



**VIGNAN**

Institute of Technology and Science

**VIGNAN**

**INSTITUTE OF TECHNOLOGY AND SCIENCE**

**AUDIT REPORT 2020-2021**

**Audit Leaders**

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M/s Green Waves Environmental Solutions

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Green Paw Project

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## I PREAMBLE

**Vignan's Institute of Technology and Science (VITS)** was established in 1999 at Hyderabad to cater to the educational needs of the general public. The experience gained by Vignan through its earlier institutions at Guntur, has helped in establishing very high quality standards. Vignan Institute of Technology and Science is the brainchild of Dr. Lavu Rathaiah, Chairman, Vignan Group of Institutions.

### 1. Vision and Mission Statements of College:

#### Vision

"To evolve into a center of excellence in Science & Technology through creative and innovative practices in teaching-learning, promoting academic achievement & research excellence to produce internationally accepted competitive and world class professionals who are psychologically strong and emotionally balanced imbued with social consciousness and ethical values."

#### Mission

"To provide high quality academic programmes, training activities, research facilities and opportunities supported by continuous industry – institute interaction aimed at employability, entrepreneurship, leadership and research aptitude among students and contribute to the economic and technological development of the region, state and nation."

### 2. Campus and Physical Infra:

VITS has a campus of 12.6 hectares, managed with green development concepts. As per the land management documents of the Institution, an area of 25193 m<sup>2</sup> is under built up area, while the remaining area is under Open category, either under Play fields or under parks and green belt.

	<b>Land use type</b>	<b>Extent (m<sup>2</sup>)</b>
1	Built up Area	25193 (20.14%)
2	Open Area	101555 (79.86%)
	<b>TOTAL AREA</b>	<b>126748</b>

## Physical Infra of VITS

Sl. No.	Name of the building	Purpose/Utility	Floor Area	Remarks
1	Block A			
	Ground Floor	Library	835.09 sqm	
	First Floor	Library	835.09 sqm	
	Second Floor	Labs & EIE Class rooms	835.09 sqm	
	Third Floor	Seminar Hall	835.09 sqm	
2	Block B			
	Ground Floor	EEE Laboratory	512.12 sqm	
	First Floor	EEE Laboratories	512.12 sqm	
	Second Floor	EEE Department	626.32 sqm	
	Third Floor	EIE Department	626.32 sqm	
3	Block C			
	Stilt Floor	Training & Placement Cell	381.18 sqm	
	Ground Floor	Admin, Principal & CEO	2810.17 sqm	
	First Floor	Chairman Chamber, CSE & Allied Dept.	3605.53 sqm	
	Second Floor	ECE Department	3456.70 sqm	
	Third Floor	CE & ME Department	3456.60 sqm	
	Fourth Floor	BS&H, EIE Department	3456.60 sqm	
4	Mechanical Shed	Engg. Workshop & ME Labs	1105.97 sqm	
5	Civil Engg. Labs	CE Labs	725.10 sqm	
6	Cafeteria Shed	Canteen/Food center	187.18 sqm	
7	Transport Office & Construction Stores	Bus repair & Maintenance, Construction Stores	263.14 sqm	
8	Power House	Campus Power Backup	127.14 sqm	
		TOTAL BUILT-UP AREA =	25,192.75 sqm	

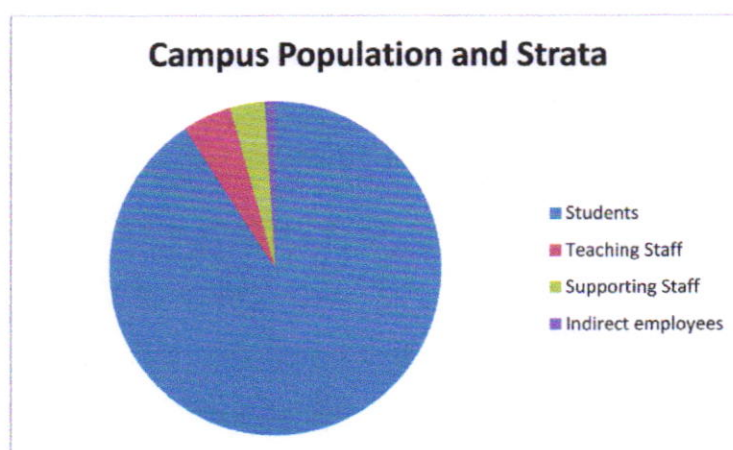
Areas under open land use in VITS

1	Road Type 1 – BT Road	2053 m	3.5 m
2	Road Type 2 – BT Road	90 m	4 m
3	Road Type 3 – Earthen Road	1930 m	5 m
	Parks and Gardens	<ol style="list-style-type: none"> <li>1. Open auditorium Garden – 794.96 sqm</li> <li>2. Fountain – 1124 sqm</li> <li>3. Library Backside – 3534 sqm</li> <li>4. Old Car parking - 544 sqm</li> <li>6. Plantation – Canteen – 1783 sqm</li> <li>7. Vignan Tree – East – 286 sqm</li> <li>8. Vignan Tree –120 sqm</li> <li>9. Road Side Plantation –416.12 sqm</li> </ol>	
5	Parking lot	<ol style="list-style-type: none"> <li>1. Staff bike parking – 130 sqm</li> <li>2. New Car Parking Area – 638 sqm</li> <li>3. Student Parking shed – 100 sqm</li> </ol>	
6	Open Play fields	<ol style="list-style-type: none"> <li>1. Cricket ground = 19795.64 sqm</li> <li>2. Football Ground = 9420.59 sqm</li> <li>3. Volleyball = 1615.15 sqm</li> <li>4. Basketball = 975 sqm</li> <li>5. Playground (basketball) =5726.58 sqm</li> </ol>	
7	Others		



### 3. Campus Population:

The campus has a population of around 2820 and 96% of the population are only day users. Of the total population, 92.1% are Students, While Teaching and supporting staff account for 5.4% and 2.3% , respectively.



### 4. Green Campus & Green Audit:

The VITS wish to enhance its quality of educational services by making the campus **Carbon Neutral Campus** and from the year 2020 - 2021, started Green Audit of the institution, so as to ensure that the campus comply with the Sustainable Development Goals (SDGs) and will be a role model to all

## II. SCOPE, OBJECTIVES & STRATEGY FOR VIIT GREEN AUDIT

Green audit serves as means to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene and safety, reduce liabilities and save money and achieve values of virtue. Green Audits are a sub-set of Environmental audits, and can be a highly valuable tool for educational institutions in a wide range of ways to improve their environmental and economic performance and reputation -- while reducing wastages and operating costs. Once a baseline data is prepared after the auditing process, the data can serve as a point of departure for further action in campus greening. It will also help the institution to compare its programmes and activities with other peer institutions, identify areas for improvement and prioritise the implementation of future projects. The data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs.

Simple but effective system was devised and applied to prepare a baseline data and monitor the environmental performance of Vignan Institute of Technology and Science . The aim of green auditing is to help the institution to apply sustainable development practices and to inculcate these concepts in the minds of young learners and through them to the community.

### 1. General and Specific Objectives of Green Auditing

**The general objective** of green audit is to prepare a baseline report on the status of (i) biodiversity and other resources, (ii) wastes generated and to mitigate resource wastage and improve resource quality and sustainable

practices by involving the campus community and through them to reach the public.

**The specific objectives are:**

- To prepare a checklist of flora and fauna diversity in and around the college campus.
- To suggest measures to improve biodiversity within the college campus.
- To monitor the energy consumption pattern of the college.
- To assess the quantity of water usage within the college campus.
- To suggest sustainable energy usage and water conservation practices.
- To find out various sources of organic and solid waste generation and mitigation possibilities.

## **2. Strategy for Green Audit at VITS**

This being for the first time for the VITS of conducting a Green Audit, the audit programme was developed after detailed discussions by the management, staff and the external auditors, M/s. GWES and Gpaw. The whole process was divided into three stages:

**A) Pre-Audit Stage:** During this stage, under the chairmanship of the Principal of the Institution, the GA Team was constituted with five Core Members (Three from the Institution and the remaining from third part consultant organizations, GWES and Gpaw. The Institutional members, have involved all unit heads of the VITS comprising the teaching, administrative and other allied units of the institution, so as to implement the GA protocols.



**B) Audit Stage:** During this stage, collection and validation of the audit evidences are the main activities which are of day-to-day basis and require systematic book keeping and data base development. This being the first ever audit for the VITS, the procedures and methods were developed for collection and validation of GA evidences, in the primary sectors of Landuse, Water, Air Quality, Greenery, wastes generated and safe disposal of wastes. Along with these, training and awareness programmes for the Students, Teaching staff and supporting staff are conducted in the campus on various occasions.

The audit results were analysed and the audit report was presented to the management of the VITS

**C) Post-Audit Stage:** This stage includes review of the management decisions on the implementation and management of various green practices based on the GA report and their own information base. The management, based on their review issue terms of reference to initiate the GA for the next year.

### **III. GREEN AUDIT SUMMARY RESULTS**

The Green audit of 2020-2021 covers the period between June 2020 to May 2021. However, due to ongoing pandemic conditions and considering all the Covid 19 lockdown period which has changed reopening time, nearly 3 months data, information on the resources consumption and conservation do not reflect the true status. Hence, the effective period for the Audit is only 9 months.

#### **1. LAND USE:**

The Green status of the land use in the VITS with nearly 79% of the area under open uses, can be considered as Very good land use planning. The available open area for the different strata of the campus community is around 35.3 m<sup>2</sup>, which is fairly very good and among similar level institutions under private sector, the status is **High healthy**.

No.	Community Strata	Population	Per Capita Open Area Availability
1	Students	2600	35.3 m <sup>2</sup>
2	Teaching	155	
3	Non-Teaching	65	
4	Indirect	51	
5	TOTAL	2871	

#### **GREENERY:**

The audit results indicate that about 37 % of the Open Areas in the campus are covered with vegetation. The general pattern of the vegetation is **peripheral** and scattered. In terms of species diversity, number of trees and biomass quantities, the assessment was made and the results are as follows in the biodiversity report

**DOCUMENTATION OF BIODIVERSITY SURVEY**  
**Vignan Institute of Technology & Science, Hyderabad, TS**



**Objective 1: Documentation of Floral diversity in the campus**

The flora of the campus located in a scrub hilly area is mainly dominated by semi thick vegetation and few species of dry deciduous forest. We have checklisted species of trees, species of Shrubs and species of grasses that were recorded from the campus apart from the plantations done by the organization. The survey results indicate that about 42.7% of the open areas in the total campus are covered with vegetation (both existing & avenue). The assessment was made in terms of species diversity, number of avenue trees and biomass quantities.

The Flora of the campus comprises 38 species of trees, 19 species of shrubs and herbs including various grasses, climbers and creepers. Most of the tree species are native, while most of the species in shrubs and herbs are a mixture of native and exotic species.

**Trees Enumeration:**

The tree species were enumerated and there are nearly 650 planted trees of which include Neem, Tecoma, Palms, Peltophorum and Pongamia trees. The jungle scrubs inside the campus act as major biodiversity spots and provide habitat for fauna.



**Biomass of Trees:**

Woody biomass of the trees were estimated through ecological methods, and the top ten species which were high in numbers have contributed significantly to the biomass. On the whole, all the tree strata together with the existing jungle scrub have contributed 1164.7 tons of biomass, with a mean of 0.852 t/tree woody biomass.

**Carbon Stocks:**

With the tree biomass, the Carbon stocks in the VITS campus lands were estimated using standard stock assessment methods based on the formula of Tree above C in ground biomass + C in Below ground Biomass + Soil Carbon. About 8135 tons of Carbon stocks are estimated to be in the VITS campus greenery area. The scope of Biodiversity is good in the campus.

**Table 1: Trees recorded from the campus (bounded)**

Tree species recorded as a part of Biodiversity Survey			
S.I.	Common Name	Vernacular Name	Scientific Name
1	Sundra	చండ్ర	Acacia catechu
2	Babul	నల్ల తుమ్మ	Acacia nilotica
3	Mahaneem	పెద్దమాను	Ailanthus excelsa
4	Gold siris	సిగర	Albizia amara
5	Frywood	దిరిసెన	Albizia lebbek
6	Sitaphal	సీతాఫలం	Annona squamosa
7	Neem	వేప	Azadirachta indica
8	Aastha	అరే	Bauhinia racemosa
9	Bush plum	వాక	Carissa spinarum
10	Golden Shower	రేలా	Cassia fistula
11	Shesham	ఇరుగుడు	Dalbergia sissoo
12	Flame of forest	గుల్మోహర్	Delonix regia
13	Banyan	మర్రి	Ficus Bengalensis

14	Peepal	రావి	Ficus Religiosa
15	White Fig	జవ్వ	Ficus virens
16	Dhaman	తడ	Grewia tiliifolia
17	Indian Screw tree	వదంపిరి	Helicteres isora
18	Ash tree	గుంపన	Lannea coromandelica
19	River Tamarind	సుబాబుల్	Leucaena leucocephala
20	Bullet wood	బొగడ	Mimusops elengi
21	Madras Thorn	సీమ చింత	Pithecellobium dulce
22	Mango	మామిడి	Mangifera indica
23	False Asoka	అశోక	Polyalthia longifolia
24	Copper Pod	కొండ చింత	Peltophorum pterocarpum
25	Mesquite	పిచ్చి తుమ్మ	Prosopis juliflora
26	Indian Beech	కానుగ	Pongamia pinnata
27	Jungle Badam	అడవి బాదాం	Sterculia foetida
28	Hummingbird tree	అవిసె	Sesbania grandiflora
29	Senna	సీమ తంగేడు	Senna siamea
30	Bhirra	బిల్లుడు	Chloroxylon swietenia
31	Jamun	నేరేడు	Syzygium cumini
32	Tamarind	చింత	Tamarindus indica
33	Indian Almond	బాదం	Terminalia catappa
34	Arjuna	తెల్ల మద్ది	Terminalia arjuna
35	Teak	టీకు	Tectona grandis
36	White Indigo	అంకుడు	Wrightia tinctoria
37	Jujubee	రేగు	Zizyphus rugosa
38	Royal PALM	రాయల్ పామ్	Roystonea regia



**Table 2: Shrubs and Herbs recorded from the campus (excluding avenue plantations)**

Shrubs and Herbs species recorded			
S.I.	Common Name	Vernacular Name	Scientific Name
1	Country Mallow	దువ్వెన బెండ	Abutilon indicum
2	Latjeera	ఉత్తరేణి	Achyranthes aspera
3	Peacock flower	రత్న గంది	Caesalpinia pulcherrima
4	Balloon plant	అల్లెన	Cardiospermum halicacabum
5	Gourd (wild)	అడవి దొండ	Coccinia indica
6	Tick weed	వావింట	Cleome viscosa
7	spiderwort	అమ్మతకాడ	Commelina benghalensis
8	Asthma plant	పాలకాడ	Euphorbia hirta
9	Dwarf morning glory	విష్ణుకాంత	Evolvulus alsinoides
10	Crossberry	కదరకాయ	Grewia tenax
11	Bushmint	శీర్ష తులసి	Hyptis suaveolens
12	Indigo	నీలిచెట్టు	Indigofera tinctoria
13	Lantana	తలంబ్రాల చెట్టు	Lantana camara
14	Prickly pear	నాగతాలి	Opuntia vulgaris
15	Swamp mallow	చిత్తడిమల్లి	Pavonia zeylanica
16	Potato Bush	నల్లపూలు	Phyllanthus reticulatus
17	Wire weed	నెల బెండ	Sida acuta
18	Coat buttons	గడ్డి చామంతి	Tridax procumbens

**Table 3: Grasses recorded from the campus**

Grass species from the campus		
S.I.	Common Name	Scientific Name

1	Seed grass	Arundinella schultzii
2	Couch grass	Bothriochloa odorata
3	Coco grass	Cyperus rotundus
4	Star grass	Cynodon dactylon
5	fingergrass	Chloris barbata
6	Delhi grass	Dichanthium annulatum
7	Spear grass	Heteropogon contortus
8	Basketgrass	Oplismenus burmannii
9	fountain grass	Pennisetum alopecuroides
10	Desho	Pennisetum pedicellatum
11	Kans grass	Saccharum spontaneum
12	Frost grass	Spodiopogon jainii
13	Oat grass	Themeda arguens

## Objective 2: Documentation of Faunal diversity in the Campus

Fauna: Varied fauna has been observed as follows:

Table 4: Butterflies observed in the campus

Butterflies observed in the campus			
S.I.	Common Name	Scientific Name	Occurrence
1	Lemon pansy	Junonia lemonias	Common
2	Plain tiger	Danaus chrysippus	Common
3	Common Crow	Euploea core	Common
4	Common Mormon	Papilio polytes	Common
5	Peacock pansy	Junonia almana	Common
6	Mottled Emigrant	Catopsilia pyranthe	Common



7	Lemon Emigrant	Catopsilia pomona	Common
8	Danaid Eggfly	Hypolimnas misippus	Common
9	Common pierrot	Castalius rosimon	Common
10	Dark grass blue	Zizeeria karsandra	Common
11	Small grass yellow	Eurema brigitta	Common
12	Tawny coaster	Acraea terpsicore	Common
13	Blue Tiger	Tirumala limniace	Common
14	Crimson Rose	Pachliopta hector	Common
16	Common gull	Cepora nerissa	Rare
17	Common Jay	Graphium doson	Rare
18	Common Jezebel	Delias eucharis	Rare

Table 5: Dragonflies and damsels species recorded in the campus

Dragonflies and damsels species recorded			
S.I.	Common Name	Scientific Name	Occurrence
1	Marsh dart	Ceriagrion coromandelianum	Common
2	Bi coloured damsel	Ceriagrion cerinorubellum	Common
3	Pygmy dartlet	Agriocnemis pygmaea	Rare
4	Globe wanderer	Pantala flavescens	Common
5	Ground skimmer	Diplacodes trivialis	Common
6	Crimson marsh glider	Trithemis aurora	Common
7	Picture wing	Rhyothemis variegata	Common

Table 6: Bird species observed in the campus

Bird species observed			
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S.I.	Common Name	Scientific Name	Occurrence
1	Common Myna	<i>Acridotheres tristis</i>	Common
2	Common kingfisher	<i>Alcedo atthis</i>	Common
3	Spotted Owlet	<i>Athene brama</i>	Common
4	Greater coucal	<i>Centropus sinensis</i>	Common
5	Pied kingfisher	<i>Ceryle rudis</i>	Common
6	Common Tailor Bird	<i>Orthotomus sutorius</i>	Common
7	Baya Weaver	<i>Ploceus philippinus</i>	Common
8	Rufous treepie	<i>Dendrocitta vagabunda</i>	Common
9	Black drongo	<i>Dicrurus macrocercus</i>	Common
10	Indian Peacock	<i>Pavo cristatus</i>	Common
11	Asian green bee-eater	<i>Merops orientalis</i>	Common
12	Purple-rumped sunbird	<i>Leptocoma zeylonica</i>	Common
13	Red-wattled lapwing	<i>Vanellus indicus</i>	Common
14	Water hen	<i>Gallinula tenebrosa</i>	Common
15	Black kite	<i>Milvus migrans</i>	Common
16	Jungle Crow	<i>Corvus culminatus</i>	Common
17	Spotted dove	<i>Spilopelia chinensis</i>	Common
18	Indian Robin	<i>Copsychus fulicatus</i>	Common
19	Laughing Dove	<i>Spilopelia senegalensis</i>	Rare
20	White Throated Kingfisher	<i>Halcyon smyrnensis</i>	Common
21	Cattle egret	<i>Bubulcus ibis</i>	Common
22	Indian pond heron	<i>Ardeola grayii</i>	Common
23	Eurasian hoopoe	<i>Upupa epops</i>	Rare
24	Black-rumped flameback	<i>Dinopium benghalense</i>	Rare

25	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Common
26	Asian Koel	<i>Eudynamys scolopaceus</i>	Common
27	Indian shag	<i>Phalacrocorax fuscicollis</i>	Common
28	Jungle babbler	<i>Argya striata</i>	Common
29	Barn swallow	<i>Hirundo rustica</i>	Common
30	Black bittern	<i>Ixobrychus flavicollis</i>	Rare
31	Indian white-eye	<i>Zosterops palpebrosus</i>	Rare

Mammals sighted during the visit are Rhesus macaques (monkey), shrews and mongoose. As per the information from locals animals like Wild boar were reported. Snakes like Cobra, Rat snake, vipers, bronzebacks and vine snakes are common. Deccan Rock agama, Monitor lizards are observed on trails.

**Recommendations:**

Green Paw & ECCT team will be available to conduct programs like Bird watching and Butterfly walks as a part of Environmental Education programs. The possibilities shall be discussed for implementation.

The following are some pictures from the survey at VITS Campus, Hyderabad





Kingfisher



Rufous Treepie



Common Dragonfly



Myna



Terrain around the campus

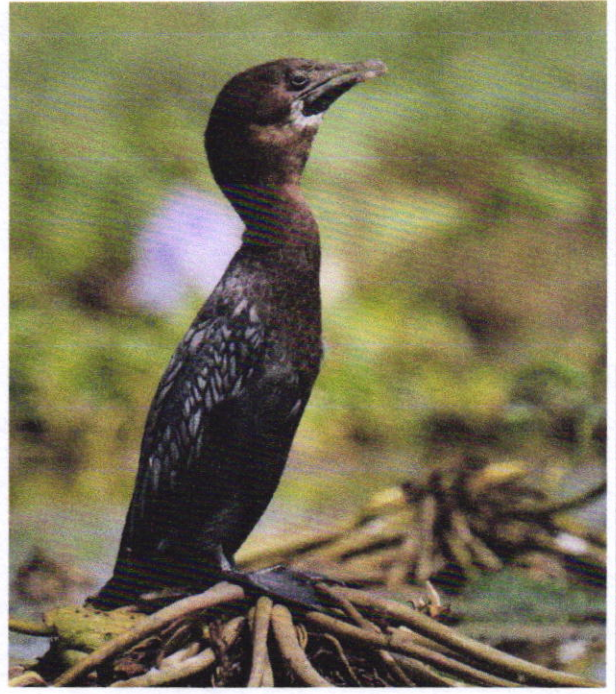


Jungle Badam tree seeds





Bulbul



Cormorant



Baya weaver nests



Monkey



Butterflies spotted in the campus







Wild grasses



Vignan tree (*Holoptelea integrifolia*)



Ficus trees



Water hen



Jungle



Dragon fly

## 2.WATER:

VITS is well aware of importance of water and has a dedicated water management cell. Water is used for different purposes like, Drinking; Other domesticated uses; Laboratories; House Keeping and Greenery. For all the uses, VITS depends upon ground water and open water ponds.

VITS taps around 50 KLD of water from 8 bore wells, and has an open watersources with 3 in number in the green belt area which act as storagetanks distribution of the water for different uses is as follows:

No.	Purpose	Quantity (KLD)	(% Total)
1	Drinking	6	15
2	Other Domestic Uses	14	35
3	Laboratories & Other facilities	18 + 5	45
4	Greenery	2 + 5 (RO reject)	5

On the whole, the drinking water availability is at 1.2 litres/head and 98% of the campus population stays in the campus for less than 8 hours, the drinking water availability is reasonably good compared to the standard of 5 litres/head/24hrs. TheVITS has a R.O. Plant with an installed capacity of 6000 litres/day, and through which Reject water of 10000 litres will be generated. A half of which is used for floor washes and the remaining for greenery. The RO plant water also is used be neighboring sister institution of the Vignan group.





**GREENWAVES**  
ENVIRONMENTAL SOLUTIONS

# *Audit Certificate*

*This is to certify that*

---

*Vignan Institute of Technology and Science*

---

*has successfully completed*

***Energy Audit***

***for the year 2021***

*The Audit was completed by*

*Green Waves Environmental Solutions(Hyderabad)*

*P. K. Chandra*

Managing Director

Green Waves Environmental Solutions

Reference: EWES0216028





**GREENWAVES**  
ENVIRONMENTAL SOLUTIONS

# *Audit Certificate*

*This is to certify that*

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*Vignan Institute of Technology and Science*

---

*has successfully completed*

***Energy Audit***

***for the year 2020***

*The Audit was completed by*

*Green Waves Environmental Solutions(Hyderabad)*

*P. K. Chandra*

Managing Director

Green Waves Environmental Solutions

Reference: EWES0216039



**GREENWAVES**  
ENVIRONMENTAL SOLUTIONS

# *Audit Certificate*

*This is to certify that*

---

*Vignan Institute of Technology and Science*

---

*has successfully completed*

***Energy Audit***

***for the year 2019***

*The Audit was completed by*

*Green Waves Environmental Solutions(Hyderabad)*

*P. L. Choudhary*

Managing Director  
Green Waves Environmental Solutions

Reference: EWES0216058





**GREENWAVES**  
ENVIRONMENTAL SOLUTIONS

# *Audit Certificate*

*This is to certify that*

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*Vignan Institute of Technology and Science*

---

*has successfully completed*

***Energy Audit***

*for the year 2018*

*The Audit was completed by*

*Green Waves Environmental Solutions(Hyderabad)*

*P. A. L. Chandra*

Managing Director

Green Waves Environmental Solutions

Reference: EWES0216125