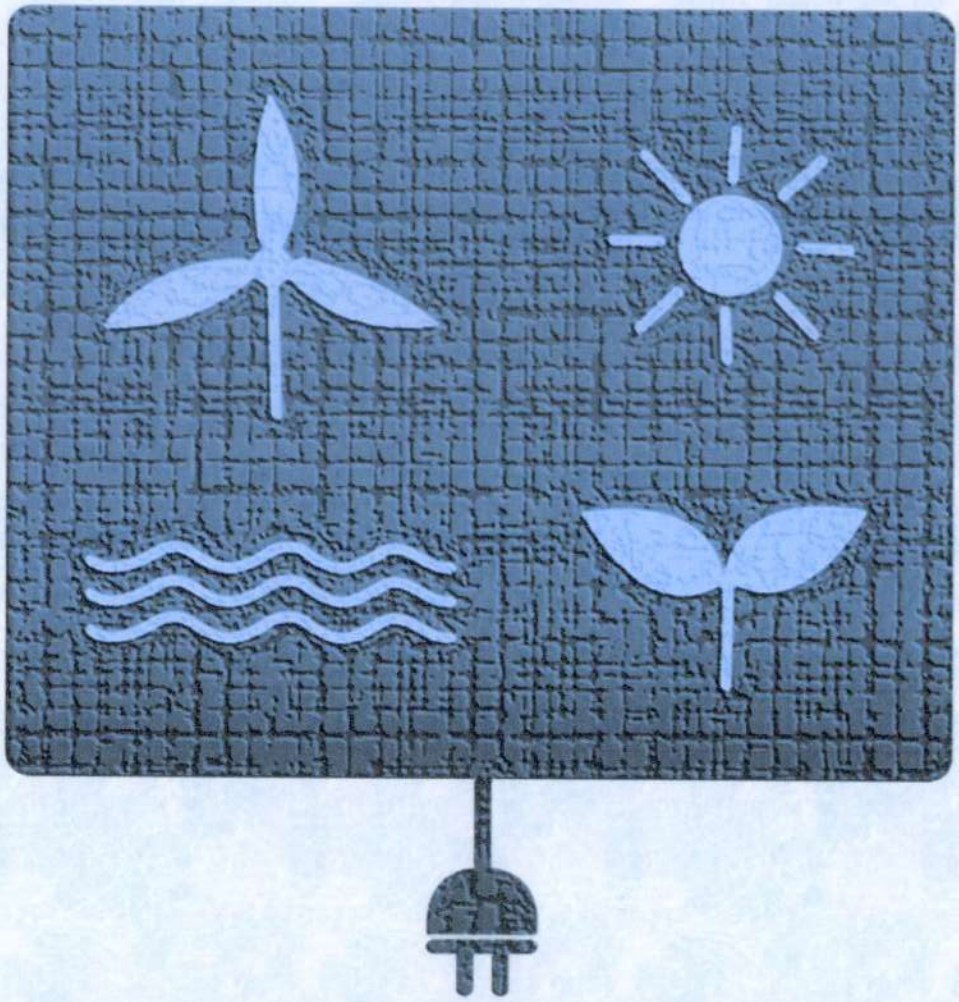
Megha Institute of Engineering and Technology for Women

Medchal, Telangana

Environmental Audit

(2020-2021)



Prepared by

Ecopie Services LLP

Hyderabad, Telangana

Preface

Environment is the protector of the life on the earth. Therefore, in order to protect ourselves and the earth it is the prime responsibility of every citizen of the particular locality. The developmental activities performed to as part of development are degrading the environment. On the other hand, the overuse of the natural resources and polluting the available resources is causing the degradation of environment. As a result, we are witnessing several direct and indirect implications. These is in turn effecting the life. Wherein we human beings are also affected. This is the reason; we have to think and start protecting our resources and environment. To protect, manage and minimize the damage to environment, environmental education is compulsory. It develops the required skills and expertise to handle the associated challenges. Such environment education to students is to impart knowledge, create awareness, inculcate attitude of concern and provide skill to handle the environmental challenges.

India has been putting efforts on clean energy and sustainable development through various activities and schemes. This need to be properly utilised. We also have several rules, regulations and laws being implemented across the country. The laws allow us to unsure the sustainable development with proper resource management.

Institutions are the first teachers for future generations to think, invent and implement sustainable and eco-friendly activities. Any institution can make their premises environment friendly and make their students to take part in such activities. Green campus is the new concept that helps the management to grow sustainably and encourage students to take part in such activities. There are several certifications and recognitions being provided by Governments and companies encourage the institutions.

Environmental Audit helps the institutions to evaluate their activities, calculate the resource use and take up sustainable activities for making their campus into green campus. Megha Institute of Engineering and Technology is also committed to understand their resources and opt for eco-friendly and cleaner technologies.

In view of the above, Ecopie Services LLP were given responsibility to evaluate existing resources of the institution and usage of the resources, so that the proper sustainable plan can be prepared. For this entire process, the Ecopie team has conducted the resource wise audit and came up with the recommendations required to be implemented in the campus.

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Overview

Environmental audit is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable.

This aims to help protect the environment and minimize the risks of development activities to the environment and human safety and health. It provides the management with information about the management performance of the institutes environment as resources for making decisions. It also develops organizational culture and increase environmental awareness amongst within the institution.

Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organization of all kinds now recognize the importance of environmental matters and accepts that their environmental performance will be scrutinized by a wide range of interested parties. Environmental auditing is used to investigate, understand and identify.

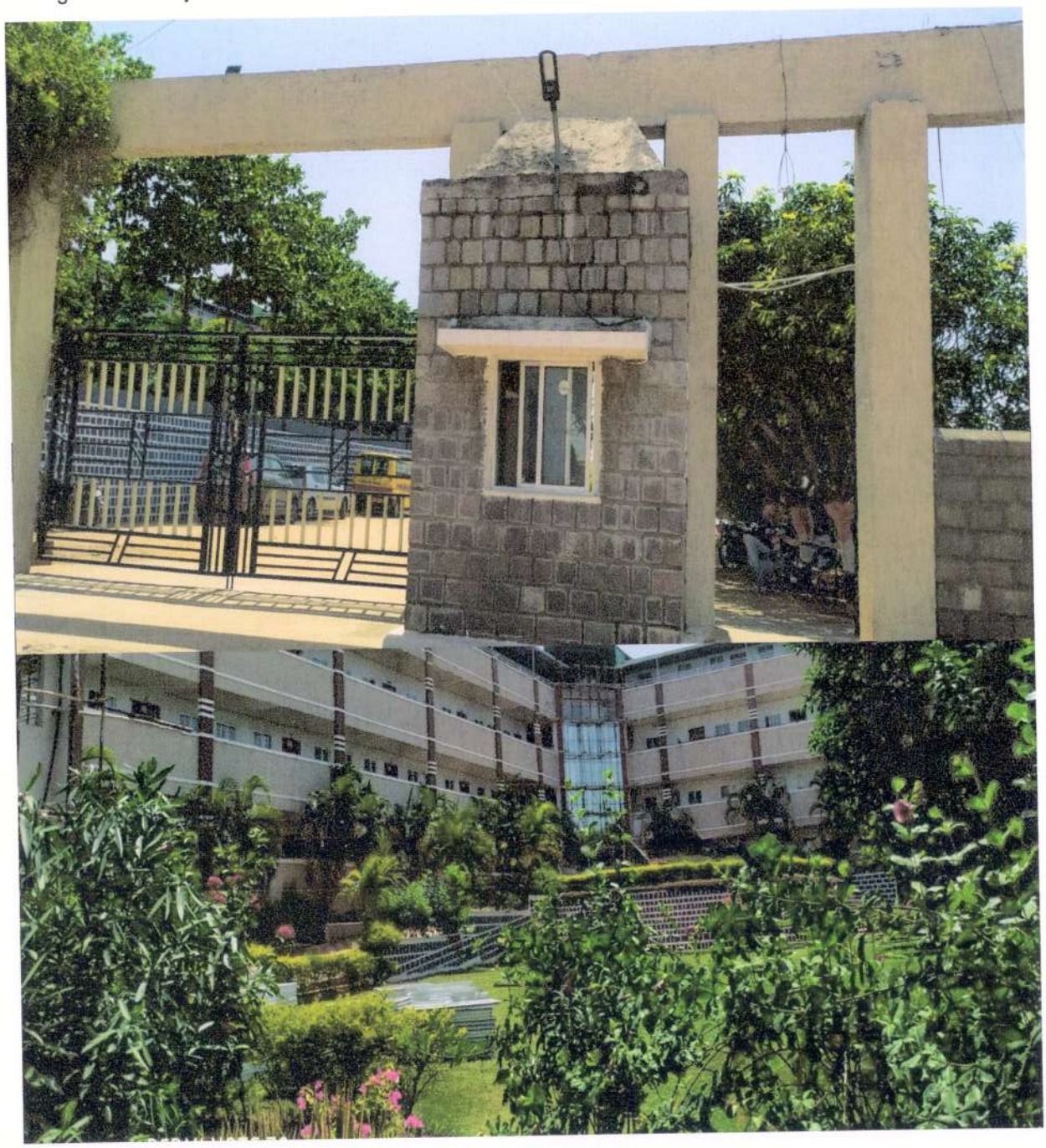
These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organizations environmental effect in a systematic and documented manner and will produce an environmental report.

1.1. Objectives

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

1.2. Methodology

This includes different techniques such as physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. This study covers various aspects of environment as mentioned in the report. Auditing methods are chosen based on the type of information needed to prove the real-life problems assumed in the preliminary study and demonstrate the scale of these problems. The data is collected verbally, visually, and textually. After data collection, the result analysis is done on cost benefit, life cycle, comparative and regression analysis.



Institution Profile

Megha Institute of Engineering and Technology for women was established in the year 2008, under the umbrella of Crescent Educational Society. Eminent educationalists involved in the field of education, for over a decade, formed the governing body of the College. This institute have created new trend of innovation in the Ranga Reddy District area. The College is approved by AICTE, New Delhi, and affiliated to JNT University, Hyderabad. In the current global scenario erudite, concept rich, well-trained professionals, form the paramount stipulation of the industry. It is this forethought, that initiated the establishment of this professional institution. Exposure to constantly updated technologies, industry orientation, and proficiency in subject content has been the mantra behind the recent accomplishments. Institute has women engineering college with IIT certification. This institute has recently associated with aakaar IIT Bombay and Technex IIT Varanasi.

Vision

- To become a premier Institute ensuring women's empowerment through holistic education.

Mission

- To provide state–of–the-art infrastructure for students and faculty supporting effective teaching – learning process towards mutual development.
- To nurture and inculcate employability skillset through industry institute interaction policy.
- To equip, enrich nd transform the students to be responsible with a strong commitment ot the society.

College has several committees like Anti-ragging, Disciplinary, Women Protection Cell, Grievance & Redressal etc for the students.

The MIETW Centre for Engineering Innovation and Development (MCEID) - empowers students to improve human lives through the advancement of technology. MCEID encourages and accelerates development of indigenous products. The centre bridges the gap between Industry and Institute. MCEID aspires to launch high-impact projects and develop visionary leaders by bringing together people from diverse backgrounds and giving them resources to learn, create and share. The Centre seeks to infuse design experiences into student learning through an array of classes and activities. MCEID holds

workshops, lectures, networking events and exhibitions and hosts a competitive MCEID Summer Internship Programme.

The institute has library, which houses a large collections of reading materials such as textbooks, Reference books, Handbooks, Dictionaries and Motivational books. As the course books are concise and specific in nature, elaborate information from reference is the need of our inquisitive minds. MIETW has a well-stocked library with exhaustive collection of nearly 2061 of reference books, Periodicals and journals and other Motivational books. The students and users ma ke good use of the library facilities. The reading room provides an ideal atmosphere for serious reading.

The central library has a floor area of 700 Sq.Mtr. It has 2061 titles and 15163 volumes. The college is subscribed to 50 National and 35 International journals, 2000+ e-journals from DELNET INFOTRAC are also available. The college is a member of SONET, DELNET and National Digital Library of India (an attempt to overcome the serious shortage of Updated information in certain engineering disciplines).

The Sports Department of MIETW is headed by a Physical Education Team supported by two Assistant Physical Directors and two Ground men. The students are participating in various events and games inside and outside the college.

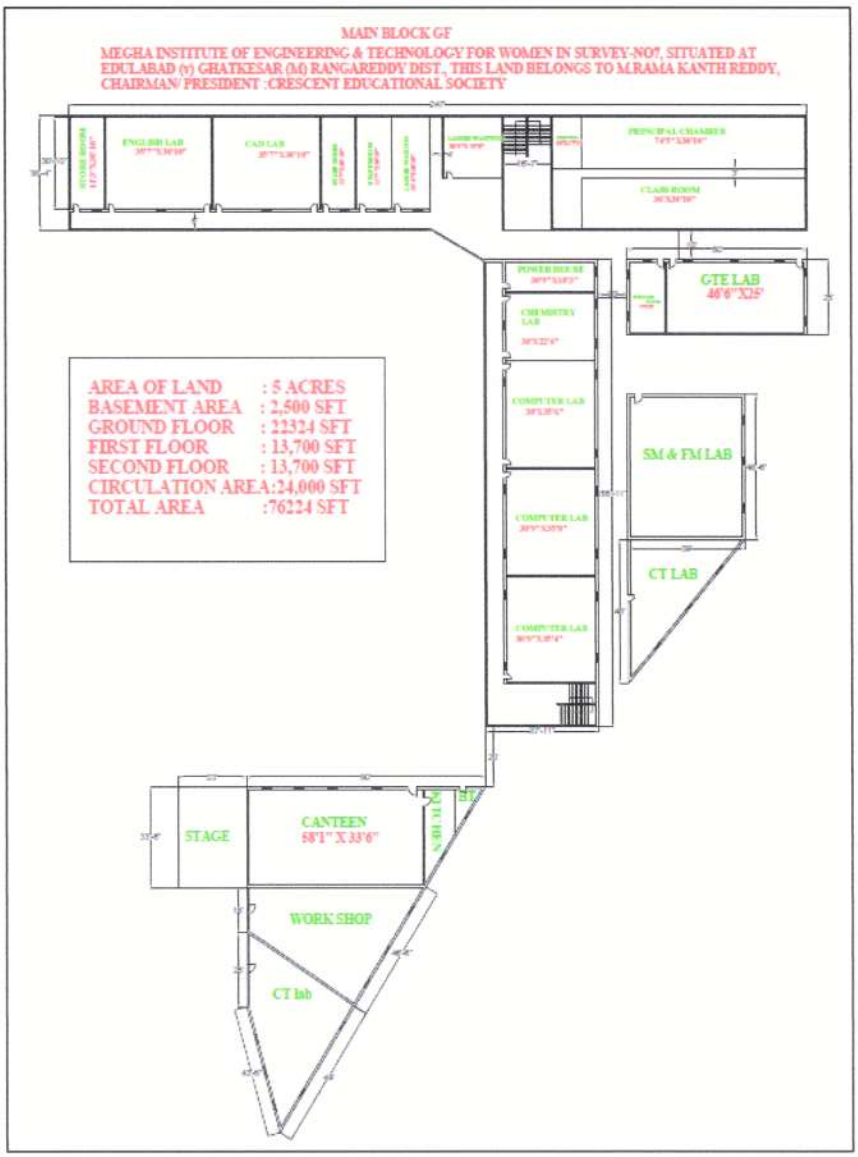
The following play facilities are available in the campus for girls like Cricket, Basketball, Volleyball, Throw Ball, Table Tennis, Badminton, Kho-Kho, Foot Ball, Caroms, Chess, Gym etc.

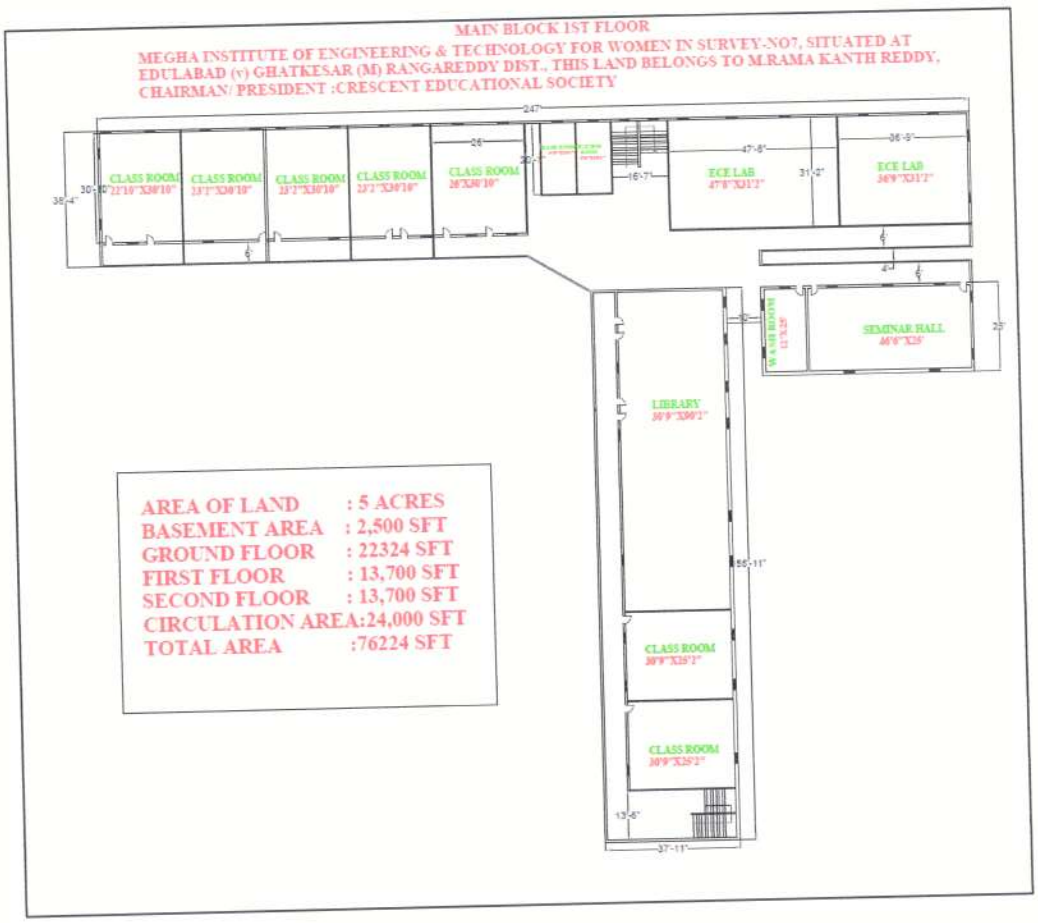
A Safe and Secure Residential Facility with homely environment is available for students

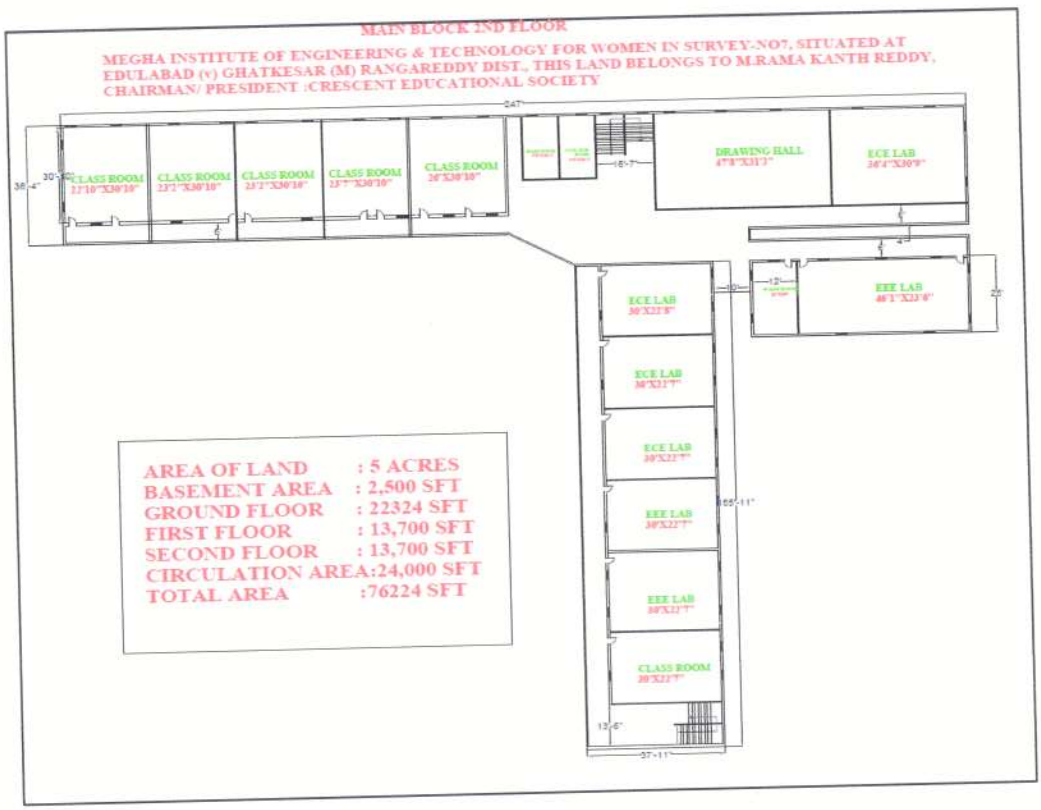
- Spacious and Airy rooms are available.
- Basic necessities like Bed with mattress and pillows, Table, Almirah, Hot water, attached washrooms are available.
- Medical Facilities available.
- Clean and spacious Mess available with dining area where fresh meals provided for Breakfast, Lunch and Dinner.
- Power Back-up facility.

A fleet of 18 buses in a very good condition transfer the students from various parts of the city to the college and back to their localities.

2.1. Campus Maps




MAIN BLOCK 1ST FLOOR
MEGHA INSTITUTE OF ENGINEERING & TECHNOLOGY FOR WOMEN IN SURVEY-NO7, SITUATED AT EDULABAD (v) GHATKESAR (M) RANGAREDDY DIST., THIS LAND BELONGS TO M.RAMA KANTH REDDY, CHAIRMAN/ PRESIDENT :CRESCENT EDUCATIONAL SOCIETY
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
ECE LAB
ECE LAB
SEMINAR HALL
LIBRARY
CLASS ROOM
CLASS ROOM
AREA OF LAND : 5 ACRES
BASEMENT AREA : 2,500 SFT
GROUND FLOOR : 22324 SFT
FIRST FLOOR : 13,700 SFT
SECOND FLOOR : 13,700 SFT
CIRCULATION AREA:24,000 SFT
TOTAL AREA :76224 SFT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2.2. Campus General Information

Location	Edulabad Ghatkesar	
Total area of the campus	5 Acres	
Total Constructed area	2 Acres	
Area under Green cover	3 Acres	
No. of buildings	4 Blocks(A, B,C,D)	
Source of water (Municipal, Ground water & Tanks)	Ground Water	
Source of electricity (Supplier)	TSSPDCL	
Does your campus have renewable energy sources	No	
Total no. of students	1003	
Total no. of students (Hostellers)	0	
Total no. of students (Daysholars)	1003	
Total no. of faculty	83	
Total no. of teaching faculty (In house)	8	
Total no. of teaching faculty (Staying outside)	75	
Total no. of non-teaching faculty (In house)	0	
Total no. of non-teaching faculty (Staying outside)	25	
Total no. of administrative staff	03	
Total no. of cleaning staff	20	
Total no. of employees for landscape maintenance	05	
Total no. of security staff	6	
Total no. of people visiting/day	Min:10	Max:40

2.3. Campus Building Details

SNo	Name of Building	Utility	Built Area (Sfts)
1	Basement area	-	2,500
2	Ground floor	Admin & Classrooms	13,700
3	First Floor	Classrooms	13,700
4	Second Floor	Admin Classrooms	13,700
5	Circulation Area	-	24,000
			67,600

The total campus area is about 5 acres and the total people visiting the area are approximately 1228 people. The water source is ground water and electricity is used from TSSPDCL.

2.4. Transportation

No. of vehicles regular to campus	18
No. of four wheelers (regular)	02
No. of two wheelers (regular)	20
No. of four wheelers (visitors)	10
No. of two wheelers (visitors)	20
No. of students using Public Transport	723
No. of faculty using Public Transport	10
No. of buses (regular)	18
Fuel Consumption per bus / day	10 Litres
Students with own vehicles	20
Faculty with own vehicles	10
Cycle usage (Nos)	0
Does the campus have bicycle points	No
Shuttle services	01

The institute has 18 buses for transportation of the students from various locations of the city. Here about 72.08% of the students use public transport, which indicate the less carbon footprint. On an average 260 litres of diesel is used per month for running these buses.

Energy Audit

Energy demand in the world is nowadays growing further out of the limits of installable generation capacity. Therefore, future energy demands should be met and improved efficiently and securely. Energy solutions be supported by utilizing renewable energy sources. At present, the contribution of renewable energy to the world primary energy is not high to meet the primary energy and electricity supplies.

Both developed and developing nations are continuing to rely on fossil fuels till now and may be in future. But in developing countries the situation is more inconvenient than that of developed countries. They have been apparently trying to restructure their energy sectors. It seems that is difficult to realize innovations. In the strategy plans of many countries, the sustainable development in relation to the parameters such as economic, social and industrial is supported by their energy policies. New enabling technologies related to renewable energies will also help to reduce environmental costs and thus the energy problems.

Energy audit helps in energy cost optimization, pollution control, safety aspects and suggests the methods to improve the operating and maintenance practices of a campus. It is instrumental in coping with the situation of variation in energy cost availability, reliability of energy supply decision on appropriate energy mix, decision on using improved energy conservation equipment, instrumentations and technology. It is proven that energy saving about 15 to 30% is possible by optimizing use of energy efficient equipment at the time of replacements.

Energy audit would give a positive orientation to the energy cost reduction, preventive maintenance, and quality control programmes which are vital production and utility activities. It will help to understand more about the ways energy utilized and help in identifying the areas where waste can occur and where scope for improvement exists.

The main objectives of conducting energy audit are as follows:

- To study the present pattern of energy consumption
- To identify potential areas for energy optimization
- To recommend energy conservation proposals with cost benefit analysis

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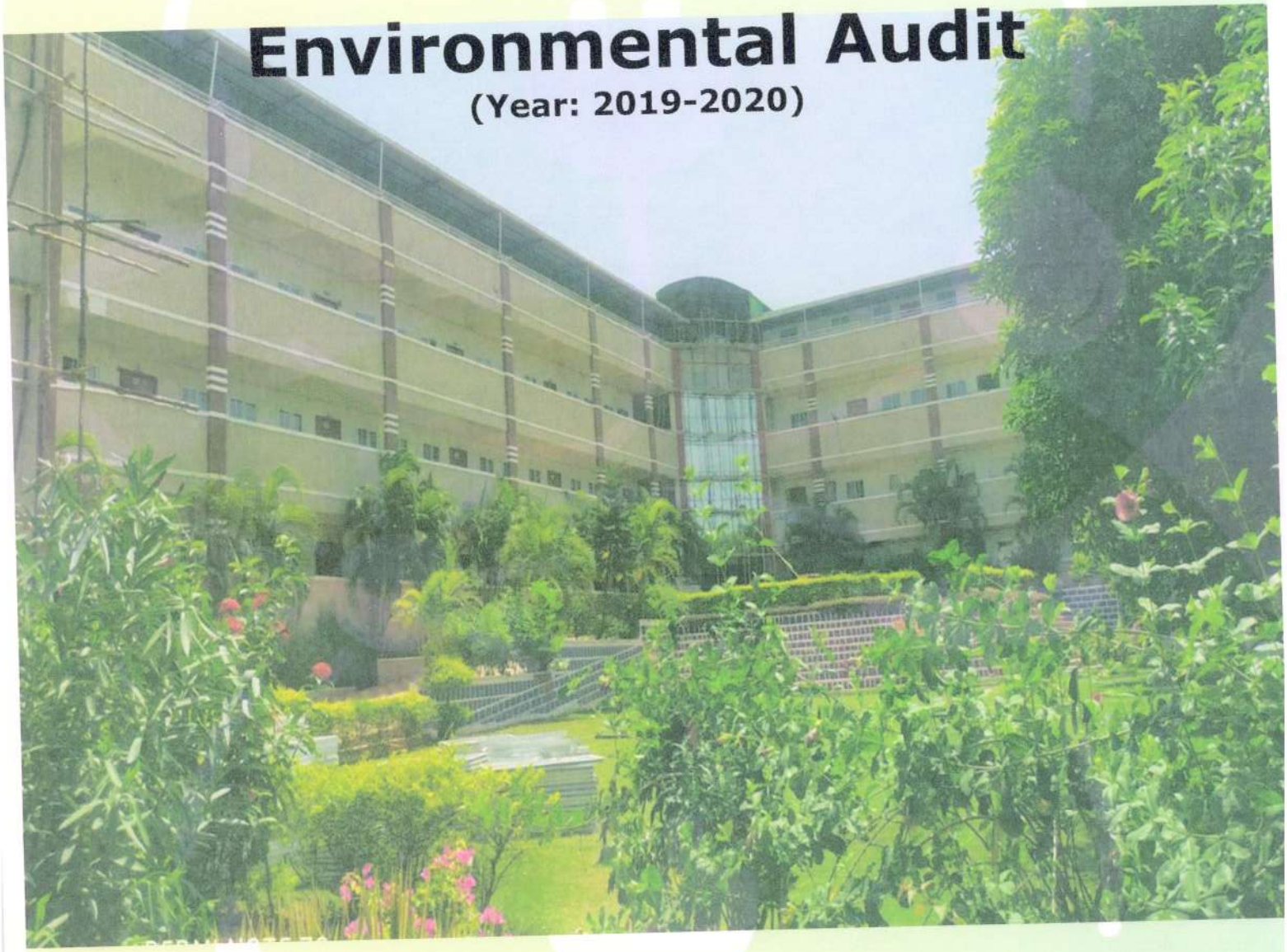

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Executive Summary

The Environment is the most important resource for life. The unsustainable developmental activities ruined the balance of environment. Irresponsible use of natural resources leads to resource depletion and Pollution degraded the environment and disturbed it's rhythm. As a result, we are witnessing several direct and indirect implications. Along with human being all other life forms are getting affected with environmental issues such as climate change, resource depletion, pollution etc. The right to a safe, healthy and ecologically balanced environment as a human right in itself but entails the duty to protection. So, it is compulsory to provide environmental education to protect, manage and minimize the damage to environment.

In India, it is the fundamental duty of every citizen to protect and improve the natural environment. India has been putting efforts on clean energy and sustainable development through various activities and schemes. This need to be properly utilised. We also have several rules to ensure the protection and management of natural resources, Controlling Pollution, Management of waste and regulations to ensure the sustainable development with proper resource management.

Educational Institutions have unique role in Environmental protection. They can show themselves as an example and inspire other institutions to by being a model for efficient use of resources and by following sustainable practices. They can make future generation to think, invent and implement sustainable activities through its curriculum design, research and collaborative efforts with NGOs working in those areas.

There are several certifications and recognitions being provided by Governments and companies encourage the institutions. Environment auditing is a process which helps in identifying and determining whether institutional practices are eco- friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting, and monitoring of environmentally important components in a specified area.

In view of the above, Management has thought to evaluate existing resources of the institution and usage of the resources, so that the proper sustainable plan can be prepared. For this entire process, involved the data collection, review of the documents and transact walk with the expert team.

Overview

Environmental education enables individuals to develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions. It also inculcates attitude of concern and provide skill to handle the environmental challenges. Green campus is a concept to build sustainable living practices that are environmental-friendly in educational institutions around the world. Green Campus concept offers an institution the opportunity to take the lead in rethinking its environmental culture and developing new paradigms for solving problems that are local, national, and global with the greater participation of students.

Environmental audit is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment and natural resources by facilitating management control of practices.

It aims to identify environmental compliance, verify environmental responsibility implementation gaps whether they meet stated objectives, along with related corrective actions. Therefore, an Environment audit report is an efficacious resources Resource for management making decisions to improve their environmental performance. It can re-define the organizational culture and bring an environmental friendly behaviour by improved environmental awareness amongst within the institution.

Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organization of all kinds now recognize the importance of environmental matters and accepts that their environmental performance will be scrutinized by a wide range of interested parties. Environmental auditing is used to investigate, understand and identify.

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organizations environmental effect in a systematic and documented manner and will produce an environmental report.

Objectives

- To review the existing resource availability
- To identify the source of the resources and wastage happening to the technical and usage issues
- To bring out a present status report on environmental compliance
- To adopt the best possible and cost-efficient clean technologies for long term sustenance and reduce the resource depletion.
- To suggest best practices amongst the students at individual level, institutional level and community level.

Methodology

The audit started with questionnaire wherein faculty has mentioned the maps, resources, built up area and green space in the campus. A recce was done by the team of expert for noting the calculations of the resources. Auditing methods are chosen based on the type of information needed to prove the real-life problems assumed in the preliminary study and demonstrate the scale of these problems. After the data analysis, report was prepared with the recommendations for future sustainable development in the campus.

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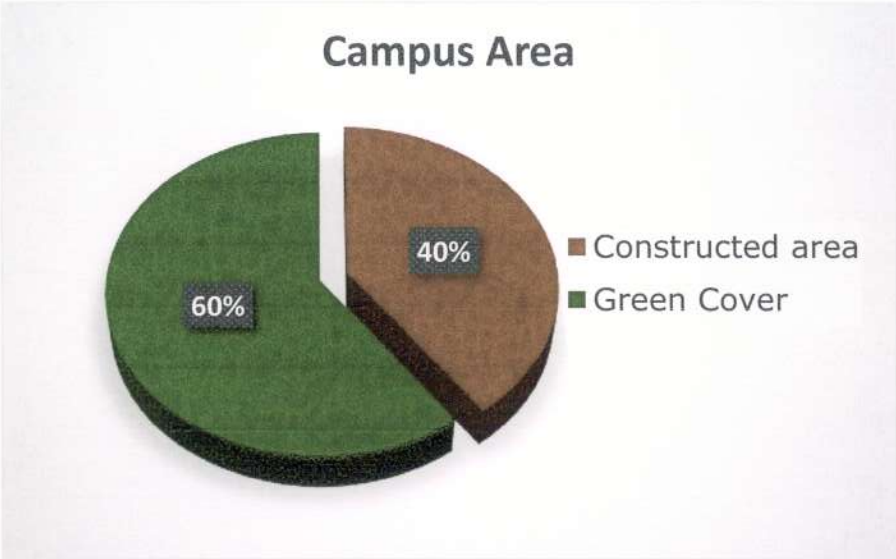
Campus Information

Total area of the campus – 5 acres

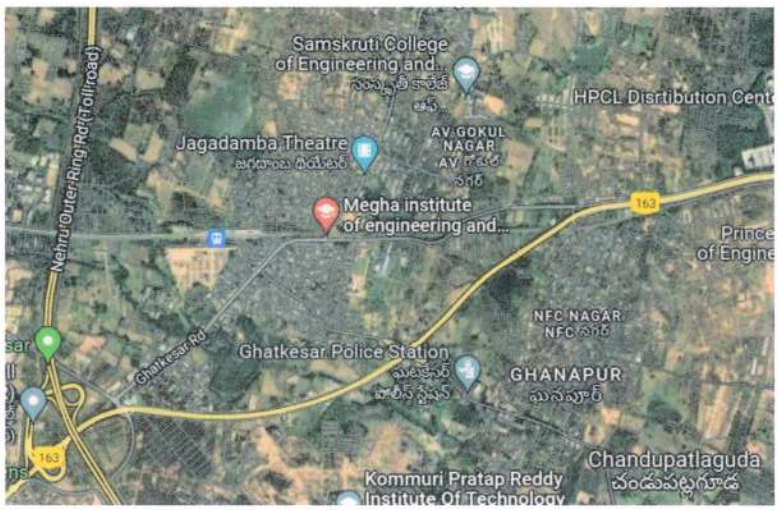
Constructed area – 2 acres

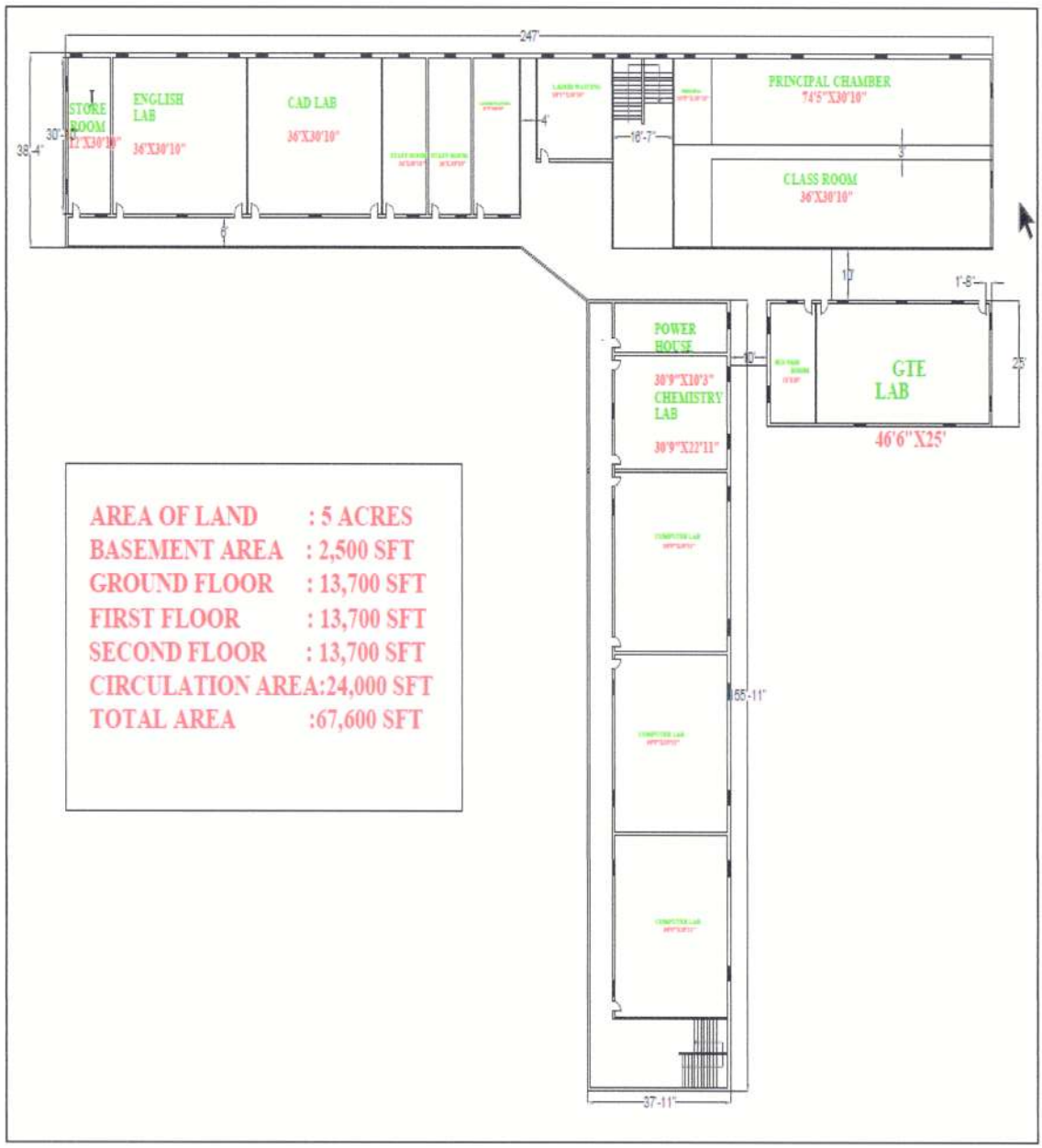
Green Cover – 3 acres



The campus building is of 4 blocks i.e., A,B,C & D. Here source of water is Ground water and electricity is from TSSPCL. The total strength in the college is approximately 1000 students and 83 teacher and non-teaching staff. Further cleaning staff are 6 people and landscape maintenance staff are 5 people.

College Location & Map




247'
STORE ROOM
ENGLISH LAB
36'X30'10"
CAD LAB
36'X30'10"
PRINCIPAL CHAMBER
74'5"X30'10"
CLASS ROOM
36'X30'10"
POWER HOUSE
30'9"X10'3"
CHEMISTRY LAB
30'9"X22'11"
GTE LAB
46'6"X25'
55'-11"
37-11"
AREA OF LAND : 5 ACRES
BASEMENT AREA : 2,500 SFT
GROUND FLOOR : 13,700 SFT
FIRST FLOOR : 13,700 SFT
SECOND FLOOR : 13,700 SFT
CIRCULATION AREA:24,000 SFT
TOTAL AREA :67,600 SFT

Energy Audit

Human settlements encompass a variety of buildings. Regardless of the building involved, the audit procedure is basically the same. If more than one facility is involved (as in the case of apartment buildings), an audit of each will be necessary.

An energy audit, sometimes referred to as an energy survey or an energy inventory, is an examination of the total energy used in a particular property. The analysis is designed to provide a relatively quick and simple method of determining not only how much energy is being consumed but where and when. The energy audit will identify deficiencies in operating procedures and in physical facilities. Once these deficiencies have been identified, it will be apparent where to concentrate efforts in order to save energy. The energy audit is the beginning of and the basis for an effective energy-management programme.

No two buildings are identical regarding energy usage. This is due to the possible variables affecting the buildings, e.g., occupancy rates, the building's size and orientation, its geographic location, the type of heating and cooling systems, the amount and types of equipment in use, the type of construction, the level of insulation and so on. Because each building is unique, it is difficult to generalize about energy-consumption patterns, and so it is necessary to conduct an energy audit for each building. Most buildings were probably designed, built and equipped when cheap energy was readily available. Little attention was paid to energy efficiency. Consequently, there is a great potential for improving operating costs of existing buildings.

Energy audit helps in energy cost optimization, pollution control, safety aspects and suggests the methods to improve the operating and maintenance practices of a campus. It is instrumental in coping with the situation of variation in energy cost availability, reliability of energy supply decision on appropriate energy mix, decision on using improved energy conservation equipment, instrumentations and technology. It is proven that energy saving about 15 to 30% is possible by optimizing use of energy efficient equipment at the time of replacements.

Energy audit would give a positive orientation to the energy cost reduction, preventive maintenance, and quality control programmes which are vital production and utility activities. It will help to understand more about the ways energy utilized and help in identifying the areas where waste can occur and where scope for improvement exists.

The main objectives of conducting energy audit are as follows:

- To study the present practices of energy consumption
- To identify potential areas for energy optimization
- To recommend energy conservation proposals with cost benefit analysis

S.No	Item	Value
1	Year of Building Construction	2008
2	Connected Load (kW) or Contract Demand (kVA)	64
3	Installed capacity: DG/ GG Sets (kVA or kW)	480
4	Annual Electricity Consumption, purchased from Utilities (kWh)	18000
5	Annual Electricity Consumption, through Diesel Generating (DG)/Gas Generating (GG) Set (s) (kWh)	500
6	Total Annual Electricity Consumption, Utilities + DG/GG Sets (kWh)	20000
7	Annual Electricity Cost, purchased from Utilities (Rs.)	351234
8	Annual Electricity Cost generated through DG/GG Sets (Rs.)	25000
9	Total Annual Electricity Cost, Utilities + DG/GG Sets (Rs.)	351234
10	What is power factor (less than 1, 1 or above 1)	1
11	Fans/Air Conditioners	7
a	No. of fans	591
b	Conditioned area	2000
c	Non-Conditioned area	0
12	Working hours (e.g. day working /24 hour working)	08

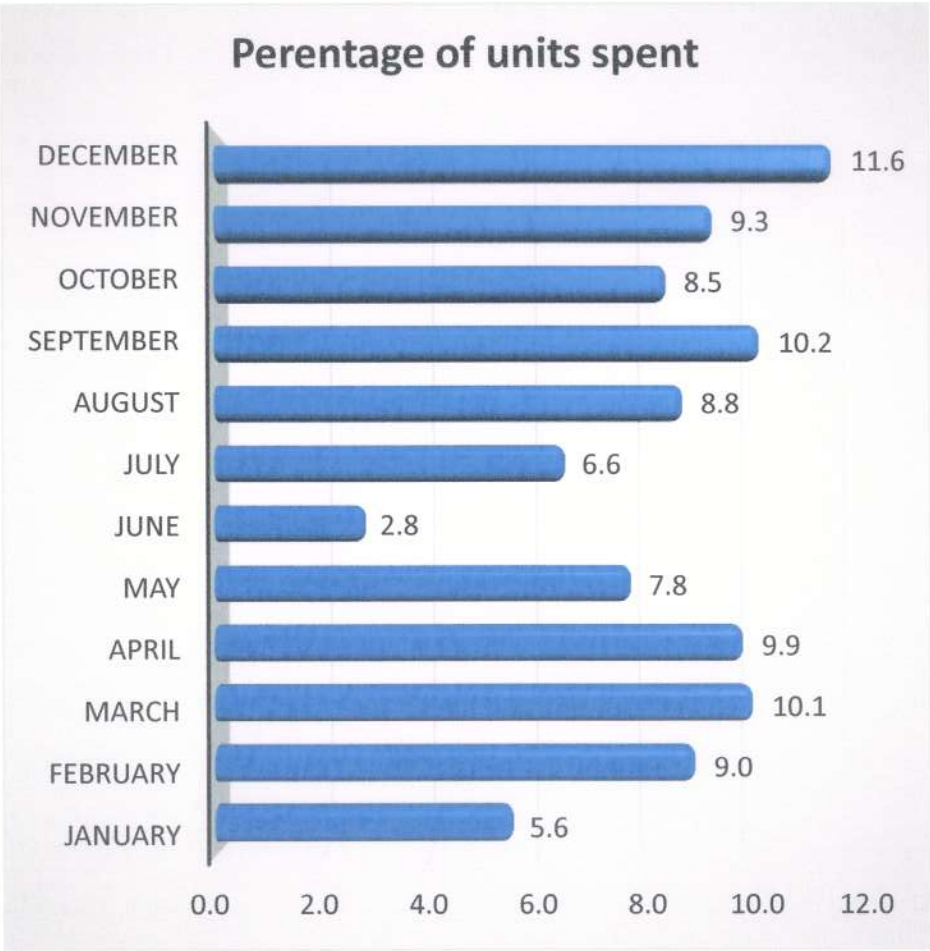
13	Working days/week (e.g. 5/6/7 days per week)	6
14	Installed capacity of Air Conditioning System	2 tones
a	Centralized AC Plant (TR)	No
b	Packaged ACs (TR)	No
c	Window/Split ACs (TR)	07
d	Total AC Load (TR)	480
15	Installed lighting load (kW)	40
16	Equipment Load (kW)*	64
17	Whether sub-metering of electricity consumption for Air Conditioning, Lighting, Plug Loads, etc. done: Yes/No	0
18	HSD (or any other fuel oil used, specify)/Gas Consumption in DG/GG Sets (liters/cu. meters) in the year	10
19	Fuel (e.g FO, LDO, LPG, NG) consumption for generating steam/water heating in the year (in appropriate units)	500
20	Have you implemented a Building Management System (BMS)? (Yes/No)	YES
a	Make and year of installation of the BMS	2009
b	Number of sensors / VRVs in the BMS	10
21	Any other appliances - Coffee machines/Office machinery, etc.,	1
22	No. of street lights in the campus	16
a	Connected to electricity within the campus	YES
b	Connected to electricity outside the campus	NO
23	No. of Gas cylinders used in a month	2
	Weight of the gas cylinders (14.5 or 17.5) any other specific weight	14.5
24	Incandescent Bulbs (halogen)	631
25	Filament bulbs	47
26	Fluorescent tube lights	59

Equipment Details

Equipment	Nos	No. of hours per day
Computers	340	08
Desktops	44	08
Laptops	4	08
Servers	1	08
Small printers	05	08
Printers/ Xerox	06	08
Fax machine	0	0
Scanners	05	08
Projector	16	08
Sound System	04	10
Televisions	06	10
Inverters	03	24
Air Coolers	07	10
Refrigerators	01	24
Kettles	02	10
Iron Boxes	1	1
Grinders	1	1
Water filters	03	24
Water heaters	1	1
Geezers	1	1
Electronic based lab equipment's	256	1

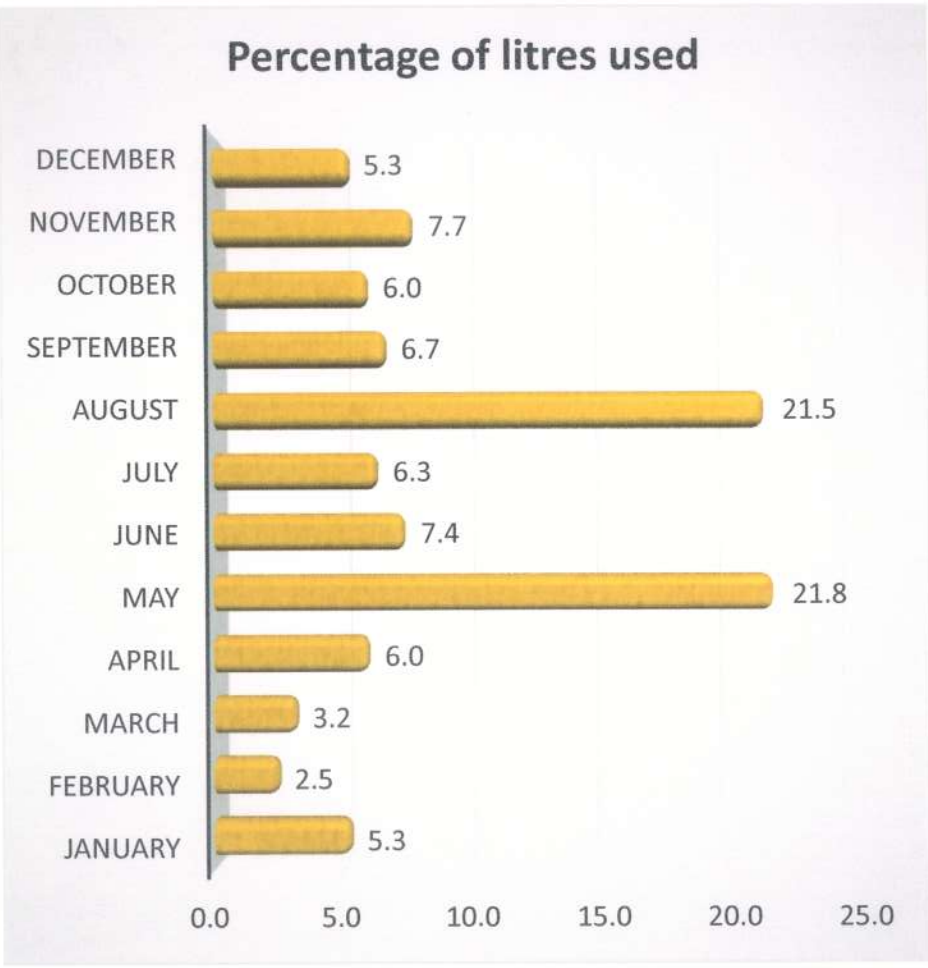
Electricity Consumption

Month	Units	Percentage of usage
January	2033	5.6
February	3291	9.0
March	3689	10.1
April	3622	9.9
May	2850	7.8
June	1020	2.8
July	2398	6.6
August	3209	8.8
September	3738	10.2
October	3098	8.5
November	3419	9.3
December	4240	11.6
	36607	



Electricity Consumption on utilities & DG/GG Sets

Month	kWh	Litres	Amount Spent
January	120	15	5.3
February	32	7	2.5
March	152	9	3.2
April	170	17	6.0
May	250	62	21.8
June	100	21	7.4
July	102	18	6.3
August	92	61	21.5
September	201	19	6.7
October	100	17	6.0
November	106	22	7.7
December	112	15	5.3
	1537	**283**	



Pumps and their capacities

Type of pump	Horse Power	Number of units consumed to fill the overhead tank or sump fully	Number of hours operated per day to fill the tank with full capacity
cri	4hp	10000	3

- Most of the electricity consumption is done in the month of December followed by March, April and September months.
- Similarly, the DG sets usage is high in the months of May and September.

General Transportation Information

No. of vehicles regular to campus	18
No. of four wheelers (regular)	02
No. of two wheelers (regular)	26
No. of four wheelers (visitors)	13
No. of two wheelers (visitors)	23
No. of students using Public Transport	629
No. of faculty using Public Transport	10
No. of buses (regular)	18
Fuel Consumption per bus / day	16 Litres
Students with own vehicles	24
Faculty with own vehicles	17
Cycle usage (Nos)	0
Does the campus have bicycle points	No
Shuttle services	01

The institute has 18 buses for transportation of the students from various locations of the city. Here about 79.65% of the students use public transport, which indicate the less carbon footprint. On an average 416 litres of diesel is used per month for running these buses.

Water Audit

India is endowed with extraordinarily diverse and distinctive traditional waterbodies found in different parts of the country, commonly known as ponds, tanks, lakes, *vayalgam*, *ahars*, *bawdis*, *talabs* and others. They play an important role in maintaining and restoring the ecological balance. They act as sources of drinking water, recharge groundwater, control floods, support biodiversity, and provide livelihood opportunities to a large number of people.

Currently, a major water crisis is being faced by India, where 100 million people are on the frontlines of a nationwide water crisis and many major cities facing an acute water shortage. The situation will worsen as United Nations and Niti Ayog reports say that the demand for water will reach twice the available supply, and 40 per cent of India's population will not have access to clean drinking water by 2030.

One of the reasons is our increasing negligence and lack of conservation of waterbodies. Since independence, the government has taken control over the waterbodies and water supply.

Water auditing is conducted for the evaluation of facilities of raw water intake and determining the activities for water treatment and reuse. The relevant method that can be adopted and implemented to balance the demand and supply of water. It is therefore essential that any environmentally responsible institution examine its water use practices.

Sources of water

The water source is borewell. The campus has overhead tanks for each building along with bore well. For drinking water RO plants is set up in the campus.

Water audit includes the calculation of water sources, water consumed and best practices to conserve water and recharge the ground water level with in and around the college campus. Both drinking water and water used for green spaces are also calculated.

Source of water (Municipal Supply/ Groundwater (Borewells)/ Tankers (Private or Public)/ Rainwater/ Others	Ground Water
Total water consumption per day (litres)	24,000 Ltrs
No. of bore wells	02
No. of water tankers/day consumed per day	2
Water consumed through water tanks (litres)	12000 Ltrs
Water Storage	1
Overhead tank	12000 Ltrs
Capacity of the tank	12000 Ltrs
Number of times it is filled in a day	2 Times
No. of Sumps	1
Capacity of sumps	4000 Ltrs
Purpose Eg: Drinking, Cleaning & Landscape	All
Potable water consumption	4000
Drinking water used (litres per day) – Mineral water	6000
Purified water within the campus – like RO treatment	6000
In case of canteen facility in the building - Water used for cooking	2000

The water used is from ground water and water is filled in overhead tank which is of 12000 litres capacity. The per capita of water consumption is approximately 8-9 litres a day.

Floating Population

Total no. of students	1003	
Total no. of students (Hostellers)	NO	
Total no. of students (Day-scholars)	1003	
Total no. of faculty	83	
Total no. of teaching faculty (In house)	24/7	
Total no. of teaching faculty (Staying outside)	24/7	
Total no. of non-teaching faculty (In house)	5	
Total no. of non-teaching faculty (Staying outside)	80	
Total no. of administrative staff	09	
Total no. of cleaning staff	20	
Total no. of employees for landscape maintenance	15	
Total no. of security staff	6	
Total no. of people visiting/day	Min:05	Max:50

As per the floating population presently the water usage is little high and it can be conserved with little bit of action on saving water.

Waste Audit

The growing amount of waste produced in modern society has a huge impact on the environment. Many of the materials disposed of in the general waste bin can last in the environment anywhere from hundreds to thousands of years. The existence of this waste in the natural environment can cause significant impacts on plants, animals and Pollution.

Lightweight materials like plastic bags and film (such as lolly/chip wrappers) can easily be dispersed from rubbish bins and landfill into the surrounding environment by the wind and rain. Much of this lightweight material presents a range of hazards for wildlife and domestic animals who can become entangled or choke if they accidentally mistake litter for food. The chemical composition of plastic means that it takes a substantial period of time to break down in the environment and is capable of travelling long distances without decomposing. Around 80% of plastic litter found in the ocean has travelled there from inland waterways. Oceanic currents have directed much of this material to a litter-made island in the mid-Atlantic Ocean called the Great Pacific Garbage Patch. Items as large as computer monitors and tyres, as well as plastic twine, bottles and other material have been found here from across the world.

The purpose of the waste audit is to gain a detailed understanding of the types and weights of material being generated. The recommendations can be used to improve the economic and environmental performance of waste management efforts. For this audit, there is a need to discover what waste are being generated and in this which material are recyclables. Further the dispose mechanism adopted for both wet and dry waste are to be considered during audit. All operations produce waste and there is nothing wrong by recognizing it. However today concern is over waste generation and increasing costs of collection and disposal are good reasons to find out how to reduce, increase recycling and try to cut costs.

Objectives

- To evaluate the solid and liquid waste management and their disposal
- To understand the existing best practices and gaps
- To recommend the suitable solutions for the waste disposals

Waste Source areas

SNo	Source	Types of Waste	Quantity of waste produced per day
1	Canteen	Food, plastic	32 Kg
2	Hostels	Food	No
3	Classrooms	Papers, chalk powder	11 Kg
4	Labs	Papers, E-waste	2
5	Construction Site	Cement & dust	7
6	Garden	Garbage	3
7	Washrooms	Liquid	410 Litres

The waste generated in the campus is 4 tonnes and municipality collect the waste 4 times in a week. Presently the canteen food waste is being composted and liquid waste is sent through an outlet from the campus. All other waste is stored in the campus and disposed as and when the recyclers or municipality collects the waste.

Dust bins Details

Type	Nos
Small bins	10
Medium size bins	5
Main (big) bins	2

Here small bins are placed in the classrooms and the other bins are placed in the pressure points. Two main bins are arranged to collect all the material. From here the Municipality workers are lifting the solid waste.

Student Activities

Students join NSS and Environmental Clubs in the college to participate various activities organized by college. Few core group students are also taking charge of activities on behalf of college. This shows their active involvement and interest towards environment. The following are some of the activities done during the year:

S.No	Name of the Event	No of Students Participated	No of Faculty Participated
1	National Women's Day	120	13
2	Energy Conservation Day	30	6
3	Megha International Women's Empowerment Summit'20	140	16
4	Road Safety Awareness	125	10
5	World Literacy Day	40	08
6	Importance Of Blood Donation	120	06
7	Fire Safety Awareness Programme	119	24
8	Mask And Sanitizer Distribution	60	5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WHAT IS ENERGY ?

Recommendations

- Sustainable solutions like solar power system and LED lights installation have to be done for increasing energy efficiency.
- Power consumption in the peak months is to be reduced with activities involving students
- Vehicle pooling can be promoted for both students and faculty. Initially this can be declared by the management or through student groups on particular days.
- Sewage treatment plant is to be setup for treating the wastewater.
- Rainwater harvesting structures are to be technically built to conserve the ground water as well as the water for future use.
- Repair leaking taps and pipes at regular intervals to conserve water.
- Specific Waste Management Plan should be developed and adopted to manage solid waste within the campus.
- Source segregation has to be encouraged in the campus and for this twin bins are to be arranged
- Compost unit has to be properly maintained and scientifically used
- The other dry waste is to be collected separately and sent to concerned recyclers
- Need to be see that the campus waste is not going to dump yard
- Campus can be made plastic free zone with more prominent sign boards. Usage of single use plastic is to be banned completely from the campus especially in the plastic bags, glasses, cups, thermacole cups/ plates.
- Environmental education should be part of curriculum and activities irrespective of the subjects. Students should be made part of environmental activities through NSS & NGC clubs.
- Students are to encourage to do innovative activities at this level so that they think on eco-friendly solutions.
- Environmental plan for strategic implementation of eco-friendly practices is to be framed every year. This help to streamline the existing good practices that are already being implemented.
- Environment auditing is to be carried out every year to evaluate the outcomes of the environmental activities.