

# GREEN AUDIT- 2024



## SUM COLLEGE OF TEACHER EDUCATION MAMPA, MUZHAPPALA, KANNUR

*EXECUTED BY*



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## PREFACE

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Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follows the principles of sustainability. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, talent nurturing educational institution. This Green Audit was done with the aim to assess and rate the sustainable nature of the campus. The college vision to mould a new generation in integrity of virtues and in maturity of values and to form them in true wisdom according to their God-given talents for the good of the human beings by means of the noblest activity of study and by way of the most gracious quality of friendship. And in the **social goals, “to make the students aware of the pressing global issues and the moral responsibility to handover to the coming generation an eco-friendly life style and an earth free from pollution, filth, bigotry and corruption”**. It was observed by us from the students’ participation during the green audit.

This report is compiled by the BEE certified energy auditor and A GRIHA Certificate holder along with the project engineers who are experienced in the field of energy, environment and management. The student volunteers made a mammoth contribution with data collection and preparing an initial skeleton for the report.



## ACKNOWLEDGEMENTS

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We express our sincere gratitude to the management of M/s Sum College of Techer Education Kannur for giving us an opportunity to carry out the project of Green Audit. We are extremely thankful to all the staffs for their support to carry out the studies and for input data, and measurements related to the project of Green audit.

- |   |                  |                  |
|---|------------------|------------------|
| 1 | C. Ahammed Kutty | Manager          |
| 2 | Dr. C V Jayasree | Principal        |
| 3 | Krishnakumar     | IQAC Coordinator |

Also congratulating our Green audit team members for successfully completing the assignment in time and making their best efforts to add value.

### GREEN AUDIT TEAM

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Yours faithfully

Managing Director  
Athul Energy Consultants Pvt Ltd

## GENERAL DETAILS

The general details of the M/s SUM College of Teacher Education are given below in table.

**Table 1 GENERAL DETAILS**

SL. NO	PARTICULARS	DETAILS
1	Name & Address of college	SUM College of Teacher Education Mamba, Muzhappala, Kannur
2	Contact person	<b>Dr. Jayasree CV</b>
	Contact Phone number	0497-2850600
	E-mail ID	sumcte@gmail.com
	Annual Working Days	210
	No: of Shifts	Day Shift (One) (9AM -4PM)
3	Location: Latitude & Longitude	
4	No. of students	115
5	No: of teaching staff	10
6	No: of non teaching staff	06
7	Courses in college and No : of departments	05
8	Building area	3765.6M <sup>2</sup>
9	Land area	20234.3 M <sup>2</sup>
10	Average annual working days	210 days
11	Are they conducting outreach programmes	Yes
12	Cross ventilation and natural light penetration into class rooms, labs	Good
13	No: of variety of trees	10
14	No: of trees	30
15	Sports	Badminton court



## EXECUTIVE SUMMARY

- ❖ Varieties of living eco systems such as trees of varies varieties in laterite area with gardens, are present in the campus along with open spaces
- ❖ Staff and student's collaboration of Nature club is held responsible for maintenance of greenery inculcating a sustainable culture among the student's community.
- ❖ By recognizing the importance of making healthy youth, management taken initiatives and built a badminton and
- ❖ Initiated vegetable garden and tree plantation by the NSS wing of college.
- ❖ As adaptation of new technology as have a E-Vehicle charging facility
- ❖ Started to plant fruit garden in the college front side.
- ❖ College is well maintained a silent place or Kuttivanam in its premises.

### **Suggestions for improvement**

- ❖ Cordoned area to be provided with suitable plants in the herbal garden
- ❖ Started to plant Star garden( Nakshthraivanam) in the college
- ❖ Water meter to be installed for measuring water consumption per day.
- ❖ Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation.
- ❖ Road map for the tree plantation to be done along with the master plan of the college. Gave importance for the oxygen generating plants and lush green trees.

## ABOUT SUM COLLEGE OF TEACHER EDUCATION

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Shamsul – Ulama Memorial (SUM) College of Teacher Education was founded in the year 2006 under the patronage of Jamia Shamsul Ulama Al Islamia Mattanur. It was recognised by the NCTE Southern Regional Committee Bangalore and affiliated to Kannur University. It is situated in the tranquil surrounding of Anjarakandy Panchayat, adjacent to the Mamba mosque , the college enjoys a serene location. It is nearly 17 km away from Kannur Railway Station and bus stand and 10 km away from the Kannur International Airport .The institution boasts a picturesque campus with well maintained infrastructure and provisions catering specifically to physically challenged students .

SUM College of teacher education is a co -educational institution owned and run by Jamia Shamsul Ulama -Al Islamiya.Mamba.College started with a student intake of 100 across 5 optional subjects English, Mathematics ,Natural science, Physical science and Social science. Initially enrolling 100 students, college adapted to changes introduced by NCTE , transitioning to a 50 student intake when the two year B.Ed program was implemented.

Strategically situated in a rural area,the college aims to cater to the educational needs of students particularly girls in such a region .SUM college has evolved over the years to adapt to the changes in educational standards and regulations .All classrooms are equipped with modern technological support enhancing the learning experience, with a focus on providing quality education, inclusive facilities and tranquil learning environment. The college remains committed to nurturing aspiring educators in various disciplines while meeting the needs of rural students.

One distinctive feature of some college of teacher education is its seat allocation policy. College reserves 50% of its seats for the merit quota, ensuring that students with exceptional academic records have a fair chance to enroll .The remaining 50% of seats are allocated for the management quota, providing opportunities for students who might not meet the strict merit requirements but still wish to pursue a career in teaching. Moreover SUM college of Teacher Education adheres rigorously to the state’s reservation policy in its merit admission procedure. This commitment to equity and inclusivity ensures that students from various backgrounds and communities have the opportunity to receive quality teacher education.

### **Vision**

To be a leading institution to shape exemplary educators who inspire and empower learners, fostering a brighter future for our society



## Mission

To cultivate strong sense of social responsibility community engagement and global awareness among our graduates. To uphold the highest standards of professionalism ethics and integrity in all aspects of our institution



Figure 1 SUM COLLEGE OF TEACHER EDUCATION MAIN BUILDING

## GREEN AUDIT

The whole world is on the road to a sustainable development, and the environment conservation is the top priority among the list as every human activity has its effect on their surroundings, which is the environment. Hence be it a house, a commercial building, an industrial building, or any other construction will disturb the balance of the environment. It is very important to do a detailed study about the effects on the environment. This is conducted under the name of *Green Audit*, which can be defined as *the official examination of the effects organization has on the environment, especially the damage that it causes*. The objectives of the green audit can be listed as follows:

- Including participants from every section of the organization in the auditing process..
- Identifying the activities in the premises and listing them.
- Calculating the resource consumption like the land and water.
- Study the energy usage pattern.
- Identify the good practices.
- Suggest the viable solutions to improve the sustainable nature of the organization.
- Compile the report with the above-mentioned details.



- Conduct a walkthrough audit to check the suggestions implemented by the institution and suggest for further improvements
- Verify all the points with actual measurements is it is meeting the performance and gave suggestions for improvement



## CAMPUS ENVIRONMENT

The environment in and around the college campus plays an important part in maintaining a healthy atmosphere in nurturing talents. Trees are the major source of the oxygen we breathe, and receiver of the carbon dioxide we exhale. The sustainability of an ecosystem depends on the number of plants and trees in and around the surroundings. The open space in the college is used for gardening and maintain, open ground, silent zone etc. Ultimately the campus is maintaining natural equilibrium with nature



**FIGURE 2: CAMPUS BUILDINGS VIEW**

Scientific studies are proved that the nature can able to cure any diseases and this will reduce the stress among students during their studies and also increase the compassion among them and to nature. Ultimately the campus is maintaining natural equilibrium trees and water bodies with human beings. Gardens and landscape are an aesthetic delight and it promotes attentiveness of students. Persons exposed to plants have higher level of positive feelings (pleasant, calm) as opposed to negative feelings (anger, fear).

## SUSTAINABLE CONSTRUCTION OF BUILDINGS

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Energy consuming devices installed to achieve the comfort levels for the occupants of the building gives rise to heat generation which adversely affects the environment within the building and in the surrounding. Buildings are thus the major pollutants that affect the urban air quality and contribute to climate change. Buildings are the major consumers of energy during their construction, operation and maintenance.

SUM College of Teacher Education has developed an ecological design in their buildings and adopted minimum negative impact on ecosystem. Their approach to the constructional activities consciously is to conserve energy and ecology and avoid the adverse effects of ecological damage.

SUM College of Teacher Education constructed the building to optimum utilisation of land and classrooms and with abundant light and natural ventilation. Maximum day light ingress and natural ventilation increases the indoor air quality and avoid the sick building syndrome. The whole facility and buildings are designed to maximum and optimum utilisation of land without affecting the nature. They gave the maximum open spaces in the front areas, sufficient spaces in the class rooms and open verandas. The stair cases provided also have sufficient spaces for easy movement without any congestion.

### 1. CARBON DIOXIDE LEVELS

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Air quality is a major area of concern inside a building. The percentage share of oxygen and carbon dioxide should be such that the occupants are able to perform their tasks without any discomfort. This is generally done through a provision of fresh air duct for the air conditioning systems or by providing windows. Numerous factors need to be considered for the design and fabrication of the fresh air supply system like the number of occupants, weather pattern and air quality of the location, and so on. For the human comfort, production of carbon-dioxide (CO<sub>2</sub>) within a building space is the prime area of consideration. This is associated with respiration which produces CO<sub>2</sub>. As a result, the carbon-dioxide levels will increase if ventilations are not provided.

As per various standards (like the ASHRAE Standard 62.1-2016), indoor CO<sub>2</sub> concentrations up to 1200 ppm is considered acceptable. For a typical outdoor condition, this value may change from 300 to 500 ppm.

The measurements were recorded along different locations inside the campus and the peak values are given in the following sections. The key concentration was on the study of carbon dioxide levels.

**TABLE 2: CARBON DIOXIDE LEVELS**

Sl. No.	AREA	Measured CO2	Standard CO2 level (Range)	Remarks
<b>Main Block</b>				
<b>1</b>	Administrative Office	550	300-500	<b>Good</b>
<b>2</b>	Principals room	500	300-500	<b>Good</b>
<b>3</b>	Seminar Hall	520	300-500	<b>Good</b>
<b>4</b>	Media room	510	300-500	<b>Good</b>
<b>5</b>	Class room in ground floor	525	300-500	<b>Good</b>
<b>6</b>	Lab	520	300-500	<b>Good</b>
<b>7</b>	Class room in first floor	580	300-500	<b>Good</b>
<b>8</b>	Mathematics lab	640	300-500	<b>Good</b>
<b>9</b>	Library	660	300-500	<b>Good</b>
<b>10</b>	Rest room	650	300-500	<b>Good</b>
<b>11</b>	Sports room	<b>550</b>	<b>300-500</b>	<b>Good</b>

## 2. HERBAL GARDEN

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The literal meaning of Ayurveda is “science of life,” because ancient Indian system of health care focused on views of man and his illness. It has been pointed out that the positive health means metabolically well-balanced human beings. Ayurveda is also called the “science of longevity” because it offers a complete system to live a long healthy life. It is an interactive system that is user-friendly and educational. It teaches the patient to become responsible and self-empowered. It is a system for empowerment, a system of freedom, and long life. A significant part of knowledge and tradition is currently being eroded due to modernization, acculturation and availability of alternatives. Therefore, it is urgent to inculcate young minds to realize the fascinating knowledge and tradition associated with these resources, and help them understand the immense potentials the Kerala medicinal plants possess for the future.

The “Promoting Herbal Gardens in Schools and colleges” has been a fun-filled learning activity for the students where they got the opportunity to learn about the medicinal plants by actually planting the medicinal herbs and watching them grow in their gardens, and by exploring information about them from various sources.

The task of making the garden itself has been enriching in terms of making students realize the importance of teamwork such as detailed planning, and allocation of tasks within a team. For the teachers, herbal garden project has been useful in terms of ease with which they could integrate the concept with other subject matter activities, such as writing essays, poems and stories, making posters, drawing and painting, making herbariums, and even preparing food recipe using some of the culinary herbs students have planted in their gardens. Kerala Government is also making lot of initiatives to developing and inculcating the herbal gardens in schools and colleges.

### **Recommendation**

Develop and nurture herbal garden in the college in the open area in the side of college. Maintain the herbal garden in plastic pots due to the slightly consented water and soil . The area is heavy prone for water logging.

## 3. LEISURE PARK

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Open atmosphere will reduce the academic stress developed among the students which will well understand by SUM College of Teacher Education and they develop little natural open space in the college. This open ventilated space is useful foe open debate and fruitful discussion and developed an informal education among students.





**Figure 3 LEISURE PARK**

#### 4. FRUIT GARDEN

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Fruit trees are a lovely sight in every season. Growing your own fruit trees yields many benefits such as wellbeing; preserve health, eco-friendly solutions to the global issues etc. The presence of fruit trees provides attractive views, serene sounds and calming scents. By planting these fruit trees, you are helping not only yourself, but also the larger community and environment around you.



**Figure 4 DEVELOPING SPACE FOR FRUIT GARDEN**

## 5. VEGETABLE GARDEN

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It is a garden that exists to grow vegetables and other plants useful for human consumption. Gardening can provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving. The school gardens are changing the eating habits of the students

Gardens are a wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agriculture concepts and skills that integrate with several subjects, such as math, science, art, health and physical education, and social studies, as well as several educational goals, including personal and social responsibility. They gain self-confidence and a sense of "capableness" along with new skills and knowledge in food growing — soon-to-be-vital for the 21st century students become more fit and healthy as they spend more time active in the outdoors and start choosing healthy foods over junk food.

### **Recommendation**

College can develop a vegetable garden in its premises which will be treated as a study lab for the students .



**Figure 5 SPACE FOR VEGETABLE GARDEN**

## 6. SILENT ZONE

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Nowadays, silent zones are getting important in academic institutions. Noise pollution leads to stress and other medical and neurotic problems in children. Besides, creativity and knowledge absorption capacity is also going down. For reduction of academic stress level there is a place for complete relaxation. This is the importance of a silent zone. SUM College of Teacher Education has





had certain silent zones in the college itself. Natural silence zones are also created in the college campus where there is no sound other than natural sound



Figure 6 SILENT ZONE



## 7. GREEN CAMPUS

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Trees release oxygen when they use energy from sunlight to make glucose from carbon dioxide and water. Like all plants, trees also use oxygen when they split glucose back down to release energy to power their metabolisms. Averaged over a 24-hour period, they produce more oxygen than they use up; otherwise there would be no net gain in growth.

The college campus is divided into various locations for listing out the trees. The college campus contains 10 various species.

### **Advantages of trees**

1. Maintain the equilibrium of air and food: Humans and animals need food and oxygen and excrete carbon dioxide and water. The plants, algae, etc, in the forest use carbon dioxide and water and release or produce oxygen and food.
2. Filter and store water, and drastically reduce storm-water runoff: Forests filter and regulate the flow of water. The litter over the forest floor acts as a sponge which filters, stores and gradually releases the water to natural channels and ground water.
3. Conserve valuable topsoil and reduce soil erosion: A forest is like a protective green cloth over Mother Earth's fragile body.
4. Conserve biodiversity and balance ecology: In a natural environment, the populations of species are balanced to an optimum minimum level
5. Reduce pollution: Plants can remove and/or Phyto remediate pollutants and contaminants from soil and water.
6. Arrest or reverse global warming: Global warming can cause extinction of species, tropical cyclones, extreme weather, tsunamis, abrupt climatic change, sea level rise, increased human stress resulting in violence, etc. These are just a few of its catastrophic effects. Plants can lock CO<sub>2</sub> in their bodies to save our planet and the life on it.



## 1. OPEN GROUND

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Education is incomplete without sports and games. Sports and games **are beneficial in teaching us punctuality, responsibility, patience, discipline, and dedication towards our goal.** The importance of games and sports in student’s life is immense. It has proved to be very therapeutic in nature. Sports help improve stronger social skills, such as dispute management and sport-based interaction. **Sports inculcate the feeling of fairness in a child and it encourages them to be committed, taking defeat in a positive manner.** It teaches us to be joyful, united, and appreciative in life. Students are the youth of our Nation, and they need to be energetic, physically active, and mentally fit. By understanding he responsibility to make its students as healthy SUM College of Teacher Education built and maintained Badminton court in a greenery surroundings.

### 1. WATER CONSERVATION AND AUDIT

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The requirement of water for the college met by supply from one bore well.. The water from OPEN well are collected in TWO tanks of capacity of 3 KL synthetic tanks. The water from different wells are checked in an accredited laboratory in time to time to ensure its portability

#### WATER UTILITIES

The labs have the highest tap points whereas the toilet accounts for the major consumption. The water outlet points in the college campus listed in the following table

Table 3 WATER USING TAPS

Location	No: of taps
Washing area taps	06
Toilets	10
Flushes	12
College compound and garden	04
Staff and other rooms	5
Total	37

#### GROUND WATER RECHARGING

Rainwater harvesting (RWH) is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration of surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is rooftop harvesting. With rooftop harvesting, most any surface — tiles, metal sheets, plastics, but not grass or palm leaf can be used



to intercept the flow of rainwater and provide a household with high-quality drinking water and year-round storage. Other uses include water for gardens, livestock, and irrigation, etc.

### **Rainwater harvesting for ground water recharge.**

Aim and Objectives:

- Conservation of rainwater for future use
- To use rainwater for gardening Activity: Conservation of rainwater in soil or in a container is known as rainwater harvesting.

The rainwater from entire college campus and roof top of building is collected through PVC pipes and feed into ground at four locations in the campus and details are given below table The entire rain water is directed to the open pond in the college campus for storing and for natural penetration to the earth.

### **Recommendation**

We recommend collecting the rain water from roof in PVC pipes and recharging the ground nearer to bore well

## CONCLUSION:

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Green Audit is the most efficient & ecological way to solve such an environmental problem. Green Audit is one kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. Green audits can “add value” to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). The green audit reports assist in the process of attaining an eco-friendly approach to the development of the college.

The auditors observed during the campus visit and after the conversation with the staff and students of M/s SUM College of Teacher Education have taken many initiatives for maintaining the over the campus which is being well appreciated by us. There is still opportunity to attain the perfection some of the identified suggestions are listed in the executive summary.

ANNEXURE - 1

# CERTIFICATE



सत्यमेव जयते  
Ministry of New and Renewable Energy  
Government of India



GRIHA Council



The Energy and Resources Institute

This is to certify that

*Ashok K M P*

of

**Athul Energy Consultants Pvt Ltd, Thrissur**

has qualified as

**GRIHA Certified Professional**

on

**01st August 2018**



Sanjay Seth  
Chief Executive Officer  
GRIHA Council

*Note: This certification is valid for a period of 2 years from the date of qualification (exam).*



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