Quality audits on environment and energy are regularly undertaken by the institution

Aditya College of Engineering has adopted eco-friendly environment and it has taken initiatives to environment and energy audit regularly by the Godavari Eco Welfare Association along with the College ECO Club. The institute committed to utilize solar power plants for providing alternative sources of energy. The institute met **56%** of its total requirement of power consumption by the institute from renewable sources. The institute also participated in Swachhta ranking awards conducted by MHRD, AICTE 2019 and got 98 points out of 100.The institute also got the certificate from ISO 9001. The Institute organized many activities related to clean and green, village adoption under swachh bharat and environment promotional activities by the various committees under NSS, ECO Club and Leadership Foundation.

Green audit	Energy audit	Environment audit	Clean and green campus recognitions/awards	Beyond the campus environmental promotional activities
Yes	Yes	Yes	Yes	Yes

S.No	Proof of Documents
1	Green audit
2	Energy audit
3	Environment audit
4	Clean and green campus recognitions/awards
5	Beyond the campus environmental promotional activities

ADITYA COLLEGE OF ENGINEERING • SURAMPALEM •

PRINCIPAL

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Aditya College of Engineering
SURAMPALEM-533 437

Green Audit Report

of

ADITYA COLLEGE OF ENGINEERING

Aditya Nagar, ADB Road, Surampalem- 533437

February 2022

Study Conducted and Prepared by:

KR Energy Consultants

Flat No.103, SS Ajay Arcade, Doctors Colony,
Saroor nagar, Hyderabad-500035
Email: krenergy@rediffmail.com,
Mobile: +91-9440234294
www.krenergyconsultants.com

Table of Contents

Acknowledgement

Executive Summary

Chapter 1: Introduction……06

1.1 About Green Audit

1.2 About Aditya College of Engineering

1.3 Objectives of the Green Audit

1.4 Scope of the Work

1.5 Methodology Adopted for conducting the Energy Audit Study

Chapter 2: Green Audit Observation& Recommendations …….10

2.1 Energy Inputs& Analysis

2.2 Water source, usage, management & conservation

2.3 Waste Management

2.4 Air quality & Noise pollution

2.5 Green belt & Green area Management

2.6 Transport

2.7 Environmental Initiative

Annexure01: Sample photographs

Acknowledgement

KSRG Green Energy Services Pvt. Ltd(called "KSRG" hereafter) places on record, its sincere gratitude to the Management of "***Aditya College of Engineering***, for entrusting the prestigious project of Green Audit of their College located at Surampalem, EG District, AP State.

We also wish to thank the Principal & HODs, Lecturers, Executives &non- teaching staff of the institutefor providing necessary support extended during audit study.

The Green Audit Report also presents green initiatives followed and taken up by the institution and provides suggestions and recommendations to improve environmental sustainability.

KR Energy Consultants
Hyderabad
Date:18/02/2022

Executive Summary

The rapid urbanization and economic development at local, regional, and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development. ***Aditya College of Engineering***is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends.

Eco campus is a concept implemented in many educational institutions, all over the world to make them sustainable because of their mass resource utilization and waste discharge in to the environment. Waste minimization plans for the educational institute are now mandatory to maintain the cleanliness of the campus.

To create and conserve the environment within the campus and to solve the environmental problems such as promotion of the energy savings, energy conservation, water reduction, water harvesting, solid waste management, improvement in the air quality of the campus, control on noise pollution, and minimizing the use of Plastic, etc. is one of the prime objective of the college. To find out the environmental performance of the educational institutions and to analyze the possible solutions for converting the educational campus as eco-campus the conduction of Green Auditing of institution is essential

This is the first attempt to conduct green auditing of this college campus. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of water, vegetation, waste management practices and carbon foot print of the campus etc.,

A report pertaining environmental management plan with strength, weakness, and suggestion on the environmental issue of campus are documented

M/s KR Energy Consultantshas conductedGreen Audit at "***Aditya College of Engineering***, Surampalem in February 2022

a) Existing Practices

1) *Segregation of waste separately, i.e., Solid waste, paper waste, & E-waste*
2) *Awareness towards water & energy conservation*
3) *Use of plastic is avoided in the campus*
4) *Green belt development*
5) *Reject RO water used for sanitation purpose or gardening*
6) *Rain water harvesting pits for recharging and storage of water*
7) *Ponds, tanks and bunds*
8) *STP for recycling of waste water*
9) *Green initiatives – saplings, awareness programs, battery operated vehicles*

b) Identified opportunities

1) *Installation of efficient fans (BLDC)*
2) *Installation of 5 star rated ACs and AC savers*
3) *Continuation of awareness programs on water savings and energy savings*
4) *Efficient water saving taps in wash rooms*

CHAPTER 1
Introduction

1.1 Green Audit

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit. Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation

1.2 About Aditya College of Engineering

Aditya College of Engineering, was founded as the premier promoter of quality education in coastal districts of Andhra Pradesh in 2008 under Sarojini Educational Society. Sri N Sesha Reddy, as a founder chairman, promoted the educational institution, with a mission, to offer the best engineering education with unmatched innovations in the process of teaching and learning by aiming at the all-round development of the students.

The College is situated in an eco-friendly area of 11.27 acres with thick greenery at Surampalem, Gandepalli Mandal, East Godavari District, Andhra Pradesh. The College is 15 KM away from Samalkot Railway Station on Howrah-Chennai Railway line in South Central Railway. The College is 35 Km away from Kakinada and Rajahmundry on ADB Road.

S.No	Building Name	Department/Office
1	Srinivasa Ramanujan Bhavan	Administrative Office, Examination Cell, Accounts, Admission Office, ECE, CSE, H&BS, Management Sciences
2	Newton Bhavan	Electrical and Electronics Engineering, Petroleum Technology
3	James watt Bhavan	Civil & Mechanical
4	Mechanical Block	Labs related to Mechanical Engineering

The

College has Four academic blocks with a total carpet area of 22,183 Sq. Mts. apart from one boys hostel and one girls hostel buildings. The particulars of academic buildings and the departments / offices accommodated are as follows.

The college proudly offers 6 Under Graduate (B.Tech.) and 4 Post Graduate programmes in Engineering (M.Tech.) and MBA with 12 years of rich standing in the educational era. Besides, the college has added many feathers in its cap which include Ranked 44th India's top 50 Engineering Colleges Ranking 2020 in *The Academic Insights, Achieves National Rank Band 51-75 in ARIIA, AAA Grade by Careers 360, Ranked 146 as per Times Engineering Rankings in India 2020, Ranked 29th among top 100 Engineering Colleges in India 2020 by Silicon India, Ranked 85th South Zone & Ranked 145 All India in The Week Survey*.

These distinct recognitions speak volumes of the institute's objective to promote engineering excellence. The total student strength is 2605 with faculty strength of 248 thus giving rise to healthy faculty student ratio.

S.NO	2021-22		
	TEACHING	NON TEACHING	ADMIN
1	248	40	65
2	2605		

It is approved by AICTE, recognized by Govt. of Andhra Pradesh, permanently affiliated to Jawaharlal Nehru Technological University Kakinada (JNTUK). The college also received UGC recognition under Sections 2(f) and 12 (B) of the UGC Act.

Aditya College of Engineering will do its best to offer an innovative environment wherein your dreams will be realized: dreams for higher knowledge, dreams for scientific inquiry, dreams for technology creation, dreams for co-curricular activities, and dreams to change the world

Under Graduate Courses:

- B.Tech Civil engineering
- B.Tech Electrical and Electronics Engineering
- B.Tech Mechanical Engineering
- B.Tech Electronics and Communication Engineering
- B.Tech Computer Science and Engineering
- B.Tech Petroleum Technology

Post Graduate Courses:

- M.Tech VLSI Design
- M.Tech Embedded Systems
- M.Tech Computer Science & Engineering
- M.Tech Power Electronics & Drives
- M.B.A - Master of Business Administration

1.3 Objectives of the Green Audit

The main aim objectives of this green audit is to assess the environmental quality and the management strategies being implemented in Aditya College of Engineering (ACOE). The specific objectives are:

- To assess the water usage and quality of the water in the ACOE campus
- To monitor the energy consumption pattern of the college
- To quantify the liquid and solid waste generation and management plans in the campus.
- To identify the gap areas and suggest recommendations to improve the Green Campus status of the ACOE College.
- To assess the carbon foot print of the college
- To impart environment management plans to the college

1.4 Methodology Adopted for conducting the Green Audit study

KR Energy Consultants has conducted Green audit study studies at the institute in February 2022.The methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and recommendations.

The study covered the following areas to summarize the present status of environment management in the campus:

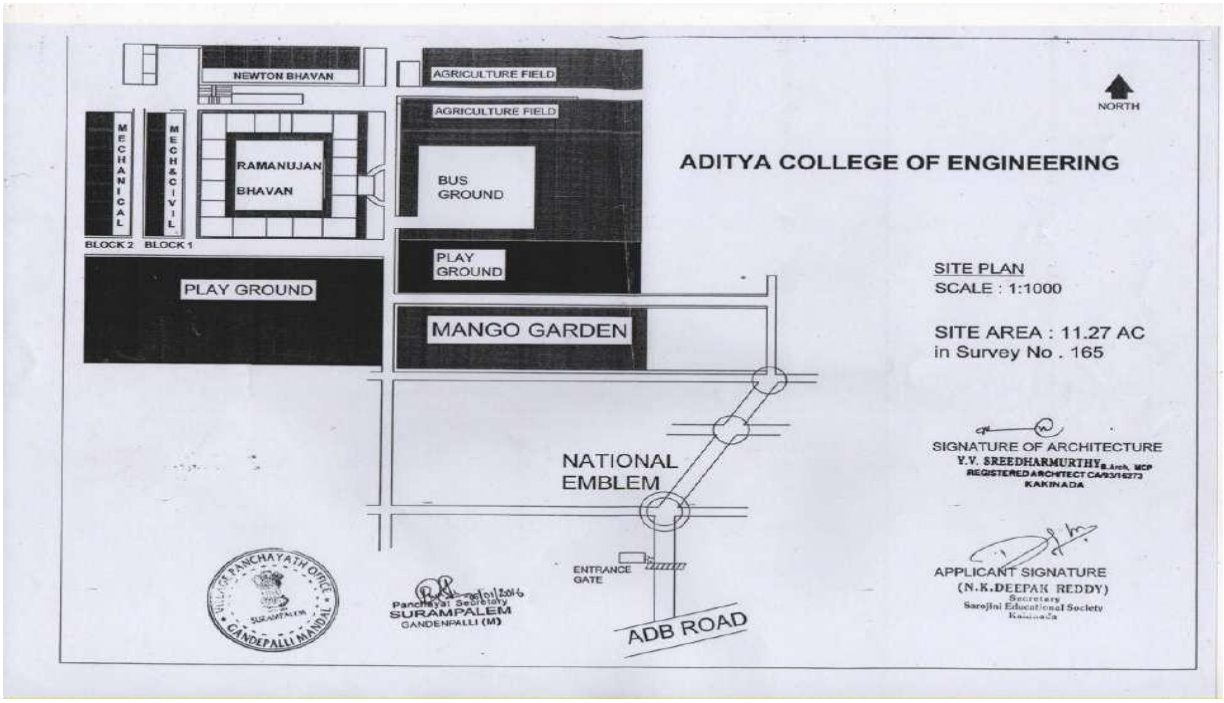
- *Energy Conservation*
- *Water management*
- *Waste management*
- *Air Quality*
- *Green area management*

LAND USE ANALYSIS, ACOE COLLEGE, SURAMPALEM, ANDHRA PRADESH

- ***GENERAL OVERVIEW OF THE CONCEPT OF LAND USE:***

Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods. It refers the activities and the various uses which are carried on and derived from land. Viewing the earth from space, it is now very crucial in man's activities on natural resource. In situations of rapid changes in land use, observations of the Earth from space give the information of human activities and utilization of the landscape (Howarth 1981).

The collection of remotely sensed data facilitates the synoptic analyses of earth system, functions, patterning, and change in the local, regional as well as at global scales over time. Satellite imagery particularly is a valuable tool for generating land use map using google maps.



- ***Site layout map of Aditya College of Engineering (ACOE)***

The institutional are a sums up to12158 sq. meters, followed by institutional common area is 1375 sq. meters. Administrative Area is 2174 sq. meters. The amenities occupy about 207 sq, meters and circulation area is about 4400 sq.meters.

ACOE College, which was established in the year2008, has an eco-friendly environment. It has along legacy of healthy environmental practices including periodic plantation, their preservation and maintenance. Its land use is such that about 42% of the total area is occupied by open land and plantation that clearly indicates a better and sustainable campus environment.

CHAPTER 2
Green Audit –observations & Recommendations

The chapter presents the observations, recommendations covering the various areas as a part of Green Audit carried out in the campus

2.1 Energy Inputs/Sources

Energy sources for the institute are:

- Electricity
- HSD

Electricity is major energy source for the institute for lighting, fans, Air conditioners, pump motors etc.

DG Setis standby to grid power and will run during load shedding. HSD is the fuel for DG Sets.

The management also planning to install roof top solar power plant for to offset grid electricity.

2.1.1 Electrical Energy Analysis

Grid electricity is supplied by the AP Eastern Power Distribution Company Limited (APEPDCL) voltage of 11kV. The connection meets the entire campus electricity requirement including all colleges of the group in the campus. During grid power shortage/ failure, DG Sets supply the required electricity. The institution has a Contract Maximum Demand (CMD) is 300 kVA for the entire campus and colleges in the name of "Sarojini Devi Educational Society

Data on monthly CMD, recorded MD, billed units, and bill amount for period year from January 2021 to December 2021 is collected, analyzed, and presented in Table 2.1 below:

Table 2.1: *Month-wise CMD, Recorded MD, Billed MD, Billed Units, and Bill Amount (Jan 2021 to Dec 2022)*

S.NO	MONTH	APEPDCL CONSUMED UNITS (kWh)	kVAh	BILL AMOUNT (Rs.)	RMD KVA	BILL KVA
1	JAN	36855	36922	136250	158.8	240
2	FEB	51468	51633	310129	216.4	240
3	MAR	78288	78670	617817	237.9	240
4	APR	67915	68206	477957	231.7	240
5	MAY	17085	17086	0	104.82	240
6	JUN	14733	14736	0	73.2	240
7	JUL	27987	28023	188548	127.9	240
8	AUG	52602	52662	452304	184.2	240
9	SEP	54186	54121	455491	200.8	240
10	OCT	55099	55170	403051	183.3	240
11	NOV	63691	63871	534080	205.9	240
12	DEC	62145	62376	466931	191.8	240
		582054	**583476**	**3071271**		
		48504.5	**48623**	**255939**	**176.3**	**240**

Table 2.2: *Summary of Electrical Energy Consumption Data of the entire campus and colleges (Sarojini Educational Society) – January 2021 – December 2022*

S. No.	Item	Value
1	Contract Maximum Demand (CMD) kVA	300
2	Average recorded demand , kVA	176.3
3	Average billed demand, kVA	240
4	Demand variation, kVA	73 to 237
5	Solar power plant capacity of the campus, kW	500
6	Solar power generated, kWh	5.36
7	Solar power used for captive requirement, kWh	1.50
8	Solar power export to grid, kWh	3.86
9	Annual billed grid electricity consumption, kVAh /year	583,476
10	Total annual electricity bill, Rs. lakhs/year	40.42
11	Power factor	1.00
12	Average cost of electricity, Rs/kWh (only grid power)	10.1

Considered Rs 10.00/kWh for electrical energy savings in the report

The electricity consumption of the campus is low, as the college was not fully operating due to Covid.

2.1.2 Electrical Energy conservation measures

(a) Replace Old fans with Energy efficient fans

- ✓ Fans are provided with fixed and running capacitor. The speed drops if the value deteriorates with time. Timely replacement of capacitor is necessary.

- ✓ Presently, in many rooms conventional electrical regulators are installed and it is suggested to replace old conventional regulators with new electronic type regulators.

- ✓ In majority of the rooms, the fans are old and consume more power than rated.

Energy savings can be achieved by replacing the existing old ceiling fans with 5 Star Rating (BEE) energy efficient ceiling fans or Super fans.

- ➥ Option 1: 5 Star rated Fans
- ➥ Option 2: Super Fans

Initially, it is recommended to replace old fans of 100 nos. and after successfully achieving the savings, other fans can be replaced in a phased manner. The energy savings made for a sample of replacement of 100 fans under two Options are furnished below:

Table 1: *Energy savings of replacing Fans with 5 Star Rated & Super-Efficient Fans*

Description	Unit	Option1: 5 Star Rated Fans	Option2: Super-Efficient Fans
Number of Fans (*considered 100 Nos. as sample for case study*)	Nos.	100	100
Actual power consumed	Watts	70	70
Power consumption of new Fan	Watts	40	30
Average operation	hours/day	8	8
	Days/year	250	250
Annual energy savings	kWh/yr.	6,000	10,000
Cost of energy	Rs/kWh	10	10
Total Annual saving	Rs	60,000	1,00,000
Cost of new Efficient fans	Rs/Fan	1,800	2,500
Investment	Rs	1,80,000	2,50,000
Simple Payback period	Months	36	30

Note: Price is subjective and be further reduced if taken on bulk quantity. The average life of fans is 10 years.

(b) Energy Savers for Air conditioners

The air-conditioning systems available at Institute are of split air conditioners. There are total of 17 air conditioners in the hostel and college administration block. The rated capacity of Acs is 1.5 TR and total capacity is 26 TR.

The observations made on air conditioners are as follows:

- It is beneficial to install 5 Star rated ACs in future as 5 star rated ACs will consume less power than 3 star rated, and additional investment is less.
- Install energy savers for ACs for reducing electricity consumption

Table 2: *Energy saving due to AC savers*

Description	Unit	Split AC
Total number of ACs	Nos.	17
Total AC load	kW	30.6
No. of hours of operation/ day	Hours/day	6
No. of days per annum	Days/year	200
Annual Energy Consumption	kWh/year	36,720
Power saving due to AC Saver @15%	kWh/year	5,508
Annual monetary savings(*@Rs.10.0 per kWh*)	Rs.	55,800
Investment for AC Savers *(@Rs.4,000 x 17 no's*	Rs.	68,000
Payback period	Months	24

(c) Replace CFLs with LED lights

***Table 2.4**: Cost benefit Analysis of replacing CFLs with LEDs.*

Description	Unit	CFLS
Total number of CFLs	Nos.	100
Wattage	W	10
No. of hours of operation/ day	Hours/day	6
No. of days per annum	Days/year	250
Annual Energy Consumption	kWh/year	1,500
Power saving due to LEDs @50%	kWh/year	750
Annual monetary savings(*@Rs.10.0 per kWh*)	Rs.	7500
Investment for bulbs *(@Rs.100/- per bulb or light*	Rs.	10,000
Payback period	Months	16

In class Rooms, hostel rooms and laboratories, it is suggested to have Display Messages or Posters regarding optimum use of electrical appliances in the room like, lights, fans, computers, and projectors. Few sample posters is furnished below:

(i) Sample Posters for Awareness towards Energy Conservation

Also have stickers/labels of slogans/lines for energy saving in Class rooms/ Common areas

- Energy saved is energy produced.
- Switch of Lights/ Fans if not used
- Conservation: It doesn't cost. It saves.
- Spare a Watt; Save a Lot
- Save Today. Survive Tomorrow
- Energy misused cannot be excused

2.2 Water - Source, Usage, Management & Conservation

This indicator addresses water consumption, water sources, water management, water conservation and water treatment plants, and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

2.2.1 Sources of water

The main source of water intake for the institute is ground water through bore well and is drawn through the submersible pumps and stored in the sumps. This bore water is again treated using the Reverse Osmosis (RO) to ensure the good quality of treated water with less TDS. This water is consumed by the staff and the students. In order to cater to drinking water and other lab related water requirements, a 1000 Liters per hour of Reverse Osmosis plant to installed. It has a 20 KLD sump to cater to the water needs of the ACOE. It was observed that the RO plant is working well and Ph and TDS is within the limits for drinking water.

Green audit team has noticed that there is a water harvesting pit where the RO reject is used to recharge the ground water. Approximately 40% of the water entering the RO water gets rejected which is used to recharge the ground water.

Waste water:

Waste water is mainly generated from toilet flushing and kitchens. Wastewater generated from academic blocks as well as hostels is collected in septic tanks and passed to surrounding trees and plants through canals.

The rainwater is fed into the surface pond nearby the college. The picture of the pond is provided below.

The pond water is used for gardening needs of the college

2.2.2 Water usage

The source of water to the plant is groundwater supplied from bore wells.

- The bore wells pumps are operated as per requirement. The water is drawn through the pumps and is supplied to sumps. From the raw water tanks, water is supplied to OHT to washrooms, Labs & other usage areas as domestic usage.
- Raw water is used in the college for sanitation and other purposes.
- Domestic water is supplied to an overhead tank (OHT) through the pump and from OHT, the water is supplied to different floors of the College
- RO reject water is used for washing and gardening
- Waste water is drained to STP and treated water is used for gardening purpose.

On an average the total use of water in the college is 17,000 to 21,000 L/day, which include 5000 L/day for drinking water and balance for sanitation requirement& domestic requirement, and for gardening purposes.

Water saving initiatives by the management

1. The management has taken several steps/measures for water saving and also water harvesting such as water ponds, tanks and bunds for storing of rain water
2. Rain water harvesting recharge pits located at different locations of the college.
3. The reject water generated in the RO plant is used for gardening and washing.

2.2.3 Water Management & Conservation

In campus small scale/medium scale reuse and recycle of water system is necessary.

(1) Rain water Harvesting

(2) Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e., they are biodegradable and non-toxic,

(3) Garden /plantation watering by drip system to minimize water use as a good practice followed by management towards water conservation in the campus.

(i) Rainwater harvesting management

The concept of rain water harvesting is an ancient one and has become popular in recent times because of the vagaries of the monsoon, depleting water resources, its user friendliness. It has become an important and eco-friendly tool to protect ground water, useful and cost-effective method to boost water resources in any area. Rainwater harvesting is the technique of collection and storage of rainwater at surface or in sub-surface aquifers before it is lost as surface run-off.

The management has taken tremendous steps for rain water harvesting such as water ponds, small tanks, recharge pits near bore wells and for gardening

The college has good roof top areas and rain water from roof top has also been collected through the drain lines and stored in tanks and ponds for use for gardening and other purposes.

All the potential available for rain water harvesting either by roof top or surface run off has been tapped and well maintained in the college.

(ii) Water conservation Opportunities in Wash rooms

(a) Faucets

Water efficient faucets and fixtures are available in the market now days to reduce water consumptions in wash basins by reducing flow without compromising comfort level of user. It is observed that flow of existing tap/faucets is 5LitresPer Minute (LPM). Faucets flows can easily be reduced without affecting the comfort of the water user by using appropriate flow regulator technology for these fixtures. This will result in impressive savings of around 40-50 percent of faucets water use. Flow regulators, especially the aerators are inexpensive and are easy to install and maintain. Therefore, they are often considered as the low hanging fruits of water saving programs.

Figure 1: *Water efficient faucets*

The present taps are of flooded type in the college and hostel. It is suggested to replace old taps new water efficient faucets can be installed, and the investment required is marginal.

(b) Toilets

A dual-flush toilet is a variation of the flush toilet that uses two buttons or handles to flush different levels of water. A significant way to save water in buildings is to replace single-flush toilets with dual flush toilets. The standard dual-flush toilets use six Liters of water on full and three Liters on a half-flush.

Replacing old toilets flush tanks will result to a reduction of toilet water consumption. More cost-effective results can be achieved by replacing only the toilet trim system.

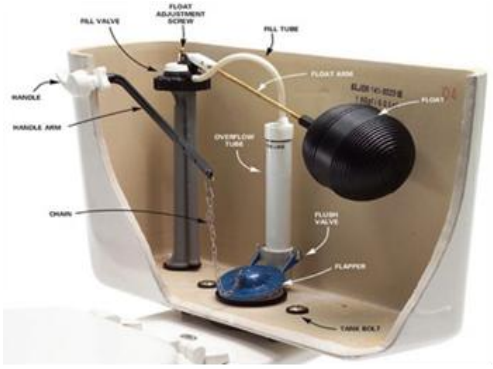


Figure2: *Dual Flush Toilet System*

The audit team has conducted the survey to toilets available in the campus. It is recommended to install duel flush system in the toilets.

(iii) Awareness on water conservation

College has about 3000 nos. (Including students, teaching &non-teaching& other workers) and major water usage is for domestic consumption by them.

It is suggested that the student's staff at all levels should be made aware and trained on 'Water Saving & Conservation' and 'Good Housekeeping Practices.'

Therefore, it is recommended to periodically organize Awareness Programs for students/Staff including workers on Water Conservation.

It is also suggested that prominent water saving labels/posters should be placed/located in the college at noticeable locations like water filters/ wash rooms/ hand washing taps/display boardsetc.

This will create awareness & sense of responsibility among students/staff/employees/visitors.

2.3 Waste Management

Wastes cannot be avoided in any environment. Wastes can be classified as Biodegradable and Non- biodegradable wastes. Biodegradable wastes include food wastes, which can be easily decomposed by the bacteria in soil. But non-biodegradable wastes are those which cannot be degraded by any organism and remain as such for many years.

Types of wastes generated in the campus are Food waste, Paper, Scrap& E-waste. Liquid waste. No Hazardous chemical waste is generated from the campus

Construction waste being taken by the local panchayat and being disposed as per their practices

2.3.1 Present practice of waste disposal or treatment

- Waste generation from tree droppings and lawn management is a major solid waste generated in the campus.

- The waste segregationat source by providing separate dustbins for Bio-degradable and Plastic waste. Dust bins areprovided in each floor of the blocks and at required areas too.

- The solid wastein the campus is given to village panchayat and disposed by their methods.

- Plastic use is avoided in the campus and policy has made. The students also advised by the management and not to use plastic in the campus and hence very less plastic is generated in the campus

- Single sided used papers reused for writing and printing in all departments and recently both side printing is carried out as per requirements.

- The waste generated by newspapers/ paper/Cartoon boxes etc., are around 50-100 kg/month. Presently the same being sent to recycling by vendor to various paper mills.

- Metal waste and wooden waste is stored and given to authorized scrap agents for further processing.

- Food waste generated from canteen is collected and taken by cattle feeders in and around the vicinity of the campus

- College Management has made awareness campaigns and policy, among the students by campaigns to reduce the plastic usage in the campus

- Sometimes waste generated from auditoriums/ few leafy waste/ plastics being burnt in ring

- Electronic waste (E-waste)generated from computer and their parts, telephones, printers, and other electronic devicebeing disposed ofon yearly basis through authorized vendor/ competent agency for recycling.

- All the E-Waste like monitors, key boards, mother boards, printers etc., generated in the college premises is stored in a separate room and disposed on yearly basis to the authorized vendor for recycling.

2.3.2 Waste Management-Recommendations

1) Adequate numbers of garbage bins to be provided in every room and in every floor in blocks& hostel as well as in the academic area and canteen too and theycan be used for disposing of waste as and when required.

2) The practice of burning the leafy dried leafy / plant waste, paper waste, which is the usual practice needs to be discontinued and better options tried.

3) Though the quantities are not very huge, composting/ Compost generation can be option

2.4 Air Quality & Noise Pollution

2.4.1 OutdoorAir quality

Air is one of the essential elements of sustainability of life on this planet. It is required to monitor its quality frequently to establish its goodness. Due to greenery and absence of any industries in the vicinity of the campus, the air quality is good. Also, road sides are covered with plants &trees improving the air quality.

Air quality determination: AQI is 34 for the location and which is good
(Source: As per CPCB air quality reports)

So, it is recommended to have Environmental monitoring (Ambient Air quality, water quality from approved laboratories) on half yearly or yearly basis to understand air quality

2.4.2 Indoor Air Quality (IAQ)

Indoor Air Quality (IAQ) refers to the air quality within & around buildings and structures, it relates to the health and comfort of building occupants. Common indoor pollutants are listed as below:

- Carbon monoxide – Sources of carbon monoxide are incomplete combustion of fossil fuels
- Volatile organic compounds (VOCs) – VOCs are emitted by paints and lacquers, paint strippers, pesticides, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions etc.
- Carbon dioxide – Due to human respiration
- Particulate matter – Due to construction and maintenance activities, vehicular pollution
- Nitrogen Oxides- Due to vehicular pollution

Observations:

- During day- time Air Quality Index (AQI) of location is in the range of 30-34.
- In classrooms the mode of ventilation is natural draft (through windows) and is enhanced by fans. Large windows and cross-ventilation are observed in corridors.
- Air conditioners are used in some offices, computer laboratories and computer server room.
- Exhaust fans are provided in chemistry laboratory and all kitchens.
- Green belts consisting of tall trees have been set up in campus area
- Fire fighting system is provided for the total campus and NOC was also given by Fire Safety Department

2.4.3 Noise pollution

- Also, students are advised to not to use vehicles within the campus to minimize the air pollution and noise pollution.
- Even though state highway runs beside the campus, no noise pollution harms the learning environment, as the buildings are away from the road and also the tall trees inside the campus acts as obstructurals for noise transmission.

2.5 Green Belt & Green Area Management

This includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programmes.

2.5.1 Observations

The area is immensely diverse with a variety of tree species performing a variety of functions. Most of these tree species are planted in different periods of time through various plantation programmes organised by the management and have become an integral part of the college. The trees of the college have increased the quality of life, not only the college fraternity but also the people around of the college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, andcontrolling climate by moderating the effects of the sun, rain, and wind.

Plantations

A Total of 25 crotans plants, 19 flower plants, and 49 herbal plants are there in campus.

ACOE campus has Herbal Garden on 1000 square meter area. The garden has different sections in which specific types of plants are planted with respect to their medicinal importance and Vedic reference. Boards are displayed for each section and plants names. Sprinkler system is provided in herbal garden.

Large trees and potted plants were seen in the campus. Plantation improves aesthetics and helps as buffer in reducing noise level, maintaining temperatures of the area. As informed by the garden supervisor, around 80 trees are present in the campus.

Garden is managed by gardener. Organic fertilizers and pesticides are used for plants if necessary.

The plantation program includes several types of indigenous species of ornamental and medicinal.

- Large trees and potted plants were seen in the campus. Plantation improves aesthetics and helps as buffer in reducing noise level, maintaining temperatures of the area. As informed by the garden supervisor, around 88 varieties of plants/trees are present in the campus
- Organic fertilisers and pesticides are used for plants if necessary.
- NSS groups of ACOE organize green activities and awareness campaigns under Green Initiatives.

Sample photographs of the trees, etc are provided in Annexure01 in this report

2.5.2 Recommendations

- Display boards to major plants to be provided
- Few more fruit trees to be planted in the college to attract birds
- Watering schedule to be planned according to the season
- Special Tree Plantation shall be celebrated every year on environment day and also competitions for bird species identification and knowing the tree values in terms of medicinal and environment conservation
- Plants can also be planned on roof top area

2.6 Transportation

ACOEis located near APSRTC bus stand and request stop is also provided, majority of the students are coming by public transport system and cycles also. Very few students are coming by two wheelers also and is not allowed inside the campus. Inside the campus, battery operated vehicles also provided to use for handicapped, old age people and others. The emissions due to fuel consumption of the vehicles used for transport is

minimal. The college has also bus facility to pick up students from various locations of town.

2.6.1 Carbon Foot Print Audit

- College has not yet taken any initiative for carbon accounting.
- Encourage students and staff to use bicycles to reduce carbon emissions.

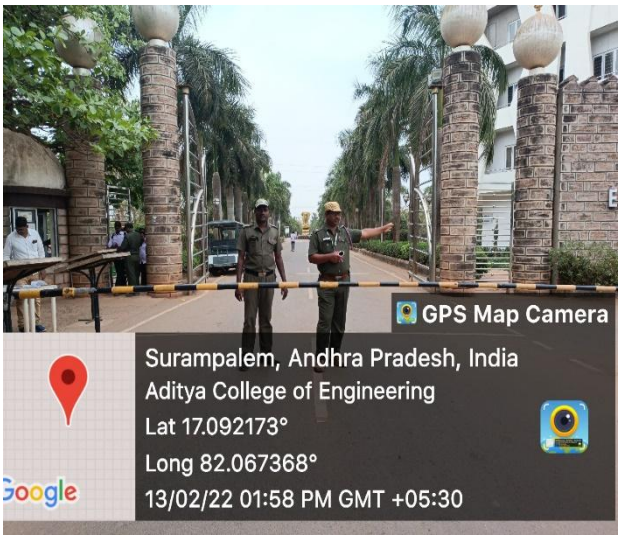
2.7 Environmental Initiative

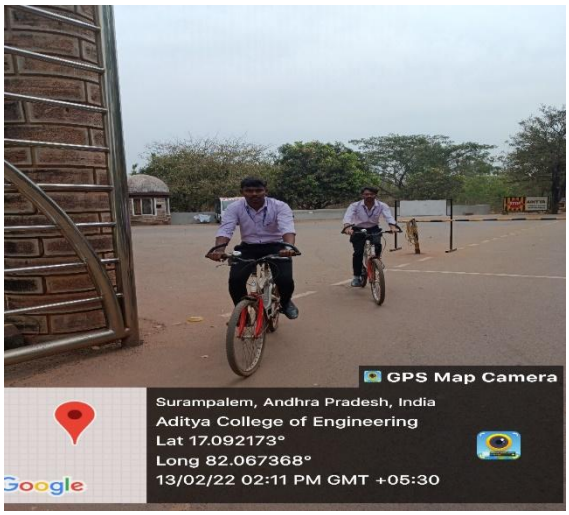
Every year college celebrates World Environment Day, World Water Day, Energy Conservation Day, and Ozone Day in the campus and to be continued and to be organised in the college

The main focus of these programmes is to provide awareness to the students about the importance of the environment, its conservation and sustainable use of environmental resources.

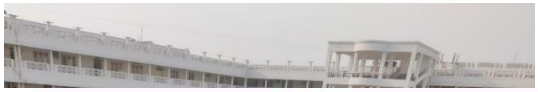
Display of environment protection banners, posters like save water, save energy at prominent places, save energy, waste disposal bins for wet and dry waste disposal are some of the initiatives taken and also to be practiced in future too.

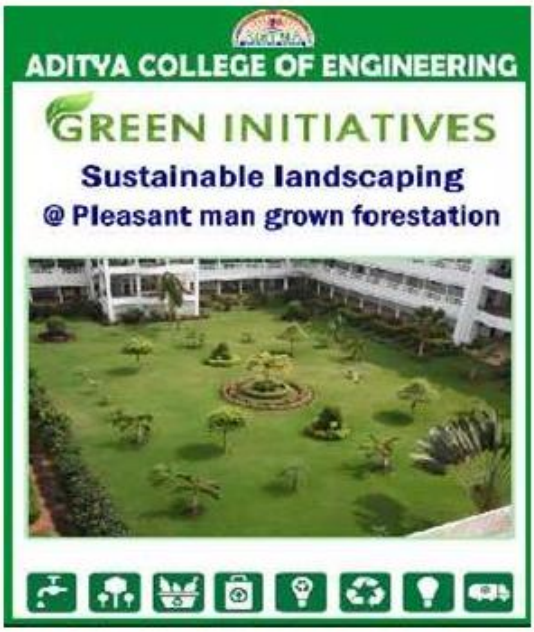
Annexure 01: Sample Photographs






ADITYA COLLEGE OF ENGINEERING
GREEN INITIATIVES
1. Solar - energy initiatives @ 300KVA capacity
2. Unique solar water heating systems for hostels
3. Rain water harvesting
4. Green Transportation @ Electric vehicles
5. Campus Bicycle initiatives for staff and students
6. 100 % LED bulbs in the campus
7. Plastic free campus
8. Sustainable landscaping
@ Pleasant man grown forestation
9. Green Economy @ E- governance




ADITYA COLLEGE OF ENGINEERING
GREEN INITIATIVES
Sustainable landscaping
@ Pleasant man grown forestation

Water tank for Rain water conservation

Rain water harvesting pit in Ramanujan Bhavan

Bore well and Open Well Recharge in Ramanujan Bhavan

Construction of Tanks and bunds for maintaining water conservation facilities

Energy Audit Study

of

ADITYA COLLEGE OF ENGINEERING

Aditya Nagar, ADB Road, Surampalem- 533437

February 2022

Study Conducted and Prepared by:

KR Energy Consultants

Flat No.103, SS Ajay Arcade, Doctors Colony,
Saroor nagar, Hyderabad-500035
Email: krenergy@rediffmail.com,
Mobile: +91-9440234294
www.krenergyconsultants.com

Contents

Acknowledgement

Executive Summary

Chapter 1: Introduction……..……07

1.1 About Aditya College of Engineering

1.2 Energy Conservation Efforts made by the Management

1.3 Objectives of the Energy audit

1.4 Scope of the Work

1.5 Methodology Adopted for conducting the Energy Audit Study

1.6 Measuring Instruments used during the Energy Audit

Chapter 2: Energy Consumption&Analysis, ……..…13

2.1 Energy Inputs

2.2 Electrical Energy Analysis

2.3 GHG Emissions

2.4 Solar Power Plant – GHG Emission Reductions

2.5 Power Factor and Maximum Demand

2.6 DG sets

2.7 Harmonics

Chapter 3: Fans& Air conditioners……22

3.1 Details of Fans

3.2 Fans- Observations& recommendations

3.3 Air Conditioners

3.4 Air Conditioners –Observations& recommendations

Chapter 4: Lighting ……..……27

4.1 Details of Lighting

Chapter 5: Miscellaneous……..……..29

5.1 Pumps – Observations& recommendations

5.2 General Observations

5.3 Solar Hot Water System

Acknowledgement

KR Energy Consultants (called "KR Energy" hereafter) places on record, its sincere gratitude to the Management of **M/s *Aditya College of Engineering***, for entrusting the prestigious project of Energy Audit of their College located at Surampalem, ADB Road, East Godavari District, AP State.

We also wish to thank the officers/Executives & staff of the institutefor providing necessary support extended during energy audit study.

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T KRISHNA
BEE Certified Energy Auditor no.3398
KR Energy Consultants
Hyderabad
Date: 18/02/2022

Executive Summary

M/s KR Energy Consultants has conducted a Detailed Energy Audit of M/s Aditya College of Engineering, Aditya Nagar, Surampalem, EG District, AP in February 2022 to identify energy savings measures for reducing energy consumption and electricity bill.

Electricity and HSD are main energy sources for the institute. Grid electricity supply by APEPDCL is the main source of electrical energy, which is augmented with power generation from DG Sets during load shedding:

The institute has also solar power plant of 500 kW capacity for captive use for the entire campus requirement

a) Electrical Energy

Table A: Profile of Electrical Energy Consumption

S. No.	Item	Value
1	Contract Maximum Demand (CMD) kVA	300
2	Average recorded demand , kVA	176.3
3	Average billed demand, kVA	240
4	Demand variation, kVA	73 to 237
5	Solar power plant capacity of the campus, kW	500
6	Solar power generated, lakh kWh	5.36
7	Solar power used for captive requirement, lakh kWh	1.50
8	Solar power export to grid, lakh kWh	3.86
9	Annual billed grid electricity consumption, kVAh /year	583,476
10	Total annual electricity bill, Rs. lakhs/year	40.42
11	Power factor	1.00
12	Average cost of electricity, Rs/kWh (only grid power)	10.1

b) Summary of Recommendations

The Tables below presents the summary of recommended energy saving projects, anticipated energy savings, and monetary savings, investment required, and simple payback period:

Table 1: Summary of Suggested Energy Saving Measures with Cost-Benefit Analysis

Energy Conservation Measure	**Energy savings** (kWh/ year)	**Monetary savings** (Rs. / year)	**Investment** (Rs.)	**Payback period (months)**
Replace old fans with Energyefficient/Super fans(100nos)	6,000	60,000	180,000	36
Install energy savers for ACs	5,508	55,080	68,000	24
Replace conventional CFLs with LED lights	750	7,500	10,000	16
Replace old pumps with new efficient pumps(1 no's)	1,800	18,000	50,000	36
Install Solar hot water system for hostel buildings	--	--	--	--
Total	**14,058**	**140,580**	**308,000**	**26**

- *As can be observed from the above Table, the total electrical energy savings are estimated at 14,058kWh/year and the corresponding monetary savings are Rs.1.40lakh/year. The investment required is Rs.3.08lakhswhich will be paid back in **26** months.*

- *Equivalent CO2 reductions due to energy savings would be 13tCO2/ yr*

- *Initially, the fans, ACs and tube lights operated for more hours in a day/year can be selected for replacement for maximum benefit.*

- *Solar hot water system required for 250 students is around 5,000 liters/day capacity.*

CHAPTER 1
Introduction

1.1 About Aditya College of Engineering

Aditya College of Engineering, was founded as the premier promoter of quality education in coastal districts of Andhra Pradesh in 2008 under Sarojini Educational Society. Sri N Sesha Reddy, as a founder chairman, promoted the educational institution, with a mission, to offer the best engineering education with unmatched innovations in the process of teaching and learning by aiming at the all-round development of the students.

The College is situated in an eco-friendly area of 11.27 acres with thick greenery at Surampalem, Gandepalli Mandal, East Godavari District, Andhra Pradesh. The College is 15 KM away from Samalkot Railway Station on Howrah-Chennai Railway line in South Central Railway. The College is 35 Km away from Kakinada and Rajahmundry on ADB Road.

The College has Four academic blocks with a total carpet area of 22,183 Sq. Mts. apart from one boys hostel and one girls hostel buildings. The particulars of academic buildings and the departments / offices accommodated are as follows.

S.No	Building Name	Department/Office
1	Srinivasa Ramanujan Bhavan	Administrative Office, Examination Cell, Accounts, Admission Office, ECE, CSE, H&BS, Management Sciences
2	Newton Bhavan	Electrical and Electronics Engineering, Petroleum Technology
3	James watt Bhavan	Civil & Mechanical
4	Mechanical Block	Labs related to Mechanical Engineering

The college proudly offers 6 Under Graduate (B.Tech.) and 4 Post Graduate programmes in Engineering (M.Tech.) and MBA with 12 years of rich standing in the educational era. Besides, the college has added many feathers in its cap which include Ranked 44th India's top 50 Engineering Colleges Ranking 2020 in *The Academic Insights, Achieves National Rank Band 51-75 in ARIIA, AAA Grade by Careers 360, Ranked 146 as per Times Engineering Rankings in India 2020, Ranked 29th among top 100 Engineering Colleges in India 2020 by Silicon India, Ranked 85th South Zone & Ranked 145 All India in The Week Survey*.

These distinct recognitions speak volumes of the institute's objective to promote engineering excellence. The total student strength is 2605 with faculty strength of 248 thus giving rise to healthy faculty student ratio.

S.NO	2021-22		
	TEACHING	NON TEACHING	ADMIN
1	248	40	65
2	2605		

It is approved by AICTE, recognized by Govt. of Andhra Pradesh, permanently affiliated to Jawaharlal Nehru Technological University Kakinada (JNTUK). The college also received UGC recognition under Sections 2(f) and 12 (B) of the UGC Act.

Aditya College of Engineering will do its best to offer an innovative environment wherein your dreams will be realized: dreams for higher knowledge, dreams for scientific inquiry, dreams for technology creation, dreams for co-curricular activities, and dreams to change the world

Under Graduate Courses:

- B. Tech Civil engineering
- B. Tech Electrical and Electronics Engineering
- B. Tech Mechanical Engineering
- B. Tech Electronics and Communication Engineering
- B. Tech Computer Science and Engineering
- B. Tech Petroleum Technology

Post Graduate Courses:

- M. Tech VLSI Design
- M. Tech Embedded Systems
- M. Tech Computer Science & Engineering
- M. Tech Power Electronics & Drives
- M.B.A Master of Business Administration

1.2 Energy Conservation Efforts made by the Management

The committee of the institute recognizes its responsibility to conserve and manage energy in all its operations.

- ✓ Make every effort to commit organizational resources towards energy management
- ✓ Minimize energy costs and give priority to energy efficiency (EE) by utilizing available resources more efficiently

Towards this objective, the management has installed LED lighting and Solar Power Plant of 500kW for captive use of power for the entire campus covering for all colleges of the group institutions.

The management wants to explore further scope for energy conservation and energy cost reductionin the campusand thus entrusted the job of Energy audit to KR Energy Consultants.

1.3 Objectives of the Energy Audit

The key objectives of the Energy audit is to identify, prioritize, and recommend a set of proven, customized, low-cost, and implementable measures for reducing the consumption of electrical energy in the campus and emission reductions.

1.4 Scope of Work

The Energy audit has laid emphasis on performance assessment of electrical utilities comprising the following equipment/ areas for identification of cost-effective energy saving solutions:

1) Energy Consumption and Analysis
2) Pumps(Utility)
3) Air Conditioners
4) Fans
5) Lighting
6) DG sets

1.5 Methodology Adopted for conducting the Energy Audit study

KR Energy Consulting has conducted Energy audit field studies at the institute in February2022. As a part of the Energy auditKR Energy Consulting audit team has visited campus for data collection, on-site measurements, and performance monitoring of various equipment using portable Energy audit instruments. KR Energy Consulting has adopted the following methodology for conducting the Energy audit:

- Kick-off meeting with the concerned personnel to finalize field action plan
- Inventory of all the electrical appliances installed by physical verification like air conditioners, luminaries, computers, and others. Physical inspection of the electrical distribution system.
- Monitoring of electrical parameters such as voltage, amps, kW, power factor etc.for individual equipment's and feeders
- Monitoring of harmonics at the identified DB's, feeders UPS with power and harmonic analyzer
- Collection of photocopies of monthly electricity bills for the past one year
- Critical analysis of data collected/ measured and assessment of energy efficiency and energy losses
- Identification of energy saving measures and assessment of energy saving potential
- Submission of the report

The approach/ methodology adopted for Energy audit is presented pictorially below in Fig. 1.

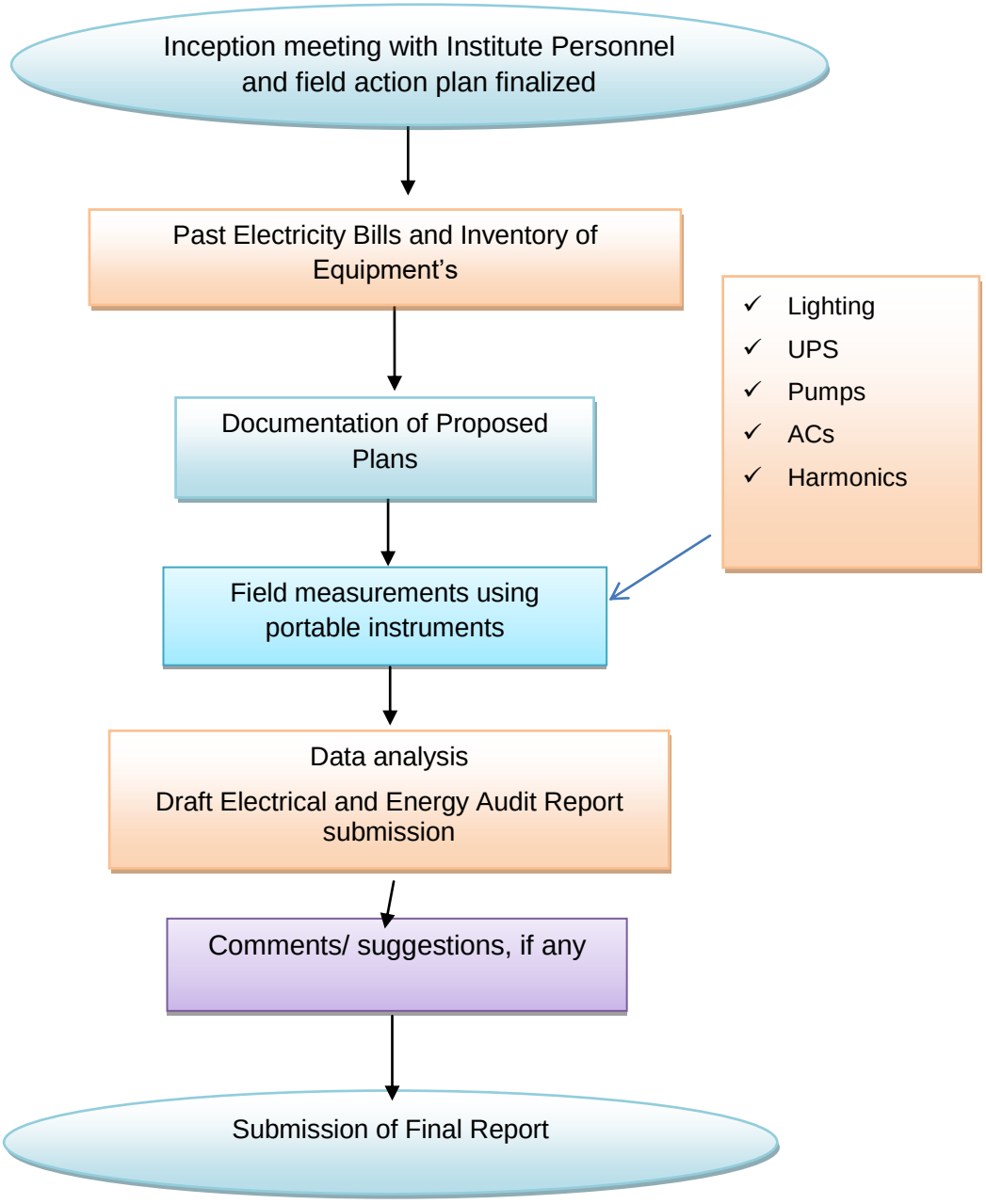


Figure 1: *Approach/ methodology adopted for conducting Energy Audit of Aditya College of Engineering, Surampalem, ADB Road, East Godavari District, AP State*

1.6 Measuring Instruments used for the Electrical and Energy Audit

KR Energy Consulting has used portable, micro-processor based, state-of-the-art, calibrated instruments for on-field monitoring of equipment performance during Energy audit. The list of portable instruments used in the study is as follows:

- Nanovip Plus Load Manager
- Harmonic Analyzer
- Lux meter
- Temperature measuring instruments
- Thermal Imager

CHAPTER 2

Energy Consumption & Analysis

The chapter presents the description of various energy inputs used in the Institute, their consumption trends & analysis, annual energy costs, and share of different energy inputs in total energy cost.

2.1 Energy Inputs

Energy sources for the hotel utilities are:

- Electricity
- HSD

Electricity is major energy source for the institute for lighting, fans, motors etc.

DG Sets are used as standby to grid power and will run during load shedding. HSD is the fuel for DG Sets.

The campus has a roof top solar power plant also of 500 kW and electricity generated is used for captive purpose for the entire campus and all colleges power requirement.

2.2 Electrical Energy Analysis

Grid electricity is supplied by the AP Eastern Power Distribution Company Limited (APEPDCL) voltage of 11kV. The connection meets the entire campus electricity requirement including all colleges of the group in the campus. During grid power shortage/ failure, DG Sets supply the required electricity. The institution has a Contract Maximum Demand (CMD) is 300 kVA for the entire campus and colleges in the name of “Sarojini Devi Educational Society

Data on monthly CMD, recorded MD, billed units, and bill amount for period year from January 2021 to December 2021 is collected, analyzed, and presented in Table 2.1 below:

Table 2.1: *Month-wise CMD, Recorded MD, Billed MD, Billed Units, and Bill Amount (Jan 2021 to December 2021)*

S.NO	MONTH	APEPDCL CONSUMED UNITS (kWh)	kVAh	BILL AMOUNT (Rs.)	RMD KVA	BILLED KVA
1	JAN	36855	36922	136250	158.8	240
2	FEB	51468	51633	310129	216.4	240
3	MAR	78288	78670	617817	237.9	240
4	APR	67915	68206	477957	231.7	240
5	MAY	17085	17086	0	104.82	240
6	JUN	14733	14736	0	73.2	240
7	JUL	27987	28023	188548	127.9	240
8	AUG	52602	52662	452304	184.2	240
9	SEP	54186	54121	455491	200.8	240
10	OCT	55099	55170	403051	183.3	240
11	NOV	63691	63871	534080	205.9	240
12	DEC	62145	62376	466931	191.8	240
		582054	**583476**	**3071271**		
		48504.5	**48623**	**255939**	**176.3**	**240**

The variation of electricity consumption, recorded demand, billed demand, solar power, and power factor demand is graphically furnished in fig 2.1. 2.2, 2.3, 2.4 and 2.5

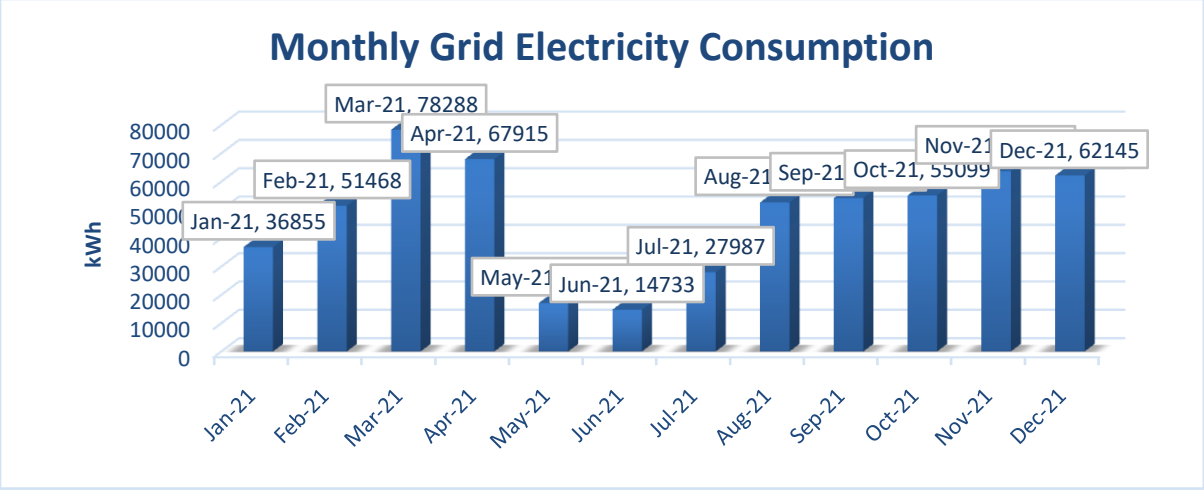


Fig 2.1: Monthly Grid Power Energy Consumption

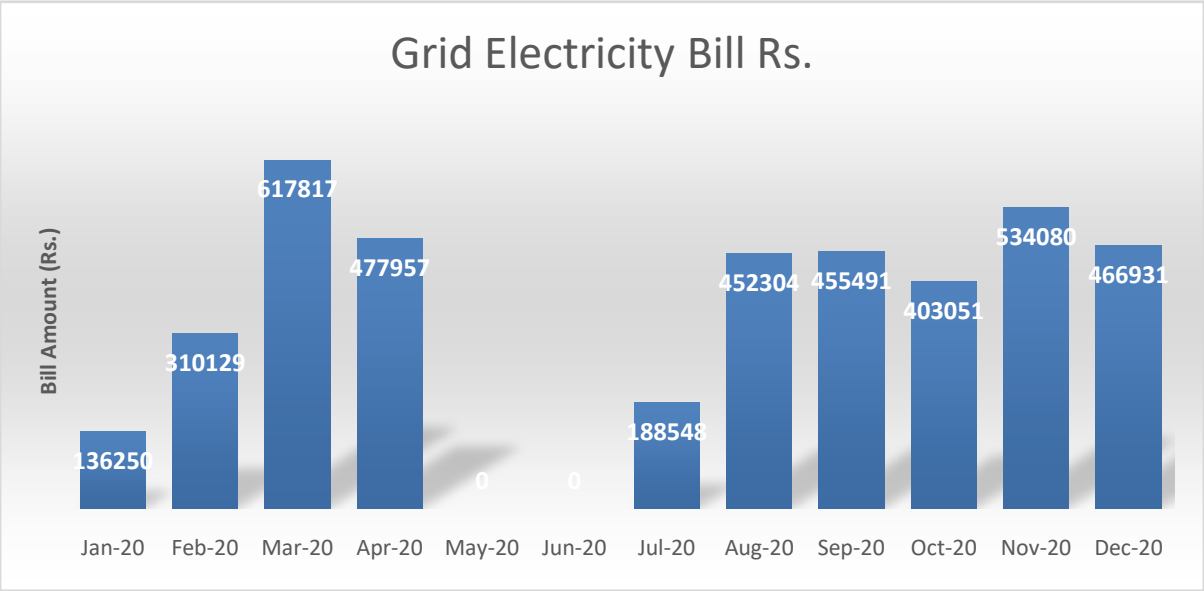


Fig 2.2: Monthly Grid Electricity Bill

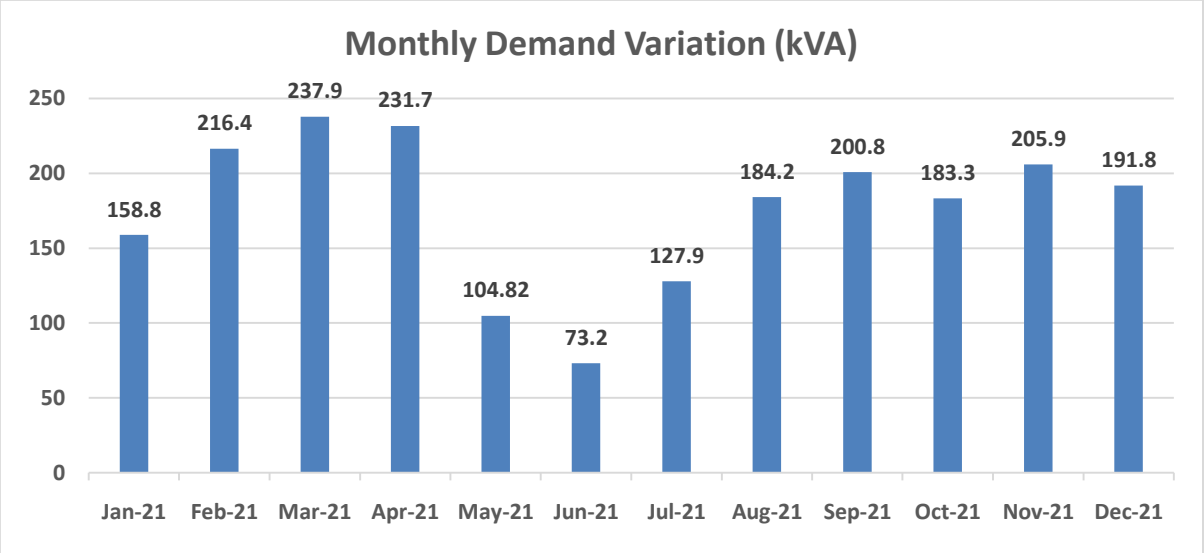


Fig 2.3: Monthly Recorded Demand Variation

The key observations made from the analysis of the above data are furnished in Table 2.2 below:

Table 2.2: *Summary of Electrical Energy Consumption Data of the entire campus and colleges (Sarojini Educational Society) – January 2021 – December 2021*

S. No.	Item	Value
1	Contract Maximum Demand (CMD) kVA	300
2	Average recorded demand , kVA	176.3
3	Average billed demand, kVA	240
4	Demand variation, kVA	73 to 237
5	Solar power plant capacity of the campus, kW	500
6	Solar power generated, lakh kWh	5.36
7	Solar power used for captive requirement, lakh kWh	1.50
8	Solar power export to grid, lakh kWh	3.86
9	Annual billed grid electricity consumption, kVAh /year	583,476
10	Total annual electricity bill, Rs. lakhs/year	40.42
11	Power factor	1.00
12	Average cost of electricity, Rs/kWh (only grid power)	10.1

Considered Rs 10.00/kWh for electrical energy savings in the report

2.3 GHG Emissions

The major energy form used for the institute is grid electricity supplied by AP Eastern Power Distribution Company Ltd (APEPDCL): The emission factor for grid electricity is 0.92 kgs of CO2/kWh and is calculated month wise and is furnished below in Table 2.3

Table 2.3: *GHG emissions due to grid electricity use*

Month & Year	Monthly units (kWH)	Monthly GHG Emissions (tCO2)
Jan-21	36855	33.9
Feb-21	51468	47.4
Mar-21	78288	72.0
Apr-21	67915	62.5
May-21	17085	15.7
Jun-21	14733	13.6
Jul-21	27987	25.7
Aug-21	52602	48.4
Sep-21	54186	49.9
Oct-21	55099	50.7
Nov-21	63691	58.6
Dec-21	62145	57.2
Total	**582054**	**535.4**

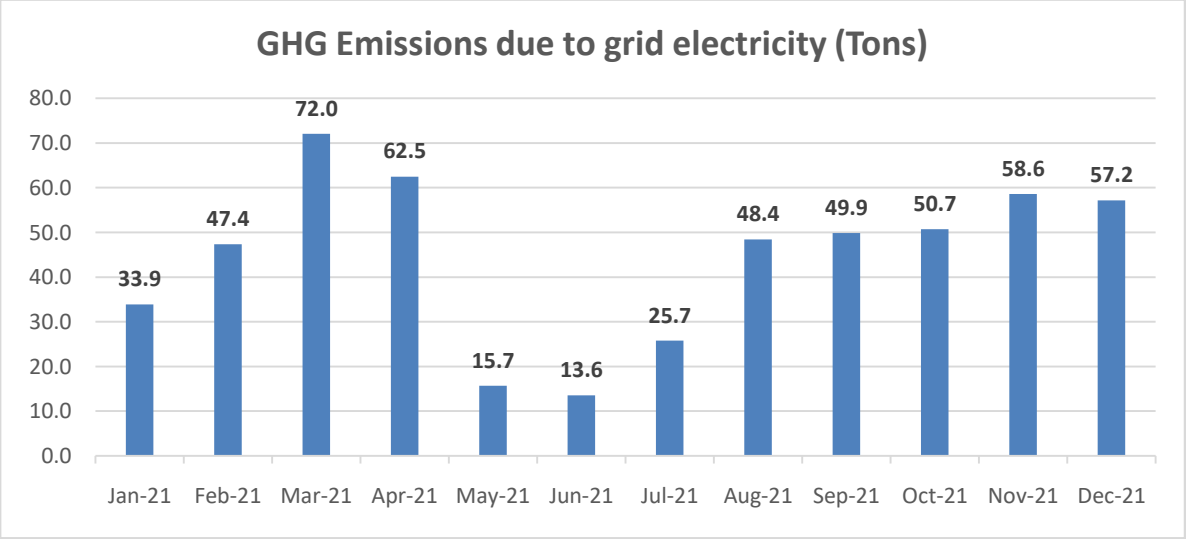


Fig 2.4: Monthly Carbon dioxide Emissions due to grid electricity use

2.4 Solar Power Plant GHG Emissions Reduction

The management has installed a roof top SPV Power plant as an initiative to offset GHG emissions to the world. The capacity of the SPV power plant is 500 kW with net metering facility.

So far, about 536 MWh has been generated from January 2021 to December 2021, the solar power is used for captive requirement for the campus, the power is also exported to grid during holidays and is about 386 MWh. Due to solar power plant, about 355 tons of CO_2 is avoided to the climate every year and is almost offset of the grid power used during the same period.

2.5 Power Factor and Maximum Demand

Power factor, billing demand and recorded MD for period from January 2021 to December 2022 is collected and presented in Table 2.4 below:

Table 2.4: *Monthly Power Factor and Recorded Maximum Demand*

Month	CMD (kVA)	Recorded Demand (kVA)
Jan-20	300	158.8
Feb-20	300	216.4
Mar-20	300	237.9
Apr-20	300	231.7
May-20	300	104.82
Jun-20	300	73.2
Jul-20	300	127.9
Aug-20	300	184.2
Sep-20	300	200.8
Oct-20	300	183.3
Nov-20	300	205.9
Dec-20	300	191.8
	Average	**176.3**

(a) Contract Demand

- Contract Maximum Demand is 300 kVA and average recorded demand is 176.3 kVA, the RMD is low, as the college is not in operation due to COVID Problem
- The highest maximum demand recorded during the last 12 months is 238 kVA.
- The maximum demand is OK for the present utilization and is satisfactory.
- The minimum billing demand is 80% of the CMD and is 240 kVA

(b) Power Factor

The average monthly power factor was 1.00 as noted and as per electric bills. The power factor is well maintained and is OK.

2.7 Harmonics

This term refers to a wide variety of electromagnetic phenomena that characterize the voltage and current at a given location of a power system any power problem manifested in voltages, current, or frequency deviations those results in failure or malfunctioning of customer equipment. Power quality has become increasingly important for industrial and commercial electric power customers, particularly as today control processes rely on computerized equipment which is sensitive to power system interruptions and disturbances.

As harmonic levels increase, the likelihood of experiencing problems also increases. Typical problems include:

- Malfunctioning of microprocessor-based equipment by disruptions of operations.
- Heating effects in power handling equipment's such as motors, transformers, overheating in neutral conductors. There by reduces the operating life
- Deterioration or failure of power factor correction capacitors.
- Erratic operation of breakers and relays.
- Pronounced magnetic fields near transformers and switchgear.

The harmonics were measured for the selected panelsand UPS. The Voltage & Current harmonics are ranged as below:

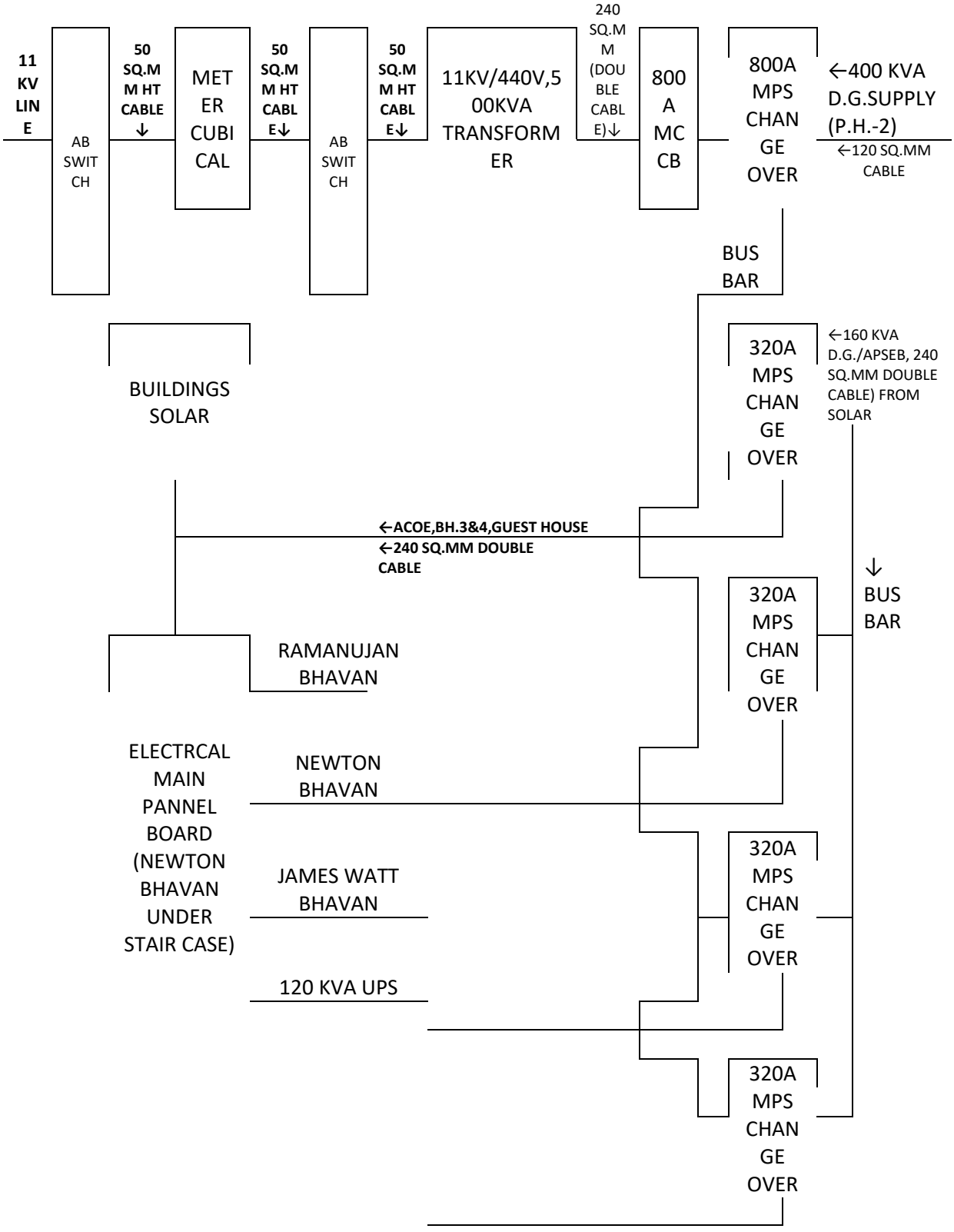
Table 2.4*Harmonics Measurements values for Panel by Harmonic Analyzer*

Reference	***$THD_{rms,v}$***	***$THD_{rms,i}$***
Main panel	0.25% to 1.00% Voltage Harmonics within the limits	4.04% to 12.0% 5^{th} Harmonic-6.0% 7^{th} Harmonic-5.04% $5^{th}$and 7^{th}harmonicsare predominant.
Recommendation	No Harmonics exists and harmonics are within the limits	

2.6 DG Sets

The institution has three DG sets for total campus load of 400 kVA (1 no's) and 160 kVA (2 no's). The DG sets are operated as per the requirement and during grid power failures. The total DG sets capacity is 720kVA, which is sufficient to cater the load of the entire campus loads.

Fig 2.7. POWER SINGLE LINE DIAGRAM ADITYA COLLEGE OF ENGINEERING COLLEGE (Sarojini educational society)



CHAPTER 3

Fans& Air conditioners

This chapter presents the type of air conditioners and fans used, their energy performance, and cost-effective energy conservation measures forreducing energy consumption in air conditioners and fans.

Hostels

The institution has four main buildings and two hostels for boys and girls separately.

S.No	Hostel Block	Rooms	Students	Fans	C.F.L	Tube Lights	Geysers	AC
1.	Block A	128	238 (Male 193+Female 45)	323	349	324	4	10

There are 128 rooms in the hostel and residing 193 males and 45 females. The main electrical equipment's/gadgets used are fans. Tube lights, geysers, ACs and others etc.

3.1 Details of Fans

The ceiling fans are installed, and the inventory of the fans and connected load is given below in Table 3.1:

Table 3.1:*No. of Fans installed and Wattage*

S.No.	Name of the Building	Fans each 50Watt
1	Ramanujan Bhavan	637
2	Newton Bhavan	117
3	James Watt Bhavan	220
4	Mechanical labs Block	28
5	Hostel blocks	323

3.2 Fans- Observations & recommendations

- ✓ Fans are provided with fixed and running capacitor. The speed drops if the value deteriorates with time. Timely replacement of capacitor is necessary.
- ✓ Presently, in many rooms conventional electrical regulators are installed and it is suggested to replace old conventional regulators with new electronic type regulators.
- ✓ In majority of the rooms, the fans areconsuming more power than rated.

a) Cost benefit Analysis of Replacing old Ceiling Fans with new efficient fans

Energy savings can be achieved by replacing the existing old ceiling fans with 5 Star Rating (BEE) energy efficient ceiling fans.

- ➥ Option 1: 5 Star rated Fans
- ➥ Option 2: Super Fans

Initially, it is recommended to replace old fans of 100 nos. and after successfully achieving the savings, other fans can be replaced in a phased manner. The cost benefit analysis made for a sample of replacement of 100 fans under two Options are furnished below:

i) Option (1) Replace old fans with 5 Star Rated Fans

Star Rating	Min. Air Delivery (AD) m^3/ min	Input Power in Watts	Service Factor (SV=AD/ Power) m3/min/Watt	Cost (Rs)
5 Star	215-225	50-53	>=4	1,850-2,200

A few good brands of the 5 Star rated Fans are Ortem, Relaxo, Orient, Usha, Crompton Greaves, Bajaj, and Havells. Normally, these fans come with a warranty of two years.

ii) Option 2: Super-Efficient Ceiling Fans

Features of Super-Efficient Ceiling fans are:

- ➥ Energy savings, more than 50% savings, lower electricity bill
- ➥ Remote control, no regulator needed, saves space on switchboard
- ➥ High air delivery
- ➥ Inverter/UPS friendly – Runs twice longer, no extra noise, no speed drop
- ➥ No speed change due to supply variations or low voltage
- ➥ Power factor better than 0.9
- ➥ Service value of more than 6 - more air per watt
- ➥ BLDC Motor runs cool - No heat generated
- ➥ LED Indication for remote operation

- Attractive colors and designer leaves
- 5 years warranty
- Cost Around Rs 2,500 per Fan

Presently, Super fan is the company, which manufactures these types of fans.

The comparison of ordinary fan, 5 star fan, and super fan in terms of design and operational aspects are furnished below in Table 3.2:

Table 3.2: *Comparison between Ordinary Fan, 5 Star Rated fan & Super Fan (1200mm)*

S.No	Parameter	Ordinary fan	5 Star rated Fan	Super fan
1	Rated Power, Watt	60-90	40	30
2	Min. Air Delivery, m^3/min	210-215-220	215-220	220
3	Service Factor, m^3/min/Watt	3.35-3.73	4.0-5.0	6.28
4	Cost, Rs/Fan	1200-1300	1800	2500
5	Life, Years	10-12	10-15	15
6	Warranty, Years	1	2	3-5

The cost-benefit analysis of replacing the existing ordinary fans with (i) 5 star rated fans and (ii) super-efficient fans is provided in Table 3.3:

Table 3.3: *Cost Benefit Analysis of Replacing Fans with 5 Star Rated & Super-Efficient Fans*

Description	Unit	Option1: 5 Star Rated Fans	Option2: Super-Efficient Fans
Number of Fans (*considered 100 Nos. as sample for case study*)	Nos.	100	100
Actual power consumed	Watts	70	70
Power consumption of new Fan	Watts	40	30
Average operation	hours/day	8	8
	Days/year	250	250
Annual energy savings	kWh/yr.	6,000	10,000
Cost of energy	Rs/kWh	10	10
Total Annual saving	Rs	60,000	1,00,000
Cost of new Efficient fans	Rs/Fan	1,800	2,500
Investment	Rs	1,80,000	2,50,000
Simple Payback period	Months	36	30

Note: Price is subjective and be further reduced if taken on bulk quantity.The average life of fans is 10 years.

Initially, the management can replace 50 nos in first phase and after successfully achieving savings and recurring savings, all the fans can be replaced for power savings.

3.3 Air conditioners

The air-conditioning systems available at Institute are of split air conditioners. There are total of 17 air conditioners in the hostel and college administration block. The rated capacity of ACs is 1.5 TR and total capacity is 26 TR.

3.4 Air conditioners -Observations & Recommendations

(a) Observations

- It is beneficial to install 5 Star rated ACs in future as 5 star rated ACs will consume less power than 3 star rated, and additional investment is less as compared to the savings. Air conditioners over 10 years can be replaced with new 5 star rated ACs.

(b) Recommendations

(i) Install Energy Saver for ACs

Airtron is the most advanced AC SAVER with all the controls of a Precision AC.

Airtron's dual sensors reference the Room and Coil Temperature and working in tandem with its multiple algorithms in a “closed -loop circuit" ensure the high savings and adapts your AC to Ambient Temperatures and Climatic changes, by maintaining room temperature while compressor run time is substantially reduced.

Airtron allows to program the AC to climate & geographical locations and automatically adjusts itself to change the ambient conditions to save electricity. AIRTRON is available with a Remote for setting the Room Temperature and in Non-Flammable Polycarbonate Enclosure with SMPS Power Supply, to tolerate wide Voltage and Current fluctuations, Surges, Spikes and Sags.

Airtron has been validated on all ACs- Inverters, 5 Star, Splits, Multi-Splits, Packages, Ductable, Windows, Cassettes from 1.0 - 20.0 TR.

The salient features of Airtron AC saver are:

- ✓ Most advanced AC saver
- ✓ Display Room & Coil Temperature
- ✓ Automatically adapts AC to changes in ambient temperature & Climate
- ✓ Easy to install
- ✓ Applicable on ACs from 1.0 to 20TR, saves equally on inverters & 5 Star/ 1-Star AC's
- ✓ Energy saving up to 15 to 20%

Table 3.5: *Cost-benefit Analysis - Installation of AC Saver*

Description	Unit	Split AC
Total number of ACs	Nos.	17
Total AC load	kW	30.6
No. of hours of operation/ day	Hours/day	6
No. of days per annum	Days/year	200
Annual Energy Consumption	kWh/year	36,720
Power saving due to AC Saver @15%	kWh/year	5,508
Annual monetary savings(*@Rs.10.0 per kWh*)	Rs.	55,800
Investment for AC Savers *(@Rs.4,000 x 17 no's*	Rs.	68,000
Payback period	Months	24

3.4.1 Best Practices for Efficient Operation Air Conditioners

- *Proper Insulation*: Good quality insulation must be maintained in the air conditioned rooms by keeping all doors and windows closed properly so as to prevent cool air go out and hot air come in.
- *Curtains*: Always keep curtains on windows to prevent direct sunlight inside the room to avoid heating of cooled air. This reduces AC load significantly.
- *Maintenance*: Proper maintenance and cleaning of ACs is required at regular intervals to make it work at highest efficiency. Any dirt in filter may reduce efficiency of ACs very significantly.
- *Operation*: ACs should be switched on 15 minutes before actual use and should be switched off before leaving the room
- Outdoor units need to be kept under shady area and direct expose to sunlight will increase the power consumption of the compressor
- AC false ceiling to be provided for the AC rooms, for better air conditioning and reduction of room area and reducing heat losses

By adopting the above measures, a minimum of 10% to 15% of electricity consumption by ACs can be reduced.

CHAPTER 4

Lighting

4.1 Details of Lighting

Lighting system was assessed through visual observation and technical specification data were noted. The inventory data of the luminaries was provided by the department. The total lighting load of the unit is considerable of the total electrical load of the unit and hence, lighting needs equal emphasis along with other energy consuming areas. The plant has the following types of luminaries as under:

- LED Tube Lights
- LED Street Lights
- CFLs

Table 4.1:*Lighting load details*

S.NO	DESCRIPTION	RAMANUJAN BHAVAN	NEWTON BHAVAN	JAMES WATT BHAVAN	TOTAL
1	TUBE LIGHTS (36W)	457	75	162	694
2	TOILETS	55	20	20	95
3	WAITING HALLS	8	2	2	12
4	CFL BULBS (10W)				100
5	CEILING LIGHTS (2'x2')				200
6	CEILING LIGHTS (8"x8")				182
7	LED bulbs				200

Majority of the tube lights LED tube lights in the institution, and some are CFLs. It is suggested to replace the CFLS with LEDs bulbs or lights. The cost benefit analysis is furnished below:

Table 4.1:*Cost benefit Analysis of replacing CFLs with LEDs.*

Description	Unit	CFLS
Total number of CFLs	Nos.	100
Wattage	W	10
No. of hours of operation/ day	Hours/day	6
No. of days per annum	Days/year	250
Annual Energy Consumption	kWh/year	1,500
Power saving due to LEDs @50%	kWh/year	750
Annual monetary savings(*@Rs.10.0 per kWh*)	Rs.	7500
Investment for bulbs	Rs.	10,000
(@Rs.100/- per bulb or light		
Payback period	Months	16

CHAPTER 5

Miscellaneous

5.1 Pumps-Observations& recommendations

There 4no's of pumps of catering to water requirements of the Institute, all pumps are non-star rated and it is suggested to replace the non-star rated pumps with 5 star rated pumps for energy savings. These pumps can be replaced on phase wise, as and when required when pumps will be problem.

Cost benefit analysis of replacing existing old pumps with new efficient star rated pumps provided in table 5.1 below for a 3 HP Pump:

Table 5.1: *Cost benefit analysis of replacing old Pumps with EE pumps*

Description	Unit	Value
Capacity of the pump	kW	5.6
Efficiency	%	45
Efficiency of 5 star rated pump	%	60
Savings	%	30
Power savings	kW	1.5
No. of hours of operation/ day	Hours/ day	4
No. of days per annum	Days/ year	300
Power saving due to Energy efficient 5 star rated Pumps	kWh/ year	1800
Annual monetary savings (*@Rs.10 per unit)*	Rs	18,000
Investment for pump	Rs	50,000
Payback	Months	36

5.2 General Observations

All Class Rooms, hostel rooms and laboratories to have Display Messages or Posters regarding optimum use of electrical appliances in the room like, lights, fans, computers, and projectors. Few sample posters is furnished below:

(a) Sample Posters for Awareness towards Energy Conservation

Also have stickers/labels of slogans/lines for energy saving in Class rooms/ Common areas

- Energy saved is energy produced.
- Switch of Lights/ Fans if not used
- Conservation: It doesn't cost. It saves.
- Spare a Watt; Save a Lot
- Save Today. Survive Tomorrow
- Energy misused cannot be excused

(b) Safety posters

5.3 Solar Hot Water System

Presently, in the hostel buildings, water heaters are used for hot water requirement for bathing. As the roof area is abundantly available in the hostel buildings, it is suggested to install solar hot water system for hot water generation required for bathing purpose.

A solar water heater is a system that utilizes solar energy (or the energy from sunlight) to heat water. It has a system that is installed on a terrace or open space where it can get sunlight and the energy from the sun is then used to heat water and store it in an insulated tank. The system is not connected to electricity supply and thus does not have an on-off switch, but it uses the sunlight throughout the day to heat the water and store it in the storage tank. Most of the solar water heater on a sunny day can provide heater water at about 68° ±5° C temperature. Water from the storage tank can then be used for any application as desired.

One can feed this heated water to the electric geyser so that when sunlight is not enough, it uses electric energy to heat the water to the desired set temperature. This is also called Hybrid Water Heater but no one is marketing it and it has to be designed for your requirement by the solar water installer by laying a separate pipe to your geyser.

Solar water heating systems advantages:

a) Solar energy is free and abundant.
b) It's cheaper to install.
c) They lower your level of carbon footprint.
d) It requires no electricity for operation.
e) Reduced overheating risk.
f) Low maintenance.
g) No problems with hard water.

Solar Water Heater – types and benefits

There are 2 types of solar water heaters that are available in the Indian market:

1) FPC (Flat Plate Collectors) system: Flat Plate Collector Systems are metallic systems. They contain an insulated metallic box covered with a toughened glass. The metallic box has a layer of a copper sheet which is good for absorbing heat. The copper sheet is further coated with a black coating which improves heat absorption. The metallic box contains copper tubes arranged vertically and connected at the top and bottom by two horizontal copper pipes called headers. The cold water enters the collector (the metallic box) from the bottom pipe and rises up into the vertical pipes. It gets heated up in the vertical pipes. As it gets heated the water becomes lighter (hot water is lighter than cold water) and it rises up and gets collected in the storage tank via the top horizontal pipe (or header). This water now gets available for use.

These are metallic type systems and have a longer life.

2) ETC (Evacuated Tube Collectors) system: Evacuated Tube Collector systems are made of Glass. It has vertical tubes that are made out of two co-axial glass tubes. The air between the two coaxial tubes is removed to create a vacuum which improves insulation. Additionally, the surface of the inner tube is coated to provide better heat absorption and insulation. Coldwater is filled up in these glass tubes and it gets heated up due to the sunlight. Hot water is lighter than cold water, and so it rises up and gets collected in the storage tank from where it is available for use.These systems are made up of glass and are fragile.

Both these type of water heaters come with or without a pump. The pump is used to move water from collectors to the storage tank. Those without pump use the thermosiphon principle to move water from collectors to storage tank automatically.

The capacity of the system can be decided as per the roof top area available and quantity of hot water required. A 100 liter system (2 Sq.mtr) will suffice for about 5 to 6 members for bathing purpose. The cost will be around Rs.250 per liter capacity.

POLLUTION ASSESSMENT REPORT 2023

Aditya College of Engineering

Surampalem, ADB Road, E.G. Dt

A.P, India-533437

CONTENTS

S. No.	Titles/Topics	Page No.
01	Executive Summary	3
02	Objectives	4
03	About ACOE	5
04	Ambient Air quality Measurement Data	8
05	Indoor Air quality Measurement Data	10
06	Stack Emission Monitoring Data	11
07	Water Analysis Data	12
08	Waste Water Analysis data	18
09	Noise Level Measurement Data	19
10	Illumination Level Measurement Data	20
11	Photo gallery	21

1. Executive Summary

Pollution Assessment is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyse environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Environmental impact on campus. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

Pollution assessment is a potential tool which can be used effectively by an educational institution for resource usage identification and optimization. The main objective to carry out Pollution assessment is to check green practices followed by the college and to conduct a well formulated audit report to understand where it stands on a scale of environmental soundness.

Aditya College of Engineering, Surampalem, one of the growing Educational Institutes is located in Surampalem, E.G. District, Andhra Pradesh. In order to comply with the Environment Protection Act and in keeping the image of development in time with the environment, Aditya College of Engineering, entrusted the job of preparing the POLLUTION AND NOISE ASSESSMENT Comprising of Wastewater Quality Monitoring, Stack Emission Monitoring, Ambient Air Quality Monitoring and Noise Survey to REST PVT LTD which is in MoU with NAVEGA ENVIRO ENGINEERS AND CONSULTANTS, HYDERABAD and in association with ENVIRONMENTAL PROTECTION SOCIETY, KAKINADA.

This report details the Environmental Quality Monitoring work carried out at Aditya College of Engineering, Surampalem from 11.04.2023 to 12.04.2023.

The Co-operation rendered by the staff and management of Aditya College of Engineering, Surampalem during the work is gratefully acknowledged.

2. Objectives:

The Pollution assessment of an institution is becoming a paramount important these days for self-assessment of the institution, which reflects the role of the institution in mitigating the present environmental problems. The college has been putting efforts to keep the environment clean since its inception. The purpose of the present assessment is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Pollution assessment are:

1. To document the quality drinking water
2. To document the quality of recycled waste water for gardening
3. To document the ambient environmental condition of air, water and noise in the campus.
4. Impart environmental education through systematic environmental management approach and benchmarking for environmental protection

3. About ACOE:

Aditya College of Engineering was founded as the premier promoter of quality education in coastal districts of Andhra Pradesh in 2008 under Sarojini Educational Society. Sri N Sesha Reddy, as a founder chairman, promoted the educational institution, with a mission, to offer the best engineering education with unmatched innovations in the process of teaching and learning by aiming at the all-round development of the students.

The College is situated in an eco-friendly area of 11.27 acres with thick greenery at Surampalem, Gandepalli Mandal, East Godavari District, Andhra Pradesh. The College is 15 KM away from Samalkot Railway Station on Howrah-Chennai Railway line in South Central Railway. The College is 35 Km away from Kakinada and Rajahmundry on ADB Road.

The College has Four academic blocks with a total carpet area of 22,183 Sq. Mts. apart from one boys' hostel and one girls hostel building. The particulars of academic buildings and the departments / offices accommodated are as follows.

S.No	Building Name	Department/Office
1	Srinivasa Ramanujan Bhavan	Administrative Office, Examination Cell, Accounts, Admission Office, ECE, CSE, H&BS, Management Sciences
2	Newton Bhavan	Electrical and Electronics Engineering, Petroleum Technology
3	James watt Bhavan	Civil & Mechanical
4	Mechanical Block	Labs related to Mechanical Engineering

The total student strength is 2600 with faculty strength of 198 thus giving rise to healthy faculty student ratio.

It is approved by AICTE, recognized by Govt. of Andhra Pradesh, permanently affiliated to Jawaharlal Nehru Technological University Kakinada (JNTUK). The college also received UGC recognition under Sections 2(f) and 12 (B) of the UGC Act.

Aditya College of Engineering will do its best to offer an innovative environment wherein your dreams will be realized: dreams for higher knowledge, dreams for scientific inquiry, dreams for technology creation, dreams for co-curricular activities, and dreams to change the world

Arial View of Aditya College of Engineering, Surampalem

Ramanujan Bhavan

James Whatt Bhavan

Newton Bhavan

4. Ambient Air Quality Measurement Data:

Ref: Job No. 003/ REST/ENV/PFC/ 2022-23 Date: 11-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 1

Ambient Air Quality Measurement at Ramanujan Bhavan, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	Ramanujan Bhavan, Terrace	Environmantal Condition: Temp-39°C, Humidity-35%
Sample Reference Number	NEEC/AAQ/2021/2219A	Duration of Sampling: PM2.5 and PM10 24 hourly avarage and Gaseous emissions 8 hourly average
Date of Sampling	11-04-2023	Sample collected by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: Standard
Analysis Completion Date	15-04-2023	Date of Report Issued- 15-04-2023

S. No	Parameter	Unit	Results obtained	NAAQ Standards
1	Particulate Matter (PM10)	µg/m3	51	100
2	Particulate Matter (PM10)	µg/m3	38	60
3	Sulphur Dioxide (SO2)	µg/m3	10.2	80
4	Oxides of Nitrogen (NOx)	µg/m3	12.4	80

Note: 1. PM10 is the particle size less than 10µm and PM2.5 is the particle size less than 2.5µm

2. PM2.5/PM10 Fine Particulate Sampler Model No. E1-133, make: Enviro Instruments,

Calibrated on 30.11.2022 and calibration due on 29.11.2023.

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram.

Verifying Authority,

Ref: Job No. 001/ REST/ENV/PFC/ 2021-22 Date: 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 2

Ambient Air Quality Measurement at James Whatt Bhavan, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	Jameswhatt Bhavan, Terrace	Environmantal Condition: Temp-35°C, Humidity-45%
Sample Reference Number	NEEC/AAQ/2021/2219B	Duration of Sampling: PM2.5 and PM10 24 hourly avarage and Gaseous emissions 8 hourly average
Date of Sampling	11-04-2023	Sample collected by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: Standard
Analysis Completion Date	15-04-2023	Date of Report Issued- 15-04-2023

S. No	Parameter	Unit	Results obtained	NAAQ Standards
1	Particulate Matter (PM10)	µg/m3	40	100
2	Particulate Matter (PM10)	µg/m3	26	60
3	Sulphur Dioxide (SO2)	µg/m3	8.4	80
4	Oxides of Nitrogen (NOx)	µg/m3	9.7	80

Note: 1. PM10 is the particle size less than 10µm and PM2.5 is the particle size less than 2.5µm

2. PM2.5/PM10 Fine Particulate Sampler Model No. E1-133, make: Enviro Instruments,

Calibrated on 30.11.2022 and calibration due on 29.11.2023.

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram.

Verifying Authority,

5. Indoor Air quality Measurement Data

Ref : Job No. 003/ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 3

Indoor Air Quality Measurement at Ramanujan Bhavan, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	1. Senate Hall (Ramanujan Bhavan) 2. Principal Room (Ramanujan Bhavan)	Environmantal Condition: Temp-35°C, Humidity-56%
Sample Reference Number	NEEC/IAQ/01-02/2023	Duration of Sampling: Spot
Date of Measurement	11-04-2023	Measured by NEEC
Date of Completion	11-04-2023	Date of Report Issued- 15-04-2023

S.No	Description of Parameter	Unit	Results obtained		Standards as per ASHRAE
			1	2	
1	Temperature	o C	33.1	33.5	21-23
2	Relative Humidity	%	54.6	54.5	20-60
3	Carbon-dioxide (CO2)	PPM	385	385	<850
4	Oxygen (O2)	%	21.3	21.3	19.5-22
5	Carbon Monoxide (CO)	PPM	ND	ND	<9

Note: 1. ASHRAE stands for American Society of Heating, Refrigeration and Air Conditioning Engineers

2. Indoor Air Quality is satisfactory as compared with the Standards.

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram.

Verifying Authority,

6. Stack Emission Monitoring Data

Ref : Job No. 003/ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 4

Stack emission monitoring to the Stack Attached to 400 KVA DG Set,

Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	Stack Attached to 400 KVA DG Set	Environmantal Condition: Temp-35°C, Humidity-37 %
Sample Reference Number	NEEC/SM/2023/1035	Duration of Sampling: 30min
Date of Sampling	11-04-2023	Measured by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: Standard
Date of Completion	15-04-2023	Date of Report Issued- 15-04-2023

S. No	Description	Unit	Stack Information
1	Stack diameter	m	0.23
2	Stack Cross Sectional Area	m2	0.0415
3	Flue Gas Temperature	o C	118
4	Exit Velocity of flue gas	m/sec	8.35
5	Flow Rate	m3/hr.	1247

Stack Emission Data

S.No	Description of Parameter	Unit	Results obtained	CPCB Standards
1	Suspended Particulate matter (SPM)	mg/Nm3	30	115
2	Emission Rate	kg/hr.	0.03	NM
3	Sulphur Dioxide (SO2)	mg/Nm3	115	800
4	Oxides of Nitrogen	mg/Nm3	146	NM

Note: 1. NM indicates not mentioned 2. LES Stack Sampler AMP 160 S. No: 10-DTB-2012 Make: LATA Envirotech, Calibrated on 30.11.2022 and Calibration due on 29.11.2023

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram.

Verifying Authority

7. Water Analysis Data

Ref : Job No. 003/ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 5

Raw water (RO Inlet) Quality Analysis, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	Raw water – RO Inlet	Environmantal Condition: Temp-39°C, Humidity-35 %
Sample Reference Number	NEEC/W/2023/1038	Sample Condition: Good
Date of Sampling	11-04-2023	Measured by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: 1 Lit
Date of Completion	15-04-2023	Date of Report Issued- 15-04-2023

S.No	Parameter	Unit	Method	Result obtained	IS 10500-2012 Standards (2nd Revision)	Permissible limit in the absence of alternate source
1	pH	-	APHA 23rd 4500 H+B	7.16	6.5-8.5	No Relaxation
2	Turbidity	NTU	APHA 23rd 2130 B	<1	1	5
3	Electrical Conductivity at 25oC	µmho s/cm	APHA 23rd 2510 B	730	NM	NM
4	Taste	-	APHA 23rd 2120 B	Agreeable	Agreeable	Agreeable
5	Colour	Haze n	APHA 23rd 2540 C	<1	5	15
6	odour	-	APHA 23rd 2320 B	Agreeable	Agreeable	Agreeable
7	Total Dissolved Solids, TDS	mg/L	APHA 23rd 2340 C	438	500	2000

8	Total Alkalinity as CaCO3	mg/L	APHA 23rd 2320 B	228	200	600
9	Total Hardness as CaCO3	mg/L	APHA 23rd 2340 C	288	200	600
10	Calcium as Ca	mg/L	APHA 23rd 3500 Ca B	67	75	200
11	Chloride as Cl-	mg/L	APHA 23rd 4500 Cl- B	110	250	1000
12	Sulphates as SO42-	mg/L	APHA 23rd 4500 SO42- C	10.2	250	400
13	Residual Chlorine	mg/L	APHA 23rd 4500 Cl B	<0.1	0.2	1
14	Ammonical Nitrogen	mg/L	APHA 23rd 4500 NH3 C	<0.5	0.5	No Relaxation
15	Nitrates as NO3-	mg/L	APHA 23rd 4500 NO3- B	1.12	45	No Relaxation
16	Nitrites as NO2-	mg/L	APHA 23rd 4500 NO2- B	<0.5	NM	NM
17	Iron as Fe	mg/L	APHA 23rd 3500 Fe B	0.07	1.0	No Relaxation
18	Fluoride as F-	mg/L	APHA 23rd 4500 F- D	0.05	1.0	1.5
19	Cyanide os CN	mg/L	APHA 23rd 4500 CN- E	<0.05	0.05	No Relaxation
20	Magnesium as mg	mg/L	APHA 23rd 3500 Mg B	29	30	100
21	Copper as Cu	mg/L	APHA 23rd 3111 B	<0.01	0.05	1.5
22	Manganese as Mn	mg/L	APHA 23rd 3111 B	<0.1	0.1	0.3
23	Aluminium as Al	mg/L	APHA 23rd 3500 Al B	<0.03	0.03	0.2
24	Lead as Pb	mg/L	APHA 23rd 3111 B	<0.01	0.01	No Relaxation
25	Zinc as Zn	mg/L	APHA 23rd 3111 B	<0.5	5	15
26	Cadmium as Cd	mg/L	APHA 23rd 3111 B	<0.003	0.003	No Relaxation

27	Total Chromium as Cr	mg/L	APHA 23rd 3111 B	<0.05	0.5	No Relaxation
28	Arsenic as As	mg/L	APHA 23rd 3500 As B	<0.01	0.01	No Relaxation
29	Selenium as Se	mg/L	APHA 23rd 3114 B	<0.01	0.01	No Relaxation
30	Nickel as Ni	mg/L	APHA 23rd 3114 B	<0.02	0.02	No Relaxation
31	Mercury as Hg	mg/L	APHA 23rd 3500 Hg	<0.001	0.001	No Relaxation
32	Phenolic Compounds C6H5OH	mg/L	APHA 23rd 5530 D	<0.001	0.001	0.002
33	Boron as B	mg/L	APHA 23rd 4500 B	<0.1	0.5	1.0

BACTERIOLOGICAL ANALYSIS OF WATER

S.No	Parameter	Unit	Method	Results obtained	IS 10500-2012 Standards (2nd Revision)
34	E.Coli	MPN/100ml	APHA 23rd 9221 F	7	Should be Absent
35	Total Coliform	MPN/100ml	APHA 23rd 9221 F	22	Should be Absent

Note: 1. NM indicates Not Mentioned in the standards 2. MPN indicates most probable number 3. APHA stands for American Public Health Association
4. The above results should be equal or less when compared with standards for drinking purpose.

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram.

Verifying Authority

Ref: Job No. 002/ REST/ENV/PFC/ 2022-23 Date: 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 6

Treated water (RO Outlet) Quality Analysis, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	Treated water – RO Outlet	Environmantal Condition: Temp-39°C, Humidity-35 %
Sample Reference Number	NEEC/W/2023/1039	Sample Condition: Good
Date of Sampling	11-04-2023	Measured by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: 1 Lit
Date of Completion	15-04-2023	Date of Report Issued- 15-04-2023

S.No	Parameter	Unit	Method	Result obtained	IS 10500-2012 Standards (2nd Revision)	Permissible limit in the absence of alternate source
1	pH	-	APHA 23rd 4500 H+B	6.9	6.5-8.5	No Relaxation
2	Turbidity	NTU	APHA 23rd 2130 B	<1	1	5
3	Electrical Conductivity at 25oC	µmhos/cm	APHA 23rd 2510 B	219	NM	NM
4	Taste	-	APHA 23rd 2120 B	Agreeable	Agreeable	Agreeable
5	Colour	Hazen	APHA 23rd 2540 C	<1	5	15
6	odour	-	APHA 23rd 2320 B	Agreeable	Agreeable	Agreeable
7	Total Dissolved Solids, TDS	mg/L	APHA 23rd 2340 C	131	500	2000
8	Total Alkalinity as CaCO3	mg/L	APHA 23rd 2320 B	84	200	600

9	Total Hardness as CaCO3	mg/L	APHA 23rd 2340 C	84	200	600
10	Calcium as Ca	mg/L	APHA 23rd 3500 Ca B	18	75	200
11	Chloride as Cl-	mg/L	APHA 23rd 4500 Cl- B	38	250	1000
12	Sulphates as SO42-	mg/L	APHA 23rd 4500 SO42- C	<5	250	400
13	Residual Chlorine	mg/L	APHA 23rd 4500 Cl B	<0.1	0.2	1
14	Ammonical Nitrogen	mg/L	APHA 23rd 4500 NH3 C	<0.5	0.5	No Relaxation
15	Nitrates as NO3-	mg/L	APHA 23rd 4500 NO3- B	0.73	45	No Relaxation
16	Nitrites as NO2-	mg/L	APHA 23rd 4500 NO2- B	<0.5	NM	NM
17	Iron as Fe	mg/L	APHA 23rd 3500 Fe B	0.05	1.0	No Relaxation
18	Fluoride as F-	mg/L	APHA 23rd 4500 F- D	0.03	1.0	1.5
19	Cyanide os CN	mg/L	APHA 23rd 4500 CN- E	<0.05	0.05	No Relaxation
20	Magnesium as mg	mg/L	APHA 23rd 3500 Mg B	9.72	30	100
21	Copper as Cu	mg/L	APHA 23rd 3111 B	<0.01	0.05	1.5
22	Manganese as Mn	mg/L	APHA 23rd 3111 B	<0.1	0.1	0.3
23	Aluminium as Al	mg/L	APHA 23rd 3500 Al B	<0.03	0.03	0.2
24	Lead as Pb	mg/L	APHA 23rd 3111 B	<0.01	0.01	No Relaxation
25	Zinc as Zn	mg/L	APHA 23rd 3111 B	<0.5	5	15
26	Cadmium as Cd	mg/L	APHA 23rd 3111 B	<0.003	0.003	No Relaxation
27	Total Chromium as Cr	mg/L	APHA 23rd 3111 B	<0.05	0.5	No Relaxation
28	Arsenic as As	mg/L	APHA 23rd 3500 As B	<0.01	0.01	No Relaxation
29	Selenium as Se	mg/L	APHA 23rd 3114 B	<0.01	0.01	No Relaxation

30	Nickel as Ni	mg/L	APHA 23rd 3114 B	<0.02	0.02	No Relaxation
31	Mercury as Hg	mg/L	APHA 23rd 3500 Hg	<0.001	0.001	No Relaxation
32	Phenolic Compounds C6H5OH	mg/L	APHA 23rd 5530 D	<0.001	0.001	0.002
33	Boron as B	mg/L	APHA 23rd 4500 B	<0.1	0.5	1.0

S. No	Parameter	Unit	Method	Results obtained	IS 10500-2012 Standards (2nd Revision)
34	E. coli	MPN/100ml	APHA 23rd 9221 F	Absent	Should be Absent
35	Total Coliform	MPN/100ml	APHA 23rd 9221 F	Absent	Should be Absent

8. Waste Water Analysis data

Ref : Job No. 003/ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 7

Waste water Quality Analysis, Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Particulars	1. Raw domestic waste water(MESS) 2. Treated domestic water	Environmantal Condition: Temp-33C°, Humidity-53 %
Sample Reference Number	1.NEEC/WW/2023/1036 2. NEEC/WW/2023/1037	Sample Condition: Good
Date of Sampling	11-04-2023	Measured by NEEC
Analysis Starting Date	12-04-2023	Sample Quantity Received: 1 Lit
Date of Completion	15-04-2023	Date of Report Issued- 15-04-2023

S.No	Description of the Parameter	Unit	Result obtained		CPCB/TSPCB standards for on land disposal
			1	2	
1	pH	NU	6.49	6.85	6.5-8.5
2	Total Dissolved Solids, TDS	mg/L	662	689	2100
3	Total Suspended Solids, TSS	mg/L	276	65	200
4	Total Solids	mg/L	938	754	NM
5	Chemical Oxygen Demand (COD)	mg/L	515	125	NM
6	Biochemical Oxygen Demand (BOD3) @ 27°C	mg/L	220	36	100
7	Chlorides as Cl-	mg/L	119	144	600
8	Sulphides as SO42-	mg/L	170	195	1000
9	Oil and Grease	mg/L	2.4	1.9	10
10	Dissolved Oxygen	mg/L	2.9	2.5	NM

Note: 1. NM indicates not mentioned 2. NU indicates no unit

3. The treated water is suitable for on-land discharge for green belt development or irrigation

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram

Verifying Authority,

9. Noise Level Measurement Data

Ref : Job No.3./ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 8

Noise data monitoring at different locations in Aditya College of Engineering, Surampalem, East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	As mentioned below	Environmantal Condition: Temp-38°C, Humidity-45 %
Sample Reference Number	NEEC/NL/01-11/APR'2023	Duration of Sampling: Spot
Date of measurement	11-04-2023	Measured by NEEC
Date of Completion	11-04-2023	Date of Report Issued- 15-04-2023
Unit of measurement	dB(A)	

S.No	Description of the location	Noise levels recorded	Noise level Standards
		Day Time	Day Time
Indoor Noise Levels			
1	Near Senate Hall (Ramanujan Bhavan)	53	65
2	Near Principal Room (Ramanujan Bhavan)	62	65
3	Near First Floor II Year B. Tech CSE (Ramanujan Bhavan)	64	65
4	Ground Floor Central Library (Ramanujan Bhavan)	62	65
5	Ground Floor Electrical Machines Room (Ramanujan Bhavan)	56	65
6	Ground Floor Simulation Lab (Newton Bhavan)	60	65
7	Engineering Workshop (James Whatt Bhavan)	63	65
8	Strength of Materials Lab (James Whatt Bhavan)	65	65
Ambient Noise Levels			
9	Near Main Gate Entry Point	59	65
10	Near DG Set (Off Condition @5m Distance)	52	65
11	Near DG Set (On Condition @5m Distance)	65	65

Note: 1. Day Time is reckoned in between 6AM & 10PM 2. Sound level Metre Make: Lutron, Model No: SL4030, Calibrated on: 05.05.2022 & Calibration due on: 04.05.2023. 3. Noise Levels are well within the Norms.

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram

Verifying Authority,

10.Illumination Level Measurement Data

Ref : Job No. 003/ REST/ENV/PFC/ 2022-23 Date : 15-04-2023

REST PRIVATE LIMITED, ENVIRONMENTAL WING

ANNEXURE – 9

Illumination Levels Measurement in Aditya College of Engineering, Surampalem,

East Godavari District- Reg.

Name and Address of the Organisation	Aditya College of Engineering. Aditya Nagar, ADB Road, Surampalem (V), East Godavari District, AP, India, Pin: 533437	
Sample Location	As given below	Environmantal Condition: Temp-39°C, Humidity-48 %
Sample Reference Number	NEEC/IL/01-05/APR'2023	Duration of Sampling: Spot
Date of measurement	11-04-2023	Measured by NEEC
Date of Completion	11-04-2023	Date of Report Issued- 15-04-2023

S.No	Location of Measurement	Light in LUX	Recommended Light in LUX as pes BIS
1	Near Senate Hall Ramanujan Bhavan	520	200-500
2	Principal Room Ramanujan Bhavan	570	200-500
3	Near Engineering Workshop – I James Whatt Bhavan	439	200-500
4	Strength of Materials Lab James Whatt Bhavan	623	200-500
5	Electrical Simulation Lab Ground Floor	322	200-500

Note: 1. Illumination Levels are very Good as compared with the Standards
2. BIS Indicates Bureau of Indian Standards
3.m Lux Meter Make: Lutron, Model No: LX 101A, Calibrated on: 12.05.2022 & Calibration due on 11.05.2023

Certified by Navega Enviro Engineers and Consultants. Hyderabad.

Verified by REST Private Limited, Vijjeswaram

Verifying Authority,

11.Photo gallery

WATER SAMPLING LOCATIONS FOR RO INLET AND OUTLET

Raw water Collection Tank over Ramanujan Bhavan for RO Inlet

Treated water collection Tank for Drinking RO Outlet

RO Treatment Facility in the Drinking Water Treatment Plant

WATERWATER SAMPLING AT THE DISPOSAL POINT

Waste water Collection Tank – Untreated Water

SUSTAINABLE ENVIRONMENTAL PRACTICES

Solar Power Utility throughout the Campus

Rainwater harvesting Pond

Dr Srinivasa Rao Rekhapalli

CMD, REST Pvt Ltd

February 18, 2022

TO WHOM SO EVER IT MAY CONCERN

This is to certify that, we have conducted green audit for the year 2021-22 at ***M/s Aditya College of Engineering, Aditya Nagar, Surampalem, East Godavari District***, ***AP***.

We are delighted to inform that the college has complied with all Energy Efficiency and Sustainable Parameters. A copy of the report is submitted to the management.

T. Krishna
KR Energy Consultants

KR Energy Consultants
Flat No.103, SS Ajay Arcade, Doctors Colony, Saroornagar, Hyderabad, AP- 500035
Mobile: 9440234294
E-Mail: krenergy@rediffmail.com

February 18, 2022

TO WHOM SO EVER IT MAY CONCERN

This is to certify that, we have conducted energy audit at ***M/s Aditya College of Engineering, Aditya Nagar, Surampalem, East Godavari District***, ***AP*** to identify various energy saving measures and to reduce GHG emissions in the institution operations. A copy of the report is submitted to the management.

For KR Energy Consultants

T. Krishna
Authorised Signatory
BEE Certified Energy Auditor No.3398
Registrar of Firms Certificate
No.1086 of 2002, dated 27/08/2002

KR Energy Consultants
Flat No.103, SS Ajay Arcade, Doctors Colony, Saroornagar, Hyderabad, AP- 500035
Mobile: 9440234294
E-Mail: krenergy@rediffmail.com

CERTIFICATE *of* POLLUTION FREE CAMPUS ACHIEVEMENT

THIS ACKNOWLEDGES THAT

Pollution free Campus

Aditya College of Engineering
Surampalem, A.P, India

HAS SUCCESSFULLY COMPLETED THE

Pollution free Campus Evaluation and assessment

Dr Rekhapalli Srinivasa Rao

DIRECTOR
REST PVT LTD, VIJJESWARAM

15 APRIL 2023

Ch. Chiranjeevi
CHIEF EXECUTIVE
NAVEGA ENVIRO ENGINEERS&
CONSULTANTS
MOEF&CC RECOGNIZED LABORATORY

DIRECTOR
ENVIRONMENTAL PROTECTION SOCIETY,
KAKINADA, AP

Institution celebrates / organizes national and international commemorative days, events and festivals

ADITYA COLLEGE OF ENGINEERING

ADITYA COLLEGE OF ENGINEERING

Approved by AICTE, Permanently Affiliated to JNTUK & Accredited by NAAC
Recognized by UGC under Sections 2(f) and 12(B) of UGC Act, 1956
Aditya Nagar, ADB Road, Surampalem - 533 437, E.G.Dist., Ph: 99631 76662.

Report

Title of the Event :Yoga Practice

Collaboration agency : NSS Unit

Date(s) of Event : 21-06-22.

Aim of Workshop : To create awareness regarding health and fitness. Students are motivated for the community service and they are made aware of their responsibility towards social issues

No. of Students Participants : 140

Overall Assessment : Good

Event Coordinators : 1. Mr.M.Raghunath, Asst. Professor, Dept. of ECE

2. Mr. N.P. Chandrudu, Asst. Prof, Dept of H&Bs

Outcome : Students will be able to motivate public in taking measures in real life and practical problems

ADITYA COLLEGE OF ENGINEERING * SURAMPALEM *

PRINCIPAL

PRINCIPAL
Aditya College of Engineering
SURAMPALEM-533 437


NSS UNIT - 90214408
"YOGA IS NOT FOR THE FLEXIBLE. IT'S FOR THE WILLING"
ADITYA COLLEGE OF ENGINEERING
SURAMPALEM
GPS Map Camera
Nigeria
Google
Surampalem, Andhra Pradesh, India
33V8+8R2, Surampalem,
Andhra Pradesh 533437, India
Lat 17.045458° Long 82.15709°


GPS Map Camera
Google
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Long 82.066729°
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ADITYA COLLEGE OF ENGINEERING

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Aditya Nagar, ADB Road, Surampalem - 533 437, E.G.Dist., Ph: 99631 76662.

ఆదిత్యలో ఘనంగా అంతర్జాతీయ యోగా దినోత్సవం

గండేపల్లి, మేజర్ న్యూస్ : గండేపల్లి మండలం సూరంపాలెం ఆదిత్య ఇంజనీరింగ్ క్యాంపస్ నందు మంగళవారం అంతర్జాతీయ యోగా దినోత్సవం పురస్కరించుకొని ఆదిత్య హాస్టల్ ప్రాంగణంలో కార్యక్రమాన్ని ఘనంగా నిర్వహించారు. ఉదయం 6-15 గంటల నుండి 7-30 గం.ల వరకు యోగాసనాలు వేసి క్యాంపస్ నందు గల వివిధ ఎన్.ఎస్.ఎస్. యూనిట్ సభ్యుల ఆధ్వర్యంలో సంయుక్తంగా జరిగిన కార్యక్రమంలో ప్రముఖ యోగా గురువు చక్రవర్తి గారిచే యోగా లో వివిధ ప్రక్రియలను ఆసనాలను విద్యార్థులు వేయడం జరిగింది. ఈ సందర్భంగా క్యాంపస్ డైరెక్టర్ డా. ఎమ్.శ్రీనివాస్ రెడ్డి మాట్లాడుతూ నేటి ఆధునిక యుగంలో మానవుడు అనేక ఒత్తిడికి లోనవుతారు తనను తానే విస్మరించే పరిస్థితి చేరుకొన్నాడు,తన విలువైన సమయాన్నంతా డబ్బు సంపాదనలో గడిపేస్తూ ఆరోగ్యాన్ని నిర్లక్ష్యం చేస్తున్నారు,డబ్బుపై వ్యామోహం తో ఆరోగ్యంపై శ్రద్ధ చూపకపోతే సంపాదించిన డబ్బు అంతా జబ్బులకు వెచ్చించాల్సి వస్తుంది కావున ప్రతీ ఒక్కరు తప్పనిసరిగా రోజూ ఒక గంట యోగా కు కేటాయించి ఆరోగ్యంపై శ్రద్ధ చూపాలని సూచించారు. యోగా మనిషిని ఒత్తిడి తగ్గించి మనశ్శాంతిని చేకూర్చుతుందని,మంచి ఆలోచనలతో చురుకుగా ఆలోచించి ఆరోగ్యకరమైన నిర్ణయాలతో చక్కటి సమాజం ఏర్పడుతుంది అని సూచించారు. ఇది ఎవరి బలవంతం వల్లనో చేసే ప్రక్రియ కాదని మన కోసం మన ఆరోగ్యం కోసం చేయవలసిన అత్యుత్తమ కార్యక్రమం యోగా అని అన్నారు.ఫార్మసి కళాశాల డైరెక్టర్ డా. కె. రవిశంకర్ మాట్లాడుతూ యోగా ప్రతి ఒక్కరికి ఉపయోగపడుతుందని అన్నారు.ఇది అనారోగ్యాన్ని దరి చేయకుండా కాపాడుతుందని చెప్పారు.క్రమశిక్షణ అంకిత భావంతో యోగా ప్రాక్టీస్ చేయాలని పిలుపునిచ్చారు.ఈ కార్యక్రమంలో సూరంపాలెం ఆదిత్య ప్రాంగణంలో గల వివిధ కళాశాలలకు చెందిన ప్రిన్సిపాల్స్ డా. ఎ.రమేష్, డా. డి. సతీష్ కుమార్, డా.సంజీవ్‌కుమార్,డీన్ డా.ఎ.రామకృష్ణ,ఎన్.ఎస్.ఎస్.కోఆర్డినేటర్‌లురాజశేఖర్,జె.శ్రీనివాస్,రఘునాథ్, గోవర్ధన్,ఎన్. నాగేశ్వరరావు, కె.పకీరయ్య, హాస్టల్ విద్యార్థులు తదితరులు పాల్గొన్నారు.

సూర్య తూర్పు గోదావరి
Wed, 22 June 2022
epaper.suryaa.com/c/68750697

Report

Title of the Event :AIDS Awareness Program

Collaboration agency :GGH Peddapuram

Date(s) of Event :25-03-22

Aim :To allow individuals to recognize security concerns and respond accordingly

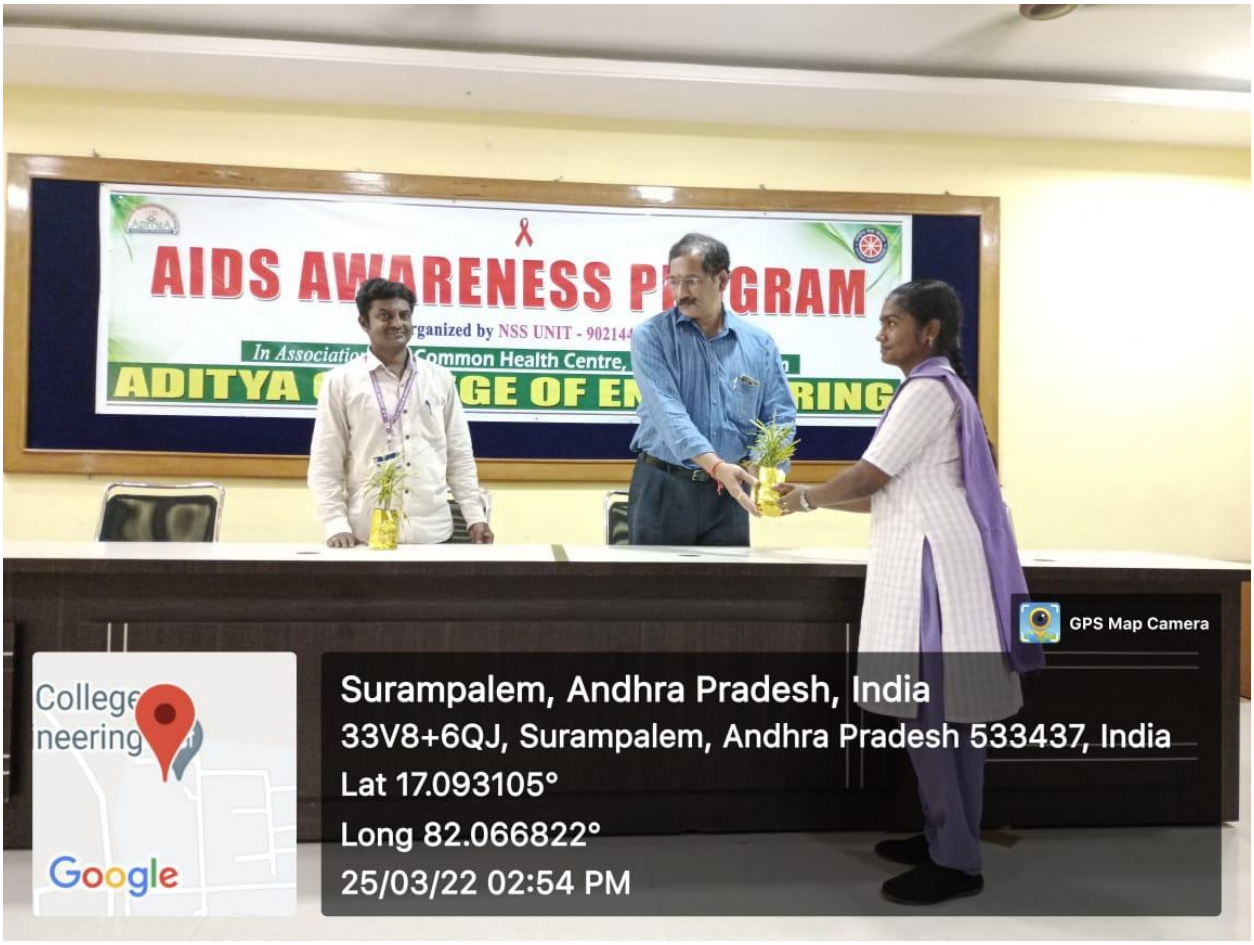
No. of Students Participants : 130

Overall Assessment :Good

Event Coordinators :1. Mr.M.Raghunath, Asst. Professor, Dept. of ECE

2. Mr. M.J. BalaMohanaraju, Asst. professor,Dept of BSE

Outcome : Created awareness among staff and students regarding preventive intervention techniques that would help in reducing the cause of the disease


AIDS AWARENESS PROGRAM
GPS Map Camera
Surampalem, Andhra Pradesh, India
33V8+6QJ, Surampalem, Andhra Pradesh 533437, India
Lat 17.093105°
Long 82.066822°
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Google


AIDS AWARENESS PROGRAM
Organized by NSS UNIT - 90214408
In Association with Common Health Centre, GGH, Peddapuram
ADITYA COLLEGE OF ENGINEERING
GPS Map Camera
Surampalem, Andhra Pradesh, India
33V8+6CV, Surampalem, Andhra Pradesh 533437, India
Lat 17.093195°
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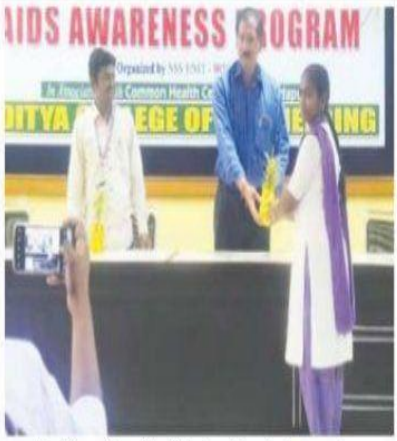
25/03/22 03:00 PM

ఎయిడ్స్‌పై అవగాహన కలిగి ఉండాలి

ప్రజాశక్తి - గండేపల్లి

సూరంపాలెం ఆదిత్య కాలేజ్ ఆఫ్ ఇంజనీరింగ్ కళాశాల ఎన్.ఎస్.ఎస్. విభాగం ఆధ్వర్యంలో విద్యార్థులకు ఎయిడ్స్‌పై అవగాహన కార్యక్రమం నిర్వహించారు. ముఖ్య అతిథిగా పెద్దాపురం ప్రభుత్వ ఆసుపత్రి డాక్టర్ బి.శ్రీను మాట్లాడుతూ హెచ్ఐవీని ఎలా గుర్తించాలి అనే అంశంపై ఆయన వివరించారు. హెచ్ఐవీ (హ్యూమన్ ఇమ్యునో డెఫిషియన్సీ వైరస్)ను గుర్తించడానికి ఎఆర్‌టి సెంటర్‌లో కొంబెడ్స్, ట్రై లైన్, ట్రై స్పాట్ పరీక్షలు నిర్వహిస్తారు. వాటిలో పాజిటివ్ వచ్చిన ట్లయితే హెచ్ఐవీగా నిర్ధారిస్తారు. దీర్ఘకాల విరేచనాలు, జ్వరం, ఎడతెరిపి లేని దగ్గు, చర్మ వ్యాధులు, గొంతు నొప్పి ఎక్కువ రోజులు ఉన్నట్లయితే వెంటనే పరీక్షలు నిర్వహించుకోవాలన్నారు. నెల రోజుల్లో శరీర బరువులో 10 శాతం తగ్గినా, నెల రోజులకు మించి జ్వరం, విరేచనాలు బాధించినా హెచ్ఐవీ పరీక్షలు చేయించు కోవాలన్నారు. సీడీ- 4 టెస్ట్‌లో తెల్ల రక్తకణాల సంఖ్య 350 కంటే తక్కువగా ఉంటే వారికి జీవిత కాలం పాటు ప్రతి నెల ఉచితంగా ఏఆర్‌టీ సెంటర్‌లో మందులు అందిస్తారని తెలిపారు. ఎయిడ్స్ నివారణా చర్యలపై హెచ్ఐవీపై క్షేత్ర స్థాయిలో అవగాహన కల్పించే విధంగా స్వచ్ఛంద సంస్థలు, ఆదిత్య ఎన్.ఎస్.ఎస్. విద్యార్థులు కృషి చేయాలని ఆయన పిలుపునిచ్చారు. వైద్య నిపుణులతో గ్రామాల్లో సదస్సులు నిర్వహించి ప్రజలకు అవగాహన కల్పించాలని సూచించారు. కార్యక్రమంలో డీన్ రవికుమార్, ఎన్.ఎస్.ఎస్. విభాగాధిపతి ఎం. రఘునాథ్, విద్యార్థులు పాల్గొన్నారు.



సమావేశానికి డాక్టర్ శ్రీనును ఆహ్వానిస్తున్న విద్యార్థులు

ప్రజాశక్తి
Sat, 26 March 2022
epaper.prajasakti.com/c/67050056

నిప్పుర
శనివారం 26 మార్చి, 2022

ఎయిడ్స్‌పై అందరూ అవగాహన కలిగి ఉండాలి - డా.బి. శ్రీను

గండేపల్లి // సూరంపాలెం: గండేపల్లి మండలం సూరంపాలెం: ఆదిత్య కాలేజ్ ఆఫ్ ఇంజనీరింగ్ కళాశాల ఎన్.ఎస్.ఎస్. విభాగం ఆధ్వర్యంలో విద్యార్థులకు ఎయిడ్స్ పై అవగాహన కార్యక్రమం నిర్వహించారు. ఈ కార్యక్రమంలో ముఖ్య అతిథిగా పాల్గొన్న పెద్దాపురం ప్రభుత్వ ఆసుపత్రి వైద్యులు డా. బి. శ్రీను మాట్లాడుతూ హెచ్ఐవీ భూతం చాపకింద నీరులా విస్తరిస్తోందని మందు లేని ఈ మాయ రోగానికి నిండు జీవితాలు బలైపోతున్నాయి అని ఆందోళన వ్యక్తపరిచారు.అవగాహనా లోపం, నిర్లక్ష్యం మూలంగా కొందరు వ్యక్తులు ప్రాణాల మీదకు తెచ్చుకుంటుండంతో వారి కుటుంబాలు వీధిన పడుతున్నాయని, ఈ మేరకు ప్రభుత్వం ఎన్ని చర్యలు చేపడుతున్నా పెద్దగా మార్పు కనిపించడం లేదని అందుకే స్వచ్ఛంద సంస్థలు ఎన్.ఎస్.ఎస్. వాలంటీర్లు పెద్ద ఎత్తున అవగాహన కల్పించే విధంగా కార్యక్రమాలు రూపొందించాలి సూచించారు. హెచ్ఐవీపై క్షేత్ర స్థాయిలో అవగాహన కల్పించే విధంగా ఆదిత్య ఎన్.ఎస్.ఎస్. విద్యార్థులు కృషి చేయాలని కోరారు. వైద్య నిపుణులతో గ్రామాల్లో సదస్సులు నిర్వహించి ప్రజలకు అవగాహన కల్పించాలని సూచించారు. ఈ కార్యక్రమంలో డీన్ . డా. రవికుమార్, ఎన్.ఎస్.ఎస్. విభాగాధిపతి ఎమ్. రఘునాథ్ హెచ్ఐవీని ఇలా గుర్తించొచ్చు హెచ్ఐవీ(హ్యూమన్ ఇమ్యునో డెఫిషియన్సీ వైరస్)ను గుర్తించడానికి ఏఆర్‌టీ సెంటర్‌లో కొంబెడ్స్, ట్రై లైన్, ట్రై స్పాట్ పరీక్షలు నిర్వహిస్తారు. వాటిలో పాజిటివ్ వచ్చినట్లయితే హెచ్ఐవీగా నిర్ధారిస్తారు దీర్ఘకాల విరేచనాలు, జ్వరం, ఎడతెరిపి లేని దగ్గు, చర్మ వ్యాధులు, గొంతు నొప్పి ఎక్కువ రోజులు ఉన్నట్లయితే వెంటనే పరీక్షలు నిర్వహించుకోవాలని నెల రోజుల్లో శరీర బరువులో 10 శాతం తగ్గినా, నెల రోజులకు మించి జ్వరం, విరేచనాలు బాధించినా హెచ్ఐవీ పరీక్షలు చేయించుకోవాలి సీడీ- 4

టెస్ట్‌లో తెల్ల రక్తకణాల సంఖ్య 350 కంటే తక్కువగా ఉంటే వారికి జీవిత కాలం పాటు ప్రతి నెల ఉచితంగా ఏఆర్‌టీ సెంటర్‌లో మందులు అందిస్తారు. ఎయిడ్స్ నివారణా చర్యలపై స్వచ్ఛంద సంస్థల సహకారంతో ప్రజలకు అవగాహన కల్పించాలని తెలిపారు.

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Report

Title of the Event :Cancer Awareness Program

Collaboration agency : DELTA Hospitals, Rajahmundry

Date(s) of Event :12-03-22

Aim :To create cancer awareness and remove stigma and fear attached.

No. of Students Participants : 155

Overall Assessment :Good

Event Coordinators :1. Mr.M.Raghunath, Asst. Professor, Dept. of ECE

2. Mr. M.J. BalaMohanaraju, Asst. professor,Dept of BSE

Outcome : Developed awareness among the students and emphasize the importance of early detection, of all which play a major role in the treatment of cancer


NSS UNIT (90214408) Presents...
Cancer Awareness Program
In colloboration with
DELTA HOSPITALS, Rajamahendravaram
ADITYA COLLEGE OF ENGINEERING


CANCERAWARENESS
Dr. Sumanth Mandava
MBBS, MS , Mch(Surgical Oncology)
CONSULTANT
Delta Hospital

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ఆదిత్య ఎన్.ఎస్.ఎస్. ఆధ్వర్యంలో క్యాన్సర్ పై అవగాహన

గండేపల్లి, మార్చి 12, పల్లె జ్యోతి ప్రతినిధి

గండేపల్లి సూరంపాలెం ఆదిత్య కాలేజ్ ఆఫ్ ఇంజనీరింగ్ కళాశాల లో ఎన్.ఎస్.ఎస్. విభాగం ఆధ్వర్యంలో క్యాన్సర్ పై అవగాహన సదస్సు నిర్వహించారు. ఈ కార్యక్రమంలో రాజమహేంద్రవరం డెల్టా హాస్పిటల్ కు చెందిన సర్జికల్ ఆంకాలజిస్ట్ డాక్టర్ సుమంత్ మరియు రేడియేషన్ ఆంకాలజిస్ట్ డాక్టర్ ఫణీంద్ర పాల్గొని ప్రసంగించారు. ఈ కార్యక్రమం ద్వారా వివిధ రకాల క్యాన్సర్ గురించి అవగాహన కల్పించడంతో పాటు జీవనశైలి లో మార్పుల ద్వారా క్యాన్సర్లను ఎలా నిరోధించవచ్చు అనే అంశాలపై అవగాహన కల్పించారు. నానాటికీ క్యాన్సర్ల వల్ల మరణాల శాతం పెరుగుతుంది.. కారణం శారీరక శ్రమ లేని జీవనశైలి, పెరుగుతున్న ఊబకాయం మరియు కాలుష్య స్థాయి, పొగాకు మరియు మద్యపానం వినియోగం, మారుతున్న ఆహార అలవాట్లు ధూమపానం వంటివి ఈ వ్యాధి పెరుగుదలకు ముఖ్య కారణాలు అని వివరించారు. వాటిని దృష్టిలో ఉంచుకొని మన జీవన శైలి అలవాట్లను మార్చుకొని క్రమశిక్షణ గా జీవించాలని సూచించారు. ముందస్తుగా గుర్తించినట్లయితే క్యాన్సర్లను చాలా వరకు నివారించవచ్చు. క్రమం తప్పకుండా వ్యాధి నిర్ధారణ పరీక్షలు చేయించుకోవాలి. క్యాన్సర్ నివారణ గురించి అలాగే తొలిదశలోనే గుర్తించేలా ఈ వ్యాధిపై ప్రజలలో అవగాహన పెంచడం అవసరం అని తెలిపారు. ఈ కార్యక్రమంలో ప్రిన్సిపాల్ డా. ఆదిరెడ్డి రమేష్,ఎన్.ఎస్.ఎస్.ప్రోగ్రాం ఆఫీసర్ ఎం.రఘునాథ్, ఎన్.ఎస్.ఎస్. వాలంటీర్లు విద్యార్థులు పాల్గొన్నారు.

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Report

Title of the Event :Woman's day celebrations

Collaboration agency : NSS with women's Grievances cell

Date(s) of Event :08-03-22.

Aim : Respecting fellow girl students and awareness of gender equality. Social development

No. of Students Participants : 110

Overall Assessment : Good

Event Coordinators :1. Mr.M.Raghunath, Asst. Professor, Dept. of ECE

2. Mr. M.Suryateja, Asst. Prof, Dept of Mech

Outcome : Students will be socially active and responsible person and will learn to stand up different among the crowd

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CLEAN AND GREEN CAMPUS INITIATIVES-BEYOND THE CAMPUS

INDEX

S.No	Name of the Activity	Date	No of Participants		Location
			Students	Faculty	
1.	Sapling Plantation	21/03/2022	40	5	Pedabrahmadevam
2.	Swatch Bharath	22/03/2022	50	8	Pedabrahmadevam
3.	Aarogya Rally	06/11/2021	80	5	Surampalem
4.	Clay Ganesh Idol Distribution	08/09/2021	25	10	Surampalem

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Report On Plantation and Distribution of Saplings at Pedabrahmadevam.

Date:21/03/2022

Location: Pedabrahmadevam

No.of Students Participated: 40

No.of Faculty Participated: 5

To protect the environment by planting and distributing the sapling outside the campus. We the NSS volunteers from Aditya College of Engineering went to the Pedabrahmadevam village and located the spots for the plantation. A total of 40 students was involved in this event and planted around 40 saplings at different locations in the village. Here the students interacted with the village people and requested to take responsibility for planted sapling. and also, around 25 saplings are distributed to the village people during this event, students have interacted with the village people and explained, motivated them about the importance of plants and plantation.

Plantation and Distribution of Saplings at Pedabrahmadevam

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Report On Swatch Bharath at Pedabrahmadevam.

Date:22/03/2022

Location:Pedabrahmadevam

No.of Students Participated: 50

No.of Faculty Participated: 8

National Service Scheme (NSS) Unit of Aditya College of Engineering has conducted Swatch Bharat on at Pedabrahmadevam Village. The event started at 10 am at the Primary school and the Boys and Girls are actively involved in cleaning the premises. The Principal and staff of the school supported the student group by providing necessary tools for cleaning like brooms and chopping knifes. Later we Continued in cleaning the Drains in the village with due support from the villagers. Our volunteers also motivated the villagers to keep the village clean and explained them the importance of Hygiene. In this event a total of 50 volunteers and 4 staff have participated.

Swatch Bharath at Pedabrahmadevam by students

Swatch Bharath at Pedabrahmadevam

Cleaning of drainage by students

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Report On Aarogya Rally at Surampalem

Date:06/11/2021

Location : Surampalem

No.of Students Participated : 80

No.of Faculty Participated : 5

As a part of NSS program, NSS volunteers of Aditya College of Engineering conducted awareness program on Health and by the name AAROGYA to the people of Surampalem village. This program is conducted in collaboration with village Panchayat Authorities. In this Students explained the Importance of proper sanitation and hygiene to the village people and also conducted a 5K Run along with the village panchayat Representatives.students areactively participated and made the program successful.

Aarogya- Health awareness program

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Report On Clay Idol Distribution-Go Eco Friendly Program.

Date: 08/09/2021

Location : Aditya College of Engineering

No.of Students Participated : 25

No.of Faculty Participated : 10

NSS Unit Aditya College of Engineering held a Clay Idols Distribution –Go Eco friendly program to commemorate the Vinayaka Chavithi. Vinayaka Chavithin is an Indian religious celebration during which people worship Ganesh idols for a length of time before releasing then into the river. This is a tradition that dates back many years. However, due to modernization, idols were created using plaster of Paris, which possess the greatest environmental risk. The ACOE NSS Unit held a program on using Clay Ganesh idols to reduce chemical in the environment and also distributes Ganesh idols to staff members. the principal and senior professors attended the occasion and spoke to the students about the importance of using clay idols for the Ganesh celebration. The celebration took place in the Ramanujan Bhavan inner garden with 10 faculty members and 30 students.

Distribution of Ganesh Idol to PRINCIPAL

Clay Idol Distribution

Clay Idol Distribution