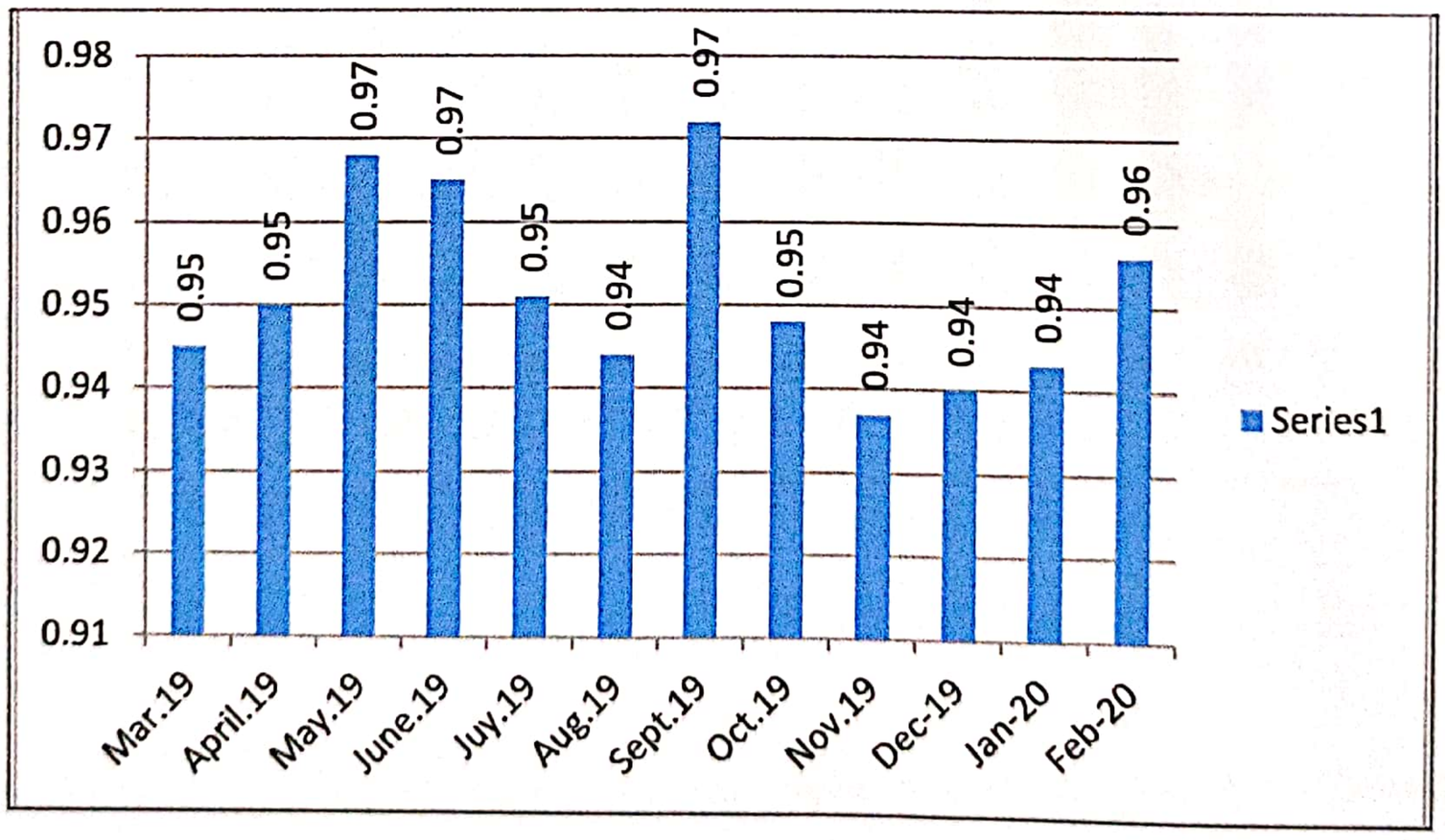


Yearly Energy Consumption Bill is Rs 1861315. Average Units consumption per month is Rs 155109

Highest Energy Bill is in the Month of May 19 because of AC loads.

3.3- Monthly Power Factor Variation of the College

Graph No 3—Monthly Power Factor Trend of the College



Average Power Factor is 0.95. Power Factor incentive lost because of Low Power Factor is Rs 39506

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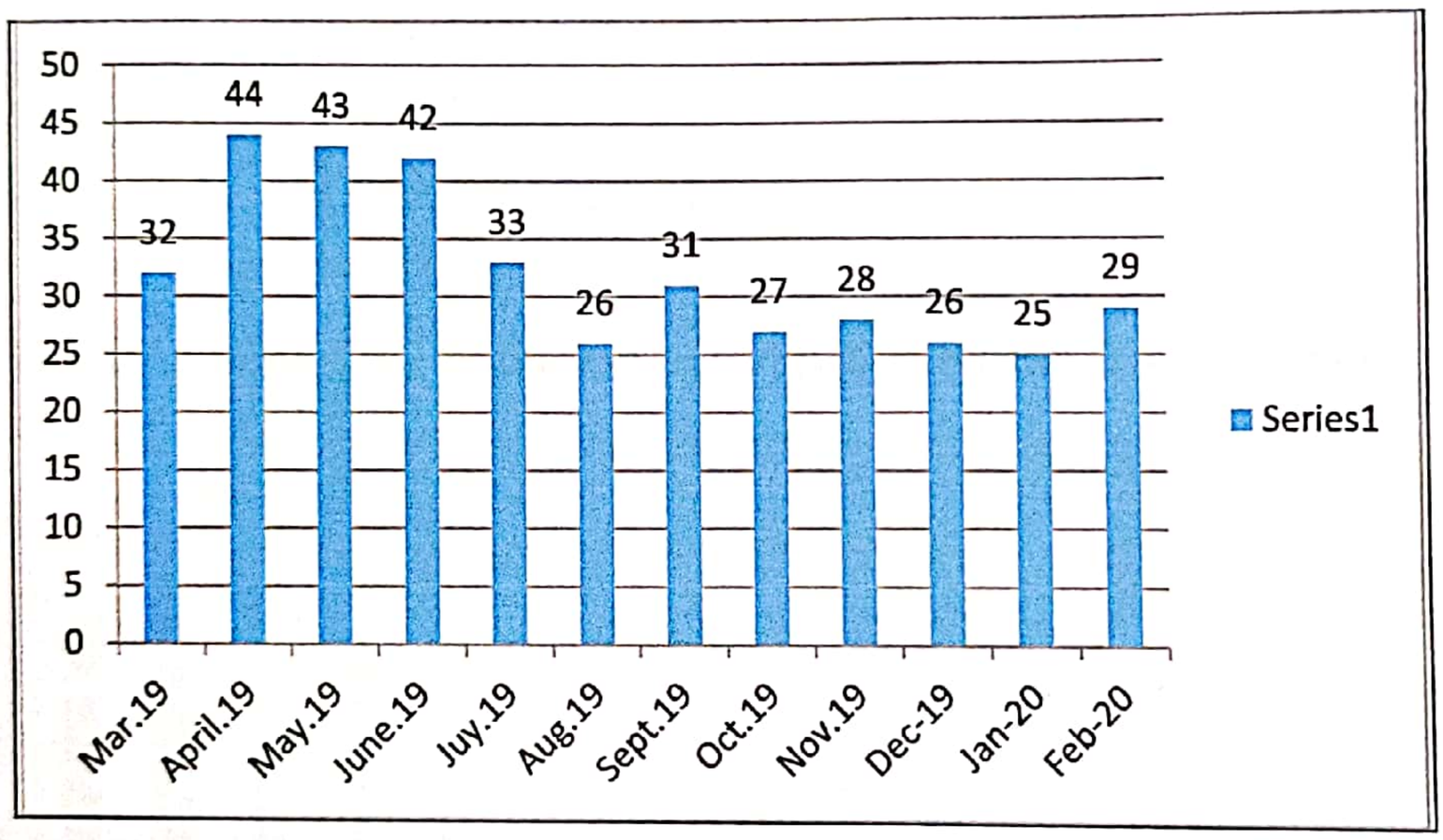
3.4—Monthly Demand Variation of the College

Mar.19	32
April.19	44
May.19	43
June.19	42
Juy.19	33
Aug.19	26
Sept.19	31
Oct.19	27
Nov.19	28
Dec-19	26
Jan-20	25
Feb-20	29

Graph No—4 --Monthly Demand Variation of the College



Average Monthly Demand is 32. Additional amount incurred because of Demand is Rs 120144. As contract demand is 115. Minimum charges to be paid are for 50 % of the contract demand that is 58 at the rate of Rs 391 per Demand.

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Chapter 4

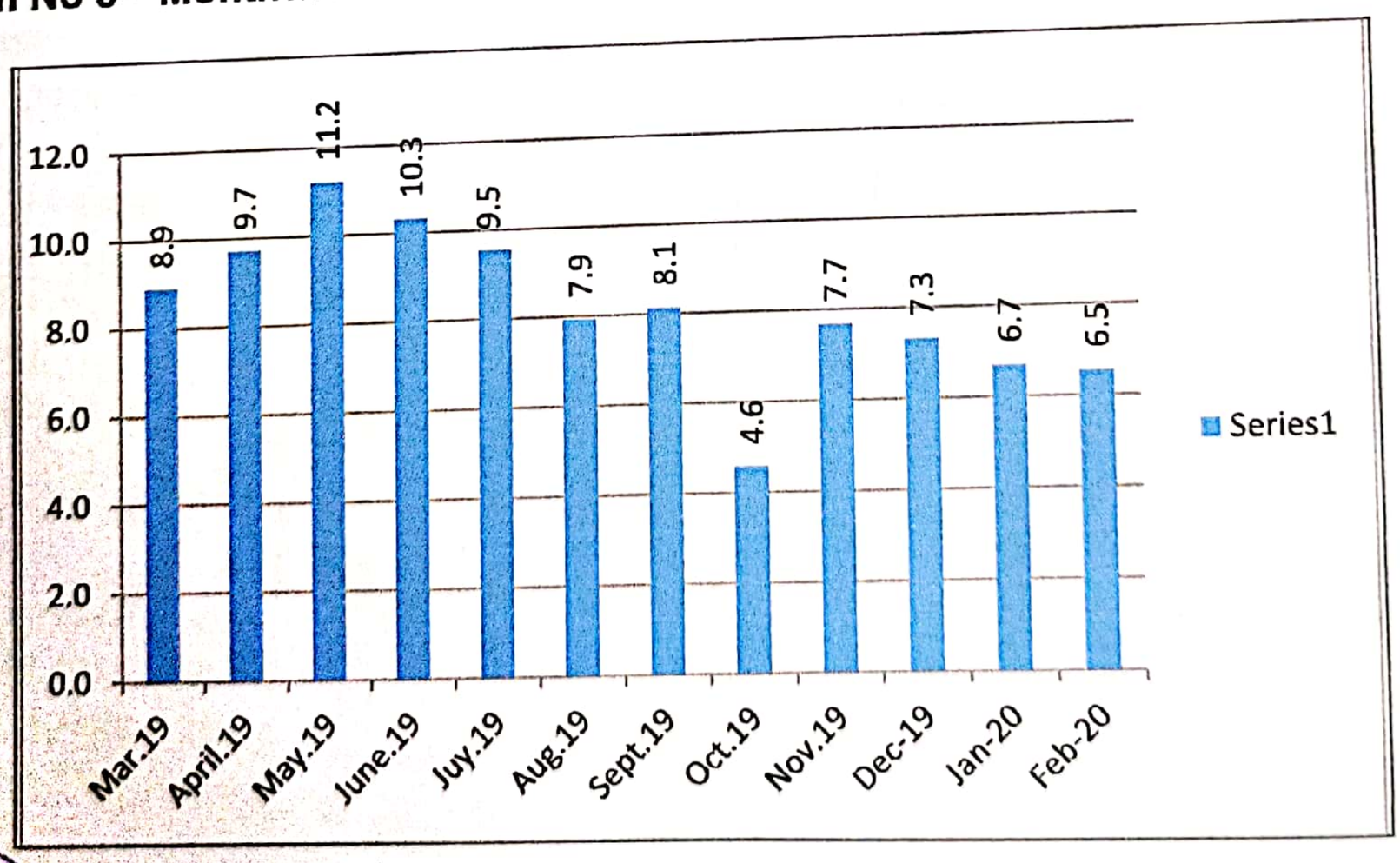
Green House Gas Emission

For consumption of 1 Unit (1 kWh) of Electricity, the CO2 emitted is 0.89 Kg. OR the Emission is 0.89 Kg/kWh. In the following Table we present the total units consumed and CO2 emitted as under: CO2 is major contributer for the Green House Gases which is responsible for Globle Warming

Table 7: MT of CO2 Emission per Month

Month	
Mar.19	8.9
April.19	9.7
May.19	11.2
June.19	10.3
Juy.19	9.5
Aug.19	7.9
Sept.19	8.1
Oct.19	4.6
Nov.19	7.7
Dec-19	7.3
Jan-20	6.7
Feb-20	6.5

Graph No 5—Monthwise CO2 Emission contribution by the College in MT



Energy Conservation Measure 1.

Installation of Photovoltaic Solar Panel in the College. This will have following advantages

1. Reduction in Energy Bill
2. Reduction in CO2 Emission as Solar Energy is Green Energy.
3. Protection of Environment by reduction in Green House Gas

Average Monthly Consumption is 9231 KWH. Minimum 30 % can be installed in First phase

S.No	Technology	Avg Daily KWH	Capacity Required KWH	Cost Involved	Units Generated per year	Unit Rate	ROI Yrs
A	Photovoltaic Solar Plant	120	30	1350000	43200	17.36	1.8

Reduction in CO2 Emission –Green House Gas --38.45 MT of CO2 Per Year
Because of Solar Installation

Connected Load Details of the ICEEM College

S.No	Items	Watt	Ground Floor	First Floor	Second Floor	Hostel	Canteen	Workshop	Total	Avg Watt	Total Watt
1	Tube Lights 28 W	28	126	84	21	7	0	0	238	28	6664
2	Tube Light 36 W	36	1	0	1	35	1	2	40	36	1440
3	Fan	75	155	81	83	31	8	1	359	75	26925
4	Tube Light 2 x36 W	72	0	0	0	0	0	14	14	72	1008
5	LED Tube 20 W	20	17	0	12	1	12	0	42	20	840
6	Tube PL 4 Pin (2 *36)	72	29	0	0	0	0	0	29	72	2088
7	Tube PL 2Pin (2*11)	22	66	0	0	0	0	0	66	22	1452
8	Tube PL -C (2*18)	36	22	0	0	0	0	0	22	36	792
9	Street Light LED 36 W	36	12	0	0	0	0	0	12	36	432
10	Water Cooler 80 LIT	450	1	0	0	0	1	0	2	450	900
11	Water Cooler 40 LIT	300	0	1	1	2	1	1	6	300	1800
12	Refrigerator 2 Door	135	1	0	0	0	0	0	1	135	135
13	Refrigerator 1 Door	100	2	0	0	0	0	0	2	100	200

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14	Xerox Machine Sharp	1200	1	0	0	0	0	0	1	1200	1200
15	Xerox Machine Canon	600	1	0	0	0	0	0	1	600	600
16	Projector	60	1	0	0	0	0	0	1	60	60
17	Computer	80	225	0	0	0	0	0	225	80	18000
18	Air Cooler	175	1	0	0	0	1	1	3	175	525
19	Printer	80	14	0	0	0	0	0	14	80	1120
20	AC	1500	7						7	1500	10500

Detailed Study has been carried out for the Existing Items in the colleges and various Energy saving measures proposed to reduce the Carbon Foot Prints and to use Green Energy

Chapter 5

Study of Air Conditioners

There are Total 7 Air Conditioners in the college all are in working condition. Measurement done and there efficiency was checked against the standard. The excess Power consumption has been calculated.

Most of the Air Conditioners Air Flow was on lower side also Condenser Temperature was on higher side. The condensers are not maintained in good condition.

Since Comfort and Process Cooling by Air Conditioners contribute to major electrical power consumption in College it is necessary to Asses the performance of all these units.

Table 8-- Air Conditioners Details and Measurement

	Location	Room Area (m*m)	Room Temp	AC Set Temp	Inside Temp	Velocity (m/s)	I (amp)	kW	PF	CFM	Std	Derating %	Excess Power/ Hr
Board Room	AC1	10 X 10	24	22	8.7	4.2	5.4	1.27	0.98	496	525	5.4	81
	AC2		24	22	9	4.1	5.3	1.27	0.98	485	525	7.7	115
	AC3		24	22	8	4.6	5.2	1.26	0.98	544	525	-3.6	0
Director Cabin	AC4	7 x7	21	22	8	3.4	6.8	1.66	0.99	402	600	33.0	700
Server Room	AC5	4.6 x 4	22	22	10	3.8	6.6	1.61	0.98	449	525	14.4	217
	AC6		22	22	13	2.4	8.1	1.98	0.98	284	525	46.0	689

Total Additional power consumed per Day considering 5hrs Working of AC

Per Hr additional consumption== 1800 W = 1.8 KWH

Per day Additional Consumption= 9 KWH

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The main purpose and objective of the study is To verify the EER (Energy Efficiency Ratio) of units against Rated EER to check any degradation

1. Explore the possibilities of Energy Saving by estimating cooling loads which are unnecessary and can be prevented by taking actions .The probable loads are heat gains from people or unwanted equipment loads like printers computers etc ,solar heat gains in building envelope from walls ,windows ,floors
2. Any issue contributing to energy performance of units due to installation of indoor and outdoor units and regular upkeep and maintenance like cleaning of filters ,outside units condensers ,gas leak , cooling performance and current drawn .
3. Use of new technologies which are energy efficient and result into power savings

The instruments used for above exercise are

1. Rishabh make clamp on power analyzer
2. Anemometer to measure velocity and cooling flow from Air Conditioner
3. Hand Held Infra Red thermometer to check the temperatures at various places and points .

Analysis ,conclusion and Recommendations

Analysis

1. From above it is evident that Server Room AC units are degraded and delivering less output. The derating can be due to regular maintenance issues like periodic non cleaning of filters of indoor units and outside condensers surface .Due to non cleaning of filters its cfm output is also observed less .The standard CFM output of AC is 300 to 350 CFM per ton. So to save power these units need to be checked/serviced regularly.
2. Also there is regular need to check gas leakage its pressure for proper working and compressor functioning. So there is need for it from AC expert.
3. Due to Derating there is loss of 9.0 kWh per day with 5 Hrs working of each unit on average and annual loss of 2430 kwh/annum.

Recommendations

By proper and regular maintenance as per recommendations of manufacturer including through servicing by authorized service personal the efficiency of these units can be improved and energy can be saved . Assuming min 90 % efficiency we can save min 2430 units/annum can be saved . The. annual cost for maintenance of 7 nos AC will be approx. Rs 10000.00

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Energy Conservation Measure 2—Energy Conservation on Air Conditioning

Sl. No	Energy Efficiency Measures	Estimated Annual Energy Savings	Estimated Investment		Monetary Savings	Simple Payback	Emission Reduction	Eq. Energy Saving
		Electricity (kWh)		(Rs Lacs)	(Rs. Lacs/Yr)	(Months/ Year)	(Tons of CO2)	(TOE/yr)
	Energy Conservation Measures							
A	**Energy Conservation Measures on Air Conditioning**							
1	Carry out Periodic Maintenance of All AC System including 1.Indoor unit filter cleaning 2.Outdoor condenser cleaning 3.Gas system check - up 4. Trough servicing	2430 for Six AC which are Measured	-	0.10	42082	4Months	2.2	0.21
2	Provide Sun film to All AC room windows with south orientation		-					

Chapter 6

Study of Ceiling Fans

The facility is using ceiling fans for comfort air cooling at reception and almost at all places including all rooms. The total population of fans is 359 nos and work for min 10 hrs per day. For energy savings these fans can be replaced by energy savings ceiling fans available with star rating in the market. These fans work on the principle of BLDC that is brushless direct current technology .The power consumption of these fans is just 28 watts as compared to 75 watts of conventional one.

The comparison between the two fans is as below .The Company name is Gorilla and these fans are available with star rating .The key features of these fans are

1. No Heat Loss – Eddy current/Hysteris Loss are eliminated due to DC technology
2. Sensorless Design – Commutation is done by Back EMF (Brushless)
3. Superior Mechanical Design and high quality bearings and use of Permanent Magnets for Highest Efficiency

Table 9---Comparison of Ordinary Fans and Energy Efficient Fans

SR NO.	PARAMETER	ENERGY SAVING FANS	ORDINARY FANS
1.	Wattage W	28	75
2.	Hours/Day Use	08	08
3.	Days/Annum	300	300
4.	Kwh Consumed/Annum	67	180
5.	Unit Rate Rs	17.36	17.36
6.	Annual Cost	1163.12	3124.8
7.	Annual kwh saved	113	--
8.	Annual Monetary Savings Rs	1961.68	

Other Benefits

1.Apart from energy saving features these fans operate with wide voltage variation range from 140 to 285 V AC and frequency 48 to 52 hz and PF 0.98

2. These fans have 3 Years warrantee

Energy Conservation Measure 3—

Replacement of Existing 359 Nos Fans by BLDC Fans
Average per Day Consumption Hours considered --4 Hrs
Number of Days Considered--270

S.No	Technology	Avg Daily KWH Existing Fans	Avg Daily KWH BLDC Fans	Daily Units Save	Yearly Units Saves	Unit Rate	Saving RS per Year	Cost of Fans	ROI In Years	Emission Reduction Tons Of CO2	Eq.Energy TOE/Yr
1	Brushless DC Motor Fans	107.7	40.2	67.5	18225	17.36	316386	897500	2.8	16.22	1.57

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Chapter 7

Study of Lighting System

The College Building is well Ventilated and Average Lux Level Measured in Day Time is above 250---300 which is good for the College Premises.

The Different types of Lighting used in the college classrooms and Lab. The Details of the same is Listed Below.

Table No--- Lighting in College Premises

S.No	Items	Watt	Ground Floor	First Floor	Second Floor	Hostel	Canteen	Workshop	Total	Avg Watt	Total Watt
1	Tube Lights 28 W	28	126	84	21	7	0	0	238	28	6664
2	Tube Light 36 W	36	1	0	1	35	1	2	40	36	1440
3	Tube Light 2 x36 W	72	0	0	0	0	0	14	14	72	1008
4	Tube PL 4 Pin (2 *36)	72	29	0	0	0	0	0	29	72	2088
5	Tube PL 2Pin (2*11)	22	66	0	0	0	0	0	66	22	1452
6	Tube PL -C (2*18)	36	22	0	0	0	0	0	22	36	792
7	Street Light LED 36 W	36	12	0	0	0	0	0	12	36	432
8	LED Tube 20 W	20	17	0	12	1	12	0	42	20	840

Energy Conservation Measure --4

1. Replacement of 28 W Tube with 20 W LED Tube –238 Nos
2. Replacement of 36 W Tube with 20 W LED Lights—40 Nos
3. Replacement of 2 x36 W Tube Light with 18x 2 LED Lights—14 Nos
4. Average Daily Consumption considered for Four Hrs
5. College w0rking days considered 270

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S.No	Technology	Avg Daily KWH Existing	Avg Daily KWH LED	Daily Units Save	Yearly Units Saves	Unit Rate	Saving RS per Year	Cost of LED	ROI In Years	Emission Reduction Tons Of CO2	Eq.Energy TOE/Yr
1	Replace 28 W Tube with 20 W LED	26.7	19.	7.6	2056	17.36	35692	119000	3.33	1.83	0.18
2	Replace 36 W Tube with 20 W LED	5.8	3.2	2.5	691	17.36	11995	20000	1.66	0.61	0.06
3	Replace 2 X36 W Tube with 2 X18 W LED	4	2	2	544	17.36	9443	14000	1.5	0.48	0.05
	Total	36.5	24.2	12.3	3291	17.36	57131	153000	2.68	2.92	0.29

Chapter 8

Study of Water Pump

5 HP Water Pump is used to lift the water in overhead Tank . The overhead Tank capacity is 4000 Litres.

Data Measured for the Pump is as below

R	8.2	243	0.777	1.58		
Y	7.3	244	0.766	1.59		4.5 KW/HR
B	8	243	0.735	1.53		

We could not get the Details of the Pump but seems to be derated by more than 30 % It takes 25 Min to fill tank with present condition of Pump.

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Considering Average occupancy of 250 Persons and avg consumption of 8o Litr/Day
Total water Requirement per day= 20000 Litrs

Pump need to run only for 2.5 Hrs but as per the inputs available it runs for 4 Hrs a day
This may be because of leakages and water overflow.

Energy Conservation Measure 5—

Installation of water level sensor in Overhead Tank

S.No	Technology	Avg Daily KWH Existing	Avg Daily KWH by Level Sensor	Daily Units Save	Yearly Units Saves	Unit Rate	Saving RS per Year	Cost of Installation	ROI
1	Installation of Level sensor in Overhead Tank	18	11.25	6.75	1822	17.36	31638	20000	0.8

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Ver 1.21.06

Maharashtra State Electricity Distribution Co. Ltd

MAHAVITARAN

BILL OF SUPPLY FOR THE MONTH OF MAY 2019

201905164598945

HSN CODE: 27160000

GSTIN 27AAECM2933K1Z6 Website:www.mahadiscom.in

1

AURANGABAD(U) CIRCLE AURANGABAD(U)-I 221 D WALUJ SUB-DIVISION 672

INDIAN INS

Consumer No. : 490019045580

Consumer Name : INDIAN INSTITUTE OF RURAL WORKS (IIRW)

Address : GAT NO. 4 & 5 , PANDHARPUR, WALUJ

AURANGABAD

BILL DATE	02-06-2019	1,96,540.00
DUE DATE	17-06-2019	
IF PAID UPTO	10-06-2019	1,94,940.00
IF PAID AFTER	17-06-2019	1,99,000.00

Last Receipt No./Date : 0039776429 / 03-05-2019 1,58,400.00

Last Month Payment :

Scale/Sector : Medium Scale Private Sector

Activity : COLLEGE & UNVRSITIES

Load Shed Ind OTHER

Seasonal :

Urban/Rural Flag : U

Express Feeder Flag : No

Feeder Voltage (KV) : 11

LIS Indicator :

Village : Pin Code : 431136

Email ID : ACCOUNTS@ICEEMABAD.COM

Mobile No. : 9823224443

Meter No. : 055 - GTL00477

Tariff : 145 HT-IX B

Connected Load (KW) : 198.00

Contract Demand (KVA) : 115

50% of Con. Demand(KVA) : 57.50

Sanctioned Load (KW) : 198

old trf HT-IX B

Date of Connection :	02-07-2011	Category : PUBL. SERVICES OTH	GSTIN :
Supply at:	HT	Elec. Duty : 06 PART B	PAN : AAATI6479D
Prev. Highest (Mth) :	APR	Prev. Highest Bill Demand (KVA) : 44	
Security Deposit Held Rs. :	1,69,395.00	Addl. S.D. Demanded Rs. 0.00	
Bank Guarantee Rs. :	0.00	S.D. Arrears Rs. : 0.00	

BILLING HISTORY

Bill Month	Units	Bill Demand(KVA)	Bill Amount
APR-19	10,926	58	1,74,538
MAR-19	10,006	58	1,60,325
FEB-19	8,446	58	1,36,581
JAN-19	8,296	58	1,38,169
DEC-18	8,548	58	1,38,671
NOV-18	9,134	58	1,42,568
OCT-18	10,912	58	1,74,311
SEP-18	9,934	58	1,55,157
AUG-18	9,464	58	1,25,356
JUL-18	9,490	58	1,23,860
JUN-18	9,872	58	1,32,965
MAY-18	13,356	58	1,72,158

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-102-3435

IGRC: EXE ENGG (ADM),MILL CORNER,OLD POWER HOUSE, URBAN CIRCLE,AURANGABAD, Phone - 0240-2240122

In case of non-redressal of grievance here, consumer may make his representation to below forum

CGRF: old power house premises, Dr.Ambedkar road,Aurangabad, Phone - 0240-2336172

For making Energy Bill payment through RTGS/NEFT mode, use following details

- Beneficiary Name: MSEDCL
- Beneficiary Account Number: MSEDCL0149001904560 0
- IFS Code: YESB0CMSNOC (5th character is zero and 11th character is "O")
- Name of Bank: Yes Bank
- Name of Branch: CMS NATIONAL OPERATING CENTRE MMR

Disclaimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number.

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Important Message

- Consumers can pay online using Net Banking, Credit/Debit cards at https://wss.mahadiscom.in/wss/wss after registration.
- Submit / update your E-mail id and mobile number to Circle office for receiving prompt alerts through SMS.
- Submit / update your PAN and GSTIN to circle office with copies of PAN and GSTIN for verification.
- Special desk is operational for HT Consumers, please contact : hlconsumer@mahadiscom.in for any clarification / query or grievance.
- This Electricity Bill should not be used for the address proof and as a proof of propery ownership.

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF MAR 2020 2020031645060

GSTIN:27AAECM2933K1ZB Website: www.mahadiscom.in HSN CODE:27

er No 49[illegible]3045680 AURANGABAD(U) CIRCLE AURANGABAD(U)-I 221 D WALUJ SUB-DIVISION 672

er Name : INDIAN INSTITUTE OF RURAL WORKS (IIRW) INDIAN INS

s GAT NO 4 & 5 , PANDHARPUR, WALUJ
AURANGABAD

BILL DATE	15-04-2020	1,35,67(
DUE DATE	31-05-2020	
IF PAID UPTO	21-04-2020	1,34,56(
IF PAID AFTER	31-05-2020	1,37,36(

Last Receipt No./Date : 0000040577 / 12-03-20

Last Month Payment : 1,32,370.0

ge : Pin Code : 431136 Scale/Sector : Medium Scale Private Secto

il ID : ***karni.pradeep66@gmail.com Activity : COLLEGE & UNVRSITIES

ile No.: 95******26 Meter No. : 055 - X1093145 Seasonal : Load Shed Ind OTH

ctioned Load (KW) : 198 Connected Load (KW) : 198.00 Urban/Rural Flag : U Express Feeder Flag : I

tract Demand (KVA) : 115 50% of Con. Demand(KVA) : 57.50 Feeder Voltage (KV) : 11 LIS Indicator :

1 146 HT-IX B old trf HT-IX B

of Connection : 02-07-2011 Category : PUBL. SERVICES OTH GSTIN :

ly at: HT Elec. Duty : 06 PART B PAN : AAATI6479D

Highest (Mth) : APR Prev. Highest Bill Demand (KVA) : 44

ity Deposit Held Rs. 1,69,395.00 Addl. S.D. Demanded Rs. 0.00

Guarantee Rs 0.00 S.D. Arrears Rs. : 0.00

BILLING HISTORY

Month	Units	Bill Demand(KVA)	Bill Amount
EB-20	7,346	58	1,33,456
AN-20	7,522	58	1,34,842
EC-19	8,220	58	1,43,318
OV-19	8,626	58	1,49,110
CT-19	8,479	58	1,39,006
EP-19	9,148	58	1,72,540
UC 9	8,916	58	1,37,520
UL-19	10,722	58	1,38,040
JN-19	11,594	58	1,82,089
AY-19	12,606	58	1,96,535
PR-19	10,926	58	1,74,538
AR-19	10,006	58	1,60,325

CUSTOMER CARE Toll Free No. 1912, 1800-233-3435, 1800-102-3435

IGRC: EXE ENGG (ADM),MILL CORNER,OLD POWER HOUSE, URBAN CIRCLE,AURANGABAD, Phone - 0240-2240122
In case of non-redressal of grievance here, consumer may make his representation to below forum
CGRF: old power house premises, Dr.Ambedkar road,Aurangabad, Phone - 0240-2336172

making Energy Bill payment through RTGS/NEFT mode, use following details
- o Beneficiary Name: MSEDCL
- o Beneficiary Account Number: MSEDHT01490019045680
- o IFS Code: SBIN0008965 (fifth,sixth and seventh character is zero)
- o Name of Bank: SBI Bank
- o Name of Branch: IFB, BKC Branch-MSEDCL

claimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number.

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BILL PAID BY BANK

Bank Name. SBI

Ch.No. Dt. 18/5/2020

Paid Amount 25240/-

MAHAVITARAN

Maharashtra State Electricity Distribution Co. Ltd.

BILL OF SUPPLY FOR THE MONTH OF Mar 2024

000002389858363
GSTIN: 27AA ECM2933K1ZB
CH. SAMBHAJINAGAR (U:645
Website : www.mahadiscom.in
HSN CODE: 27160000
CH. SAMBHAJINAGAR UR : 221
WALUNJ S/DN. : 672 1

Consumer No. :	490017847403
Consumer Name :	InternationalCentreofExcellence in EnggandMgt
Adresss :	GUT NO 4 & 5 PANDHARPUL WALUJ AURANGABAD AURANGABA D Pandharpur (CT)
Village :	Pincode : 431136

BILL DATE	17-04-2024	1,48,240.00
DUE DATE	07-05-2024	
IF PAID UPTO	23-04-2024	1,46,990.00
IF PAID AFTER	07-05-2024	1,50,100.00
Last Receipt No./Date		/19-03-2024
Last Month Payment		1,55,450.00
Scale / Sector		Small Scale /PUBLIC SECTOR

Email ID :	dir*****@iceemabad.com			Activity :	SCHOOLS AND COLLEGES		
Mobile No. :	94******01	Meter No.:	055-X1962084	Seasonal :	N	Load Shed Ind :	
Tariff :	88 LT-VII B I	Connected Load (KW):	50.00 KW	Urban/Rural Flag :	U	Express Feeder Flag :	N
Contract Demand (KVA) :	63.00	40% of Con. Demand(KVA) :	25.20	Feeder Voltage (KV) :	11	LIS Indicator :	
Sanctioned load (KW) :	50.00 KW						
DTC :	6721907	PC-MR-ROUTE-SEQ :	00-01-0054-1321	BU :	4672	PC :	00
Date of Connection :	20-05-2022	Category :	LT-X PUBLIC SERVICES 20-50KW	GSTIN :			
Supply at :	LT	Elec. Duty :	06	PAN :			
Prev. Highest (Mth) :		Prev. Highest Bill Demand (KVA) :					
Security Deposit Held Rs. :	50,000.00	Addl. S.D. Demanded Rs :	00.00				
Bank Guarantee Rs. :	0.00	S.D. Arrears Rs. :	91,260.00				

BILLING HISTORY

Bill Month	Consumption (Units)	Bill Demand (KVA)	Bill Amount
Feb 2024	8,856	35	1,57,008.36
Jan 2024	6,006	33	1,15,009.41
Dec 2023	9,419	38	1,76,122.92
Nov 2023	8,305	38	1,51,659.49
Oct 2023	9,742	34	1,63,239.02
Sep 2023	12,007	39	1,91,605.45
Aug 2023	14,261	34	2,10,899.55
Jul 2023	10,611	30	1,64,585.92
Jun 2023	10,980	34	1,69,754.95
May 2023	15,210	40	2,20,229.65
Apr 2023	9,418	33	1,39,416.26
Mar 2023	13,343	36	1,84,845.59

CUSTOMER CARE Toll Free No.
1912, 1800-102-3435,
1800-233-3435

Rule & Procedure for Consumer Grievances Redressal is available at www.mahadiscom.in>consumer portal>CGRF Instead of Printed bill , register for E-bill and avail Rs. 10 per bill as a "Go-green " discount.For registration visit at www.mahadiscom.in->consumer portal->Quick access->Go-green request

Scan this QR Code with BHIM App for UPI Payment

If paid by QR Code then Prompt Pay Discount/Delay Payment Charges will be adjusted in subsequent bill.

For making Energy Bill Payment through RTGS/NEFT mode, use following details

- Beneficiary Name: **MSEDCL**
- Beneficiary Account Number:**MSEDCL01490017847403**
- IFS Code: **SBIN0008965**
- Name of Bank: **STATE BANK OF INDIA**
- Name of Branch: **IFB BKC**
- Bill Amount:**1,48,240.00**

Disclaimer: Please use above bank details only for payment against consumer number mentioned in beneficiary account number.

Important Message

- Consumers can pay online using Net Banking, Credit/Debit cards at https://wss.mahadiscom.in/wss/wss after registration.
- Submit / update your E-mail id and mobile number to Circle office for receiving prompt alerts through SMS.
- Submit / update your PAN and GSTIN to circle office with copies of PAN and GSTIN for verification.
- Special desk is operational for HT Consumers, please contact : htconsumer@mahadiscom.in for any clarification/query or grievance.
- This Electricity Bill should not be use for the address proof and as a proof of property ownership.
- For Any Payment to MSEDCL , ENSURE & INSIST for computerised receipt with unique system generated receipt number. Do not accept handwritten receipts. Pay online to avoid any inconvenience.

CURRENT CONSUMPTION DETAILS

Reading Date	KWH	KVAH	RKVAH (LAG)	RKVAH (LEAD)	KW (MD)	KVA (MD)
Current 31-03-2024	179633.200	277328.600	1378.800	179698.000	39.420	45.140
Previous 29-02-2024	170040.600	257697.000	1378.800	162953.200		
Difference	9592.600	19631.600	0.000	16744.800		
Multiplying Factor	1.000	1.000	1.000	1.000	1.000	1.000

Consumption	8610.000	19632.000	0.000	16745.000	39.000	45.000
LT Metering	0.000	0.000	0.000	0.000	0.000	0.000
Adjustment	0.000	0.000	0.000	0.000		
Assessed Consump	0.000	0.000	0.000		0.000	0.000
Total Consumption	8610.000	19632.000	0.000	16745.000	39.000	45.000

BILLING DETAILS

Billed Demand (KVA)	29	@ Rs.	422
Assessed P.F.		Avg. P.F.	0.500
Billed P.F.	0.500	L.F.	

Consumption Type	Units	Rate	Charges Rs.
Industrial	0	0.00	00.00
Residential	0	0.00	0.00
Commercial	8,610	9.40	80934.00

E.D. on(Rs)	Rate %	Amount Rs.
0.00	0	0.00
0.00	0	0.00
103,842.00	21	21806.82

TOD Zone	Rate	Units	Demand	Charges Rs.
2200 Hrs-0600 Hrs	-01.50	4140	37.00	-6,210.00
0600 Hrs-0900 Hrs & 1200 Hrs-1800 Hrs	00.00	2162	45.00	0.00
0900 Hrs - 1200 Hrs	00.80	125	38.00	100.00
1800 Hrs-2200 Hrs	01.10	2183	44.00	2,401.30

Amount in Words: ONE LAKH FORTY EIGHT THOUSAND TWO HUNDRED FORTY ONLY

Demand Charges	12,238.00
Wheeling Charge @ 01.17	10,073.70
Energy Charges	80,934.00
TOD Tariff EC	-3,708.70
FAC @ 00.50 Ps/U	4,305.00
Electricity Duty (21.00 %)	21,806.82
other charges	00.00
Tax on Sale @ 19.04 Ps/U	1,639.34
P.F. Penal Charges/P.F. Inc.	21,287.61
Charges For Excess Demand	00.00
Debit Bill Adjustment	00.00
TOTAL CURRENT BILL	**1,48,580.00**
Current Interest 14-04-2024	00.00
Principle Arrears	-333.76
Interest Arrears	00.00
Total Bill (Rounded) Rs.	1,48,240.00
Delayed Payment Charges Rs.	1,857.20
Amount Payable07-05-2024 After Amount Rounded to Nearest Rs.(10/-)	**1,50,100.00**

SOLAR NET METER CONSUMPTION DETAILS

SOLAR TARIFF	IMPORT			EXPORT			GENERATION		
	CURRENT READING	PREVIOUS READING	Units	CURRENT READING	PREVIOUS READING	Units	CURRENT READING	PREVIOUS READING	Units
0000 Hrs-0600 Hrs& 2200 Hrs-2400 Hrs	69,276.80	65,136.60	4,140.00	00.00	00.00	00.00	00.00	00.00	00.00
0600 Hrs-0900 Hrs& 1200 Hrs-1800 Hrs	61,264.60	58,467.20	2,797.00	18,986.40	18,264.60	635.00	80,373.00	74,287.00	6,086.00
0900 Hrs - 1200 Hrs	10,251.60	9,779.40	472.00	11,056.60	10,662.60	347.00	42,174.00	39,338.00	2,836.00
1800 Hrs-2200 Hrs	38,840.20	36,657.40	2,183.00	03.60	03.60	00.00	328.00	298.00	30.00
TOTAL	1,79,633.20	1,70,040.60	9,593.00	30,046.60	28,930.80	982.00	1,22,875.00	1,13,923.00	8,952.00
Offset: 982.00	Prvious Banked: 00.00		Current Banked: 00.00	Banking Charge Unit: 134.00			Billed: 8,610.00		

Message:

#As per MERC Directive dtd.24/02/2021,cash payment of Rs.5000.00 and above will not be accepted by MSEDCL.
 # Online payment Facility - adopt for safe , easy and free online payment facility through https://wss.mahadiscom.in/wss OR Mobile app - Mahavitaran & get discount of 0.25% (max Rs.500). For queries please contact helpdesk_pg@mahadiscom.in.
#Dear Customer The power factor of your consumer number 490017847403 is 0.5 you are currently paying Rs.21287.61 for low PF.Ensure your capacitor bank working to maintain PF between 0.9 lag to lead and save penalty.
 # As per MERC order dt.24/02/2021, Monthly energy bill receipt in cash is limited to Rs.5000/- w.e.f 01/11/2021.
DIGITAL PAYMENT DISCOUNT OF Rs. 312.82 WILL BE CREDITED IN SUBSEQUENT BILL,IF PAID BY DIGITAL MODE ON OR BEFORE 07-05-2024
In case of energy bill paid through NEFT / RTGS, date of amount credited in MSEDCL bank account will be considered as bill payment date.
As per MERC order for Case No 322 of 2019 revised Cheque Bounce charges of Rs. 750 or Bank charges whichever is higher will be applicable from 01 April 2020.
Message: Rooftop Solar Units:-Export:+00000982,Import:9592,Adjusted:+00000982,Bank:-00000000/Please refer copy of the bill for details./
As per Income Tax provision vide section 269 ST cash receipt of Rs.2.00 lakhs and above will not be accepted by MSEDCL against any type of Payment.
 # Prev Prompt Payment Credit:-1322.71
 # Prev Digital Mode Payment Credit:-330.68
 # As per MTR order (226/2022) revised tariff for FY 2023-24 is effective from 01.04.2023.
 # This bill for power supply cannot be treated or utilised as proof that the premises for which the power supply has been granted is an authorised structure nor would the issuance of the bill amount to proof of ownership of the premises.
 # Prompt Payment Discount: Rs. 1,251.30 , If bill is paid on or before 23-04-2024 .

CONDITIONS

1. The total bill amount of the bill may be remitted by a Crossed Demand Draft/Cheque drawn in favor of 'Maharashtra State Electricity Distribution Co. Ltd.' Whenever Security Deposit is demanded separate Cheque/Bank Draft should be sent.
2. The current bill is payable within fifteen days from the date of issue of the bill. Even if there is any discrepancy in the bill or any other clarification needed, consumers are requested to pay the billed amount in full provisionally or under protest subject to review and subsequent adjustment, so that payment of delayed payment charges is avoided.
3. This bill is issued subject to the provision of the 'Conditions and Miscellaneous charges for supply of Electrical Energy' of the company.
4. Please quote the Consumer Number on the back of the Cheque. The payment of this bill should be made at Company's office only.
5. If the cheque is sent by post, the same should be posted three clear days in advance of the due date.
6. If paid by Cheque/DD/Pay Order, then the Realization date should be considered as payment date.

Collection Hours : 10-30 to 16-00 Hours (Except on Bank Holidays, Sundays, 2nd and 4th Saturdays)

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