



SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Gajularega, Vizianagaram, Andhra Pradesh, India-535002.



Accredited by "NAAC"

Approved by AICTE and Affiliated to JNTU, GURAJADA, VIZIANAGARAM
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IQAC- SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Qualitative Metrics
Criterion 7-Institutional Values and Best Practices

7.1.6	Quality audits on environment and energy regularly undertaken by the institution 1. Green audit 2. Energy audit 3. Environment audit 4. Clean and green campus recognitions/awards 5. Beyond the campus environmental promotional activities
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OVERVIEW

SITAM boasts an eco-friendly environment with a rich history of promoting healthy environmental practices. This includes regular tree plantation initiatives, dedicated efforts for the preservation and maintenance of green spaces. The campus is strategically designed, with approximately 30% of the total area dedicated to open land and plantation, contributing to a sustainable and vibrant environment.

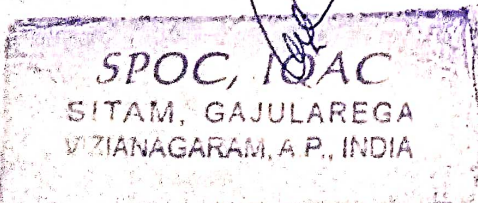
INTRODUCTION TO GREEN AUDIT

A green audit is a systematic process aimed at identifying, quantifying, documenting, reporting, and analyzing various components of environmental diversity within different businesses. In the context of SITAM, this audit explores both internal and external environmental policies that may impact the creation of an eco-friendly atmosphere. The purpose of a green audit is to pinpoint areas and processes where significant energy, water, and other resources are utilized. It plays a crucial role in developing effective waste minimization plans and initiating recycling projects by assessing the type and volume of generated waste.

Furthermore, a green audit serves as a tool for spreading environmental awareness, promoting ethical standards, and instilling a sense of environmental responsibility. It enhances the understanding of sustainability's impact on campus among staff and students. Institutional self-enquiry, a natural extension of quality education, involves evaluating the college's contributions to a sustainable future.

The relevance of higher education institutions in fostering environmental sustainability is growing, considering the national implications of environmental issues. Rapid urbanization and economic development have led to numerous environmental challenges at local, regional, and global levels. Hence, adopting a "Green Campus" approach becomes crucial for promoting sustainable growth and substantially reducing carbon dioxide emissions.

In compliance with the National Assessment and Accreditation Council, New Delhi (NAAC), all higher



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Education institutions are now required to submit an annual Green Audit Report. Additionally, incorporating environmentally responsible practices is considered part of the corporate social responsibility of higher education institutions to actively contribute to reducing their carbon footprint and combating global warming.

OBJECTIVES

The Green Audit of an institution has become paramount for self-evaluation, symbolizing the institution's commitment to addressing contemporary environmental challenges. Since its inception, the college has consistently worked towards maintaining a clean campus environment. The current Green Audit aims to systematically identify, quantify, characterize, and prioritize the environmental sustainability framework. This involves aligning with pertinent laws, policies, and standards.

The main objectives of conducting the Green Audit include:

1. Layout plan of the college
2. Improving environmental standards
3. Reduction and reuse of resources available
4. Financial savings through a reduction in resource use
5. Environmental education through Curriculum
6. Enhancement of college profile
7. Developing environmental ethics and value systems in young minds.

Table 1: Audit Participants

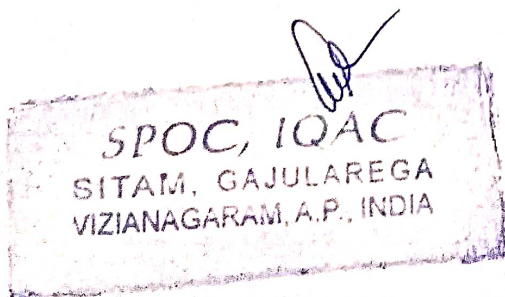
Name	Designation/ Department
Dr. G.RAVI KISHORE	Dept of CIVILEngg, SITAM
Dr S Varudhini	Dept of MBA, SITAM
Ramu	


METHODOLOGY

SITAM College's green audit aims to ensure the alignment of campus practices with the adopted green policy. This process involves a comprehensive approach, including a visual assessment of the campus, a study of documentation and observations, interviews with key personnel, measurements, and the formulation of recommendations. The goal is to evaluate and enhance environmental sustainability practices within the campus framework.

FINDINGS OF GREEN AUDITING

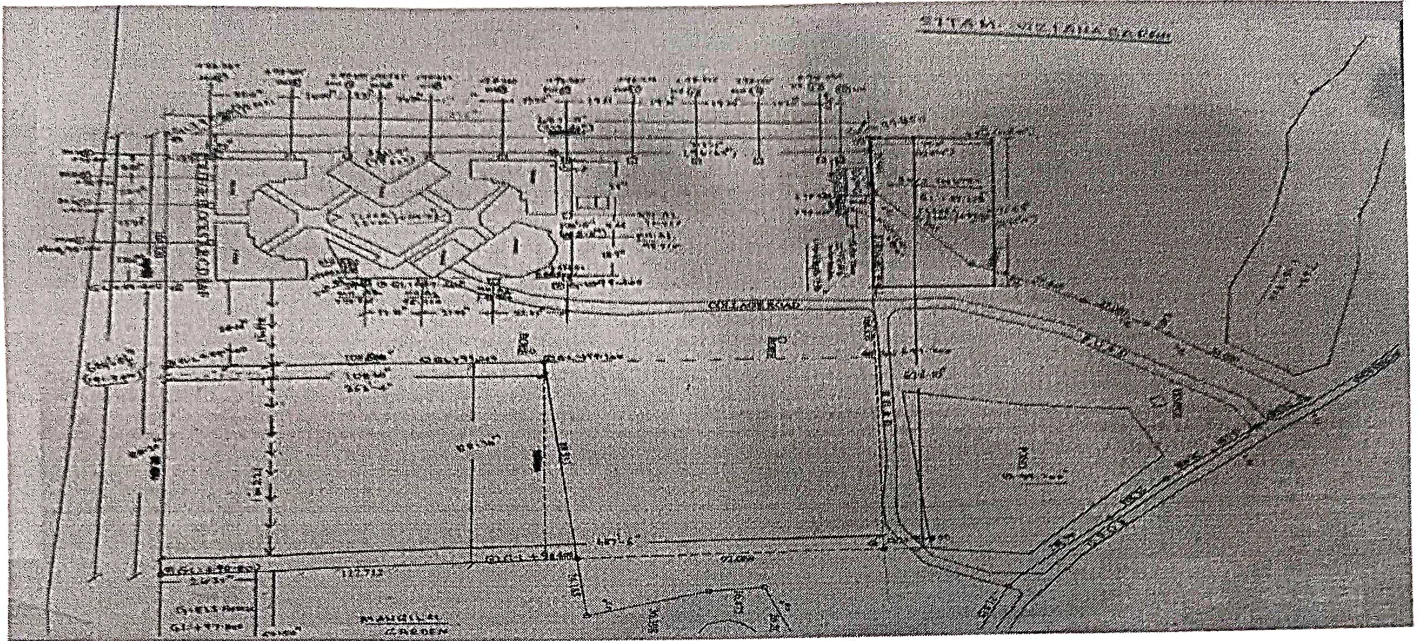
SITAM College has implemented the 'Green Campus' initiative to promote environmental conservation and sustainability. The Green Audit focuses on three primary objectives: achieving a zero environmental footprint, positively influencing the health and performance of occupants, and ensuring that 100% of graduates exhibit environmental literacy. The objective is to decrease CO2 emissions, energy, and water consumption while cultivating a conducive environment for student learning and well-being.




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OBSERVATIONS

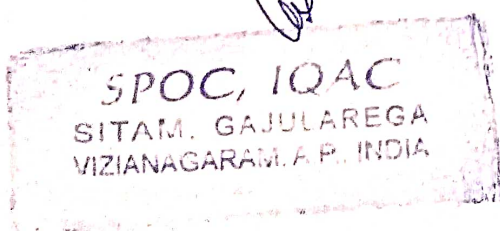
i. Layout Plan, SITAM



ii. land used data of SITAM, Vizianagaram – 535002

Table 2

CATEGORIES OF LAND USE	AREA OCCUPIED(ACRES)
BUILDING AREA	3.62
GROUNDS	2.81
SHEDS	0.392
BOYS HOSTEL	0.36
GIRLS HOSTEL	0.18
CANTEEN	0.042
LAWNS/BIG TREES/SHRUBS	2.308
WALKWAYS	1.938
TOTAL AREA	11.65



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TREE DIVERSITY

The region exhibits a remarkable diversity, featuring a multitude of tree species that fulfill various functions. Over different time periods, these trees were introduced to the campus through plantation programs organized by the authorities. The trees on the college grounds have significantly enhanced the quality of life for both the college community and the broader public. This impact extends to improvements in air quality, soil preservation, water conservation, climate change mitigation, and climate regulation by mitigating the effects of the sun, rain, and wind.

Leaves of these trees effectively absorb and filter the radiant energy of the sun, providing a cooling effect during the summer months. Furthermore, these trees offer refuge and sustenance to a diverse array of animals, including birds and insects that feed on flowers and fruits. The leaf-covered branches serve as protection against predators for various creatures, creating a harmonious ecosystem.

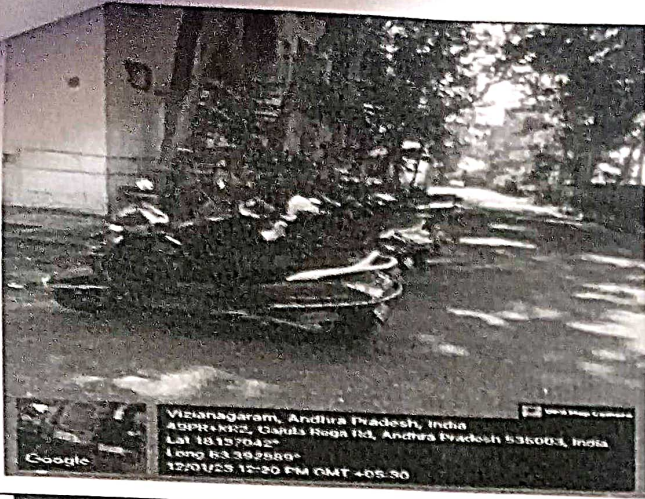
The multitude of tree species displays an almost infinite range of shapes, forms, textures, and vibrant colors. Individual trees undergo visual transformations as the seasons change throughout the year, adding to the aesthetic appeal. The enduring, long-lasting, and majestic presence of these trees contributes to their resemblance to monuments, serving as reminders of the institution's illustrious past.

These trees often evoke emotional connections, and individuals may develop close relationships with specific trees encountered daily. Additionally, a dense belt of large, shady trees around the college periphery has been identified as effective in reducing noise, minimizing dust, and offering protection against storms. Consequently, the college plays a pivotal role in preserving the overall environmental health of the campus and its surrounding areas.

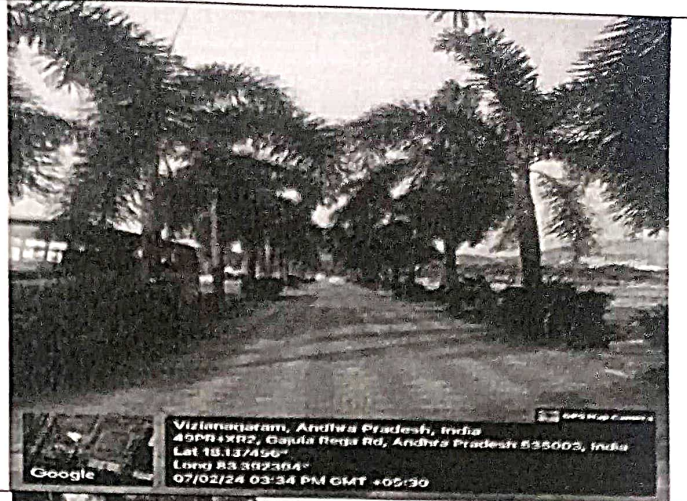


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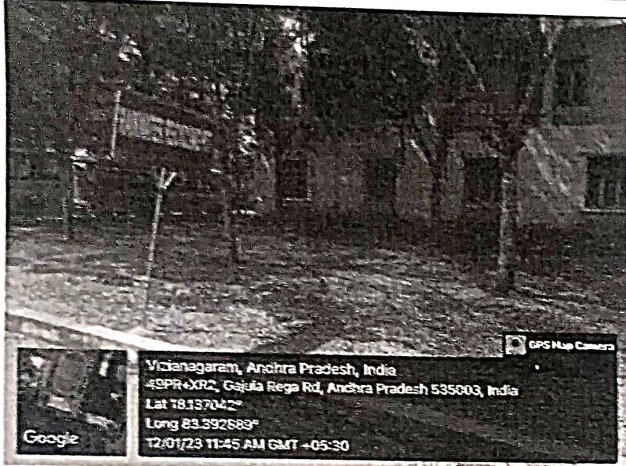
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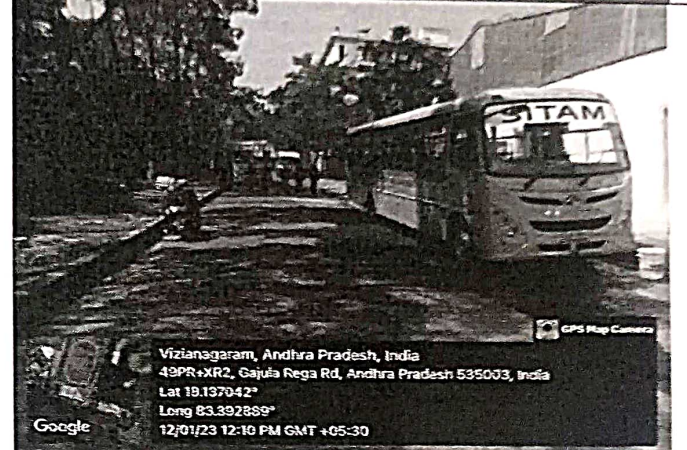
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Long 83.392889°
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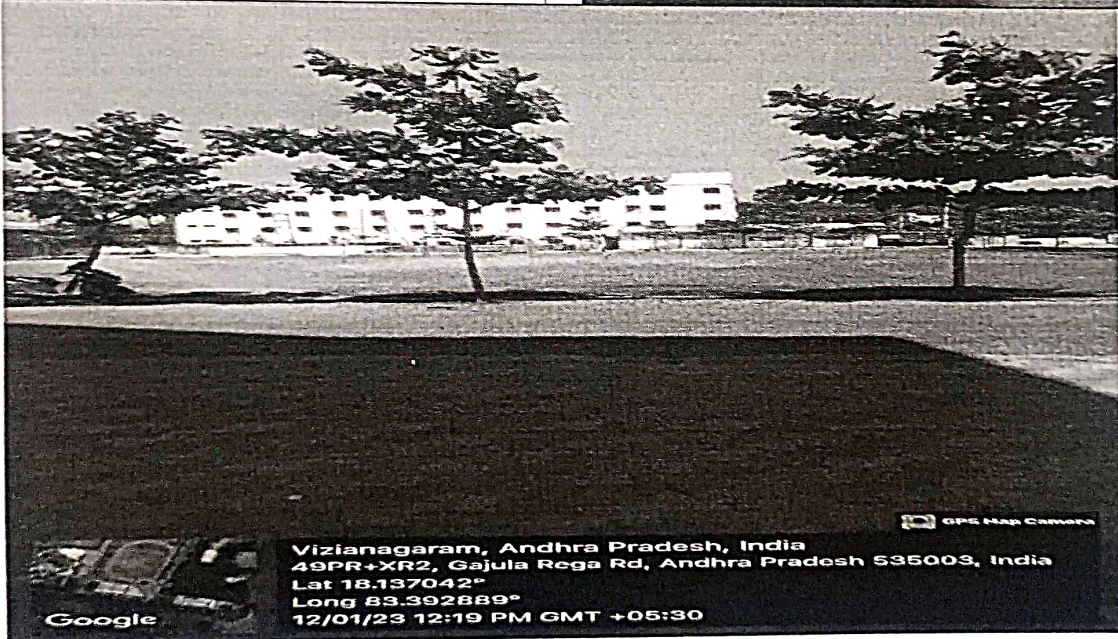
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WATER AUDIT

- Provisions for extracting raw water via bore wells and municipal water supply.
- Wastewater treatment capability through a Sewage Treatment Plant (STP), with recycled water utilized for maintaining lawns and plantations within the campus.
- Implementation of Rainwater Harvesting (RWH) facilities at the girl's hostel situated within the campus.

WATER ANALYSIS REPORT

Table 4

Parameter/ WHO Permissible Level	Observed Value		Methodology
	Sample 1	Sample 2	
Colour	Clear	Clear	
pH / 6.5-6.8	6.8	6.85	pH meter
Turbidity/ 5-10NTU	3	4	Turbidity meter
Conductance / (2500 us/cm	1500	1489	Electrical Conductivity meter
Fe /0.30 ppm	0.2	0.2	By radox titration
Na/200 ppm	180	180	spectrophotometer
K/ 55 ppm	55	55	spectrophotometer
Mg/ 30 ppm	100	112	EDTA titration
Ca/ 75 ppm	80	90	EDTA titration

NOISE LEVEL in campus, Vizianagaram

- A significant portion of the student population, primarily from the local city, is encouraged to make use of the college bus facilities.
- Students who opt to use their personal vehicles are explicitly instructed to adhere to specified speed limits and refrain from honking within the campus premises.
- Students are further counseled against unnecessary vehicular movements within the campus to mitigate air pollution.
- Despite the proximity of the Orissa highway (NH-26) to the campus, approximately 500 meters away, the learning environment remains unaffected by noise pollution. This is attributed to the distance and the presence of tall trees within the campus, acting as effective barriers to noise transmission.

WASTE DISPOSAL AUDIT

Waste Management plays a pivotal role in elevating the environmental performance of institutions, exemplified by our innovative Think Green Campus Model. The practice of reusing or recycling is instrumental in achieving multiple benefits: conserving natural resources, saving energy, preserving the environment, and reducing reliance on landfills. This concerted effort aids in curbing carbon emissions associated with both discarding old items and acquiring new ones, thereby lessening our overall environmental impact.

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SIATM, a commitment to environmentally responsible practices is evident through strategic measures such as pursuing carbon neutrality, implementing waste recycling initiatives, and promoting energy conservation. The remaining solid waste generated on campus is carefully directed to community bins for recycling and proper disposal. Additionally, biological recyclable waste undergoes processing to create organic manure, contributing to the nourishment of campus plants. This comprehensive approach reflects SIATM's dedication to sustainable and eco-friendly campus management.

Disposable Audit

Table 5

Type of Waste	Disposal Method	Remarks
E-waste Quantity:450Kgs Monitor – 270 kgs Desktop – 120 kgs Mouse+keyboard-60 kgs	Collected in separatebin/ stores	Collected byGreen Waves Environmental Solutions
(i) Bio-degradable a. Organic Waste	Mass collection oforganic waste willbe dumped into thecomposed pit	Decomposed organicmatter will be used asmanure to the plants inthe campus.
b. Inorganic waste Chemicals, glass	Earthen pits	Precautions have beentaken while disposing
c. Domestic waste	Cattle feeding	Collected from Hostels, Canteen.
d. Electrical waste Tube lights, bulbs, wires,electrical stoves	Collected in separatebins	
e. News Papers, waste papers,blue books	Sold for recycling	Collected by localmunicipal authorities.
f. Metal scrapsSteel	Sold for recycling	Collected by localmunicipal authorities.
g. TimbersFurniture scraps	Store room	
h. ResinsFuel, oil, Grease	Earthen pits	
(ii) Non-Bio- degradable a. Sanitary Waste	Incinerator	Provided to ladieshostel
b. Plastic Waste	Dustbins	Collected by municipalauthorities.
(iii) Scrap equipments	Stores	Collectively sold in amass

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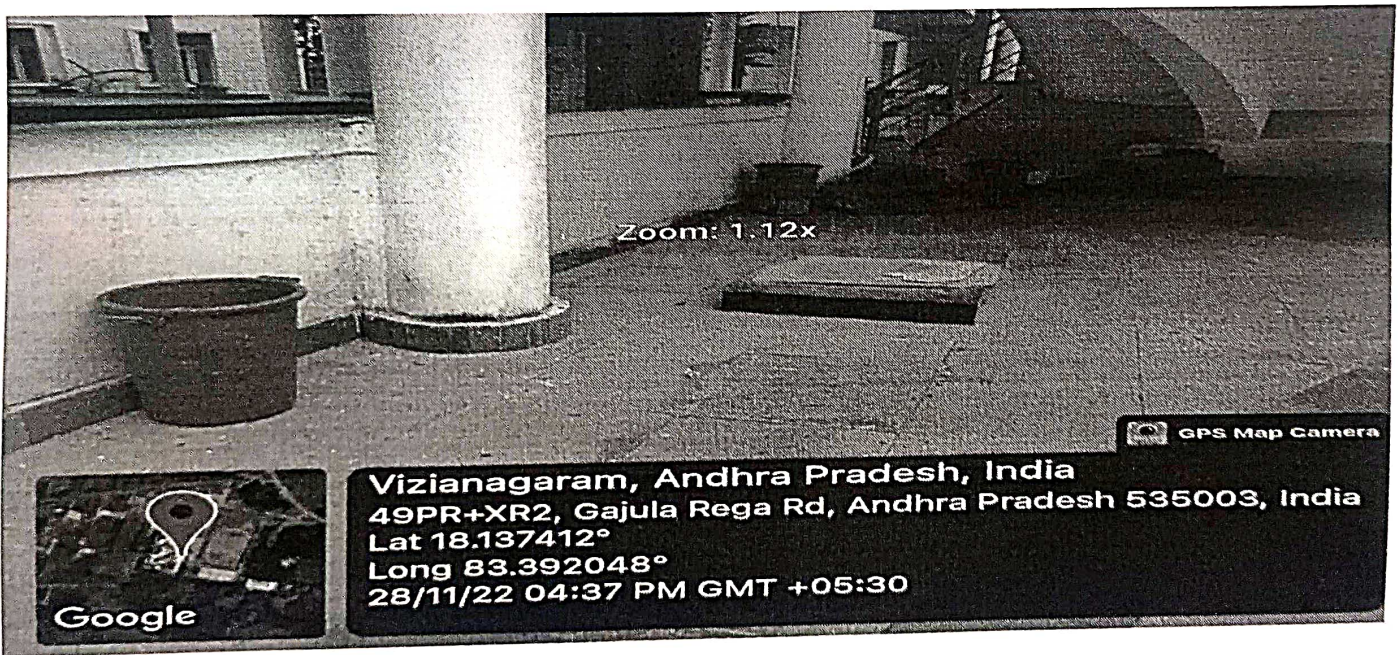
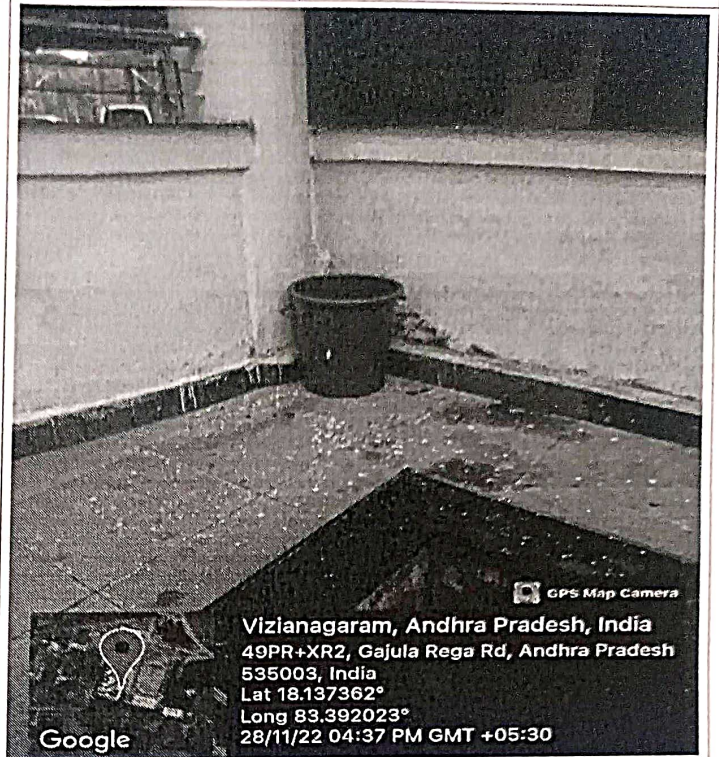
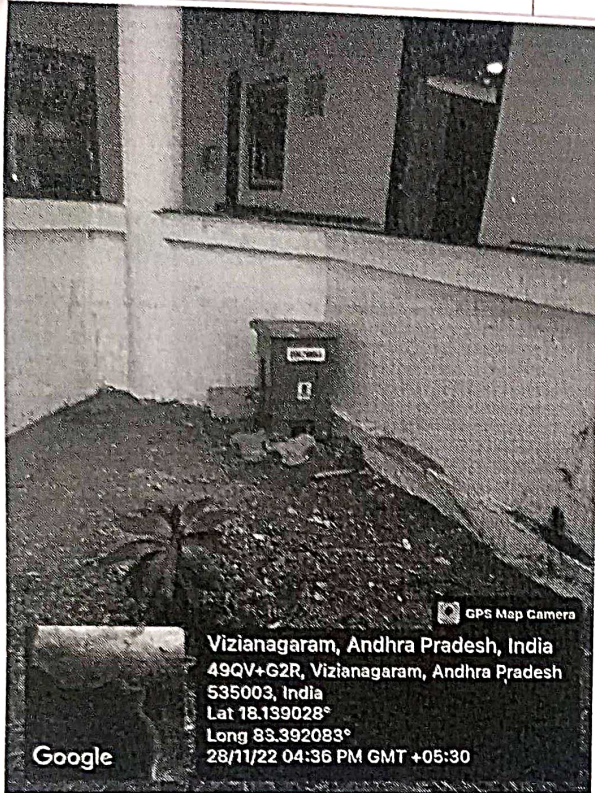


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(iv) Constructional waste Concrete, Bitumen

Dumping in aspecific place in the laboratory

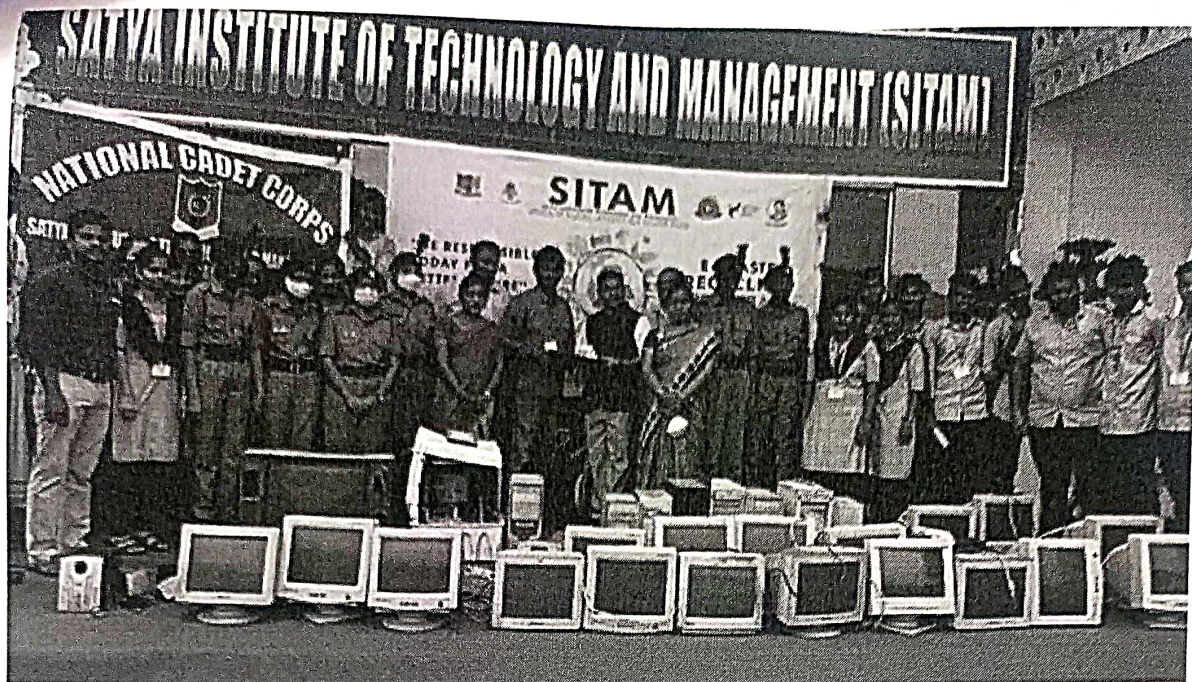
Used for land filling within the campus



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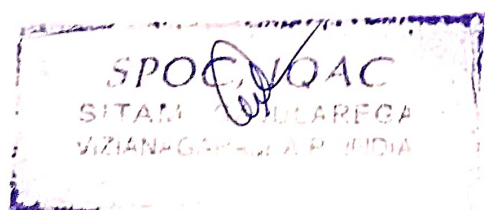


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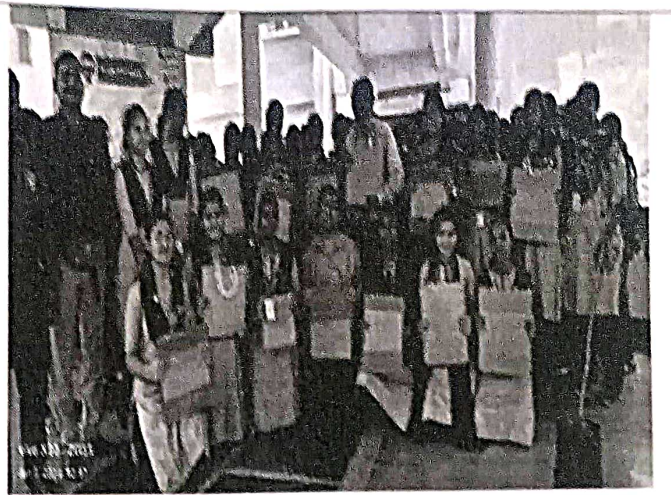


ENVIRONMENTAL QUALITY AUDIT

- The institute actively engages in plantation programs and maintains a green belt to mitigate pollution by lowering carbon dioxide levels.
- Annually on June 5th, World Environmental Day is observed at the university, featuring special guest discussions on the impact of a healthy environment on human life with students and staff.
- Environmental-related disciplines have been incorporated into the curriculum to impart essential environmental education.
- Solid wastes such as waste papers, Blue books, vegetable matter, and miscellaneous items are systematically deposited into an earthen pit for natural decomposition instead of burning, contributing to a reduction in CO2 emissions.



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HEALTH AUDIT

- Every semester students are advised to undergo one health check up facility provided inside the campus.
- Blood donation camp also been conduct every year by NSS and by individual departments.
- Yoga also been conduct every year on 21 June.



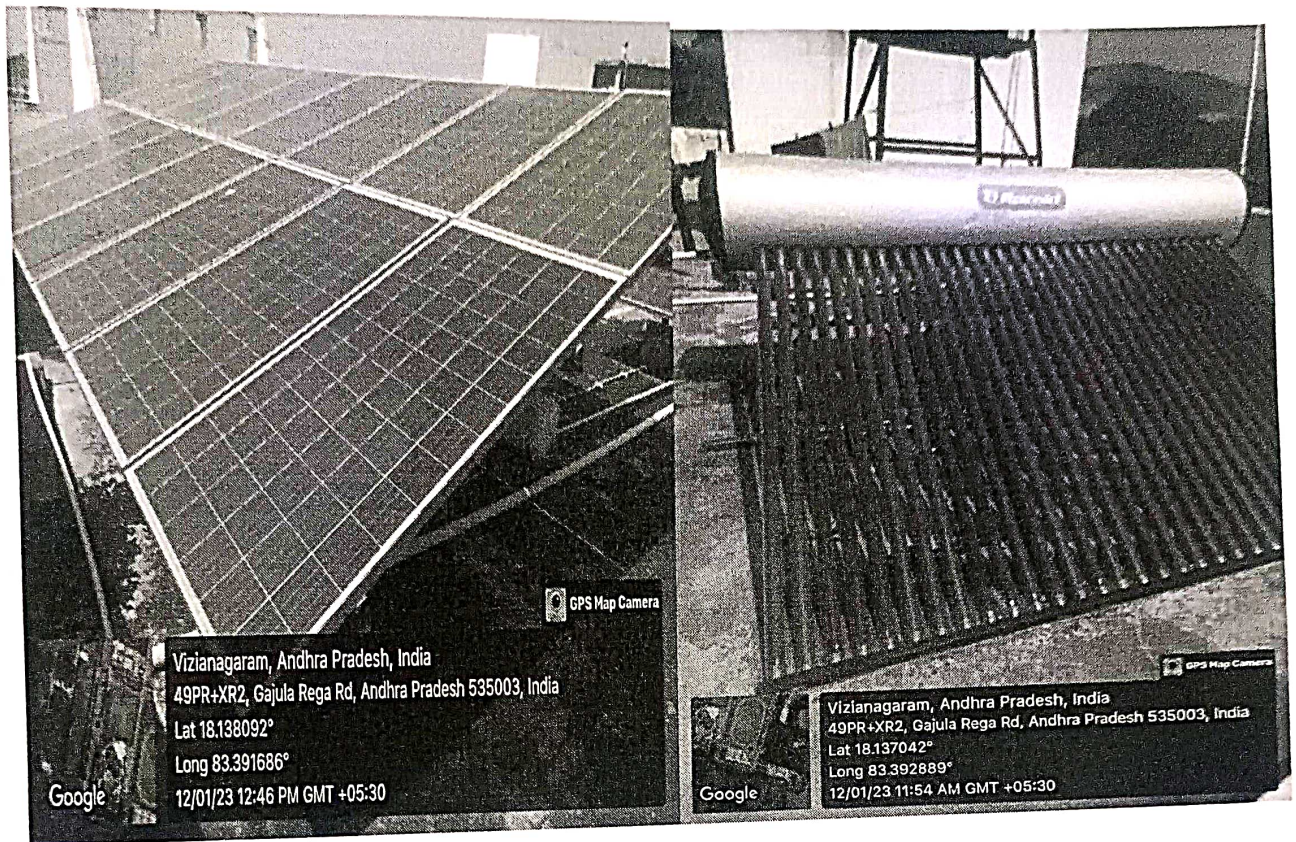
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RENEWABLE ENERGY AUDIT

- All buildings on campus have solar panels installed for power generation and hot water facilities.
- The campus's girl's hostel has access to a rainwater harvesting (RWH) system.
- Solar energy generated on the college campus is transferred to the community trash can for recycling and disposal.



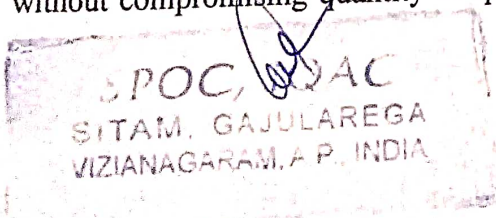
Energy Audit Report

Introduction:

A nation is actively working to enhance education for the general populace of India, focusing on both quantity and quality to elevate intelligence levels. Pre-independence, a small group held control over the entire education and intellectual domain. However, strides have been made toward the coveted status of a developed country, emphasizing the importance of consistent progress. The key to such sustained development lies in effective energy management.

Addressing the present electricity challenges, blackouts during office hours have prompted institutional management to contemplate power production and energy conservation from an eco-social standpoint. India's escalating energy needs, coupled with insufficient domestic fossil fuel reserves, have spurred ambitious initiatives to boost renewable energy resources and construct nuclear power facilities. The goal is to elevate nuclear energy's contribution from 4.2% to 9% in the nation's electrical energy development facilities.

Breaking down India's electricity consumption, 35% caters to industrial demand, 28% to domestic household usage, 21% to agriculture, 9% to commercial use, and the remaining covers public lighting and miscellaneous applications. Energy conservation, a crucial aspect, involves reducing energy consumption without compromising quantity or quality. This serves as the initial step in a robust energy management



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program, incorporating proper equipment rating, utilization of high-efficiency equipment, and altering practices to minimize energy waste.

To address the severe electrical shortage and demand, a comprehensive examination is undertaken, requiring meticulous planning to meet individual electrical needs. As part of this study, an audit of college electricity usage has been conducted, encompassing considerations such as fans, air conditioners, computers, and laboratory equipment. This analysis delves into the overall college budget and the comprehensive economic investment in power.

Energy Audit

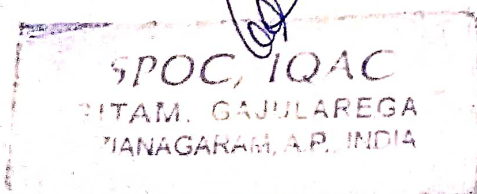
A team conducted an energy audit for the Satya Institute of Technology and Management in Vizianagaram. The primary objective of this audit was not only to assess the potential for advancing the campus's energy efficiency but also to identify the most energy-efficient appliances in use. Additionally, the audit aimed to develop specific daily procedures for commonly used appliances to contribute to overall energy conservation.

The energy audit survey was completed comprehensively, encompassing data collection from every room, laboratory, and classroom. The analysis involved considering the quantity of tube lights, fans, air conditioners, electrical devices, and other components in each area. The focus was on understanding how each element contributed to the overall electricity consumption on campus.

To mitigate the negative effects of inductive load, appropriate-sized capacitors were installed. This step is crucial in optimizing the energy efficiency of the electrical system. The data gathered and the measures taken will serve as valuable insights for future energy management strategies at the institute.

Total Power Requirement of various Equipment

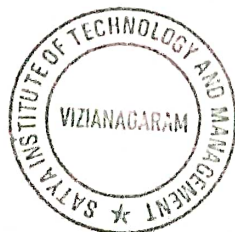
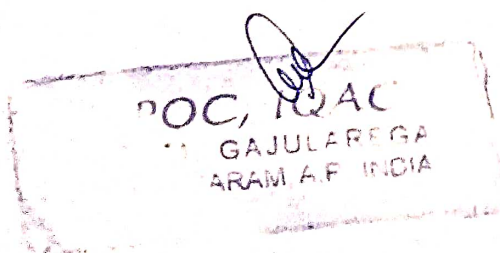
Appliance	Number of appliances	Power use (Watt)	Total Power Consume in '6' hours(watt x hours x no/ 1000)	Consumption in month (KWh)
Tube Lights	225	40	54	1296
LED Lights	170	20	20.4	489.6
Ceiling Fans	320	60	115.2	2764.8



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Air Conditioner's	15	1000	90	2160
UPS	12	900	64.8	155.2
Exhausted Fans	18	55	5.94	142.56
Motors	5	1000	30	720
Street Lights	55	20	6.6	158.4
Printers	10	50	3.0	72
Xerox	2	1350	16.2	388.8
LCD Projector	11	350	23.1	554.4
Computers	25	300	45	1080
TOTAL(kwh/month)				9981.76

The total energy utilization of the college for different purposes is approximately 9981.76 kwh/month.



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