



AUDIT REPORT

Studied for

**S.A.S Government Degree
College, Narayanapuram,**

Narayanapuram, Eluru District,

Andhra Pradesh. -524406, India

21 March 2023

Disclaimer

The Audit Team has prepared this report for the **S.A.S Government Degree College, Narayanapuram, Eluru District, Andhra Pradesh. -534406, India** based on input data submitted by the College analysed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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Acknowledgement

The Audit Assessment Team thanks the **S.A.S Government Degree College, Narayanapuram, Eluru District, Andhra Pradesh** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **everyone from the Management.**

Our heartfelt thanks to Chairperson of the entire process **Dr. T.K Visweswara Rao**, Principal, for the valuable inputs.

We are also thankful to **College's Task force the faculty members - Green Audit Coordinators** who have collected data required sri **D. Redaiah**, Vice Principal, IQAC Coordinator; **Dr.Konda Ravi**, Academic Coordinator; Smt.**G.Kalyani**, Senior Assistant.

We highly appreciate the assistance of **Smt.G.Hepsiba**, Lecturer in Chemistry;
B.Venkateswara Reddy. , Lecturer in Physics ; **(Special mention for the excellent coordination)**
Dr P.Babu Rao, Lecturer in Maths and the **entire Teaching, Non-teaching and Admin staff** for their support while collecting the data.

Sustainable Academe

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1. Introduction

1.1 About the functioning of the Institution

S.A.S Government Degree College Narayanapuram, It is affiliated to AdiKavi Nannayya University . The institution boasts of good infrastructure and academicians. In this regard, our college endeavours to harness excellence with a commitment to the ethos of 'Practical Learning' since 1972. Moreover it has been providing training to its students to help them evolve as competent professionals across India. Since the world has become global, digital and herbal, success requires not only the ability to perform according to the requirements of the position, but also the ability to adjust and get along as a member of a working team. In addition, students have immensely benefitted from our innovative teaching as well as training.

1.2 Statements of the Institution

Vision - To become a center of educational excellence for empowering in a variety of ways by realizing their capabilities so that they can take their rightful place in the society.

Mission

- 1) To inculcate the spirit of quality in Higher Education.
- 2) To trigger the skills related to Education & life.
- 3) To Enhance physical wellbeing of the students.
- 4) To promote social awareness & community Services.
- 5) To inculcate values for betterment of women.
- 6) To train students for academic competition.

1.3 About the Institution

The aim of the college is **"Cultivation of positive self - image and self-confidence, developing capacity for critical thinking and decision - making among the students"** and also to continuously enhance the teaching methods in order to provide students with an opportunity for their all-round development. It also strives for excellence in academics and makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in their chosen careers. **The Institution is affiliated to Adikavikavi Nannayya University a state university in Rajamundry, East Godavari district, Andhra Pradesh and it offers the following courses.**

- **Graduation** – It offers the following Undergraduate courses.
 - Faculty of Humanities – B.A. Economics
 - Faculty of Commerce – B. Com , General
 - Faculty of Science – B. Sc Zoology,
-B.SC COMPUTERS

The College works towards training young to be competent, committed and compassionate, and lead in all walks of life. Its motto is **"Up liftment of rural young mind education for betterment of society"** and its objectives are:

- To train the students with skills.
- To provide career guidance.
- To give I.C.T edge to the reading and learning skills.
- To inculcate Value education system.
- To provide job orientations.
- To reach social responsibilities for the welfare of the society.

1.4 The surrounding premises around the Institution

The Premises is situated amidst the landscape serene of **Eluru district of Andhra Pradesh State** with immense peace and calmness in the surroundings. The college is locate near NH 16.

There is a frontal approach which provides quite a beautiful appreciation space while approaching the premises; this area is surrounded by huge trees which positively complement the background-foreground aspect in terms of Natural space and built-form Architecture. It also provides ample shade which enhances the micro climate of the region.

1.5 Assessment of the College

1.5.1 Certification

The College has received ISO 50001:2018 Certification for providing educational services in August, 2023.

1.5.2 Accreditation

NAAC - The College received a CGPA of a B Grade in its first cycle of Accreditation in February 2014. The College is due to enter its second cycle of NAAC soon.

1.5.3 Recognitions

The college has achieved the following recognition from **University Grant Commission (UGC) under section 2 (f) & 12 (B) of the UGC Act, 1956 by University Grants Commission, New Delhi.**

2. Institution overview

2.1 Populace analysis for Academic year 2021-22

2.1.1 Students data

The student data (shared by the College) shows there were a total of students in the premises.

2.1.2 Staff data

Type	Male	Female	Total
Admin Staff	01	00	00
Teaching Staff	09	06	15
Non-Teaching Staff	06	03	09
Total Staff Members	16	09	24

Table 1: Staff data of the Institution for 2021-22

The staff data shows the premises had a total of **24** Staff Members.

2.2 Populace analysis for Academic year 2022-23

2.2.1 Students data

The student data (shared by the College) shows there were a total of 177 students in the premises.

2.2.2 Staff data

Type	Male	Female	Total
Admin Staff	01	00	01
Teaching Staff	09	06	15
Non-Teaching Staff	06	03	09
Total Staff Members	16	09	25

Table 2: Staff data of the Institution for 2020-21

The staff data shows the premises had a total of **25** Staff Members.

2.3 Total College Area & College Building Spread Area

The **total site area is 5.7 Acres** and the **total Built-up area of College is 16500 sq. ft.** for a **total of footfalls.**

2.4 College Infrastructure

2.4.1 Establishment

The College was established in 1972. The college is located pretty close to nature and hence has very fresh environment which is absolutely pollution free and healthy. The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is terms of the Architecture Design and Green Building Design. The Premises covers quite a few of the requirements for a Green Habitat.**

2.4.2 Spatial Organisation

The overall ambience of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of windows with fresh air ventilation. The architecture of the building is quite well designed. The colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge trees all around. The design emphasis on providing calmness to the built form and gradually.

The floor to floor height is more than 10 feet. There is no provision for lifts in the premises, whereas there are amenities such as CCTV, Fire , Library and first aid box.

2.4.4 Operation and Maintenance of the premises

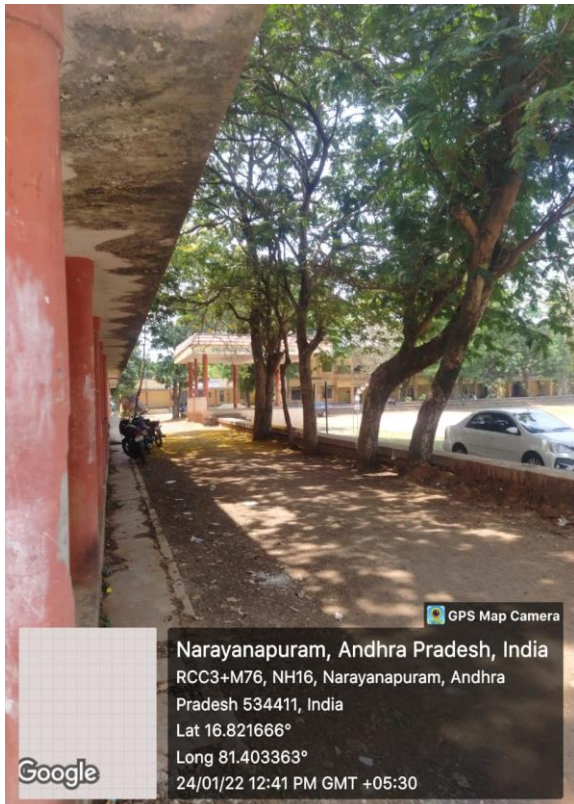
The interview session with the staff regarding the operation and working hours is summarized in the table. The Institutions are open Monday to Saturday for full day.. The detail wise timing for each is mentioned below.

S. No.	Section	Spaces	Time	Hours/ day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	Monday to Saturday (10:00 a.m. to 05:00 p.m.)	7	280
2	General areas	Admin areas and library, Passage, staircase, toilet	Monday to Saturday (09:00 a.m. to 05:00 p.m.)	8	300

Table 3: Schedule of the timings of the premises

On-site investigation and physical verification

The Beautiful and Eminent Institution Building and premises





3. Green Building Study Audit

3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a sustainable and healthy premises for its inhabitants.

3.2 Analysis for the Green Building Study Audit

The procedure included detailed verification for the following:

Energy Audit

- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the campus

Green Audit

- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; Scope to include Rain water harvesting and Waste water treatment in campus
- Waste Audit - Current waste produced, its segregation and usage; Strategies to be adopted for waste management and awareness

Environmental Audit

- Analysis of the current landscape + hardscape of campus
- Analysis of the flora and fauna of campus
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of the premises.

3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Building Study Audit

- Discussion with the College
- Allotment and Initiation by the College
- Induction Meeting
- Survey of the Student and staff submitted
- Data submitted by College
- Submission of the Report

4. Site Study

The following listed are some of the positive site elements which are beneficial to the college in terms of tangible and intangible benefits.

- **Location** - The S.A. S. Government Degree College Narayanapuram, west Godavari district pin code 534406, Andhra Pradesh. India and falls under the grama panchayathi narayanapuram .
 - **Neighbourhood context** - The premises is surrounding by open spaces and Residential, areas on the immediate surroundings of the site.
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- **Circulation** – There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate and the huge open space where vehicles of students and staff is parked.
 - **Climate** – In S.A.S. GDC NARAYANAPURAM, the dry season is muggy, windy, and partly cloudy ;

Ecological (Environment) Audit



Background reference image Yugal Shrivastava on pexels

5. Ecological (Environmental) Audit

Environment is an essential part for human survival. We co-exist with the environment and it cannot be termed as a separate entity. The Ecological audit helps to understand the flora, fauna that exists and steps that can be taken to improve the same. To denote if there are problems related to sound in and around the surrounding. In terms of the carbon footprint it helps in keeping a tab on the eco-friendly habits incorporated by the inhabitants of the premises. Health today is the topmost priority, a general understanding of the initiatives undertaken along with sufficient hygiene practices adopted. Universal design is applicable to all built and unbuilt spaces.

As part of our study we could state that the Institution has developed eco-friendly practices and sustainable solutions which are well reflected in the rich biodiversity of the Premises. Being situated near the city the appreciation space towards the main entrance provides a welcoming approach to the College.

The college has huge open space used by all. The students use it for as a leisure place for study and college ground is used for sports activities. There are ample resting spaces as part of building design which provide a resting and warm welcoming approach in the premises.

5.1 Open Spaces

There is a beautiful balance of natural and open spaces in the premises and the open/vegetation spaces are balanced overall. The ground is used by students at present for sports and cultural gatherings. The design on the entire is such that the landscape and softscape spaces are very well oriented and located thus being extremely useful to Institutions in the site. **There are provisions for natural plantations which have enhanced the beauty of the space.**

There are adequate numbers of Maintenance staff allotted for the upgrading the open spaces and they have done an excellence job in terms of the duty allotted. The infrastructure committee too is involved in this process. The traditional tap and pipe facility is adopted for watering and the college has taken special provisions for the same. The spaces are watered daily in summer. **The efforts to maintain the existing space are commendable.**

5.2 Flora audit

A flora survey was carried out to identify the total numbers of plants and trees every year. The landscape area has a variety of plantations constituting hundreds of surveyed trees in premises in the last few years as follows with detail description of each.

S. No.	Plant Name	Type	Nos.
1	Azadiracta indica	Tree	4
2	Pongamia pinnata	Tree	1
3	Bauhinia purpurea	Small tree	1
4	Ocimum sanctum	Herb	2
5	Phyllanthus niruri	Herb	1
6	Cocos nucifera	Tree	20
7	Aloe vera	Shrub	1
8	Lawsonia inermis	Shrub	1
9	Ficus religiosa	Tree	4
10	Psidium guajava	Tree	1
11	Tectona grandis	Tree	1
12	Terminalia catappa	Tree	1
13	Calotropis	Shrub	Many
14	Elucalyptus globulus	Tree	1
15	Peltophorum pterocarpum	Tree	4
16	Plectranthus amnoinicus	Shrub	1
17	Dieffenbachia seguine	Shrub	1
18	Dracaena trifaciata	Herb	1
19	Euphorbia milli	Shrub	1
20	Catharanthus roseus	Herb	1
21	Sansevieria zeylanica	Shrub	1
22	Epipremnum aureum	climber	4
23	Zanzibar gem		1
24	Albizia lebbeck	Tree	1

25	Hibiscus rosa sinensis	1
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At present there are more than 62+ plantations comprising of plants, trees, shrubs. All of these are planted by the on various occasions and some have grown naturally. Timely maintenance with sufficient care has resulted in positive benefits for the surroundings.

5.4.1 Heat Island Reduction

The Institution has **adopted the following practices which are yielding positive results** in terms of Urban Heat Island Effect which refers to increase in temperature of the surrounding because of ineffective strategies.

- **Exposed roof areas** – The terrace is a flat roof which is absolutely clean and well maintained. The Buildings are covered with white paint and the Maintenance staff along with Management have taken ample measures to maintain the same. **There was no weathering of roof observed.** The current practices are well maintained.
- **Exposed non-roof hardscape areas** - There are pathway on all sides of the premises. These include some natural and potted plantations along the pathways. However, the trees are huge and the canopy is wide spread thus providing ample shade to the outdoor areas of the premises. Hence, there are no direct sunrays or similar effect affecting the students and staff. The college has an open space in the form of lush green carpet which acts as a solution for the urban heat island effect. This huge green space is a very good solution for reducing any harmful health consequences which may arise due to harsh sunlight.

There are adequate measures adopted in the premises to reduce heat island effect of Building roofs and in site.

5.4.2 Outdoor Light Pollution Study

The college compound lights are not upward looking thus, these do not cause light pollution.

5.3 Universal Campus

As per World Report on Disability, 2011 there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.

There are Ramps, Handrails along staircase and low height risers in the Staircases as part of universal campus initiatives. The design of the premises is appropriate for access with passages and corridors being wide enough in size and naturally ventilated. The doubly and singly loaded corridors are safe from fire safety aspect. The college has resting places (seating areas) in the outdoor along the trees thereby making it user friendly for the specially abled students. **The college can plan to have 100% lifts in the future depending on the situation and facilities in addition to universal toilet.**

5.4 Fire Safety

The Institution has undertaken adequate fire safety measures. Each floor has an open staircase without any barriers for fire safety measures. These staircases are free of any kind of storage or combustible material. The windows in each classroom are at a low height with fresh air and natural light thereby adding to ample ventilation throughout the day. The college should adopt additional fire safety practices such as fire hydrant and others whenever the College undergoes further extension or renovation. The current facilities are however quite well maintained. **Our observation was that there are adequate Fire extinguishers in the premises.** Though, there can also be provision for additional fire safety signages.

5.5 Survey Results

An online survey was conducted to analyse the views about the premises, following are some of the reviews.

5.7.1 Participation

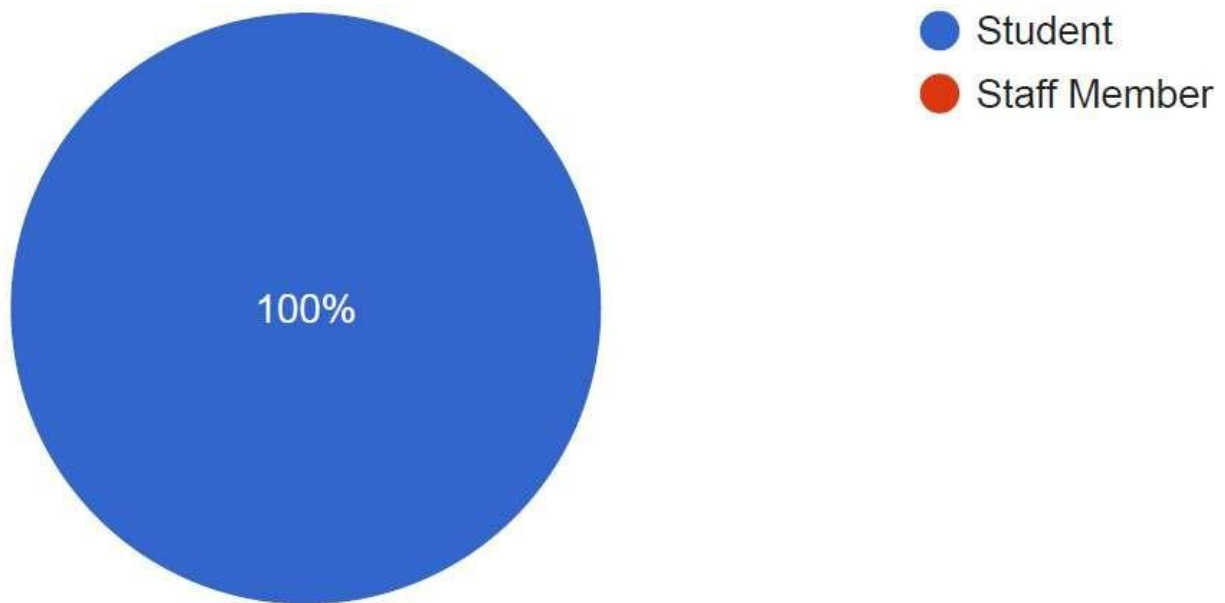


Figure 1: Participation analysis in the survey

A total of **108 responses** were received out of which 100% were students.

5.7.2 What according to you are the positive steps taken by the College towards Green Building/ Good maintenance?

We have listed some of the key responses below.

- Celebrated many awareness programs on eco aspects.
- Conducting Eco tours and programmes. Plastic free premises.
- **Very good conditioned equipments, less power usage bulbs used in our college, we have solar panels on our college roof.**
- Through NSS our college is conducting many awareness and clean & green programs.
- **Punishment to late comers to college is planting a plant at our college premises. Maintenance of Botanical garden with good number of plants, waste water is turned into botany garden.**

5.6 Positive site features as per our study

a) Avoid using plastic in premises

There are provisions for ban on the use of plastic bags or products in the Premises.

b) OPAC system

The system in the library is beneficial for the students.

c) Paperless technologies

The college has gone technology friendly and paperless in the functioning of the Premises.

d) Resting places

There are provisions for resting places in premises in outdoor and indoor.

e) Avoid using plastic in premise

There are provisions for ban on the use of plastic bags or products in the Premise.

f) No vehicle days practiced

The college practices no vehicle day in the premise on a periodical basis.

g) Ample greenery

There are provisions for herbal garden, plenty of lawns with traditional trees and greenhouse in the premises.

5.7 Recommendations for a Sustainable Habitat by Greenvio Solutions

Site beautification

a) Low VOC Paints and Adhesives

Whenever the College undergoes repairs or renovations there should be use of materials with low emissions so as to reduce the adverse health impacts on workmen and the students occupying the space thereafter.

b) Additional facilities for birds

There can be provision for drinking water and food facility for birds visiting in the College premise.

c) Nutrition pits

Certain pits can be demarcated as 'Nutrition pits' where the organic food from kitchen and Canteen fruit peels and fruits or vegetables can be degraded for making nutrition rich soil

Heat island reduction

a) Cool rooftops

It is suggested that the College gets the Terrace roofs painted with Cooltop as it will help reduce the temperature of the spaces.

Universal Campus

a) Universal Toilet

There should be minimum 1 toilet for the specially abled people as per guidelines prescribed by National Building Code 2016 with size being minimum or more than 1.5m x 1.5m

b) User friendly movability in premises

There should be provision of Kerb Ramp near the main entrance of the Building premises, also low height hand rail for ease of access.

c) Resting places

There should be increased provision for resting places in premises in outdoor and indoor.

Pollution Control

a) Promote the use of Eco-friendly vehicles

There can be provision for battery operated vehicles/ low emission vehicles such as electrically driven vehicles parking in open space along with battery charge points, this would inspire students to change mode of transportation and adopt sustainable practices.

b) Bicycles as a gift

As an appreciation gesture may be the students toppers/ staff best performers can be awarded with a bicycle occasionally.

c) Avoid paper wastage

The College can collect all old semester notebooks; these can either be converted to reusable paper in the premises through a workshop or using shredder machine or handed over to vendor for making fresh paper. Additionally the Students can be motivated to undertake similar practice on an individual note.

Smart and responsible environment systems

a) Smart Gardening System

The College can undertake Smart Gardening system using IoT Technology such as an automated watering system. This will result in saving time by scheduling time for watering; Saving money and water as smart irrigation systems have automated water schedules in addition to tracking dampness of soil which helps the irrigation system know when and how much the garden needs. It also helps in healthier plants as with the help of apps, smart irrigation systems, or even smart growing containers, these tasks can be provided evenly and allow the plants to be healthier and more productive.

More information on this system can be checked here <https://www.happysprout.com/inspiration/what-is-smart-gardening/>

On-site investigation and physical verification

The ecologically friendly ambience with facilities such as ramps, parking, greenhouse and botanical gardens.





6. Towards a Healthy & Sustainable Institution

6.1 Inputs by HYM International Certification Ltd.Pvt.

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste and Energy Audit the College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

- a) Kitchen garden** - There can be provision of kitchen garden practices in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and vegetables grown which would be used in Canteen. It helps in capacity building. The smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, terrace garden there will be a long term benefit for the environment as a whole.
- b) Cutlery in the Canteen** – The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.
- c) Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.
- d) Waste vio** – Stepping up a little further an initiative can be undertaken wherein College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, eco-friendly habits in becoming a responsible citizen.

6.2 Survey Results

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premise and activity.

Some of the suggestions by the Students and staff are listed below:

- Everyday watering to the plants
- Throwing waste materials in dust bins
- More solar panels to reduce electricity bill
- more awareness to be created among surrounding area individuals as they are illiterates
- more solar inverters should be used

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the campus so many of these points are not mandatory at the moment.

7. References

1. Uniform Plumbing Code – India, 2008
2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
3. IGBC Green Landscape Rating system, March 2013
4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST - Canada
5. Climate data <https://weatherspark.com/y/110135/Average-Weather-in-Ongole-India-Year-Round>
6. Specific information about the district <https://cdma.ap.gov.in/en/about-us-60>
7. Used only for understanding Universal design - Universal accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.





Certificate

HYM International Certifications Pvt. Ltd.

Certified that the Energy Management System of

SRI ARAVINDA SATHAJAYANTHI GOVERNMENT DEGREE COLLEGE

Narayanapuram, Eluru Dist, Andhra Pradesh, India

has been assessed and found to be in accordance with the requirements of the Energy standards

ISO 50001 : 2018

for the following scope of certification

IMPLEMENTATION OF ENERGY SAVING PRACTICES

Further information about the scope of this certificate and applicability of ISO 50001 : 2018 requirements may be obtained by consulting the organization.

Issue Date : 09/04/2023

Renewal Date : 08/04/2026

1st Surveillance 08/04/2024

2nd Surveillance 08/04/2025



Authorised Signature

Certificate No : **En91864140111**

HYM International Certifications Pvt. Ltd

NOTE: This Certificate is Valid From 09/04/2023 to 08/04/2024

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