



Green Campus Audit Report

Date:25th Aug2024

GREENCAMPUSAUDIT REPORT

2024-25



DADIINSTITUTE OF ENGINEERING & TECHNOLOGY
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VISAKHAPATNAM-531002
ANDHRAPRADESH

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1. INTRODUCTION:

Green Campus Audit assessment is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. 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 Green impact on campus. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus, it is imperative that the college evaluate its own contributions toward a sustainable future. 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.

Green audit is a potential tool which can be use defectively by an educational institution for resource usage identification and optimization. 'Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable'. The main objective to carry out green audit is to check green practices followedbythecollegeandtoconductawellformulatedauditreporttounderstandwhere it stands on a scale of environmental soundness.

2. OBJECTIVES:

The Green Campus Audit assessment of an institution is becoming a paramount important these days for self-assessment of the institution, which reflects the role of the institutioninmitigatingthepresentenvironmentalproblems.Thecollegehasbeenputting efforts to keep the environment clean since its inception. But the auditing of this non-scholastic effort of the college has not been documented. Therefore, the purpose of the present green audit 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 Green Campus Audit are:

1. To document practices and implementation of rain water harvesting
2. The document the quality of recycled waste water for gardening ,Zero Liquid Discharge Concepts
3. To document the solid Waste disposal system and e-waste management
4. To document the ambient environmental condition of air, water and noise in the campus.
5. More efficient resource management, paperless offices
6. To provide basis for improved sustainability and biodiversity
7. To create a green campus



8. To enable waste management through reduction of waste generation ,solid-waste and water recycling
9. Recognize the cost saving methods through waste minimizing and managing
10. Impart environmental education through systematic environmental management approach and benchmarking for environmental protection
11. Financial savings through a reduction in resource use

Benefits of Green Campus assessment:

Green Campuses can have tremendous benefits, both tangible and intangible .The most tangible benefits are the reduction in water and energy consumption right from day one of occupancy. The energy savings could range from 20-30% and water savings around 30 - 50%. Intangible benefits of green campus include health & well-being of the occupants, enhancing air quality & promoting biodiversity, safety benefits and conservation of scarce national resources. To provide basis for improved sustainability and to create a green campus.

Benefits to the Environment

- Environment a impacts of the campus are quantified
- Improves overall environmental performance
- Improves waste management
- Decreases resource use.
- Improves management of environmental

aspects Benefits to the Institute

- Good publicity-Green campus flag flies over the Quad throughout the year
- Empowers students and staff



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- Encourages innovation and change



- Reduces associated costs
- Prevents and reduces environmental impacts
- Creates a more balanced campus community
- Sets an example in the locality
- Institute becomes a better neighbor ,Enhancement of college

profile Benefits to the Students

- Improves learning outcomes
- Researchskills(developinganactionplan,investigation,settingtargets, monitoring programme and reporting progress)
- Introduction to new topics
- Transferrableskillstoworkplace-Communication, facilitation, teamwork, committee services.
- Developing an environmental ethic and value systems in youngsters.

Steps to be followed in making of a successful Green Campus: The motivation for a successful Green Campus must begin at the top and originate throughout the rest of the campus. Without a strong message of commitment and involvement from both the management and the administration, well-intentioned initiatives may be too fragmented to allow for campus-wide participation and too easily undermined by nay Sayers and other obstacles. Once the decision to become a Green Campus is made, then the real work begins.



The following feature plays a key role in making a campus green:

- I. Strategic Planning: Institutions that cultivate a vision of sustainability must adopt sophisticated strategic planning to allow their top management to assess the full arrangement of the institution's effect on the environment. The institutions auditing, and forecasting techniques used by these firms help them anticipate a wide range of external influence on the institution, not just ecological influence.
- II. The Administration of Management: The administration of management has a very important impact on the business decisions they make relating to building design, repair and renovation, building operations and maintenance, procurement practices, waste management, custodial services, energy management, transportation, food service and dining operations and hostel management.
- III. Academic Departments: The learning model is very well suited to the institution's environment and is a way to integrate knowledge base with local requirements and applications. This can have an immediate benefit depending on the nature of the service requirement. Further educational opportunities exist with developing courses on sustainable development, informal workshops and training as well as distance learning. The evolution of a learner-friendly classroom in environmental and long-term issues is a perspective to solve the question of sustainability.
- IV. The Institution's Research Activity: The research activity of the institution has a significant role in terms of its short and long-term impacts. The research activity includes publication of papers, magazines, journals, research articles, conducting workshops, seminars, awareness programs on environmental and sustainability issues. Areas for research could also include large-scale composting, procurement practices, production methods, alternative energy sources, and any number of building design, construction, operations, and maintenance practices.
- V. The Local Society: The local society can also provide a variety of resources to support the sustainability endeavor and which includes alumni, the business community, local public, transportation providers, vendors, utility suppliers, local organizations and associations.



3. METHODOLOGY OF GREEN AUDITING:

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The criteria, methods and recommendations used in the Eco-audit, Green Audit and Energy audit were based on the identified risks. The methodology includes: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the document, interviewing responsible persons and data analysis, measurements and recommendations.

The methodology adopted for this audit was a three-step process comprising of:

Data Collection – In preliminary data collection phase, exhaustive data collection was performed using different tools such as observation, survey communicating with responsible persons and measurements.

Following steps were taken for data collection:

Data about the general information was collected by observation and interview.

The power consumption of appliances was recorded by taking an average value in some cases (Ref Appendix).

Data Analysis - Detailed analysis of data collected include: calculation of energy consumption, analysis of latest electricity bill of the campus. Data related to water usages & waste management were also analyzed using appropriate methodology.

Recommendation – On the basis of results of data analysis and observations, detailed recommendations given in Section-6.



4. ABOUT DIET:

Dadi Institute of Engineering and Technology is approved by A.I.C.T.E, accredited by NAAC and permanently affiliated to JNTUK-Kakinada. DIET received UGC 2(f) & 12 (b) inclusions. It is a premier educational institute founded by well-known Academician and Philanthropist Sri Dadi Veerabhadra Rao with an objective of providing qualitative education to the people of Visakhapatnam and its suburbs in the year 2006. Since inception the institution is strictly following the founder's perspective and it rose to one of the top preferred institutes in the north coastal districts of Andhra Pradesh for quality education. The highlighting feature of the institute is that, it is the only institute in the state to have highest number of professional bodies of National and International chapters, functioning effectively and helping student fraternity in their holistic development.

National Bodies like NRDC have inked MOA with DIET for Providing IP & Technology Commercialization Services-An agreement in the form of MOA was signed between National Research Development Corporation (NRDC), an Enterprise of Department of Scientific & Industrial Research, Ministry of Science & Technology, Govt. of India and Dadi Institute of Engineering and Technology.

The institute has produced about two thousand and five hundred engineers during last 14 years. Many of DIET alumni are placed across the globe in reputed multi-national companies and are doing a considerable service and playing their part in 'Nation Building'.

The institute has provided individual cubicles to the staff in the staff rooms, waiting halls for girls and spacious sheds for vehicle parking, mineral water plant for drinking water, a well-furnished canteen, and on campus health center with all emergency health equipment. It has its own fleet of buses to help students and faculty to commute from various parts of the city of Visakhapatnam and its suburbs. The management aims at academic excellence and has left no stone unturned to achieve it. DIET has always adopted itself to the changing needs of the technological world and improved its infra-structural facilities to provide the student community the best facilities to excel in the engineering and management programs.



Quality improvement has been the hall mark of the success saga of the institution and is certified by ISO 9001:2008, ISO 14001:2004 & OHSAS 18001: 2007 certifications.

Institute is offering the following courses:

B.Tech (CSE, CSE (AI &ML, DS), ECE, EEE, CIVIL)

M.Tech (Power & Industrial Drives, Systems& VLSI, Computer Science &Engineering)

MBA

Polytechnic (EEE, ECE, CME)

DIET having Facilities:

Library and Digital Library

Entrepreneur Development Cell

Diet Literary &Cultural Club

NSS

Students Activity Canter

Laboratories

Smart Class Room

Class rooms and Tutorial Rooms

Faculty Cabins

Students Service Centre

Medical Centre

Faculty Dining Hall

Cafeteria

Conference Hall

Girls Waiting Hall

Transport Facility



5. ECO-SCOREASSESSMENT:

Based on the three audit (Green, Eco & Energy) checklists, all the 20 components of eco- score calculated. Eco-score on a scale of 1 for very poor to 5 an exemplary.

GREEN CAMPUS Eco-Score for DIET		
ECO SCORE ON A SCALE OF 1 FOR VERY POOR TO 5 AN EXEMPLARY		
S.NO	PARAMETER	ECO SCORE
1	Rain Water harvesting:	4
2	Terrace farming:	1
3	Neutralization Tank:	2
4	Zero Liquid discharge	1
5	Hazardous and e-waste management	3
6	Paperless office	3
7	Fire and safety provisions	2
8	Wealth from waste	1
9	Green Curriculum	3
10	Internal Revenue Generation	2
11	Ban on plastics	2
12	Environmental Education	2
13	Energy Efficiency	3
14	International Carbon Trade	2
15	Environmental Self Audit	1
16	Biogas Plant/Vermicompost	2
17	DG Set stack	1
18	Noise	3
19	Green building concepts	2
20	Biodiversity of campus	2
TOTAL ECO-SCORE		42
IDEAL ECO SCORE =20X5 = 100		

The above score was calculated according to the following observations during audit.



1. Rain Water Harvesting

During the site visit observed that rainwater harvesting system practices are good, Facility having two recharge pits, each having capacity 1.5 KLD.



2. Roof Top Farming

The Entire campus is does not maintained Roof Top Gardening .Part of the building terrace having greenery.



3. Neutralization Tank

College having the Chemistry lab & Environmental Lab, But the effluent water directly discharges into drainage.



4. Zero Liquid Discharge

The college is not maintaining the waste water treatment. Run-off water by storm water channels going to drainage.



5. Hazardous waste & E-Waste management

E-waste: College having valid MoU with Green waves Solutions Visakhapatnam, but the practices were not good, during site visit we found that so much E-waste materials dumped in the Terrace .Hazardous Waste: College having does not maintain Hazardous waste management.

6. Paperless office.

The college having good practices paperless office best practices like online trainings to students, conducting goggle meets with faculty, Google classroom, E-Lectures and E-Reports etc.

7. Fire and Safety Provision

During the site visit we found the there is no Exit routes are not clearly Displayed and building Evacuation plans are not Displayed in each floor and Periodical Inspection of Fire Extinguishers and Fire Hydrants System are not maintained.

We found that there are no Safety precautions and steps to follow in case of fire out breaks, fire alarm systems are not in working condition, there is no proper checklist for maintenance of the firefighting equipment

The periodical Fire Mock Drills are not conducted, the electrical safety is also very low due to open wiring in Back side of the building.



The maintenance of the solar system is not good condition because the batteries the distilled water levels are drained and flammable materials are kept beside the batteries like paints, wood debris and Papers.





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8. Wealth from Waste

College is not maintained any waste management practices.



9. Green Curriculum

The collegemanagementshowsthatthereisnoseparateGreencurriculumbutthey maintained NSS in Adopted Villages.

These minors and conferences not related to the Environmental Issues, The Students and Academia should not involve in Eco Tourism.

10. Internal Revenue Generation

The infrastructure in the laboratories in Civil Department was generating the internal income in the name of consultancy works.





11. Ban on plastics

The campus is following the Swachha Bharat guidelines but needs to increase the display boards and slogans.



12. Environmental Education

There are no trainings and awareness campaigns regarding environmental challenges. No documented evidence is found.





13. Energy Efficiency

The College having 2kwp solar energy system is using in main gate. The college also creating the awareness among the students on the Energy efficiency. The college is maintained the LED lighting and there is no CFL and UV lights in campus.



14. International Carbon Trade

There is no policy on the Carbon Trade in the Campus.

15. Environmental Self Audit

The reiso internal Environmental self-auditing and ISO14001 Certification was expired. The college having Environmental policy but it is sub Stranded.

16. Biogas Plant/ Vermi compost

The college is not maintained Biogas Plant/ Vermicompost, As no hostel facility food waste is less, but waste from canteen facility, dumped into open pit, composting not properly happening.



17.DGSet Stack

The college having the Capacity of DG Set 125KVA. The DG Set Stack was not maintained as per standards. And also stack emissions reports are not maintained. Flammable materials stored beside the DG Set. There is no fire safety Equipment near the DG Set.



18. Noise

Noise measured in class room and outside of the campus it is in standard levels. Good initiatives have been taken to control noise pollution by display boards.



19. Green Building Concepts

There is no practices regarding green building concept

20. Biodiversity of the campus

There are no Existing practices; previously in college campus Animals and Birds were there.





6. AUDITRECOMMENDATIONS

1. RainwaterHarvesting-Eco-score#4

Rain is the main source of water on the earth. Most of the water is getting drained off intothedrainsorstreamsintheformofrunoff.Inthecoastalregionsthisrunoffenters the sea. To conserve this water, rainwater harvesting is the best technique to be followed locally which in turn will have a great impact globally. Rooftop rainwater/storm runoff can be harvested in campus through:

- Recharge Pit
- Recharge Trench
- Tube well
- Recharge Well

Recommendations at

DIET

1. Divertwatertoproperstormwaterchannelconstructedinthecampuspremises without wastage of any runoff.
2. Divertthewatertopitsatdifferentpositionsinthecampussuchthatground water recharge can be attained.
3. Divert water to harvesting tanks or nearby water bodies in the premises
4. Re use the collected water for gardening and for domestic uses
5. UsethewaterasconstructionwaterandforrawwaterintheTreatmentplantin the campus

2. TerraceFarming-Eco-score#1

Rooftop gardens are man-made green spaces on the topmost levels of industrial, commercial, & residential structures .They may be converted into play spaces, give shade and shelter or simply be there salving, greenery. Besides the benefit, roof plantings may give food forth birds and small creatures, control temperature, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, recreational opportunities ,and in large scale ,it may even have ecological benefits. The perform of cultivating food on the roof top of buildings is sometimes referred to



As roof top farming. Roof top farming is generally done using the green roof, Hydroponics, Aeroponics or Air-dynaponics systems or container gardens.

Recommendation at DIET:

- Generate income and can provide some local employment for the poor-can be educated to the local people
- Utilizing otherwise ensued roof stomakean income internally.
- Engaging in low time-consuming work that can be shared with other jobs.
- Establishing food security by providing fresh, safe, & healthy produce for the hostels.
- Contributingtoenvironmentalsustainability&naturalresource management.
- Reducing heat on residents living on the top floor of buildings, which helps them save electricity by means of fans or AC less.

3. Neutralization Tank-Eco-score#2

Chemistry labs effluent has variation in its pH on a large scale. The lab effluent from an educational institute generally comprises of acids like HCl, HNO₃, H₂SO₄, EDTA and bases like NaOH, CaOH, Na₂CO₃, NH₃ whose pH ranges from 2 to 13. This effluent causes adverse effects when disposed directly onto land or water bodies.

As per effluent standards, Schedule VI of Environment (Protection) Act, 1986 all the parameters should be in the prescribed standards. Neutralization is a chemical reaction in which acid and base react to form salt and water bringing the pH near to 7. This principle is used to control the variation of pH of the lab effluent.



Recommendation at DIET:

Employing a neutralization tank is found to be the more suitable method to achieve neutralization. Recycle this neutralized water, after Ph correction in to waste water tank. Avoid drainage the laboratory waste water into storm water channel.

4. ZeroLiquidDischarge-Eco-score#1

Educational Institutes should follow Zero liquid discharge to meet with the environmental regulation in a challenging way. The institute has to identify potentially recyclable streams and applicability of four R's (Reduce, Reuse, Recycle and Recover). By achieving ZLD status and due to recycling of wastewater, the fresh water consumption of the campus can be reduced.

Recommendations:

The treated water can be used in the campus for gardening purpose, watering plants and lawns, in toilets flushes, in HVAC Cooling, Sludge generated from the Sewage Treatment Plant shall be rich in organic content and an excellent fertilizer for horticultural purposes.

5. Hazardousand-wastemanagement-Eco-score#3

Hazardous Waste Management Rules are notified to ensure safe handling, generation, processing, treatment, package, storage, transportation, use reprocessing, collection, conversion, and offering for sale, destruction and disposal of Hazardous Waste. These Rules came into effect in the year 1989 and have been amended later in the years 2000, 2003, 2008 and with final notification of the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.

Recommendations:

1. Segregate different types of wastes as dry and wet waste
2. Hazardous waste collection into separate waste yellow-colored bags



3. E-waste collection bins
4. Initiate disposal methods with approved contractors(already DIET having MoU)

6. PaperlessOffice-Eco-score#3

Educational Institutes will deal with a lot of paper work throughout the year. This creates a demand for paper which in turn needs a lot of pulp for the manufacture of paper.

Recommendations at DIET:

Digital Display boards: Digital display boards help the students to know the updates in the college and will reduce the paper load in the campus. And also helps to know about the events happening in the campus.

Paper Recycling: The campus should collect all the waste paper and should go for paper recycling on half yearly or yearly basis, such that there cycled paper can be used for preparing logbooks or attendance registers, etc.,

Environmental Data display: Every campus should go for environmental data display such that pupil and the visitors should aware of the ambient conditions in the campus, such that there will be a clear idea of the environment in which the students are surviving.

Digital classes by zoom, Google meet, Microsoft teams etc.,

7. Fire and safety provisions-Eco-score#2

According to the code, "Every building shall be constructed, equipped, maintained and operated as to avoid undue danger to the life and safety of the occupants from fire, smoke, fumes or panic during the time period necessary for escape."

According to the National Disaster Management Authority of India (NDMA) every school/Institute has to strictly abide by certain rules and regulations to prevent fire out break and ensure safety. Fire Prevention and Fire Safety



Measures should be part of the initial design, and also require regular maintenance and testing.

Recommendations at DIET:

1. Flammable and hazardous materials sources are limited, isolated, eliminated, or secured: This includes electrical lines and appliances, heaters and stoves, natural gas pipelines and LPG canisters, flammable or combustible liquids.
2. Exit routes are clear to facilitate safe evacuation in case of fire or other emergencies.
3. Detection and alarm systems (especially urban setups) are working.
4. Fire extinguishers are regularly refilled.
5. Other fire fighting materials and equipment is maintained.
6. Electrical systems are maintained and operable, in compliance with fire safety design criteria.
7. Fire drills must be held regularly while Institute is in session.
8. Every room in the institution should have posted identifying two ways
9. Safety audits such as electric safety audit such as checking of the electrical system by an electrician and fire safety audit which involves checking for possible sources of fire and identifying inflammable items within the Institute must be done regularly.

8. Wealthfromwaste-Eco-score#1

Wealth from waste is a best technique to be implemented in the educational institutes to promote and make the pupil aware of the sustainable practices. This brings a clear idea of what we are wasting instead of making it in to a good resource. Anything of value is called a resource, where as the waste which in turn be converted in to a valuable resource is being kicked off in to the bins.



Recommendations at DIET:

The wastes such as Demolition waste, garbage from the kitchens, remaining food from the canteens, paper from the offices, Water from Kitchens, water from STP and Neutralization Tank can be converted into useful products. Encourage students to make innovative projects.

Eco - friendly pavements.

Rubber tire benches at play grounds and at open class room

sitting benches with used plastic bottles.

Life saver boats with used plastic bottles.

9. GreenCurriculum-Eco-score#3

The current global energy and environmental crisis, the possible impact it might make on future generations, the fact that energy demand is increasing, and oil prices that have risen steadily have brought the demand for more efficient buildings, homes, cars, and consumer products to the fore.

Recommendations at DIET:

Existing **Open class room** to be developed fully and operational.

SeminarsandConferencetobeconductedonEnvironmentalIssuesandexpert lectures and discussions be made regular in the curriculum.

Eco Tourism: The Indian Government has its views on conserving the environment and has given ministry for Tourism. The Department of tourism is encouraging the ecotourism everywhere in the country. The students and the academia should be involved in the ecotourism.



10. Internal Revenue Generation-Eco-score#2

Revenue generation is an art every institute has to adopt. Along with technical education the institute should be in a position to earn income to the institute with the help of the laboratories in the institute itself. The infrastructure in the laboratories should be in a position to generate internal income in the name of Consultancy works. The infrastructure in the laboratories in Civil Department was generating the internal income in the name of consultancy works.

Recommendations at DIET:

Existing Civil and Environmental Laboratories can be used for consultancy services.

11. Ban on plastics-Eco-score#2

The University Grant Commission (UGC) on Friday, August 30, 2019, issued guidelines to ban the use of plastic in universities and educational institutions. **Swachhata Hi Sewa Campaign** is being launched by the Government of India from September 11, 2019, to October 02, 2019 with an aim to eliminate the use of plastic and to dispose of plastic waste.

Recommendations at DIET:

1. Strive to make the campus 'plastic-free' by systematically banning the use of plastic and replacing the same with suitable environment-friendly substitutes.
2. Ban use of single-use plastics in canteens, shopping complexes in the institution's premises and hostels, etc.
3. Carry out awareness drives and sensitization workshops on the harmful impacts of single-use plastics.
4. Mandate all students to avoid bringing non-bio-degradable plastic items to the institutions.
5. Encourage students to sensitize their respective households about the harmful effects of plastics and make their households 'plastic-free'.



6. Install necessary alternative facilities like water units to avoid the use of plastic water bottles, and encourage the use of alternative solutions like cloth bags, paper bags, etc, instead of plastic bottles, bags, cover, and other goods on campuses.

12 Environmental Education-Eco-score#2

Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment .As a result, individuals develop deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

Recommendations at DIET:

1. **Eco-club** should be established
2. **Awareness and sensitivity** to the environment and environmental challenges
3. **Knowledge and understanding** of the environment and environmental challenges
4. **Attitudes** of concern for the environment and motivation to improve or maintain environmental quality
5. **Skills** to identify and help resolve environmental challenges
6. **Participation** in activities that lead to the resolution of environmental challenges

13. Energy Efficiency-Eco-score#3

The goal of green building is to increase the efficiency of resource use (including energy, water and materials) and reduce the building's negative impacts on the environment during the building's lifecycle. "Zero energy" buildings achieve one key green building goal of reducing energy use and greenhouse gas emissions. The College having 2kwp solar energy system is using in main gate. The college also creating the awareness among the students on the Energy efficiency. The college is maintained the LED lighting and there is no CFL and UV lights in campus.



Recommendations at DIET:

1. Building energy efficiency is key to a clean energy future, roof top solar power to be adopted fully.
2. Environmental Awareness: Environmentally conscious students, faculty and staff should be eager to develop and implement energy efficiency solutions.
3. Innovation Hubs: Campuses should provide testing grounds to save energy, using "intelligent" information technology and experimenting with zero-net energy and passive building techniques.
4. College fertile grounds for building energy efficiency improvements
5. Widespread adoption of low-energy LED lighting, and undertake building retrofits to improve insulation and upgrade heating and cooling equipment.

14. International Carbon Trade-Eco-score#2

Greenhouse gas emissions—an incommmodity was created in the form of emission reductions or removals. Since carbon dioxide is the principal greenhouse gas, people speak simply of trading in carbon. Carbon is now tracked and traded like any other commodity. This is known as the "carbon market." Recommendations at DIET:

1. Encourage transportation in such a way that to reduce CO₂ emissions.
2. Increase awareness among the students and staff to reduce CO₂ emissions per person
3. Encourage carpooling by the staff



15. Environmental Self Audit-Eco-score#1

Environmental auditing used to be conducted only by firms that were already in the environmental "fishbowl", such as large chemical manufacturers and hazardous waste disposal companies. But recent days it's applicable to institutions as well. **Systematic discovery** of the violation through an environmental audit or a compliance management system. ISO 14001 Certification was expired. The college having Environmental policy but it is sub Stranded.

Recommendations at DIET:

Environment self-audit should be conducted once in a month as per prescribed check lists.

ISO-14001 certification to be renewed.

16. Biogas Plant/Vermicompost-Eco-score#2

Abiogas plant is where biogas is produced by fermenting biomass. The substrate used for the production of this methane-containing gas usually consists of energy crops such as corn, or waste materials such as manure or food waste.

There are regular waste disposal problems in almost all Institutions like hostels, hospitals, convents, old age-homes, etc .where more peoples are staying together. In the same time the cooking fuel consumption of these Institutions is also very high. Fairly large quantities of firewood and other cooking fuels are consumed for routine cooking purposes.

Recommendations at DIET:

Vermicomposting is applicable for DIET.



Existing open collection pit should be changed into ditch, so that canteen and wet waste can be converted into manure by vermicomposting process.

17. DG Set Stack-Eco-score # 1

Installation of stack a spernorms

Every Organization will be equipped with a backup power or power generating devices in the absence of normal power supply. A stack of reasonable height is constructed to the DGsets to eliminate the smoke and the gases from the DGsets.

Recommendations at DIET:

The college having the Capacity of DG Set 125KVA.The DGSet Stack was not maintained as per standards.

Diesel Generator exhaust stack height should be increased to as per the below calculation.

Exhaust stack height: In order to dispose exhaust above building height, minimum exhaust stack height should be, as per latest CPCB/ local pollution control board norms.

ForDGsetbelow800kW H

$$= h + 0.2 \times \sqrt{kVA}$$

Where H=height of exhaust stack h=height of building.

ForDGsetabove800kW -Minimum30meter In

case building height is more than 30 meter

Stack Height=Buildingheight+minimum6meter.

Note: Exhaust stack height should be considered of maximum value of the above.



18. Noise-Eco-score#3

Noise generation in any campus or institutions is mainly from vehicular and DG sets. Noise measured in class room and outside of the campus it is in standard levels.

Standards:

Acceptable Noise levels, IS4954-1968

Acceptable outdoor Noise in residential areas			Acceptable indoor Noise levels for various types of buildings		
S. No	Location	Noise level dB(A)	S. No	Location	Noise level dB(A)
1	Rural Region	25-35	1	Radio and TV studio	25-30
2	Suburban Region	30-40	2	Music Room	30-35
3	Residential Region	40-50	3	Hospitals, class room, Auditorium	35-40
4	Urban Region (residential and business)	40-50	4	Apartments, Hotels, homes, conference rooms, small offices	35-40
5	City/Town	45-55	5	Court rooms, private offices, libraries	40-45
			6	Large public offices, banks, stores, etc.	45-50
			7	Restaurants	50-55

Recommendations at DIET:

1. Construction of barriers

The plants are the best absorbers of sound, it was experimented with some traditional plants like Mango, Neem, Sapodilla Plant (Sapota), Berry Tree (Neredu), Rose Plant, Almond Tree (Badam), Goose Berry Plant (Usiri), Lemon and Some bushes.

Name of the Plant	Sound Pressure Levels dB(A)	
	At 5m	At 3m
Mango Tree	64.0	63.0
Bushes	62.0	60.5
Berry Tree (Neredu)	65.0	64.2
Rose Plant	66.2	65.8
Sapodilla Plant (Sapota)	66.5	66.0
Almond Tree (Badam)	65.2	65.0
Goose Berry Plant (Usiri)	66.5	66.0
Lemon	66.3	66.8
Neem	65.4	65.0



2. Develop Isopleths for the campus.
3. Conduct Noise Survey in and around campus.

19. GreenBuildingConcepts-Eco-score#2

As per the National Green Building Standard,7 components of green buildings are

- Life cycle assessment.
- Sitting and structure design efficiency.
- Energy efficiency.
- Water efficiency.
- Materials efficiency.
- Indoor environmental quality enhancement.
- Operations and maintenance optimization.
- Waste reduction

Recommendations atDIET:

Open class room to be developed

Solar power to be adopted ,all 5starratingA/C to be used , LED lighting should be adopted in all building and street lights.

20. Bio-Diversityofcampus-Eco-score#2

Naming the plants, trees, shrubs, and climbers that are grown in the campus with the common name will enable the public to recognize the plants and its uses inthe local traditional practices. Naming the Plants following the IUCN (International Union for Conservation of Nature) is mandatory as it is understandable at the international level. This will help to educate the students and all the stakeholders of the Institution on the scientific name and labeling the uniqueness such as medicinal properties or other uses will also be an added advantage.

Recommendations at DIET:

Waste water collection pond to be developed

Trees plantation around the pond will make the eco-friendly the biodiversity in the campus.



Green Campus Audit Report

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Topography

Total campus area - 10.50 Acre
Total main block (college) built up area - 0.5123 Acre.
Canteen area - 0.112 Acre
Civil Lab - 0.175 Acre
Stage - 0.069 Acre
Security (2) - 0.0011 Acre
Parking area (P. Room) - 0.081 Acre
Total Build up area - $0.5123 + 0.112 + 0.175 + 0.069 + 0.011 + 0.081 \Rightarrow 0.9504$ Acre
Total Spacing area - 9.54 Acre [10.50 - 0.9504].
~~water demand~~
water resources, - 3 bore - [1HP - Ganesh temple, 3HP - Security, 10HP - Civil Labs].
R.O. Plant capacity - 24000 lit, Daily usage min - 3500 lit [Drinking 2021].
waste of water - 60% (Canteen, washrooms etc), Drinking - 40%.



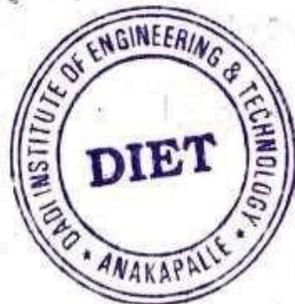
Water demand data

Per capita demand.

Year	usage in litres.
2016	777875
2017	787500
2018	792000
2019	784000
2020	48000
2021	787500

Total usage of water @ 2022 to 2026.

= 3987975 lit (approximately).





Greenbelt data

 **Rekhapalli Environmental Solutions & Technologies Private Limited**
Regd. Office Address: H. No. 7-15/1, Grandhlayam Street, Vijjeswaram-534302, A.P. India.
Site Office Address: D. No. 1-59/1, Seethampeta-534350 GST IN : 37AAACR3645K12Y
Contact: 08813-285123/9494285123 CIN: U74899AP20179TC106103

① Type of tree : Coconut
Scientific Name: Cocos Nucifera
No of trees : 93
Location : Near vinayaka temple, backside of college, Parking area, Near main gate, Near wro, Near civil labs

② Type of tree : Basil
Scientific Name: Ocimum tenuiflorum
No. of trees : 8
Location: Near vinayaka temple, opposite to Seminar hall, Notice board (near)

③ Type of tree : Aloe vera
Scientific Name: Aloea barbadensis miller
No. of trees : 4
Location: Opp EDC cell, Near parking

④ Type of tree : Neem
Scientific Name: Azadirachta Indica
No. of trees : 15
Location: Infront of WIE, Backside of college, Near civil labs

⑤ Type of tree : Papaya
Scientific Name: Carica Papaya
No. of trees : 20
Location : Beside Cafeteria, Backside of college, Backside of civil labs



- ⑥ Type of Trees: Almond
Scientific Name: Prunus Dulcis
No. of trees: 10
Location: Near indoor games, near civil labs
- ⑦ Type of Tree: Bamboo
Scientific Name: Bambusoideae
No. of trees: Group of trees
Location: Civil labs, near indoor games, Parking area
- ⑧ Type of tree: Banana
Scientific Name: Musa acuminata
No. of trees: Group of trees
Location: Backside of Seminar hall, Infront of office
- ⑨ Type of tree: Hibiscus
Scientific Name: Hibiscus rosa-sinensis
No. of trees: 9
Location: Beside canteen, Backside of college, Near stores
- ⑩ Type of tree: Amla
Scientific Name: Phyllanthus emblica Linn
No. of trees: 2
Location: Near parking area, Backside of college.
- 1) Type of tree: Custard Apple
Scientific Name: Annona squamosa
No. of trees: 1
Location: Backside of college.



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Contact: 08813-285123/ 5494285123 CIN: U74999AP2017PTC106103

- ⑫ Type of tree: Pomegranate
Scientific Name: Punica Granatum
No. of trees: 1
Location: Backside of college.
- ⑬ Type of tree: Mango
Scientific Name: Mangifera Indica
No. of trees: 4
Location: Backside of college
- ⑭ Type of tree: Teak tree
Scientific Name: Tectonia Grandis
No. of trees: 8
Location: Backside of college, Near entrance, Civil labs
- ⑮ Type of tree: Chikoo
Scientific Name: Manilkara Zapota
No. of trees: 2
Location: Beside canteen
- ⑯ Type of tree: Syzygium cumini
Scientific Name: Black berry
No. of trees: 2
Location: Beside canteen, Civil labs





18) Type of tree: Manigold

Scientific Name: Tagetes

No. of trees: 80

Location: Infront of seminar hall, Infront of Administrative office.





EnergyData

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Contact: 08813-285123/ 9494285123 CIN: U74905AP2017PTC106103

* Substation :

- input 11 KV - output 440.
- Transformer 150 KVA, 50HZ.
- Description - Arrange 1 lamp, maintenance.

Sports room :

- Tube lights - 4, Fans - 6 [working]

Canteen :

- Street lights 24W-11, 65W-6.

near to Bus parking :

- Street lights 90W-3, 24W-1

Cottage block :

- Street lights 24W-7 - [it is not working]

Solar panel :

- Rating 2KV, Battery capacity 150 AH.
- Lamps - 40W-6



Food path:

- lamps 40W-6, 90W-1.
- TOWERS 2000W-2 [20 lamps] - 4 is not working.

Generator:

- 125KV, required 1 fan, 1 light.

1st floor:

- fans - 32 [4 is not working], [6 required]
- lamps - 44 [required 6]

2nd floor:

- fans - 60 [2 is not working], [4 required]
- lamps - 38 [4 required]

3rd floor:

- fans - 23 [4 required]
- lamps - 66 [2 required]

4th floor:

- fans - 112 [all working], [2 required]
- lamps - 55 [4 required]





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5th Floor :

• All LEDs

Fans :- 66

tubelights :- 32.

Ground floor :-

LED lamps :- 88 (12 not working)

Fans :- 6 (all working)

Machines lab :-

Fans :- 11 (all working)

lights :- 6 (all working)

RO water plant :-

→ motor 1HP - 2

2HP - 2

capacity :- 25,000 litres.

Drinking water storage :- 2000 litres.

Waste water capacity :- 5000 litres



Green Building Council of India

Green Building Council of India





- Fan - 1 , tube light - 1 .

Fine water pumping motor :

- 10HP motor
- Description : Fan - 1 ; light - 1 .

Medical room :

- lights - 3 , fans - 4

Stores :

- lights - 1 , fans - 2
- Xerox machine - 1

Conference hall - 1 :

- Fans - 4
- tube lights - 2

Conference hall - 2 :

- Fans - 3 , lights - 2 , AC - 1

Law room :

- lights - 3 , fans - 5 .

Human resources - HR :-

- Fans - 2 , lights - 2 , printers - 2
- systems - 2 [1 light is required] .

Fluid machines lab :

- lights - 40W - 3

Engineering workshop lab :

- lights 40W - 3 , 60W - 1 , Stand pond - 1





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Carbon :

- lights - 40W - 8 , LED 20W - 4 , Fans - 19 .

1st floor :

- Computer lab - 1 , 11 fans . tube light - 13 [required 2]

3rd floor :

- Computer lab - 7, 8 ; lights - 10 [2 required]
- Fans - 13 .

4th floor :

- MPB MC lab - 7 lights , Fans - 12

5th floor :

- PG lab - Fans - 7 , lights - 6
- Circuits lab - Fans - 7 , lights - 6 [1 required] .
- Physics lab - Fans - 12 , lights - 10
- Chemistry lab - Fans - 8 , lights - 12





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No. of A/Cs :

- ① No. of A/Cs in Ground floor: ⑥ Seminar Hall 2
09 → 5 star → 1.5 Turns/Ton
 - ② No. of A/Cs in Computer Labs:
 - 1st floor - 02 → 5 star → 2 Turns/Ton
 - 2nd floor - 02 → 5 star → 2 Turns/Ton
 - 3rd floor - 02 → 5 star → 2 Turns/Ton
 - 4th floor - 02 → 5 star → 2 Turns/Ton
 - ③ Library [Digital] 16 A/Cs.
 ↳ 02 → 1.5 Turns/Ton → 5 star
 - ④ Guest house 03 }
 Board room } → 03 → 1.5 Turns/Ton → 5 star.
 - ⑤ I/O A/C → 01 → 1.5 Turns/Ton → 5 star.
- ← Total no. of A/Cs. → 36 A/Cs. (with Inverters)
01 Centralized AC in Seminar Hall /





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Green Audit Check list



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Energy Audit check list



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7. PHOTO GALLERY

Main Building Aerial View



Main Building





Green Campus Audit Report

Date: 25th Aug 2024

Amenities & Buildings



Green Belt





Green Campus Audit Report

Date: 25th Aug 2024





Students 'awareness and interactive session by Dr Rekhapalli.





Students Participation





Green Campus Audit Report

Date: 25th Aug 2024



Our sincere thanks to the DIET Management, Principal, Vice Principal, Green Campus Coordinator, Staff and students for successful completion of "Green Campus Audit and assessment" to achieve towards "Green Campus Certification" award.

Report prepared

By

(Dr. Srinivasa Rao Rekhapalli)

Managing Director

REST Pvt Ltd

www.restsolutions.org

